SOCIAL CONTAGION OF MEMORY AND THE ROLE OF RELATIVE JUDGMENTS

by

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ABSTRACT

The current experiments examined the role of spontaneous relative judgments of self and participant memory within the social contagion of memory paradigm (Roediger, Meade, & Bergman, 2001). Participants viewed household scenes in collaboration with a confederate who falsely recalled incorrect items as having occurred in the scenes. The perceived memory ability of the confederate was manipulated during a practice scene to imply poor, average, or superior memory. Participant self-memory was manipulated by varying presentation rate to create short (poor) relative to long (good) encoding conditions. Importantly, the participants were never explicitly informed by the experimenter about either their own memory ability or the memory ability of the confederate. Of interest was whether or not participants would evaluate both the state of their own memory and the state of the confederate memory in relation to one another when remembering suggested information. On subsequent recall and recognition tests, participants were more likely to incorporate confederate suggestions when their own memory was poor, and this was especially true when the confederate's memory was superior. Participants do make spontaneous, relative judgments of memory when working with others on a memory test.

INTRODUCTION

Human beings are, like many other mammals, social creatures that are largely dependent on one another for survival. Communication and social interaction are integral for the exchange of information and are critical to the sharing and advancement of ideas. Despite the importance of the accurate exchange of information, the process of communication can sometimes result with the sharing of erroneous statements, whether incidentally or otherwise. These erroneous statements, under certain conditions, may influence memory in such a way as to give rise to memory errors. For example, remembering something differently than the way it occurred, remembering something that never occurred, or incorporating false information and treating it as valid are all examples of false memory. False memories can occur in a variety of contexts, whether an individual remembers in isolation or while interacting with others in social situations.

Of interest in the current proposal is how false memories may occur in social settings. When participants remember with a partner, will their memory be influenced by their partner's suggestions in such a way as to incorporate false information into their own memory? Furthermore, will participants' memory for their partner's suggestions be influenced by qualitative judgments the participants make about their own memory relative to the memory ability of their partner? Relative judgments of memory refer to the idea that when incorporating information from others, participants strategically evaluate their own memory ability relative to the memory ability of their partner. The current study examines whether or not the

magnitude of socially suggested false memories depends on this dynamic, bi-directional, comparative evaluation of how good participants think their own memory is relative how good they perceive their partners memories to be. Also important is whether or not this relative comparison of memory abilities influences false memory when participants are not explicitly informed of memory ability. That is, the current study is interested in the role of spontaneous, or self-initiated judgments. The rationale for this examination is that, in life, when two people are exchanging information, it is rare that either party has definitive evidence regarding the potential accuracy of their conversational partner's memory ability. Instead, one must usually infer memory characteristics about others based on spontaneous or self-initiated judgments. It is yet unclear whether or not participants engage in this spontaneous evaluation of partner memory and if so, whether or not these judgments influence how likely they are to incorporate partner suggestions.

To explore these issues, it is reasonable to look to the social contagion of memory literature. The basic definition of social contagion of memory is that the memory report of one person influences the memory report of another person (Roediger, Meade, & Bergman, 2001). A typical paradigm investigating social contagion of memory involves a confederate and a participant viewing identical scenes they will later be tested on. They then collaborate to recall as many items from the scenes as possible. During this time, the confederate inserts misinformation into half of these scenes. The misinformation consists of items which were absent

from the scenes, but could reasonably be expected to be present. For example, in the bathroom scene, a confederate might suggest that there was a hair dryer when in fact there was no hair dryer present. Lastly, the confederate and participant split apart and complete a final solo recall task where they are instructed to remember as many items from the scenes as possible. A typical finding is the social contagion of memory; participants incorporate both errant and veridical confederate suggestions during subsequent individual recall (Roediger, et al., 2001).

Theoretical Mechanisms

There are several proposed explanations to account for participants' incorporation of confederate suggestions. Normative influences occur when a participant compares the social cost of disagreeing with the cost of being wrong. If the social cost of disagreeing is high, participants may report material they know to be erroneous (Asch, 1955; Wright, Memon, Skagerberg, & Gabbert, 2009). An example of normative influence can be found when examining a perceptual experiment carried out by Asch (1955). In this experiment, Asch informed participants that their goal was to choose one of three lines that best matched a previously presented card. Importantly, all but one of the participants were confederates. After a few trials where all of the participants easily agreed about which line was correct, the confederates began to suggest answers that were clearly incorrect. Asch found that eventually the participant began to answer with the same

line choice as the confederates, even though this choice was clearly incorrect. The participants never actually accepted confederate responses as true, but simply agreed with the group. Although normative influences could explain initial acceptance during the collaborative recall portion of the experiment, the social contagion paradigm corrects for normative influences during a final recall test by having participants complete their final recall alone and by assuring participants that their final recall answers are confidential. In this way, there is little if any pressure to conform to the group during the final individual recall task.

Informational influences are also not true memory errors in the sense that participants weigh the relative likelihood of the other person being correct versus the likelihood that they themselves are correct when deciding to incorporate information (Deutsch & Gerard, 1956; Wright, et al., 2009). Informational influences arise when a participant does not remember seeing an item, but, in the interest of being accurate, assumes it was there because they trust that the other person saw it. Again, it is not that the participant remembers seeing the item, but with the goal of being accurate, they are willing to report the presence of an item if their partner suggests it and they believe that their partner has a better chance of being accurate. The strength of informational influences can be manipulated by changing partner characteristics. For instance, if a person believes their partner to be more powerful than them, they are more likely to conform with their suggestions (Skagerberg & Wright, 2009). Other experiments have found evidence for increased informational influences when a participant believes their partner is more credible (Horry, Palmer, Sexton, & Brewer,

2011). In other words, a participant might not recall a contagion item as having been present, but because it had been suggested to them and they believed the memory of their partner to be better, they incorporate the item. However they actually do not remember the item as having been presented in the scene.

To reiterate, normative and informational influences are not true memory errors in the sense that the participant never actually accepts the suggestions as part of their own memory (Wright et al., 2009). True memory changes or distortions occur when information suggested by another person becomes, over time, part of an episodic memory and the participant actually remembers the presence of the information presented by another. One method to concretely discern actual memory for the items/scene is to give participants a source test to determine if they attribute the source of an object to having been in the scene (Meade & Roediger, 2002; Wright et al., 2009). Source tests explicitly direct participants to consider where (if anywhere) they encountered the item previously.

Source monitoring theory explains more specifically how memory changes occur in the social contagion paradigm. Source monitoring refers to the cognitive operations concerned with ascertaining the origins of memories. Errors in source monitoring occur when a participant attributes a memory to one source when the source of the memory is actually something else (Johnson, Hashtroudi, & Lindsay, 1993). For example, in the social contagion paradigm, participants often mistakenly attribute the suggested item to having been present during the initial encoding (Meade & Roediger, 2002).

According to source monitoring theory, one proposed mechanism for social contagion is attribution/matching. When a participant encodes an item, they also encode many other characteristics along with that item. For instance, an item may be encoded along with its perceptual details (color, location relative to other objects, orientation) and/or in addition to cognitive details (thinking of a similar item, thinking about the use of the item). When participants retrieve that item from memory, they also retrieve the associated memory characteristics of that item. Attribution and matching refers to the process by which a person assesses the quality of these memory characteristics and determines if the characteristics match the characteristics of typical presented items or typical imagined, or generated items. If perceptual details are lacking, the participant may simply attribute the item to having been thought about or mentioned, instead of actually being present (Johnson, et al., 1993). In contrast, if there are sufficient perceptual characteristics, the participant may attribute the item to having been present. For example, a study by Johnson, Foley, Suengas, and Raye (1988) investigated the qualitative differences in memory characteristics associated with veridical and imagined memories. For memories of events which actually occurred, participants reported higher ratings of perceptual (e.g., the teapot was red) information than they did for the imagined events. In the case of social contagion, participants may mistakenly remember a suggested item as having occurred in the scene because they remember the item was suggested, but misattribute the source of the item.

Source monitoring theory also posits that participants set a response criterion. In other words, participants become more or less conservative with what they are willing to attribute to memory. Lenient and strict criteria can be the result of personal influences, situational influences, or both (Johnson, et al., 1993). For example, Wright, Gabbert, Memon, & London (2008) found that participants' response criterion could be influenced by task instructions. In two experiments, participants viewed either scenes or faces and then discussed the content of the scenes with another confederate who suggested misinformation. During a subsequent individual free recall task, participants in the lenient condition were asked to recall everything they could, without leaving out any details, and to not worry about reporting errant information. In the strict condition, participants were asked to focus on accuracy and to recall only details that they were certain they remembered as being present. The results of this study supported the idea that participants were altering their response criteria based on these instructions such that participants in the strict condition had reduced instances of recalling confederate misinformation compared to the participants in the lenient condition. Additionally, those in the strict condition also showed reductions in the number of accurate details. In other words, these results suggest that participants were shifting their response criterion which, in turn, affected their recall for correct and incorrect information. To summarize, it is possible that social contagion of memory could be due to attribution/matching, response criterions, or a combination.

Of interest in the current project is how these mechanisms might operate differently to influence the magnitude of social contagion with relative judgments. In terms of attribution/matching mechanisms, when a participant encodes a confederate suggestion, they may also encode imagined details and accompanying information about that suggested item. It is possible that relative judgments of memory may lead participants to either relax or narrow their focus on confederate responses thus influencing the quantity or quality of memory characteristics associated with that item. For example, if a participant is lacking sufficient perceptual or cognitive details (poor memory), but is partnered with a confederate that they believe has a good memory, they may allocate more attention to what the confederate has to say. As a result of this increased attention, the confederate may become more distinctive. Because the confederate is more distinctive, when they suggest the presence of an item, the participant may encode a greater number of memory characteristics regarding that item than they would have if they had felt their own memory was good and thus had never had the need to allocate more attention to the confederate. The increased attention to memory characteristics may then lead to the accumulation of sufficient detail for the participant to attribute this as evidence of the presence of an item.

Furthermore, it is possible that participant characteristics, confederate characteristics, and relative judgments may also lead to changes in response criteria. In this case, judgments of one's own memory ability relative to partner memory ability may lead to differential shifts in response criteria such that a participant may

become more or less strict with what they are willing to attribute to memory. For example, if a participant feels that their own memory for a scene is poor, however their partner's memory is good, they may modify their response criterion to be more lenient and accept as veridical suggestions that they would not have accepted on the basis of their own evaluation of self-memory alone. In summary, it is possible that both of the proposed mechanisms of social contagion (attribution/matching and response criterion) could be influenced by the evaluations participants make regarding their own memory relative to the memory of their partner.

The Influence of Partner and Self-Memory Characteristics

The current experiments are supported by literature demonstrating that both confederate characteristics and participant characteristics influence the magnitude of social false memories. We review each in turn and highlight important differences between explicit and spontaneous judgments of partner and self characteristics. Then, we discuss the studies that have examined the relative dynamics between confederate and participant characteristics.

