Social Influence and Suggestibility in Recognition Tasks

Lioba Werth,
Fritz Strack, and
Jens Förster

This chapter focuses on judgment processes that people activate during recognition tasks in the absence of recollective experiences. Specifically, we argue that in reconstructive memory, missing recollective experiences could be compensated for by additional inferences. These inferences render memory susceptible to social influence. The basis for inferences could be provided not only by social influence, but also by metacognitive knowledge about one's own memory. A series of studies by the authors will demonstrate how both social influence and metacognitive knowledge may become the basis for inferences in recognition tasks.

Social Influence

Trying to find the terms "suggestion" or "suggestibility" in traditional social psychology textbooks is not easy, since these are not genuine social psychological terms. But social psychologists do have a concept that comes pretty close to suggestion, namely "social influence". Social influence is often defined as "efforts on the part of one person to alter the behavior or attitudes of others" (Baron & Byrne, 1994). This definition includes at least two meanings: First, it focuses on the massive effects of pressures towards conformity and obedience; second, it refers to more subtle techniques of influence involved in changing behavior and attitudes (for overviews, see Cialdini, 1993; Eagly & Chaiken, 1993; Turner, 1991), techniques that take advantage of people's "mental laziness". People are "cognitive misers" (Fiske & Taylor, 1984) who try to shorten cognitive processes whenever possible. In doing so they run the risk of using socially mediated information instead of more strenuous processes, for example systematic strategies (Kruglanski, 1989; Tetlock, 1992).

Research on social influence has usually focused on individuals' attitudes, values, beliefs, and behaviors (for exceptions see e.g., Loftus, 1975; Swann, Giuliano, & Wegner, 1982; Wegner, Erber, & Raymond, 1991), and rarely on memory. However,

memory seems to be a good way to study information processing and judgment because it is an important part of information processing. For example, many performance evaluations and decisions are built on memory-based information, for instance, on the remembered interpretation of behavior. In clinical psychology, individuals are asked to report experiences that happened a long time before. Legal proceedings often use eyewitnesses. In these cases the basis on which a judgment is made is the memory of the original information rather than the original information itself.

From a social-psychological perspective it seems reasonable to assume that if judgments in general are subject to social influence, the same should be true for memory judgments. If others can exert an influence on memory that is similar to the influence they may have on behaviors, attitudes, and judgments, such an influence on memory would be nothing other than suggestion. Studying the psychological mechanisms of social influence may thus be a fruitful path to understanding the somewhat elusive phenomenon of suggestion.

Reconstructive Memory

This approach involves a conceptualization of memory that emphasizes the constructive aspect of memory. It was Bartlett (1932) who first recognized the important role of judgments and inferences in remembering. In his seminal study, Bartlett demonstrated that British participants used their own cultural knowledge to infer details of the content of an Indian tale they were asked to recall. For instance, in the original version of the tale, the death of an Indian target person was described thus: "When the sun rose he fell down. Something black came out of his mouth. His face became contorted." (Bartlett, 1932; p. 127). When participants reproduced this phrase, they changed it to "his spirit fled" or "his spirit left the world". Furthermore, a "wound" described in the tale was "remembered" as a "wound of the flesh" and not "of the spirit" as in the original version. Thus, remembering is an act of construction and reconstruction into which the individual's knowledge is integrated. If people base their memory judgments on alternative judgment grounds, for example their cultural knowledge, it seems reasonable that they might also base their memory judgments on socially mediated information (information provided by others). In this way, social influences might similarly be integrated in such a reconstruction process.