Partner Characteristics

There is a large body of evidence suggesting that memory for contagion items can be influenced by explicit instructions regarding partner characteristics. Specifically, across studies, the magnitude of the social contagion effect is reduced when partners are viewed as relatively less credible. For instance, Andrews and

Rapp (2014) explicitly informed the participants that, based on an initial test, their partner had high or low cognitive processing ability. The results indicated that participants were less likely to recall both veridical and false items suggested by a low credibility partner than a high credibility partner. Similarly, Skagerberg and Wright (2009) asked participants to view a crime video and identify the perpetrator of the crime from a line-up. Participants were then informed that that a majority of police officers (high credibility) or children (low credibility) agreed or disagreed with their identification. Participants discounted the suggestions made by the children, but, when participants believed that police officers agreed with their selection, participant scores of certainty and memory ability increased. Finally, social contagion errors are reduced when participants are explicitly warned about the possibility that their partner may commit memory errors (Echterhoff, Hirst, & Hussy, 2005). For example, Meade and Roediger (2002) found reduced recall for false and veridical suggested items when subjects were explicitly warned that their partner might have made mistakes. Taken together, the results of these studies provide evidence that participant judgments of partner ability influences the magnitude of social false memories. Participants are less likely to incorporate suggestions from a partner they know to have a poor memory. However, it is important to again consider that these studies included explicit, experimenter directed instructions to attend to partner characteristics. In conversations outside of a laboratory, it is rare that a conversational partner is made explicitly aware of the memory ability of their companion. Therefore, it is relevant to consider experiments examining the

influence of partner memory characteristics on memory when said characteristics are not explicitly stated and, as such, participants must rely on spontaneous judgments of memory ability.

There is evidence to suggest that participants are influenced even when partner characteristics are not explicitly stated. For instance, Gabbert, Memon, & Wright (2006) found that whether or not a participant was influenced by the memory report of their partner depended upon response order. Specifically, participants were more likely to incorporate the memory report of their partner if their partner responded first. In a similar vein, Cuc, Ozuru, Manier, & Hirst (2006) found evidence that participant memories can be altered due to the perceived dominance of a narrator within a collective memory framework. In groups for which a dominant narrator emerged, participant memories for the passage converged upon the dominant narrator's memory for the passage. Further, Davis and Meade (2013) demonstrated that when participants are paired with a partner who is an older adult, they are less likely to incorporate contagion items than they are when they are paired with a peer. Finally, Allan and Gabbert (2007) demonstrated that confidence also differentially influences memory such that perceiving a partner as being more confident increases the incorporation of contagion items regardless of partner accuracy. Again, it is important to note that the participants in these studies were never explicitly informed about their partner's memory abilities and therefore relied on self-initiated, or spontaneous judgments of partner characteristics to influence their memory judgments.

Importantly, however, spontaneous judgments do not always influence social false memories. For example, Numbers, Meade, & Perga (2014) examined the effect of partner accuracy on memory within the social contagion paradigm. They varied confederate accuracy so that participants collaboratively recalled with a partner who was 0%, 33%, 66%, or 100% inaccurate. Across three experiments, partner accuracy had no influence on the magnitude of the social contagion effect. Importantly, however, Numbers et al. also manipulated confederate memory ability by asking participants to complete a practice test where the confederate performed very well or very poorly. Participants learned of the confederate's performance by scoring the practice test (rather than by any experimenter-issued directive). Notably, when the practice test was identical to the experimental task, participants who worked with a low credibility partner were marginally less likely to falsely recognize suggested items than participants who worked with a highly credible partner.

Overall, there is clear support for the notion that participants are influenced by partner memory ability, such that they become more or less likely to incorporate items based on explicit and spontaneous evaluations, although the research on spontaneous evaluations is more mixed and deserves further investigation. In regard to relative judgments, these studies provide evidence that participants' qualitative judgments about the memory ability of their partner do influence subsequent memory; however, further research is necessary to examine how these judgments might interact with participants' judgments about their own memory ability.

Self-Memory

Research on self-memory examines how the judgments participants make about their own memory influence the degree to which they incorporate contagion items. In other words, are participants more or less likely to look to others for information when their own memories are poor? Examining explicitly stated self-memory judgments, Gabbert, Memon, & Wright (2007) manipulated participant characteristics by varying perceived presentation rate. Before participants viewed scenes, they were given explicit instructions which informed them that for each picture, they would either be allowed to view it for twice as long or for half as long as their partner. The results demonstrated that more errant contagion items were recalled by participants on scenes they believed they had viewed for half as long. While this experiment provides evidence for the influence of explicitly stated self-memory information on the likelihood that a participant will incorporate items into memory, a more relevant question is whether or not participants can make these self-memory judgments spontaneously and if these judgments, in turn, influence memory. To examine the influence of spontaneous self-memory judgments on memory, two experiments are worth noting. First, Roediger et al. (2001) demonstrated that participants were more likely to recall contagion items suggested by the confederate for scenes they had viewed for 15 seconds compared to scenes they had viewed for 60 seconds. This suggests that when participants felt that their own memory for the scene was poor, because they only saw it for a short period of time, they were more likely to rely on the other person's memory. Second, Wright, Self, & Justice (2000)

examined the effect of perceived confidence on the tendency to conform to another's memory report. When examining instances where a participant's response to the critical event after remembering with their partner, the majority of the conformities were in the direction of the participant who indicated that they had higher confidence. This suggests that when a participant is not confident in their own version of events, they are more likely to conform to the person who is more confident. Taken together, these experiments provide evidence that memory can be influenced by the qualitative judgments participants makes about their own memory. This again provides support for the idea that participants are using information about their own memory in such a way as to influence how likely they are to incorporate information presented by their partner.

To summarize, thus far we've reviewed a significant body of evidence that suggests memory can be influenced by explicitly stated, as well as spontaneous judgments of partner and self characteristics. However, it is important to note that none of the aforementioned experiments have attempted to examine the interaction between both partner and participant memory characteristics and it remains unclear if memory is influenced when these two factors are considered in relation to one another. In other words, how do the relative judgments participants make about their memory in comparison to their partner's memory influence their likelihood of accepting suggested information? Again, it is hypothesized that social contagion is a dynamic process involving qualitative judgments about the participants' own

memory ability relative to the judgments they make about their partner's memory ability.

Relative Judgments

Consistently, experiments on relative judgments demonstrate that with explicit instructions, relative judgments influence social memory errors. For instance, French, Garry, & Mori (2011) manipulated partner and participant characteristics using a perceived visual acuity manipulation. Half of the participants wore glasses that caused their vision to be degraded whereas the other participants wore glasses that gave them normal acuity. Importantly, the experimenters asked subjects to swap their glasses on each trial in order for them to experience optimal and degraded acuity. Following this manipulation, subjects watched a movie that they believed to be identical to the movie their partner was watching. In reality, the movies differed on 8 critical details. Again, at this point the participants believed that one of them had better visual acuity relative to the other, in reality, they both had the same visual acuity. After viewing the movie, the pair discussed the critical details and then took a solo recognition task. Most importantly, susceptibility to misinformation depended upon the perceived credibility of themselves relative to the perceived credibility of their partners. Participants who believed they had higher visual acuity relative to their partner were less susceptible to misinformation. There was also marginal evidence that those who believed they had lower visual acuity, relative to their partner, were more susceptible to misinformation. This suggests that

relative judgments of explicitly stated characteristics relevant to memory ability might indeed play a role in influencing susceptibility to misinformation.

Further, Allan, Midjord, Martin, and Gabbert (2012) examined relative judgments by manipulating the presentation rate for participants relative to their partner. Participants viewed household scenes for 30, 60, or 120 seconds and were explicitly told they either encoded the scene for half as long or twice as long as their partner. In actuality, participants viewed the scenes for the same amount of time as their partners. Following the scene viewing, the participants were then given a two-alternative forced choice memory task where they were instructed to respond after they had viewed their partner's response (this response was actually a computer generated response). The results demonstrate that participants who were told that they had a shorter presentation rate relative to their partner (thus their own memory should be poor while partner's memory is good) were more likely to conform while those who were told that they had encoded the scene for twice as long as their partner (and thus had good memory relative to the poor memory of their partner) were less likely to conform.

Together, these findings suggest that participants engage in a dynamic, strategic process where they evaluate both their own memory and their partner's memory, relative to their own, when deciding whether or not to rely on another person's memory. However, it is important to note that the only experiments that have investigated relative judgments have, to date, used explicit instructions regarding relative memory ability. In life, however, while we may be aware of our

own baseline memory ability, we are not always explicitly aware of the memory abilities of the individuals we interact with and instead must infer based on the information we have available. As such, whether or not we are likely to accept information as valid when coming from another source may depend largely upon our own spontaneous judgments about the memory of the source as well as spontaneous judgments of our own memory ability relative to theirs. Therefore, it is important to evaluate relative judgments about own memory and partner memory when these judgments are made spontaneously and without explicit instructions.

The Current Research

The current research examines the role that spontaneous relative memory judgments play in memory. Specifically, when participants have not been explicitly informed about the memory ability of their partner and must instead infer their partner[s ability relative to their own. Using the social contagion of memory paradigm, we manipulated both perceived confederate memory ability and perceived self-memory ability. Perceived confederate memory ability was manipulated using a practice task where confederates demonstrated either a poor (2-item recall), average (10-item recall), or exceptional (30-item recall) memory. Given evidence that confederate performance on a task that is identical to the experimental task influences credibility judgments (Numbers et al., 2014), we predicted participants would perceive confederates who do well on the practice task as having relatively good memories. It is important to note that participants were not explicitly told

anything about their partner's memory ability during this task. Participant memory was manipulated by varying presentation rate such that half of the scenes were viewed for 15 seconds and half were viewed for 60 seconds. Replicating past research (Roediger et al., 2001), participants should feel that they have a relatively poorer memory for the scenes viewed for less time relative to the scenes viewed for longer durations. Again, it is important to note that participants were not explicitly informed about the presentation rate manipulation.

We predicted that when a participant makes a relative judgment and regards their own memory as poor (15-second presentation rate) relative to the good memory (30-item confederate recall condition) of the confederate, they would be more likely to incorporate details reported by the confederate. The inverse could also be predicted, such that when participants feel their own memory is good (60-second presentation rate) and confederate memory is poor (2-item confederate recall condition) they would be less likely to incorporate details suggested by the confederate. Finally, we predicted that all of these judgments would be made spontaneously and without explicit instructions regarding memory ability.

Participants were asked to indicate a metamemorial judgment for each item recalled. Metamemory judgments are important because even if recall rates don't vary across conditions, participants may still feel differently about the quality of their memory judgments. In the current study, for items that participants can specifically recollect as having been in the scene, due to perceptual or cognitive details, they were instructed to indicate a "remember" response. For items a participant does not

recollect specific perceptual or cognitive details, but instead feels a sense of familiarity, they were instructed to indicate a "know" response. Know responses are generally assumed to reflect familiarity whereas remember responses reflect the existence of recollective details in memory (Tulving, 1985). We predicted that participants would be more likely to indicate a remember response for a critical suggested item when their own memory for the scene is poor (15-second presentation rate) but confederate memory is good (30-item confederate recall condition). Participants who believe their own memory to be good (60-second presentation rate) and who believe partner memory is poor (2-item confederate recall condition) would be more likely to indicate a know response to critical suggested items.

Further, the current experiments examined relative judgments on recognition. Including a recognition test was important because the relative judgments may influence memory differently on the recognition test relative to the recall task (see Davis & Meade, 2013; Numbers et al. 2014). The recognition test directs attention to the source of the information and so any influence of relative judgments may operate differently on a recall vs recognition test. Specifically, participants are more discerning with what they are willing to attribute to memory when asked to consider the source of items. Consequently, we expected that participants who felt that their own memory was poor (15-second presentation rate) and partner memory was good (30-item confederate recall condition) would be more likely to falsely attribute items to having been in the scene than those who felt that their own memory was good (60-

second presentation rate) and confederate memory was bad (2-item confederate recall condition). Finally, we predicted that when participant memory was bad (15-second presentation rate) and partner memory was good (30-item confederate recall), participants would be most likely to falsely recognize suggested items.

Finally, a metacognitive questionnaire examined the efficacy of our memory ability manipulations by asking participants to subjectively rate both their memory and the memory of their partner and to rate partner memory ability relative to their own. The questionnaire served as both a manipulation check and a tool for analyzing the subjective experience of relative memory judgments. We predicted that participants who were paired with a confederate with poor memory ability (2-item confederate recall condition) would rate their own memory ability higher. Participants who were paired with a confederate with good memory ability (30-item confederate recall condition) would rate the memory ability of the confederate as higher.

To reiterate, of interest in the current experiment is the role that spontaneous relative judgments might play on influencing the magnitude of social contagion. It is important to note that participants were never explicitly informed of their memory ability or of confederate memory ability and thus made spontaneous judgments. Based on the research reviewed here, it is predicted that when participants judge their own memory to be poor, they would be more likely to incorporate details reported by the confederate, especially when they confederate's memory was relatively good. Importantly, when participants judged their memory to be good they

would be less likely to incorporate details reported by the confederate, especially when the confederate's memory was relatively poor.

EXPERIMENT 1

Method

Participants

Participants were 84 Montana State University undergraduates who participated for course credit. Twelve were excluded because of suspicion, failure to follow instructions, or experimenter error. The final analysis included the remaining 72 participants.

Design

The experiment was based on a 2 x 2 x 3 mixed factorial design. Presentation rate (15-seconds or 60-seconds) and contagion (contagion vs. control) were within subjects variables, and confederate recall for the practice scene (2, 10, or 30 items) was manipulated between subjects. The primary dependent variables were false recall and false recognition of the critical suggested items (contagion items).

Materials

The materials included four slides from Huff, Weinsheimer, & Bodner (2015) depicting common household scenes (bedroom, closet, bathroom, and kitchen) containing an average of 22.75 items. Additionally, we included a locally developed "practice slide" (junk drawer) which contained 30 items, none of which overlapped with items in the other scenes. To select the objects appearing in each scene, Huff et al. instructed 18 undergraduates to generate items lists consisting of objects that are

schematically consistent with what one would expect to find in the room depicted in each scene. Frequently listed objects were then included in the scenes. Importantly, the two most frequently listed items for each scene were selected to serve as contagion items and thus were absent from the scenes. *Contagion items* refer to the items suggested by the confederate that do not appear in the scenes. *Control items* refer to the same items when they were not suggested by the confederate for those scenes. Contagion items were presented during recall for half of the scenes. Which scenes received contagion items was counterbalanced (see Appendix B). Other materials included two filler tasks consisting of simple multiplication problems, individual recall sheets for the practice and primary task, an individual recognition task consisting of 24 items in random order (4 control, 4 contagion, 4 filler, 12 correct), and a locally developed post-experiment questionnaire containing 13 items meant to serve as a manipulation check and to collect demographic as well as meta-memory information. Questions were aimed at assessing self accuracy, partner accuracy, partner credibility, and memory strategy.

Procedure

Participants were tested along with a confederate who was posing as a participant. Participants were informed they would be completing a memory test and instructed to sit down in front of one of two computer terminals. The terminal the experimenter assigned to the participant was always situated in front of the terminal assigned to the confederate. This allowed the confederate secret access to a “cheat

sheet" which was displayed on their screen during the recall periods and informed them of which objects to recall.

We began the experiment by informing the participants that the first slide, the junk drawer scene, was newly developed and undergoing testing and would serve as practice for the main task. The junk drawer scene was always presented for 15 seconds. Following presentation, the participant and confederate completed a verbal turn-taking group recall task, recalling until they reached 12 items while the experimenter recorded their answers. During this turn taking recall procedure, the confederate recalled one contagion item in the fourth position. Immediately after the group recall, both the participant and the confederate completed math problems for two minutes to prevent rehearsal of scene items.

After 2 minutes had elapsed, the participants were given an individual recall task and were asked to recall as many items from the scene as they could in 4 minutes.[1] The individual recall task served as our confederate memory ability manipulation. Depending on condition, the confederate recalled 2, 10, or 30-items. In each condition, one of the recalled items was a contagion item. In the 2-item condition, the contagion item was recalled second; in the 10 and 30-item condition, the contagion item was recalled in the 4th position. Additionally, for each item recalled, participants were asked to indicate whether they remembered specific recollective details about the item or if they only had the sense familiarity of

[1] 2 minutes is a standard amount of time generally given for recall, the practice recall was extended to 4 minutes to allow enough time for the confederate to include 30 items, if necessary.

knowing it was there. Participants were told to indicate they remembered an item only if they could specifically recollect that the item actually appeared in the scenes. For example, if participants remembered thinking about the item or noted the way it looked, they would indicate a "remember" response. However, if participants did not remember anything specific about the item, but still felt a sense of familiarity that the item was present, they were to indicate a "know" response. Confederates were not instructed to indicate a particular number of remember/know responses on their own task.

When four minutes had elapsed, the confederate and the participant exchanged papers for grading. This was done to provide an opportunity for the participant to become aware of how many items the confederate correctly or incorrectly recalled. Participants took turns with the confederate reading answers aloud to the experimenter who told them if it was correct or not and recorded the total number of correct and incorrect items. By "grading" the confederate recall task and comparing it to their own, participants were able to draw their own inferences about the relative memory ability of their partner without ever being explicitly informed (cf. Numbers et al., 2014).

Immediately following the completion of the practice task, the participants began the primary task. This task involved viewing the 4 scenes (bathroom, kitchen, bedroom, closet) for either 15 or 60-seconds. The participant viewed the scenes in the same order and for the same duration as the confederate. Two scenes were presented for 15-seconds, and two scenes were presented for 60-seconds. The

presentation duration was counterbalanced and the participants were not informed about the differences in viewing duration. Viewing duration served as our manipulation of participant memory quality; presumably participants had better memory for scenes with longer presentation rates (Gabbert, et al., 2006; Roediger, et al., 2001). Following scene viewing, participants were given another two-minute math filler to prevent rehearsal of the items before beginning another group recall task.

During the group recall task, the participant and the confederate took turns recalling items from each scene until they had named a total of 12 items, 6 items each. The confederate recalled two critical contagion items for two of the scenes. The scenes containing contagion items were counterbalanced between conditions and contagion items were always recalled in serial positions 4 and 6. The presentation of these contagion items served as our key manipulation and allowed us to compare the likelihood of a participant recalling or recognizing a contagion item versus a control item.

Upon completion of the group recall, the participant and confederate were instructed that they would again complete an individual recall task. During this subsequent individual recall test, the confederate was moved to another room, ostensibly to complete the recall with another experimenter. After the confederate was moved and the experimenter returned to the room, the participant was given a sheet of paper labeled with the name of the scene. The order of scenes recalled was identical to the order the scenes were presented (bathroom, kitchen, bedroom,

closet). Participants were given two minutes to recall as many items as possible from each scene and they were instructed to indicate if they had a detailed recollection of the item (remember response) or if they had a sense of familiarity that the item was there (know response).

Next, the participants were given an individual recognition task without a time limit. They were requested to indicate where they had encountered each item; in the scene, from the other participant, both, or neither. In this way it was possible for participants to attribute the presentation of the item to multiple sources. Further, it was possible for the participants to attribute an item as having been said by the confederate while also indicating that they themselves did not remember the item appearing in the scenes.

The final portion of the experiment consisted of a locally developed questionnaire that required participants to indicate (on 5-point Likert scales) how credible they thought their partner's memory was, and how accurate their own and their partner's memory was for the study itself, for viewing scenes, and for photographs. They were also asked to indicate how similar they felt their beliefs were to their partner's beliefs, how alike they felt they and their partner were, how helpful it was to remember with their partner on the task, how helpful it is to remember with someone else in day-to-day life, and whether or not they would choose to work with their partner again. Finally, they were given space to indicate if they had used any particular strategy to help them recall and were asked what they were doing while their partner was recalling.

Following the questionnaire, participants were given a verbal debriefing to explain the role of the confederate, in addition to both the confederate memory manipulation and the participant memory manipulation. Once the experimenter had answered any participant questions, the participant was given a final written debriefing and thanked for their time.

Results

Recall

False Recall. A 2 (Presentation Rate: 15-seconds or 60-seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2-items, 10-items, or 30-items) mixed factorial ANOVA, with presentation rate and contagion as within-subjects variables, was conducted on the mean proportion of contagion items recalled. The false recall data are presented in Table 1.

A main effect of contagion was found, F (1, 69) = 40.07, MSE = 0.09, p = 0.00, such that participants were more likely to incorrectly recall a contagion item if the confederate suggested the item during recall (M = 0.39) compared to if they did not (M = 0.15). This represents social contagion and replicates previous studies (Roediger, et al., 2001). There was also a significant main effect of presentation rate, F (1, 69) = 14.34, MSE = 0.09, p = 0.00. More items were recalled when participants viewed the scene for 15 seconds (M = 0.33) versus 60 seconds (M = 0.21). This supports the hypothesis that participants have greater false memory for the scenes they viewed for relatively less time and replicates both Gabbert et al. (2006) and

Roediger et al. (2001). Finally, we found a main effect of confederate recall condition, F (2, 69) = 3.51, MSE = .05, $p < 0.05$ that warranted further exploration. Follow up t-tests confirmed that participants in the 30-item confederate recall condition (M = 0.34) recalled significantly more (t (46) = -2.42, SEM = 0.05, $p <$ 0.02) contagion items than those in the 2-item confederate recall condition (M = 0.22) and marginally more (t (46) = -1.90, SEM = 0.04, p = 0.06) contagion items than those in the 10-item confederate recall condition (M = 0.26). The difference between the 2-item (M = 0.22) and 10-item (M = 0.26) confederate recall conditions was non-significant t (46) = -0.73, SEM = 0.04, p = 0.47. Overall, this suggests that participants were more likely to accept contagion items from a confederate who they perceived to have a relatively good memory.

A marginal interaction emerged between contagion and confederate recall condition, F (2, 69) = 2.12, MSE = 0.09, p = 0.13. To further elucidate the nature of the interaction, t-tests collapsed across presentation rate were performed. Significant differences between the proportion of contagion items versus the proportion of control items a participant recalled were found for each confederate recall condition although the magnitude of the social contagion effect varied. In the 2-item confederate recall condition, participants recalled more contagion items than control items (M = .30; M = .15 respectively, t (23) = 2.70, SEM = 0.06, p = 0.013) In the 10-item confederate recall condition, participants recalled more contagion items than control items M = 0.36; M = .15 respectively, t (23) = 3.10, SEM = 0.07, p = 0.00) Finally, in the 30-item confederate recall condition, participants recalled more

contagion items than control items (M = .51; M = .17 respectively, t (23) = 5.13, *SEM* = 0.07, *p* = 0.00). This suggests that as confederate memory ability increased, the magnitude of the difference between the number of contagion and control items recall also increased. No other interactions were significant.

Table 1. Mean proportion of false recall as a function of presentation rate and confederate recall condition. Standard deviations are indicated in parentheses.

	Confederate Recall Condition		
	2	10	30
15 seconds			
Contagion	.38 (.40)	.46 (.36)	.60 (.42)
Control	.19 (.29)	.17 (.24)	.21 (.29)
60 seconds			
Contagion	.23 (.29)	.27 (.25)	.42 (.35)
Control	.10 (.21)	.13 (.22)	.13 (.22)

Remember/Know Responses. I analyzed remember and know responses separately to determine how effects of Presentation Rate, Contagion condition, and Confederate Recall. Remember and know responses are presented in Table 2. A 2 (Presentation Rate: 15-seconds or 60-seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2-items, 10-items, or 30-items) mixed factorial ANOVA computed on remember judgments, with presentation rate and contagion as within-subjects variables, revealed a main effect of contagion, *F* (1, 69) = 9.342, *MSE* = 0.03, *p* = 0.003. Participants were more likely to indicate that they remembered a

contagion item if the confederate presented the item during recall ($M = 0.15$) than if the confederate did not present the item during recall ($M = 0.06$). This analysis also revealed a main effect of presentation rate, F (1, 69) = 7.811, $p = 0.007$, such that participants were more likely to report remembering an item in the 15 second ($M = 0.14$) versus 60 second presentation rate conditions ($M = 0.07$). The main effect of confederate condition, and all interactions were non-significant, F's < 1; p's > .05.