Relevant findings for social influence in memory tasks come from the work of E. Loftus and her colleagues (Loftus, Miller, & Burns, 1978). The authors demonstrated that the implicit claim of an event's occurrence is sufficient to distort people's memory. Specifically, when participants were asked memory questions with a definite article (e.g., "Did you see the blue car?"), it was implicitly presupposed that the target of the question had, in fact, been presented. In contrast, no presupposition was implied if the same question was asked with the indefinite article (e.g., "Did you see a blue car?"). This manipulation resulted in more yes responses when the definite article was used, even if the target of the question had not been presented. In a series of similar studies,

the authors offered convincing evidence for this kind of social influence in memory tasks (Loftus, 1975; Loftus & Hoffman, 1989; Loftus, Miller, & Burns, 1978; Loftus & Palmer, 1974). In another study (Loftus & Palmer, 1974), individuals watched films of car accidents and had to answer a series of questions. The question, "About how fast were the cars going when they smashed into each other?" elicited higher estimates of speed than questions that used the verbs collided, bumped, contacted, or hit instead of smashed. Later, those participants who had been given the verb smashed were more likely to respond "yes" to the question, "Did you see any broken glass?," even though there was no broken glass in the film. These results support the view that the questions asked subsequent to an event can cause a reconstruction of that event in a person's memory. In short, researchers influenced memory judgments by providing plausible bases for drawing inferences about the event participants were asked to remember.

These findings paint a pretty bleak picture of how susceptible people are when it comes to memory. The mere use of the definite article or special verbs affected recollection. This raises the question about the antecedents of social influence. According to the literature on social influence (e.g., Festinger, 1954; see Kahneman & Tversky, 1972; Sherif, 1935), individuals are particularly susceptible to social influence when they are not confident in their own judgments of a situation. In order to reduce their uncertainty, individuals will rely on information that is available in the specific situation, for example, information subtly or blatantly provided by the questioner. We theorize that the same is true in the context of memory: Social influence on memory is most likely to occur when individuals lack confidence in their amnestic beliefs. Individuals may lack confidence in their memory especially when they cannot remember the target of the question. A missing recollection can be ambiguous: It may reflect the fact that the stimulus has not been presented, or that it has been presented but its presentation cannot be remembered (e.g., due to forgetting, interference, etc.).

In the discussion that follows we will argue that there is an additional mechanism to social influence which might operate in the above described judgment situation. When a recollection is missing, individuals might use their metacognitive knowledge for resolving the ambiguity. Metacognitive knowledge is defined as knowledge about one's own cognitions (see Nelson, 1996). In our conceptualization, this refers to idiosyncratic knowledge, or even just presumed knowledge about one's own psychological functioning in the broadest sense (e.g., " Knowing myself, I would remember that!"). Yet, this does not imply that individuals have introspective access to this knowledge. On the contrary, we assume that individuals are frequently not even able to identify the actual causes of their decision, since they have no direct introspective access to themselves and have to rely on inferences instead (see Nisbett & Wilson, 1977). A typical finding, for example, is that judgments are based on feelings of familiarity (e.g., Whittlesea, 1993). And because individuals usually cannot indicate the actual source of this feeling of familiarity, they have to attribute it to a source - for example, the prior presentation of the stimulus - in order to arrive at a judgment.

How might individuals use this metacognitive knowledge for solving a memory task? Imagine, for example, a person being asked whether she saw a blue Fiat in front of her house. Let us assume that the person does not have a recollective experience of a blue Fiat. As described above, this missing recollection is ambiguous and makes additional inferences necessary. Assume that instead of being asking about the blue Fiat, the person is asked whether she saw a space ship that landed in front of her house. Although the person has no recollection, she would deny such an occurrence with great confidence, and do so regardless of social influence, for example, the use of the definite or indefinite article (Strack & Bless, 1994). The difference between both situations is that the individual can draw the inference that she would remember the space-ship because it is considered to be highly memorable, whereas the Fiat might very well have been parked in front of the house. In a nutshell, in order to decide whether the missing recollection is due to the fact that the stimulus was not presented, people might use knowledge about whether they would have remembered a particular stimulus had it been presented.

We will now present a series of studies that demonstrate how missing recollections could be compensated for with inferences based on metacognition. Each study is concerned with a different aspect of metacognitive knowledge: One study investigated meta-attentional knowledge, that is, a person's belief whether he or she noted a particular stimulus. Other studies were aimed at metamnestic knowledge, which focuses on the memorability of stimuli. Another study compared nomothetic metamnestic knowledge to idiosyncratic metamnestic knowledge.

Studies on Metacognition in Recognition Paradigms

All studies are based on the same recognition paradigm, which we will briefly describe here: Participants have to decide whether a provided test item has been presented before or not, that is, whether it is "old" or "new". To render such a decision meaningful, some of the stimuli were presented before ("targets") and some were not ("distractors"). Only yes answers were used for the statistical analysis.

Meta-attentional Knowledge

"Would you have remembered the helicopter?"

Strack and Bless (Strack & Bless, 1994; Bless & Strack, 1998) contrasted suggestive knowledge (social influence) to metaattentional knowledge as judgment bases in a recognition paradigm. Metaattentional knowledge was operationalized through the following procedure. Participants were led to believe that they would have remembered a test stimulus by increasing the salience of certain stimuli. Under incidental learning conditions, participants were presented a series of slides that depicted 30 tools and five additional objects not belonging to this category. Because the tools were in the majority, it was assumed that the non-tools would be salient and therefore recognized more easily (see von Restorff, 1933).

It was hypothesized that participants might infer that salient stimuli should be regarded as more memorable than nonsalient ones. Because participants know they would have recognized the stimulus had it been actually presented (metaattentional knowledge), they could be very confident that the absence of a recollective experience implies nonoccurrence. In this case, individuals are unlikely to rely on information provided by others and should therefore be minimally susceptible to social influence. In contrast, if individuals have no reason to believe that they would remember the event in question, they cannot attribute the missing recollection to nonoccurrence but have to rely on alternative inference strategies. Because one such strategy could be the reliance on information provided by others, individuals in this situation should be more susceptible to social influence.

In the same study, participants were therefore provided with alternative knowledge to infer previous presentation of a test item. Using the procedure that was introduced by Loftus et al. (1978), half the participants were presented test items with the definite article, the other half were presented test items with the indefinite article. The impact of the different articles on the recognition judgments reflects the degree of social influence operating in the memory situation. Thus, both metaattentional knowledge and suggestive knowledge were available for inference.

The results supported the prediction. Whereas the recognition of target stimuli was not affected by the salience manipulation, the rejection of distractors was clearly a function of their salience. That is, while approximately a third of the nonsalient distractors were falsely recognized, all salient distractors were correctly rejected when they had not been presented before. Moreover, participants did this with high confidence.

The exertion of social influence was only effective when participants had no recollective experience and when metaattentional knowledge was not applicable (in the case of nonsalient items). Given the belief in the high memorability of salient items, participants could presumably be very confident that the absence of a recollective experience for these items implied non-occurrence. As a consequence they refrained from applying alternative inference strategies that implied reliance on linguistic information provided by the questioner. In contrast, for nonsalient items it was impossible for participants to determine whether they would have remembered the item had it been presented. As a consequence of this uncertainty, the information implied in the wording of the question was used to generate the answer. The preference given to metaattentional knowledge as a judgment basis could even lead to a decrease in the simultaneously existing danger of social influence.

Generalizing the above findings, one can draw the following conclusions: (1) If a person has a clear recollection of the occurrence of an event, it is difficult to "convince" him/her via questioning that the event did not occur; (2) if a person has no clear recollection of the occurrence of an event, but knows that its occurrence would have caused such a recollection by virtue of its noticeability, it is difficult to "convince" him/her via questioning that the event did occur.