Know responses were analyzed separately using a 2 (Presentation Rate: 15 seconds or 60 seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2 items, 10 items, or 30 items) mixed factorial ANOVA, with viewing time and contagion as within-subjects variables. Similar to the remember results, we found a main effect of contagion F (1, 69) = 19.60, $MSE = 0.07$, $p = 0.000$ suggesting that participants were more likely to indicate that they knew they had seen a contagion item if the confederate presented the item during recall ($M = 0.24$) than if they did not ($M = 0.09$). Again, we also found a main effect of presentation rate, F (1, 69) = 4.75, $MSE = 0.07$, $p = 0.00$, such that participants were more likely to report know responses for items they had seen in the 15 second versus 60 second viewing conditions ($M = 0.20$; $M = 0.14$ respectively). Here, however a main effect of confederate recall condition was significant, F (2, 69) = 3.83, $MSE = 0.09$, $p = 0.03$. Follow up t-tests revealed that participants in the 30-item confederate recall condition ($M = 0.35$) were more likely to indicate know responses than participants in the 10-item confederate recall condition ($M = 0.19$, t (46) = -2.34, $SEM = 0.07$, $p = 0.02$ and the 2-item confederate recall condition ($M = 0.19$), t (46) = -2.17, SEM =

0.08, $p = 0.04$. Analyses revealed no significant differences t (46) = 0.00, SEM = 0.07, $p = 1.00$ between the 2-item and 10-item confederate recall condition on know responses ($M = 0.19$; $M = 0.19$, respectively).

Table 2. Mean proportion of remember and know responses as a function of presentation rate and confederate recall condition. Standard deviations are indicated in parentheses.

	Confederate Recall Condition		
	2	10	30
15-second contagion			
Remember	.17 (.35)	.19 (.32)	.21 (.29)
Know	.21 (.33)	.25 (.29)	.40 (.39)
60-second contagion			
Remember	.06 (.17)	.15 (.23)	.10 (.21)
Know	.17 (.28)	.13 (.22)	.31 (.38)
15-second control			
Remember	.08 (.13)	.10 (.21)	.06 (.17)
Know	.10 (.25)	.08 (.19)	.15 (.28)
60-second control			
Remember	.05 (.13)	.02 (.10)	.04 (.14)
Know	.04 (.14)	.08 (.19)	.08 (.19)

Correct Recall. A separate 2 (Presentation Rate: 15 second or 60 second) x 3 (Confederate Recall: 2-item, 10-item, or 30-item) ANOVA was computed on correct recall (note that contagion was not included as a factor in this analysis because contagion pertains only to false recall.) A significant main effect of Presentation Rate emerged, F (1, 69) = 67.44, $MSE = 0.01$, $p = 0.00$ such that participants

correctly recalled more items for scenes in the 60 second presentation rate (M = .49) versus scenes encoded for 15 seconds (M = .38). The main effect of Confederate Recall condition was marginally significant, F (2, 69) = 2.74, MSE = 0.02, p = 0.07. Follow-up t-tests were run comparing correct recall across confederate recall conditions. Participants in the 30-item confederate recall condition (M = 0.46) recalled significantly more correct items, t (46) = -2.06, SEM = 0.03, $p < 0.05$ than participants in the 2-item confederate recall condition (M = 0.40) but not more than participants in the 10-item (M = 0.45) confederate recall condition, t (46) = -0.015, SEM = 0.02, $p > 0.05$. Correct recall in the 10-item confederate recall condition (M = 0.45) was marginally more than correct recall in the 2-item confederate recall condition (M = 0.40), t (46) = -1.85, SEM = .03, p = 0.07. The presentation rate and confederate recall condition interaction was not significant, $F < 1.0$, $p > .05$.

Recognition

False Recognition. False recognition responses were analyzed using a 2 (Presentation Rate: 15-seconds or 60-seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2-items, 10-items, or 30-items) mixed factorial ANOVA, with viewing time and contagion as within-subject variables (see Table 3). False recognition was defined as any time a participant recognized a non-presented suggested item as having been in the scene (this includes "scene only" responses as well as "scene only plus other participant" responses). For false recognition, the ANOVA revealed only a main effect of Presentation Rate, F (1, 69) = 4.22 , MSE =

0.12, $p = 0.04$. Participants were more likely to falsely attribute contagion and control items to the scenes when they encoded the scenes for 15 seconds ($M = 0.58$) versus when they encoded the scenes for 60 seconds ($M = 0.50$). No other main effects or interactions for false recognition were significant F's < 1.50; p's > 0.05.

Notably, we did not find evidence of social contagion on the recognition task. This is likely due to specific recognition test used; it was relatively short and the contagion items were presented in a fixed random order that was not well randomized. For instance, though the task was created by randomly distributing items, this randomization resulted in a few unusual groupings where several contagion items were presented consecutively.

Table 3. Mean proportion of falsely recognized items from scenes viewed for 15- and 60-second presentation rate as a function of confederate recall condition. Standard deviations are indicated in parentheses.

	Confederate Recall Condition		
	2	10	30
15 seconds			
Contagion	.58 (.41)	.54 (.44)	.61 (.43)
Control	.50 (.39)	.50 (.39)	.59 (.33)
60 seconds			
Contagion	.63 (.42)	.54 (.41)	.57 (.39)
Control	.44 (.40)	.48 (.43)	.41 (.28)

Correct Recognition. A main effect of Presentation Rate also emerged for correct recognition, F (1, 69) = 6.91, MSE = 0.03, p = 0.01, such that participants correctly recognized more items in the 60 second presentation rate (M = 0.81) than the 15 second presentation rate (M = 0.73). No other main effects or interactions were significant (F's < 0.6, p's > 0.5).

Final Questionnaire

The final questionnaires were analyzed to determine if participants' metamemorial judgments varied as a function of presentation rate and confederate recall condition. We created composite ratings of self and partner memory accuracy by grouping questions meant to assess similar variables and averaging the results. Questions such as, "how accurate would you rate your memory for today's study for the specific task" and "how accurate would you rate your memory" were combined to form a metric of self-memory accuracy while questions such as "how accurate would you rate the memory of your partner for today's study for the specific task" and "how accurate would you rate your partner's memory" were combined to form a metric of partner memory accuracy. The mean composite ratings for self and other are presented in Table 4.

One-way ANOVA's were run to examine differences between metacognitive ratings of self-memory or partner memory across confederate recall condition. Concerning results involving ratings of self-memory ability, a main effect of confederate recall condition emerged F (2, 69) = 4.50, MSE = 0.40, p = 0.02. Follow

up t-tests revealed that participants in both the 2-item confederate recall condition (*M* = 3.72) and the 10-item confederate recall condition (*M* = 3.64) rated their own memories significantly better than participants in the 30-item confederate recall condition (*M* = 3.22, *t* (46) = 2.83, *SEM* = 0.20, *p* = 0.01; *t* (46) = 2.34, *SEM* = 0.18, *p* = 0.02 respectively). There was no significant difference in self-memory ratings between the 2-item (*M* = 3.72) and 10-item (*M* = 3.64) confederate recall conditions.

For partner memory judgments, a main effect of confederate recall condition also emerged *F* (2, 69) = 34.72, *MSE* = 0.35, *p* = 0.00. Follow up t-tests revealed that participants in the 10-item confederate recall condition (*M* = 4.17) rated the memory of the confederate significantly better than participants in the 2-item confederate recall condition (*M* = 3.19, *t* (46) = -5.31, *SEM* = 0.20, *p* = 0.00). Likewise, participants in the 30-item confederate recall condition (*M* = 4.56) also rated the memory of the confederate as significantly better than those in the 2-item confederate recall condition (*M* = 3.19), *t* (46) = -7.82, *SEM* = 0.18, *p* = 0.00. Finally, those in the 30-item confederate recall condition (*M* =4.60) rated the memory of the confederate as significantly better than participants in the 10-item confederate recall condition (*M* = 4.17), *t* (46) = -2.70, *SEM* = 0.15, *p* = 0.01.

Table 4. Mean composite ratings of self and partner memory accuracy as a function of Confederate Recall Condition. Standard deviations are in parentheses.

	Confederate Recall Condition		
	2	10	30
Self	3.72 (.63)	3.64 (.64)	3.22 (.60)
Partner	3.19 (.72)	4.17 (.55)	4.56 (.47)

Discussion

Taken together, these results suggest that even in the 10-item baseline condition, participants are still biased to assume the best of their partner. Relative to the 10-item baseline condition, the 30-item confederate recall manipulation tended to increase ratings of partner memory accuracy and decrease ratings of self-accuracy. Relative to the 10-item baseline condition, the 2-item confederate recall manipulation tended to increase ratings of self-memory accuracy and decrease ratings of partner memory accuracy. This suggests that our manipulation of confederate memory ability relative to self-memory ability was at least somewhat successful in influencing metacognitive judgments of relative memory accuracy.

The results of Experiment 1 support some of our hypotheses, while leaving other questions unanswered. For example, Experiment 1 revealed that participants with poor memory were more likely to incorporate errant details. Experiment 1 also found when participants judged the memory of their partner to be good, they were more likely to incorporate suggested details. There was some support for the idea

that relative judgments play a role in memory conformity, although the findings were marginal. For instance, the participants in the 30-item confederate recall condition were more likely to falsely recall items than participants in the 2-item confederate recall condition. Additionally, for scenes viewed for 15-seconds, participants were also more likely to falsely recall items. Finally, the difference between the proportion of contagion versus control items falsely recalled increased as confederate memory ability increased and the magnitude of the effect was greatest in the 15-second presentation rate. Furthermore, there was little evidence for any of our manipulations in the recognition task

Because a few of our results were somewhat ambiguous, yet trending in the predicted direction, we deemed it appropriate to replicate Experiment 1 with decreased variance with the hypothesis that we would be better able to elicit reliable results. Specifically, we increased the number of contagion items for scenes with misinformation to increase the number of potential observations of memory errors. Furthermore, we slightly edited the recognition task to include these extra items and to increase the degree of randomization. To reiterate, the recognition task was created by randomizing and listing items in a fixed order. The initial randomization resulted in groupings of several consecutive contagion items in consecutive order. These groupings may have caused participants to more closely scrutinize the source of those items, thus resulting in a decreased likelihood of participant to attribute those items to having been in the scene.

EXPERIMENT 2

Method

Participants

Participants were 90 Montana State University undergraduates who participated for course credit. Eighteen were excluded because of suspicion, failure to follow instructions, or experimenter error. The final analysis included the remaining 72 participants.

Design

The experiment was again based on a 2 x 2 x 3 mixed factorial design. Presentation rate of each scene (15 or 60 seconds) and contagion (contagion or control) were within subjects variables, and confederate recall for the practice scene (2, 10, or 30 items) was manipulated between subjects. The primary dependent variables were false recall and false recognition of the critical suggested items (contagion items).