The following studies were meant to extend these findings and to examine the underlying cognitive processes of metacognition-based inferences. By varying the stimulus material and the kinds of metacognitive beliefs, it should be possible to show again that knowledge about one's own memory moderates inferences that are based on the absence of a recollective experience. Instead of opposing these metacognitive theories to social influence, we put the focus on the "influential" aspect of these theories. In the first experiment, participants' (preexisting) metacognitive beliefs were simply assumed. The question that arises is whether it is possible to manipulate such metacognitive theories experimentally. In other words: Is there a suggestibility not only for socially based inferences but for metacognitively-based inferences as well? Thus, for the benefit of contrasting different metacognitive theories, we left out social influence as an alternative basis of judgment.

In the following experiment, rather than assuming participants' metaattentional knowledge (as in the previous experiment), we assessed and manipulated participants' metamnestic knowledge.

Metamnestic Knowledge

Counting Syllables versus Finding Mistakes

In this experiment, both participants' memory performance and their metamnestic knowledge were influenced by how they encoded the presented information (Strack & Förster, 1998, Strack, Förster, & Werth, 2000). Different levels of encoding were operationalized by having participants count the syllables of some words and find an orthographical mistake in other words. Finding mistakes requires a "deeper" semantic representation, whereas counting syllables merely requires a "shallower" phonological representation of the words in the acquisition set (see Craik & Lockhart, 1972). It was assumed that words for which subjects had formed a semantic representation would be remembered better than words that are only phonologically encoded. After the incidental learning task, participants were given an unexpected recognition test. Subsequently they had to indicate whether counting syllables or finding spelling errors had been more helpful for them when they were confronted with the unexpected memory task.

Given these different levels of encoding, we expected that, independent of their beliefs, participants would be better at recognizing target words in which they had found spelling mistakes than at recognizing words whose syllables they had counted. Participants' rejection of distractor words, in contrast, should depend on their beliefs about which task would better enhance their memory for words. The results confirmed the predictions. In the absence of a recollective experience (in the case of a distractor item), participants who believed that they would have remembered a stimulus that was encoded under a specific encoding condition were more likely to reject the particular item. Conversely, participants who were not sure whether they would have remembered a word presented under the circumstances were less likely to base their decision on

the absence of the experience. To sum up, consistent with the findings reported by Strack and Bless (1994), participants used their beliefs about the metamnestic influence of the different levels of encoding when they were asked to decide whether or not a given word had been previously presented.

The fact that participants' metamnestic beliefs were assessed after the test phase did not rule out the possibility that participants' beliefs were a function of their memory performance. Therefore, the following experiment was conducted in which participants' metamnestic beliefs were experimentally induced.

Music - A Safeguard Against Suggestibility?

To induce metamnestic knowledge experimentally we employed the following procedure (Förster & Strack, 1998; Strack & Förster, 1998). While listening to music, all participants learned some words that they were then asked to recall. Participants' metamnestic knowledge was manipulated in this experiment when they received systematically varied feedback about their performance. More specifically, half of the participants were led to believe that music enhanced their learning, and half received feedback that led them to believe that music inhibited their learning. After receiving this feedback, participants were asked to learn another set of items, some of which were accompanied by background music. As in the previous studies, participants were then given a recognition task, and were asked to report whether the recognition test items had been presented in the learning task or not.

We expected that participants who were led to believe that music had an inhibiting effect would be more likely to reject distractor items which belonged to the set of items that was learned without music. In contrast, we expected participants who were led to believe that music had a facilitating influence on memory to reject more distractor items which belonged to the set of items that was learned with music.

The results of this study confirmed the predictions. When participants believed that they would remember the particular item had it actually been presented, they could attribute the absence of a recollective experience to the nonoccurrence of the stimulus. Consequently, participants were more likely to reject distractor items than when they could not apply such metamnestic beliefs.