Materials

The materials included the same slides depicting household scenes from Experiment 1, as well as the junk drawer practice slide. The recall sheets and filler task were also the same. New materials included additional contagion/control items. For each scene, two contagion/control items from Experiment 1 as well as two additional locally developed contagion/control items were created. Changes were

made to the recognition task to accommodate the extra contagion items for each scene resulting in a total of 40 items (4 contagion/control items per scene, 4 filler items, and 20 correct). Extra contagion items were developed in-house and were schema consistent for that particular scene. Additionally, the questionnaire was altered to remove redundant questions resulting in a total of 8 questions. Specifically, the questionnaire in Experiment 2 asked participants to rate partner credibility, partner memory accuracy, self memory accuracy, whether or not they would choose to work with their partner on an unrelated task, how helpful it was to remember with their partner, and how helpful it is to remember with another person in everyday life. Additionally, participants were asked to indicate what they were doing while their partner was recalling items and to indicate how they felt their memory ability compared to the memory ability of their partner.

Procedure

The procedure for Experiment 2 was identical to Experiment 1 with one important change to the contagion items. During collaborative recall, for scenes in which contagion items were presented, confederates recalled four incorrect items instead of two. Briefly, as in Experiment 1, participants were tested with a confederate who posed as a participant. Both first viewed a "practice scene" and then took turns recalling items from the practice scene with their partner until a total of 12 items were recalled. Following a two-minute math filler task, the participant and confederate completed an individual recall task where they were to indicate whether

they remembered or knew that an item occurred in the scene. During the recall task, the confederate recalled 2, 10, or 30 items. After the individual recall, the confederate and the participant exchanged recall sheets for grading. Once the grading was complete and the recall sheets were returned, the primary task began. During the primary task, the participants viewed 4 scenes, two for 15 seconds and two for 60 seconds. Following the scene viewing, participants were given another two-minute math filler task before participating in another group recall. The group recall task consisted of the confederate and participant taking turns recalling items from the scenes until they reached a total of 12 items for each scene. Importantly, in Experiment 2, for scenes containing contagion items, confederates now recalled four contagion items instead of two. Once the group recall had been completed, participants completed an individual recall task and were asked to indicate a remember/know response for each item. Following the individual recall task, participants completed a recognition task where they attributed the presentation of the item to one or multiple sources. Finally, participants were asked to complete the questionnaire.

Results

Recall

False Recall. A 2 (Presentation Rate: 15 seconds or 60 seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2 items, 10 items, or 30 items) mixed factorial ANOVA, with presentation rate and contagion as within-

subjects variables, was conducted on the mean proportion of contagion items recalled. The false recall data are presented in Table 5. A main effect of contagion was found, F (1, 69) = 31.14, MSE = 0.04, p = 0.00, such that participants were more likely to incorrectly recall contagion items (M = 0.25) than control items (M = 0.11). This replicates results from Experiment 1 and again demonstrates social contagion (Roediger et al. 2001). There was again a significant main effect of Presentation Rate, F (1,69) = 11.70, MSE = 0.04, p = 0.00. More items were recalled when participants viewed the scene for 15 seconds (M = 0.22) versus 60 seconds (M = 0.15). Analysis found a marginal main effect of confederate recall condition, F (2,69) = 2.45, MSE = 0.05, p = 0.09. Further analyses revealed that participants recalled significantly more items in the 30-item confederate recall condition (M = 0.30) than in the 2-item confederate recall condition (M = 0.18), t (46) = -2.41, SEM = 0.05, p = 0.02. Further, participants were marginally more likely to recall items in the 10-item (M = 0.27) versus 2-item (M = 0.18) confederate recall condition, t (46) = -1.88, SEM = 0.50, p = 0.07. The number of contagion items recalled did not differ for the 10-item (M = 0.27) and 30-item (M = 0.30) confederate recall conditions, t < 1.0, p > .05.

Additionally, an interaction between Contagion and Presentation Rate was found, F (1, 69) = 6.10, MSE = 0.04, p = 0.02. T-tests revealed that participants recalled more contagion items for scenes they encoded for 15 seconds (M = 0.31) compared to scenes they encoded for 60 seconds (M = 0.18), t (71) = 3.65, SEM = 0.03, p = 0.00. However, there was no significant difference between the proportion

of control items recalled for the 15 second (M =0.12) versus 60 second (M = 0.11) presentation rate, t (71) = 0.40, SEM = 0.03, p = 0.70. This suggests that participants are more likely to rely on the confederate's suggestions when their own memory for the scene is poor.

Finally, a marginal three way interaction emerged between contagion, presentation rate, and confederate recall, F (2, 69) = 2.13, MSE = 0.40, p = 0.13. The three-way interaction is consistent with our apriori hypotheses and so follow up tests were computed in order to elucidate the nature of the interaction. Looking first at the 15 second presentation rate condition- where participants had relatively poor memory-, participants recalled marginally more contagion items (M = 0.23) than control items (M = 0.14) in the 2-item confederate condition, t (23) = 2.00, SEM = 0.05, p = 0.06. In both the 10-item (t (23) = 3.11, SEM = 0.054, p = 0.01) and 30-item (t (23) = 5.20, SEM = 0.06, p = 0.00) confederate recall conditions, participants recalled significantly more contagion items (10-item M = 0.30; 30-item M = 0.41) than control items (10-item M = 0.13; 30-item M = 0.10). That is, when participants memory was relatively poor (15 second presentation rate), they incorporated the confederate's suggestions when the confederate's memory was equal to theirs (the 10-item confederate recall condition) and when the confederate's memory was better than theirs (the 30-item confederate recall condition). They even incorporated the confederate's suggestions when the confederate's memory was worse than theirs, although this finding was marginal (p = .06). Interestingly, a very different pattern emerged in the 60 second presentation rate condition (when participants had

relatively good memory): the difference between number of contagion ($M = 0.24$) versus control ($M = 0.11$) items recalled in the 10-item confederate recall condition was marginally significant t (23) = 1.63, $SEM = 0.08$, $p = 0.12$ such that participants remembered more contagion than control items. However, we found no significant contagion effects in the 2-item and 30-itme confederate conditions, t's < 1.01, p's > 0.30. When participants feel that their memory is relatively good (60 second presentation rate), they are relatively less likely to rely on the confederate, especially when the confederate's ability is different from theirs (better or worse).

Table 5. Mean proportion of false recall as a function of presentation rate and confederate recall condition. Standard deviations are indicated in parentheses.

	Confederate Recall Condition		
	2	10	30
15 seconds			
Contagion	.23 (.21)	.29 (.19)	.41 (.24)
Control	.14 (.18)	.13 (.15)	.10 (.16)
60 seconds			
Contagion	.13 (.21)	.24 (.27)	.19 (.18)
Control	.08 (.14)	.11 (.16)	.14 (.19)

Remember/Know Responses. Remember and know responses were analyzed separately to determine how they were influenced by presentation rate, contagion, and confederate recall. Remember and know responses can be found in Table 6. A 2 (Presentation Rate: 15- seconds or 60-seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2-items, 10-items, or 30-items) mixed factorial ANOVA

computed on remember judgments, with presentation rate and contagion as within-subjects variables, revealed a main effect of contagion, F (1, 69) = 19.74, MSE = 0.01, p = 0.00 suggesting that participants were more likely to indicate that they remembered a contagion item if the confederate presented the item during recall (M = 0.10) than if they did not (M = 0.03). This analysis also revealed a marginal main effect of confederate recall condition, F (2, 69) = 2.61, MSE = 0.02, p = 0.08. Follow up t-tests revealed that participants were marginally more likely to report remember judgments for items recalled in the 10-item confederate recall condition (M = 0.09) than in the 2-item confederate recall condition (M = 0.05), t (46) = -1.61, SEM = 0.03, p = 0.12. Participants in the 30-item confederate recall condition (M = 0.15) indicated they remembered an item significantly more than participants in the 2-item confederate recall condition (M = 0.05), (t (46) = -2.71, SEM = 0.04, p = 0.01). There were no significant differences in remember responses between the 10-item and 30-item confederate recall conditions (t = -1.29, p = 0.20).

An interaction between contagion and confederate recall condition was found, F (2, 69) = 4.00, MSE = 0.01, p = 0.03. In the 2-item confederate condition, participants were just as likely to report remembering contagion items (M = 0.05) as they were to report remembering control items (M = 0.03), t (23) = SEM = 0.01, p = 0.19. For both the 10-item and 30-item confederate recall conditions, the number of contagion (M = 0.09; M = 0.15 respectively) relative to control (M = 0.03; M = 0.03 respectively) items participants remembered was significantly different (t (23) = 2.40, SEM = 0.03, p = 0.03; t (23) = 3.50, SEM = 0.03, p = 0.00 respectively). This

suggests that when participants are paired with a confederate who demonstrates poor memory (2-item confederate recall condition), they are less likely to report remembering suggestions the confederate makes. However, when participants believe that the memory of the confederate is equal to (10-item confederate recall condition) or better than (30-item confederate recall condition) their own memory, they are relatively more likely to report remembering the confederate's suggestions.

A marginal confederate recall condition presentation rate interaction emerged. Follow up t-tests were performed to elucidate the nature of the interaction. For the 15-second presentation rate, participants in the 30-item confederate recall condition were more likely to indicate remember responses for recalled items (M = .09) than those in the 10-item confederate recall condition (M = .04; t (46) = -1.93, SEM = 0.03, p = 0.06), and marginally more like to indicate remember responses than participants in the 2-item confederate recall condition (M = .05; t (46) = -1.526, SEM = 0.03, p = 0.13). Participants in the 2-item (M = .05) and 10-item (M = .04) confederate recall conditions did not differ in the proportion of remember responses, t (46) = 0.45, SEM = 0.02, p = 0.66.) Concerning scenes encoded for 60 seconds, participants were significantly (t (46) = -2.23, SEM = 0.03, p = 0.03, t (46) = -2.14, SEM = 0.03, p = 0.00) more likely to indicate a remember response for recalled items in both the 10-item confederate recall condition (M = 0.08) and 30-item confederate recall condition (M = 0.08) than in the 2-item confederate recall condition (M = 0.03). The difference between the 10-item (M = 0.08) and 30-item (M = 0.08) was not significant t (46) = 0.00, SEM = 0.03, p = 1.00.

Finally, a marginal three-way interaction emerged between contagion, presentation rate, and confederate recall condition, F (2, 69) = 2.80, MSE = 0.01, p = 0.07. We compared remember responses for contagion and control items for both the 15-second and 60-second presentation rates for each confederate recall condition. Concerning the 15-second presentation rate, where participant memory is relatively poor, there were no differences (t (23) = 0.81, SEM = 0.03, p = 0.43) between the number of contagion (M = 0.06) versus control (M = 0.04) items remembered in the 2-item confederate recall condition. In contrast, for both the 10-item (t (23) = 2.15, SEM = 0.02, p = 0.04) and 30-item (t (23) = 3.46, SEM = 0.05, p = 0.00) confederate recall conditions, participants indicated a remember response for significantly more contagion (10-item M = 0.06; 30-item M = 0.18), than control items (10-item M = 0.02; 30-item M = 0.01). This suggests that when participant memory for a scene is poor (due to a short presentation rate), if partner memory is also poor, participants are less likely to indicate they remember a contagion item compared to when partner's memory is good. A slightly different pattern emerges when examining remember responses for contagion items when scenes are encoded for 60 seconds. In both the 10-item (t (23) = 1.78, SEM = 0.05, p = 0.09) and 30-item (t (23) = 1.81, SEM = 0.03, p = 0.08) confederate recall conditions, the difference for remember responses between contagion items (10-item M = 0.13; 30-item M = 0.11) versus control items (10-item M = 0.04; 30-item M = 0.05) was only marginally significant. The difference in the 2-item confederate recall condition remained non-significant (t (23) = 1.00, SEM = 0.01, p = 0.32. These results suggest that when a participant

feels their own memory for a scene is relatively good (due to a longer presentation rate), they are unlikely to indicate they remember a contagion item suggested by a partner with poor memory. Further, they are only marginally more likely to report remembering contagion items suggested by a partner with equivalent or better memory than themselves.