Interestingly, the induction of the two metamnestic beliefs (music facilitates versus inhibits learning performance) was not equally successful. The effects for the "music is facilitative" condition were weaker than in the "inhibitive" condition - probably because participants were less willing to believe in the facilitating effect of the somewhat arrhythmic and emotive piece of music ("Sacre du Printemps", Igor Stravinsky). Thus, it was not possible to induce in the participants a metacognitive theory that was contrary to their intuitive perception. We will return to this point when we discuss the boundary conditions for suggestibility (general discussion). In order to exclude counter-working perceptions, we used different stimulus material and a different belief induction in the next experiment.

Meta-cognitive Strategies Based on Word-Frequency

To induce different metamnestic beliefs from those in the previous experiment, we took advantage of the well-documented findings that people are better at recalling high frequency words and better at recognizing low frequency words (Glanzer & Adams, 1985). Provided that participants are not aware of the differential effects of the two memory tasks, having subjects either recall or recognize high and low frequency items might induce them to believe that their memory is better for either high or low frequency words (Strack & Förster, 1998, Strack, Förster, & Werth, 2000). The experiment, therefore, consisted of a belief induction phase in which participants had to learn high frequency and low frequency words and in which they had to either recall or recognize the words presented. Subsequently, participants had to evaluate their performance. As a result of the evaluation, participants who were assigned to the recall condition yielded a better memory performance for high frequency words and believed that they would be better at remembering those words than words that were rare. Conversely, participants who were assigned to the recognition condition yielded a better performance for non-frequency words and believed that they would be better at remembering those words than words that were higher in frequency.

In the test phase participants again had to learn high and low frequency words. Afterwards they were given two different recognition tests, one consisting of low frequency items and one consisting of high frequency items. It was predicted that metamnestic inferences would be a function of participants' initially induced beliefs about their idiosyncratic ability. Specifically, subjects who were led to believe that their memory was better for high-frequency words should subsequently be more likely to reject high-frequency distractor words; conversely, participants who believed that their memory was better for low-frequency words should be more likely to reject low-frequency distractor words.

As predicted, the results showed that metamnestic knowledge was used for drawing inferences. Based on their beliefs about their own memorability of high- versus low-frequency words, participants tended to reject words from the category that allowed them to conclude that they would have remembered them had they been presented. Thus, in line with the previous studies, inferences based on meta-amnestic knowledge (even if induced) could be used to compensate for missing recollections.

Idiosyncratic Versus Nomothetic Induced Metacognitions

The procedure employed here to induce metamnestic beliefs based on the word-frequency-effect (Glanzer & Adams, 1985) was ambiguous. By evaluating their own memory performance in the induction phase, participants' acquired their metamnestic knowledge. This procedure allowed two different ways in which metamnestic inferences could have been influenced. On one hand, participants could have accepted it as a general truth that either high or low frequency words are more memorable and applied this nomothetic finding to themselves. On the other hand, participants may have considered the memory performance as an idiosyncratic information which applied to them in particular and not necessarily to the general population. Therefore, the following experiment aimed to contrast idiosyncratically and nomothetically mediated metacognitive beliefs.

As in the last study, participants were led to believe that their memory was better for either high or low frequency items. In the induction phase, participants had to learn high and low frequency words. But in contrast to experiment 4, all participants had to recall the words (presented by having them enter the words into the computer). After they had finished the recall task, participants received a computer-based evaluation of either their own performance or the average performance of all participants. In both conditions a better memory for either high or low frequency words was indicated. In the test phase participants again had to learn high and low frequency words. Afterwards they were given two different recognition tests, one consisting of low and one consisting of high frequency items.

It was predicted that metamnestic inferences would be a function of participants' initially induced beliefs about their idiosyncratic ability. In contrast, it was predicted that such inferences would not be drawn if they had been indicated within the induction as the nomothetic ability of people in general.