Considered together, analyses of the marginal three-way interaction suggests that contagion items are most likely to be remembered when a participant feels that their own memory is poor relative to their partner and least likely to be remembered when a participant feels their own memory is good relative to their partner.

Know responses were analyzed separately using a 2 (Presentation Rate: 15-seconds or 60-seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2-items, 10-items, or 30-items) mixed factorial ANOVA, with viewing time and contagion as within-subjects variables. A main effect of contagion emerged, F (1, 69) = 11.20, MSE = 0.03, p = 0.00. This suggests that participants were more likely to indicate that they knew they had seen a contagion item if the confederate presented the item during recall (M = 0.15) than if they did not (M = 0.09). I also found a main effect of presentation rate, F (1, 69) = 21.00, p = 0.00, such that participants were more likely to report know responses for items they had seen in the 15 second versus 60 second presentation rate (M = 0.15; M = 0.08 respectively). Finally, an interaction between contagion and presentation rate emerged, F (1, 69) = 5.60, MSE = 0.03, p = 0.02 such that for scenes that were viewed for 15 seconds (M = 0.21), contagion items were significantly more likely to be judged known than for

scenes that were viewed for 60 seconds (M = 0.09), t (71) = 4.36, SEM = 0.03, p = 0.00. The difference in know judgments between the 15-second (M = 0.10) and 60-second (M = 0.07) presentation rate for control items was not significant, t (71) = 1.07, SEM = 0.02, p = 0.30. No other main effects or interactions for know responses were significant (F's < 1, p's > 0.5).

Table 6. Mean proportion of remember and know responses as a function of presentation rate and confederate recall condition. Standard deviations are indicated in parentheses.

	Confederate Recall Condition		
	2	10	30
15-second contagion			
Remember	.06 (.11)	.06 (.11)	.18 (.21)
Know	.17 (.19)	.23 (.22)	.23 (.21)
60-second contagion			
Remember	.03 (.08)	.13 (.20)	.11 (.16)
Know	.09 (.16)	.10 (.16)	.07 (.14)
15-second control			
Remember	.04 (.09)	.02 (.07)	.01 (.05)
Know	.09 (.16)	.10 (.13)	.09 (.14)
60-second control			
Remember	.02 (.07)	.04 (.10)	.05 (.10)
Know	.08 (.18)	.07 (.14)	.08 (.18)

Correct Recall. For correct recall, a significant main effect of presentation rate emerged, F (1, 69) = 43.17, MSE = 0.01, p = 0.00 such that participants correctly

recalled more correct items for scenes they viewed for 60 seconds ($M = 0.50$) versus scenes they viewed for 15 seconds ($M = 0.40$) suggesting that memory is better for scenes viewed for more time. The effect of confederate recall condition and the interaction were not significant, $F = 0.08$, $p > .05$.

Recognition

False Recognition. The mean proportion of false recognition is presented in Table 7. As in Experiment 1, false recognition was operationally defined as any instance where a participant recognized a contagion item as having been in the scene. False recognition responses were analyzed using a 2 (Presentation Rate: 15 seconds or 60 seconds) x 2 (Contagion: contagion or control) x 3 (Confederate Recall: 2 items, 10 items, or 30 items) mixed factorial ANOVA, with viewing time and contagion as within-subjects variables. Concerning false recognition, a main effect of contagion emerged such that participants were significantly more likely to misattribute contagion items ($M = 0.60$) to the scenes than control items (M = 0.45), F (1, 69) = 20.07, $MSE = 0.05$, $p = 0.00$. This finding of significant social contagion differs from Experiment 1, but is consistent with the broader literature (e.g., Meade & Roediger, 2002) and supports the idea that the recognition test in Experiment 1 was too brief and/or underpowered. A marginal main effect of presentation rate was found, F (1, 69) = 2.80, $MSE = 0.05$, $p = 0.10$, such that participants were more like to falsely recognize items from scenes encoded for 15 seconds ($M = 0.54$) versus scenes encoded for 60 seconds ($M = 0.51$). Finally, a marginal main effect of

confederate recall condition emerged. Of note, follow-up t-tests revealed a significant difference in the proportion of items falsely recognized only when comparing the 2-item confederate recall condition (M = 0.50) to the 30-item confederate recall condition (M = 0.60), t (46) = -2.23, SEM = 0.10, p = 0.03. The 10-item confederate recall condition (M = 0.54) did not differ significantly from either the 2-item (M = 0.5, t (46) = -1.50, SEM = 0.06, p = 0.15) or 30-item (M = 0.60, t (46) = -0.80, SEM = 0.06, p = 0.44) confederate recall condition. This suggests that when a participant has reason to believe that the memory of their partner is good (30-item confederate recall condition), they are more likely to falsely recognize items than when they believe the memory of their partner is poor (2-item confederate recall condition). No interactions for false recognition were significant (F's < 1, p's > 0.3).

Table 7. Mean proportion of falsely recognized items as a function of presentation rate and confederate recall condition. Standard deviations are indicated in parentheses.

	Confederate Recall Condition		
	2	10	30
15 seconds			
Contagion	.48 (.24)	.64 (.28)	.69 (.26)
Control	.46 (.23)	.47 (.28)	.52 (.30)
60 seconds			
Contagion	.52 (.30)	.60 (.33)	.66 (.32)
Control	.36 (.27)	.44 (.26)	.47 (.27)

Correct Recognition. For correct recognition, a main effect of presentation rate was again significant (F (1, 69) = 20.00, MSE = 0.02, p = 0.00). Participants correctly recognized a greater proportion of items when they had a longer time to study the items (M = 0.86 in the 60-second condition; M = 0.74 in the 15-second condition). A main effect of confederate recall condition was also found, F (2, 69) = 3.33, MSE = 0.03, p = 0.04. Correct recognition for participants in the 2-item (M = 0.77) and the 10-item (M = 0.78) did not differ significantly, t (46) = -0.50, SEM = 0.04, p = 0.63. However, the number of items correctly recognized significantly increased from the 2-item (M = 0.77) to the 30-item (M = 0.85) confederate recall condition (t (46) = -2.50, SEM = 0.03, p = 0.02) as well as from the 10-item (M = 0.78) to the 30-item (M = 0.85) confederate recall condition (t (46) = -2.00, SEM = 0.03, p = 0.05). This may be due to participants increasingly recognizing correct items that the confederate suggested when confederate memory is superior. No other main effects or interactions were significant.

Final Questionnaire

Final questionnaires were analyzed separately to determine if participants' metamemorial judgments varied as a function of presentation rate and confederate recall condition. As in Experiment 1, we created composite ratings of self and partner memory accuracy by grouping questions meant to assess identical variables and averaging the results. We ran additional analyses on composite ratings derived from our final questionnaire to determine if metacognitive awareness of memory

accuracy for the self and for the partner were influenced by confederate condition. Additionally, relative judgments were also evaluated. Questionnaire responses are presented in Table 8.

One-way ANOVA's were run to examine differences between metacognitive ratings of self-memory or partner memory for each confederate recall condition. For ratings of self-memory ability, a main effect of confederate recall condition emerged F (2, 69) = 21.34, MSE = 0.48, p = 0.00. Follow-up t-test revealed significant differences between all three comparison groups. Participants in the 2-item confederate recall condition (M = 3.80) rated their own memories significantly better (t (46) = 2.86, SEM = 0.18, p = 0.01) than participants in the 10-item confederate recall condition (M = 3.30). Likewise, participants in the 2-item confederate recall condition (M = 3.80) also rated their own memories as significantly better (t (46) = 6.20, SEM = 0.21, p = 0.00) than participants in the 30-item confederate recall condition (M = 2.50). Finally, participants in the 10-item confederate recall condition (M = 3.30) rated their own memory as significantly better (t (46) = 3.72, SEM = 0.21, p = 0.00) than did participants in the 30-item confederate recall condition (M = 2.50). Overall, this demonstrates that participants feel best about their own memory when partner memory is poor (2-item confederate recall condition) and worst about their own memory when partner memory is superior (30-item confederate recall condition). For partner ratings, a significant main effect of confederate recall condition also emerged. Follow-up t-tests again found significant differences in partner memory ratings for all three comparison groups. Participants

in the 2-item confederate recall condition (M = 3.25) rated the memory of the confederate significantly worse (t (46) = -3.50, SEM = 0.22, p = 0.00) than participants in the 10-item confederate recall condition (M = 4.02). As could be expected, participants in the 2-item confederate recall condition (M = 3.25) also rated the memory of the confederate significantly worse (t (46) = -7.06, SEM = 0.20, p = 0.00) than participants in the 30-item confederate recall condition (M = 4.70). Finally, participants in the 10-item confederate recall condition (M = 4.02) also rated confederate memory as significantly worse (t (46) = -5.00, SEM = 0.14, p = 0.00) than participants in the 30-item confederate recall condition (M = 4.70).

Taken together, these results again suggest that participants were more likely to view the confederate as having a more accurate memory in both the 10-item and 30-item condition, but not in the 2-item condition. The pattern again suggests that in the 10-item baseline condition, participants are still biased in such a way as to accept confederate suggestions. When considering the baseline condition, the 30-item confederate recall manipulation tends to increase ratings of partner memory accuracy and decrease ratings of self-accuracy while the inverse is true for the 2-item confederate recall condition. This suggests that our manipulation of confederate memory ability relative to self-memory ability was successful in influencing metacognitive judgments of relative memory accuracy.

Table 8. Mean composite ratings of self and partner memory accuracy as a function of Confederate Recall Condition. Standard deviations are in parentheses.

	Confederate Recall Condition		
	2	10	30
Self	3.79 (.59)	3.29 (.62)	2.50 (.83)
Partner	3.25 (.93)	4.02 (.56)	4.69 (.36)

We also included a relevant relative judgment question where we asked how participants felt about the quality of their own memory relative to the memory of their partner. For this question, participants could either indicate that they felt their memory was better, the same, or worse compared to their partner's memory. Results were analyzed by comparing the proportion of people who said their memory was better, the same, or worse relative to the confederate for each confederate recall condition (2, 10, or 30 items). See Table 9.

Concerning participants who viewed their own memory to be better relative to the memory of the confederate, a significant main effect of confederate recall condition emerged, F (2, 69) = 15.30, MSE = 0.15, p = 0.00. Participants were more likely to indicate their memory was better than the confederate's in the 2-item confederate condition *(*M = 0.63) relative to the 10-item (M = 0.30) and 30-item (M = 0.00) confederate recall conditions (t (46) = 2.41, SEM = 0.14, p = 0.02; t (46) = 6.19, SEM = 0.10, p = 0.00). Furthermore, participants in the 10-item confederate recall condition (M = 0.30) were more likely to to say their memory was better than

the confederate's compared to those in the 30-item confederate recall condition (M = 0.00), (t (46) = 3.08, SEM = 0.09, p = 0.00).

Next, we examined the participants who felt that their memory was the same relative to the memory of their partner. Again, we found a significant main effect of confederate recall condition, F (2, 69) = 5.63, MSE = 0.18, p = 0.01. Participants in the 2-item (M = 0.38) and 10-item (M = 0.42) confederate recall conditions were more likely to say that their memory ability was the same as the confederate's than were participants in the 30-item (M = 0.04) confederate recall condition (t (46) = 3.05, SEM = 0.11, p = 0.00; t (46) = 3.38, SEM = 0.11, p = 0.00). Participants in the 2-item and 10-item confederate recall conditions did not differ from each other, $t < 1.0$, $p > .05$.

Finally, we turn to instances where participants indicated that they felt their memories were worse compared to the memory of their partner. Again, a main effect of confederate recall condition emerged, F (2, 69) = 5.79, MSE = 0.09, p = 0.00. Participants were significantly more likely to rate their memory as worse when they were paired with a confederate demonstrating a superior memory (30-item confederate recall condition, M = 0.96) than they were when they were paired with a confederate in either the 2-item (M = 0.00) or the 10-item (M = 0.29) confederate recall condition (t (46) = -23.00, SEM = 0.04, p = 0.00; t (46) = -6.44, SEM = 0.10, p = 0.00). Participants in the 10-item confederate recall condition (M = 0.29) were also significantly more likely indicate that they felt their memory was worse

compared to the confederate than those in the 2-item confederate recall condition (M = 0.00), (t (46) = -3.08, SEM = 0.09, p = 0.00)

Considering all relative memory judgments together, the predicted pattern emerges. Participants tend to feel that their memory is better relative to their partner when they are paired with a partner who has demonstrated poor memory ability. Inversely, participants tend to feel their memory is worse relative to the memory of their partner when they are paired with a partner who demonstrates superior memory ability. Participants who are paired with a partner who demonstrated memory abilities comparable to the participant tend to rate their memories as better, the same, or worse than their partner in relatively equal proportions across all measures. This provides support for the idea that participants are in fact aware of relative memory ability, even if they don't necessarily utilize it in their memory decisions.

Table 9. Mean proportions of own memory ability ratings relative to partner memory ability ratings as a function of Confederate Recall Condition. Standard deviations are in parentheses.

	Confederate Recall Condition		
	2	10	30
Own Memory Better	.63 (.49)	.29 (.46)	.00 (.00)
Own Memory Same	.38 (.50)	.42 (.50)	.04 (.20)
Own Memory Worse	.00 (.00)	.29 (.46)	.96 (.20)

DISCUSSION

The current experiments examined the effect of spontaneous relative judgments on participant memory within the social contagion paradigm. The two experiments reported in this document replicate previous work in social contagion (Roediger et al., 2001; Meade & Roediger, 2002) by providing evidence that participants report errant suggested information when performing memory tasks. Additionally, both experiments replicated previous work involving the influence of presentation rate on the likelihood of reporting errant information (Gabbert, et al., 2007; Meade & Roedier, 2002; Roediger, et al., 2001) by demonstrating that participants incorporate more errant information at short versus long presentation rates.

Several new additional findings emerged. Most importantly, we found marginal support for the idea that participants utilize spontaneous relative judgments of self versus partner memory under certain conditions. To review, relative judgments refer to the qualitative comparisons participants make between their own memory ability relative to the memory ability of their partner. Of interest is how these comparisons influence participant memory, specifically false memory, for items suggested by the confederate. To this end, Experiment 1 included a novel manipulation of confederate memory ability that created quantitatively different partner memory conditions. While significant evidence for the role of relative

judgments was lacking, the data did trend in such a way as to indicate that when participants felt their own memory was poor, they were more likely to incorporate contagion items, furthermore the proportion of contagion items recalled increased as a function of partner memory. In Experiment 2, we decreased variance by increasing the number of contagion items and a more discernible pattern emerged for the role of relative judgments and false memory, although the effects were still marginal. When participants felt that their own memory was poor due to having viewed the scenes for a short period of time, they were generally more likely to accept suggested contagion items than when they felt their memory was good. Furthermore, when participants felt that the memory of the confederate was superior and their own memory was poor, they were the most likely to recall suggested contagion items. This replicates French, Garry, & Mori (2011) as well as Allan, Midjord, Martin, & Gabbert (2012) in demonstrating that susceptibility to memory errors is influenced by a dynamic, relative process. However our experiment differed in that is it the first to demonstrate that participants utilize spontaneously initiated judgments when comparing relative differences between self and partner memory. We believe our results are more ecologically valid because it is unlikely, outside of a lab setting, that conversational partners are ever explicitly aware of the memory ability of their partner and instead must rely on spontaneous judgments or relevant partner characteristics to influence memory.

An interesting pattern also emerged regarding metamemorial judgments and false recall. To review, for each item a participant recalled, they were instructed to

indicate a “remember” or a “know” response. Remember responses are assumed to reflect specific recollection, due to sufficient perceptual or cognitive details, that an item was present in the scene than know responses, which tend to reflect general familiarity with an item. Recall in Experiment 2, the marginal 3-way interaction on false recall; items for which participant memory is poor (15-second presentation rate) and confederate memory is comparable or superior (10 or 30-item confederate recall condition) were more likely to be falsely recalled than control items. This effect appears to be at least partially driven by remember responses, as participants who felt that their own memory was poor (15-second presentation rate) and confederate memory was comparable or superior (10 or 30-item confederate recall condition) were also more likely to indicate remember responses.

It is also important to note that the effect of relative judgments on recognition seems to be absent. This is likely because the nature of recognition tasks encourages participants to attend to the source of misinformation and thus rates of false recognition were relatively equalized while recall was not (Davis & Meade, 2013). Despite this, it is still worth noting that in Experiment 2, we did find evidence that the magnitude of false recognition increases as confederate memory ability increases and as presentation rate decreases, however this effect does not interact with contagion and control.

Importantly, the ability of participants to notice relevant partner memory characteristics is reflected in questionnaire responses. In both experiments, participants in the poor (2-item confederate recall) and comparative (10-item

confederate recall) memory conditions felt that their memories were better than the confederate. Furthermore, in both experiments, participants' mean ratings of partner memory accuracy was highest and their mean ratings of their own memory accuracy was lowest when they were paired with a confederate with superior memory (30-item confederate recall condition). When evaluating relative judgments of how self-memory compared to partner memory, participants were more likely to feel that their memory was better relative to their partner when they were paired with a partner with poor memory (2-item confederate recall condition). Inversely, participants were most likely to feel that their memory was worse relative to their partner when they were paired with a confederate who demonstrated superior memory (30-item confederate recall condition). Taken together, the questionnaire results support the notion that participants are constructing metamemorial judgments regarding their own memory, the memory of their partner, and of their memory ability relative to the memory ability of their partner that then influence memory for suggested items.

Interpretation of Results

What follows is an interpretation of our results based upon source monitoring theory (Johnson et al., 1993). Source monitoring theory suggests that participants perform cognitive operations to ascertain the origins of memories. Errors in source monitoring occur when memories are incorrectly attributed to one source when the correct source is actually something else. Within the context of the present

experiments, a source error would consist of a participant incorrectly attributing the source of a memory to a scene when it was in fact suggested by the confederate. To determine the source of memories, participants potentially engage a number of mechanisms. First, attribution and matching suggest that a participant seeks to determine source by comparing the perceptual and cognitive details associated with an item to the details they would expect to remember given that item was actually present. For instance, if sufficient perceptual details are lacking (ex. the participant can't remember what an item looked like), the participant may be unwilling to attribute that item to having been in the scene. A second proposed mechanism posits that participants set a response criterion such that they become more or less conservative with what they are willing to attribute to memory. The present studies demonstrated that increasing the memory ability of a confederate also increased the likelihood of the participant to make errors in source judgments for suggested contagion items. Source monitoring theory would posit that when participants feel that the memory of their partner is good, they may allocate more attentional resources to listening to what their partner says. As a result, items suggested by the confederate would likely have more perceptual and cognitive details. This increased level of relevant details may lead to a participant being more likely to mistake the source of that item to having been present in the scene. Additionally, when a participant believes the memory of their partner to be good, they may adjust their response criteria to be more lenient, thus resulting in an increased likelihood of making errors in source judgments. This would also fit with the interpretation of the

results from Davis & Meade, 2013. In their experiment, they examined the effect of age on social contagion and found that participants were less likely to incorporate contagion items suggested by an older adult. Because aging is associated with memory declines and taking part in a memory task may have made this fact more salient, source-monitoring theory would suggest that collaborating with an adult could cause a participant to allocate less attention to their partner during collaboration which would thus lead to a decrease in the number of encoded contextual details. This decrease in contextual details would cause a participant to be less likely to falsely attribute an item to having been presented. Again, it is also possible that participants were adjusting their response criteria to be more stringent and less accepting of suggestions made by older adults.

The results of our presentation rate manipulation also fit nicely with this theory. When participants felt their own memory was poor due to a short presentation rate, they were generally more likely to report errant source information. Source monitoring theory accounts for this by suggesting that participants who feel their own memory is poor may adjust their response criteria such that they become more lenient with what they are willing to attribute to having been present in the scenes and/or the amount of details required to attribute an item to memory.

Finally, source monitoring theory also accounts for different patterns of false memory for relative judgments. Our results consistently demonstrate that participants paired with a confederate possessing superior memory ability are more likely to remember suggested contagion items than participants who are paired with

a confederate possessing poor memory when their own memory for the scene is poor. However, when participant memory for the scene is good, the difference in suggested contagion items remembered between participants who were paired with a partner with superior memory and participants who were paired with a partner with poor memory is reduced. This suggests that when self-memory is good, participants are less likely to rely on the confederate than when self-memory is poor. When self-memory is poor, participants are more likely to look to their partner and notice memory performance. Source monitoring theory accounts for this by suggesting that relative judgments of memory accuracy are differentially influencing the likelihood of attributing items to the scene. As before, when self-memory is poor, they may adjust their response criteria to be more lenient. This increased leniency due to poor self-memory may interact with the tendency to pay more attention to a confederate and cause participants to notice confederate memory ability such that participants are strategically employing a lenient response criteria and are accumulating additional memory characteristics.

Practical Implications

The ability of human beings to exchange information is an integral aspect of human survival. It is unlikely that these conversations occur within a vacuum where all information is equally likely to be remembered. Instead, it is our belief that the likelihood of remembering information is influenced by quality judgments a person

makes about their own memory, the memory of their partner, and about their memory relative to the memory of their partner. Furthermore, as it is rare outside of the lab for a person engaged in conversation to be explicitly aware of the memory ability of their partner, it was important to determine if these judgments could be made spontaneously and without explicit instructions. While a vast body of research has examined the role of metamemory judgments regarding self-memory ability and partner memory ability, very few have examined the dynamic interaction of these two judgments. We believe the results of our experiments provide evidence that participant memory ability judgments and partner memory ability judgments do not act in insolation, but instead interact to influence memory. While the results from our post-experiment questionnaires robustly demonstrate that participants are aware of relative difference in memory ability between themselves and their partner, the recall and recognition data suggest that the likelihood of participants utilizing relevant confederate memory information is somewhat driven by judgments they make regarding their own memory ability. This suggests that while participants have recognized all of the relevant memory information, they are not necessarily utilizing this information to the same degree when their own memory is good.

In conclusion, the present experiments provided compelling evidence for the role of spontaneous relative judgments and the likelihood of committing memory errors within the social contagion paradigm. Overall, participants are more likely to incorporate errant suggested items when they believe their own memory to be poor, when they believe the memory of the confederate to be superior, and they are

marginally more likely to incorporate errant suggested items when they believe their own memory to be poor relative to the superior memory of the confederate. The present experiments are the first to examine the role of spontaneous inferences of memory ability in relative judgments of memory and final questionnaire data suggest that participants are aware of their own memory accuracy, the memory accuracy of the confederate, and the accuracy of their memory compared to the confederate without being explicitly informed about memory accuracy. Despite this awareness, participants do not always appear to utilize relative judgments of memory ability. We believe this is the most ecologically valid evaluation of the complex relationship between two conversation partners and the effect memory characteristics have on memory to date.

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APPENDICES

APPENDIX A

CONFEDERATE SCRIPT FOR FEUX PRACTICE SCENE

Junk Drawer Scene				
Watch (chip clip)	Money/dollar	Tennis ball	Fuzzy dice	Gum
Nail file (lighter)	Sunglasses	Computer mouse	Matches	Chip clip
Tweezers (rock)	Rubber band	Thread/sewing kit	Chapstick	
Lip gloss (perfume)	Poker chip	Chopsticks	Lighter	
Nail clippers (key)	Bandana	Duck	Beads/bracelet	
Stan Jefferson baseball card (duck)	TV remote	License plate	Bungee cord	
Dumbbell	Lint roller	Key	Rock	

APPENDIX B

EXPERIMENT 1

Condition 1

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Knives (frying pan)	Alarm clock (yo-yo)	Boxes (skateboard)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Toothbrush (hair dryer)	Blender (sponge)	Teddy bear (eye glasses)	Backpack (vacuum)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

Condition 2

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Knives (frying pan)	Lamp (mirror)	Boxes (skateboard)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Pill Bottle (razor)	Blender (sponge)	Pillow (quilt)	Backpack (vacuum)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

Condition 3

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Bananas (utensils)	Lamp (mirror)	Belt (mop)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Pill Bottle (razor)	Bread (wine bottles)	Pillow (quilt)	Shoes (shoe rack)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

Condition 4

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Bananas (utensils)	Alarm clock (yo-yo)	Belt (mop)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Toothbrush (hair dryer)	Bread (wine bottles)	Teddy bear (eye glasses)	Shoes (shoe rack)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

Condition 5

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Knives (frying pan)	Alarm clock (yo-yo)	Boxes (skateboard)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Toothbrush (hair dryer)	Blender (sponge)	Teddy bear (eye glasses)	Backpack (vacuum)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

Condition 6

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Knives (frying pan)	Lamp (mirror)	Boxes (skateboard)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Pill bottle (razor)	Blender (sponge)	Pillow (quilt)	Backpack (vacuum)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

Condition 7

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Bananas (utensils)	Lamp (mirror)	Belt (mop)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Pill bottle (razor)	Bread (wine bottles)	Pillow (quilt)	Shoes (shoe rack)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

Condition 8

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Bananas (utensils)	Alarm clock (yo-yo)	Belt (mop)
Deodorant (tissues)	Coffee pot (sink)	Curtains (stereo)	Closet door (scarf)
Toothbrush (hair dryer)	Bread (wine bottles)	Teddy bear (eye glasses)	Shoes (shoe rack)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

MANIPULATION CHECK/FINAL QUESTIONNAIRE

Part 1: Please answer the following questions about you and your partner (the person who did the scene discussion task with you) by circling the response that best reflects your agreement with the following statements:

1. How credible would you say your partner from today's study was? (1-Not Very Credible to 5-Very Credible)

   1 2 3 4 5

2. How accurate would you rate the memory of your partner from today's study? (1-Not Very Accurate to 5-Very Accurate)

   1 2 3 4 5

3. How accurate would you rate your own memory for today's study? (1-Not Very Accurate to 5-Very Accurate)

   1 2 3 4 5

4. How accurate would you rate the memory of your partner from today's study for the specific tasks (looking at items in a scene) you both performed today? (1-Not Very Accurate to 5-Very Accurate)

   1 2 3 4 5

5. How accurate would you rate your own memory from today's study for the specific tasks (looking at items in a scene) you and your partner performed today? (1-Not Very Accurate to 5-Very Accurate)

   1 2 3 4 5

6. How accurate would you rate your own memory for photographs? (1-Not Very Credible to 5-Very Credible)

   1 2 3 4 5

7. I feel that my partner and I share some similar beliefs and attitudes (1-Very Much Disagree to 5-Very Much Agree)

1 2 3 4 5

8. I feel my partner and I are alike in several ways (1-Very Much Disagree to 5-Very Much Agree)

1 2 3 4 5

9. If given the chance to work with someone on an unrelated psychology task, I would choose my partner (1-Very Much Disagree to 5-Very Much Agree)

1 2 3 4 5

10. How helpful was it to remember with your partner on the scene item recall task? (1-Very Unhelpful to 5-Very Helpful)

1 2 3 4 5

11. In your everyday life, how helpful is it to remember with someone else (e.g. a shopping list) (1-Very Unhelpful to 5-Very Helpful)

1 2 3 4 5

Part 2: Please answer the following questions about the scene item recall task and remembering with your partner.

1. Did you adopt any strategies to help you recall?

_____
_____
_____
_____

2. What were you doing while your partner was recalling words? (Please choose ONE response that best describes what you were doing the majority of the time)

☐ trying to use the other person's memory to help you remember

☐ thinking about if the other person was correct or not

☐ thinking of what you would say next

☐ something else:____

APPENDIX C

EXPERIMENT 2

Condition 1

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Nail clippers (plunger)	Dishwasher (napkins)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Spatula (frying pan)	Alarm clock (yo-yo)	Boxes (skateboard)
Contact solution (mascara)	Paper towel (hot sauce)	Curtains (stereo)	Closet door (scarf)
Toothbrush (hair dryer)	Blender (sponge)	Teddy bear (eye glasses)	Backpack (vacuum)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

Condition 2

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Dishwasher (napkins)	TV (phone)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Spatula (frying pan)	Lamp (laptop)	Boxes (skateboard)
Deodorant (tissues)	Paper towel (hot sauce)	Books (t-shirt)	Closet door (scarf)
Pill bottle (razor)	Blender (sponge)	Pillow (quilt)	Backpack (vacuum)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

Condition 3

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	TV (phone)	Coats (boots)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Bananas (utensils)	Lamp (laptop)	Belt (mop)
Deodorant (tissues)	Coffee pot (sink)	Books (t-shirt)	Socks (gym shorts)
Pill bottle (razor)	Bread (wine bottles)	Pillow (quilt)	Shoes (shoe rack)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

Condition 4

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Nail clippers (plunger)	Bowls (toaster)	Bed (window)	Coats (boots)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Bananas (utensils)	Alarm clock (yo-yo)	Belt (mop)
Contact solution (mascara)	Coffee pot (sink)	Curtains (stereo)	Socks (gym shorts)
Toothbrush (hair dryer)	Bread (wine bottles)	Teddy bear (eye glasses)	Shoes (shoe rack)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

Condition 5

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Nail clippers (plunger)	Dishwasher (napkins)	Bed (window)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Spatula (frying pan)	Alarm clock (yo-yo)	Boxes (skateboard)
Contact solution (mascara)	Paper towel (hot sauce)	Curtains (stereo)	Closet door (scarf)
Toothbrush (hair dryer)	Blender (sponge)	Teddy bear (eye glasses)	Backpack (vacuum)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

Condition 6

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Dishwasher (napkins)	TV (phone)	Board games (umbrella)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Spatula (frying pan)	Lamp (laptop)	Boxes (skateboard)
Deodorant (tissues)	Paper towel (hot sauce)	Books (t-shirt)	Closet door (scarf)
Pill bottle (razor)	Blender (sponge)	Pillow (quilt)	Backpack (vacuum)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

Condition 7

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Hair straightener (toothpaste)	Bowls (toaster)	TV (phone)	Coats (boots)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Loofa (mouthwash)	Bananas (utensils)	Lamp (laptop)	Belt (mop)
Deodorant (tissues)	Coffee pot (sink)	Books (t-shirt)	Socks (gym shorts)
Pill bottle (razor)	Bread (wine bottles)	Pillow (quilt)	Shoes (shoe rack)

15-seconds: Kitchen & Closet; 60-seconds: Bathroom & Bedroom

Condition 8

Bathroom	**Kitchen**	**Bedroom**	**Closet**
Bathtub (trash can)	Cheese grater (kettle)	Laundry basket (sheets)	Mittens (broom)
Nail clippers (plunger)	Bowls (toaster)	Bed (window)	Coats (boots)
Candle (toilet paper)	Microwave (oven)	Blankets (water glass)	Helmet (basketballs)
Towel (washcloth)	Bananas (utensils)	Alarm clock (yo-yo)	Belt (mop)
Contact solution (mascara)	Coffee pot (sink)	Curtains (stereo)	Socks (gym shorts)
Toothbrush (hair dryer)	Bread (wine bottles)	Teddy bear (eye glasses)	Shoes (shoe rack)

15-seconds: Bathroom & Bedroom; 60-seconds: Kitchen & Closet

MANIPULATION CHECK/FINAL QUESTIONNAIRE

Part 1: Please answer the following questions about you and your partner (the person who did the scene discussion task with you) by circling the response that best reflects your agreement with the following statements:

1. How credible would you say your partner from today's study was? (1-Not Very Credible to 5-Very Credible)

   1 2 3 4 5

2. How accurate would you rate your partner's memory for today's study? (1-Not Very Accurate to 5-Very Accurate)

   1 2 3 4 5

3. How accurate would you rate your own memory for today's study? (1-Not Very Accurate to 5-Very Accurate)

   1 2 3 4 5

4. If given the chance to work with someone on an unrelated psychology task, I would choose my partner (1-Very Much Disagree to 5-Very Much Agree)

   1 2 3 4 5

5. How helpful was it to remember with your partner on the scene item recall task? (1-Very Unhelpful to 5-Very Helpful)

   1 2 3 4 5

6. In your everyday life, how helpful is it to remember with someone else (e.g. a shopping list) (1-Very Unhelpful to 5-Very Helpful)

   1 2 3 4 5

Part 2: Please answer the following questions about the scene item recall task and remembering with your partner.

3. What were you doing while your partner was recalling words? (Please choose ONE response that best describes what you were doing the majority of the time)

   ☐ trying to use the other person's memory to help you remember

   ☐ thinking about if the other person was correct or not

   ☐ thinking of what you would say next

   ☐ something else:_____

4. Relative to your partner do you feel your memory for today's study was

   ☐ better

   ☐ the same

   ☐ worse

   ☐ something else:_____

APPENDIX D

FEUX PRACTICE TASK INSTRUCTIONS

- Thank you for agreeing to participate in our study on memory. Before we begin our primary task, we will be administering a brief practice test. We are practice testing a newly developed household scene, the "junk drawer" scene, and are interested in how well individuals can recall items from this scene. This initial test will also allow you to practice the turn taking recall procedure used in the actual experiment. For this task, you will see a common household scene presented on the computer screen. You job is to simply pay attention to this scene because your memory for it will be tested later. No response on the computer is necessary, simply pay attention as the computer displays the scene.
- Are there any questions?
- Press the [enter] key to begin.
- Now you are going to complete a recall task. You will take turns recalling items from the "junk drawer" scene you just saw. You are going to recall together, meaning you will take turns so that one of you recalls an item, and so on until you have recalled a total of 12 items from this scene.
- You will recall verbally and I will record your responses. You go first [point to subject]. Go ahead and tell me an item you remember from the desk scene. Now you tell me an item you remember from the desk scene [point to confed]. So on…
- The next thing that I need you to do is a series of math problems. Please complete as many of these problems as you can in the next two minutes.
- Next I will give you a practice individual recall task. I want you to recall as many items as you can from the "junk drawer" scene. This time, you will complete the task on your own. You will have four minutes to write down as many items you can from the scene. Once your time is up, I will collect your answers and give them to the other participant to be graded.
- Also, after each word, please put a R or a K. R stands for "remember" and K stands for "know". Remembering something implies you recollect that the item actually occurred in the scenes. You remember having thought about it or noted something about the way it looked-you actually remember having seen the item in the list. A know response means that you do not actually recollect the occurrence of the item, (you remember nothing specific about having seen it), but you nonetheless have a sense of familiarity and you know that the item was there. For each item, indicate you really remember it, or you kind of know it was there.
- On each line, please write a word and a R or a K.
- When your time is up, you will exchange your recall sheet with the other participant. You will then read their answers aloud and I will tell you if they are correct or incorrect. You will then total the number of correct and incorrect items at the bottom of the sheet.