The results were that the pattern of the previous studies was replicated for the idiosyncratic-feedback-condition. For low-frequency words, there were more rejections of distractor items if people were convinced that they were better at remembering high-frequency items. The reverse was true for high-frequency items. In contrast, when the feedback was introduced as the average performance of people in general, metamnestic knowledge had no effects. In this case, participants did not use their knowledge for drawing inferences when recollections were missing. Thus, the results suggest that people's inferences are more likely to be influenced by metamnestic information when this information refers to idiosyncratic memory functions.

Discussion

In sum, these findings indicate that participants' metacognitive knowledge or beliefs about their own memory affect recognition performance. Whether this knowledge is measured or experimentally induced via stimulus salience, personal experience, or communication, it serves to resolve ambiguities about the absence of a recollective experience. Moreover, it was not relevant whether or not individuals' assumptions about memory processes matched actual effects. Individuals only had to believe that their memory was affected by a specific variable.

Of course, beside metacognitive knowledge about memorability, there are many other types of metacognitive knowledge that can be derived from many different sources (Nelson, Kruglanski, & Jost, 1998). On one hand, momentary feelings or impressions could provide a basis for metacognitive judgments, for example feelings of familiarity (e.g., that a sense of fluency or familiarity indicates the prior presentation of the stimulus, Banaji & Greenwald, 1995; Jacoby, Kelley, Brown, & Jasechko, 1989) and

feelings of uncertainty (Clore & Parrott, 1994). On the other hand, subjective theories that are more enduring could function as bases for metacognitive judgments, for example theories about personal stability and change (Dweck, Hong, & Chiu, 1993; Levy & Langer, 1994), theories about biasing and correction (Wegener & Petty, 1995), as well as theories about memorability presented here (Bless & Strack, 1998; Förster & Strack, 1998; Strack & Bless, 1994; Strack & Förster, 1998; Strack, Förster, & Werth, 2000). In sum, it appears that such metacognitive knowledge may include momentary feelings as well as naive theories about the functioning of memory or other processes.

More generally, numerous variables may influence individuals' attribution of a missing recollective experience and, as a consequence, individuals' susceptibility to social influence. This was shown on the basis of various stimulus-materials (series of slides, Strack & Bless, 1994; films, events, Loftus et al., 1974, 1978) and tasks (reproduction of events, person descriptions, Loftus et al., 1974, 1978; recognition of words, Strack & Bless, 1994). However, the above described effects do not occur under all conditions (e.g., Hall, Loftus, & Tousignant, 1984).

Boundary Conditions for Social Influence

As outlined in the beginning, low confidence in one's own memory and judgment is one of the preconditions for the effectiveness of social influence (Strack & Bless, 1994). The higher the uncertainty with the memory task, the greater people's tendency to rely on alternative judgment grounds. In many cases, judgments under uncertainty are made using simple rules of thumb or judgmental heuristics (Tversky & Kahneman, 1974) which help to reduce a complex or even ambiguous decision situation to a simple, or at least less ambiguous, judgment situation.

There are many other variables that enhance the likelihood for social influence being effective. Time pressure (Strack, Erber, & Wicklund, 1982), cognitive load (Gilbert, Pelham, & Krull, 1988), and judgmental ambiguity (Sherif, 1935) are only a few of them. In the case of memory, recollective experiences affect the likelihood of uncertainty and, as a consequence, of suggestibility. The weaker the recollective experience, the higher suggestibility (Loftus et al., 1978); the stronger the recollective experience, the lower suggestibility. This was shown for target items for which a recollective experience was available (e.g., first study) and for which suggestible influences had no effect.

Furthermore, the effectiveness of social influence is reduced when individuals are made aware of social influence (Köhnken, 1987; Strack, Schwarz, Bless, Kübler, & Wänke, 1993). Evidence suggests that the influence of the definite versus indefinite article is only effective as long as its informational value is not discounted: If a questioner was presumed to be interested in misleading the respondent, the impact of social influence (here: the use of the definite versus indefinite article; Loftus, 1975) diminished (Dodd & Bradshaw, 1980). Similarly, if the questioner was not assumed to be knowledgeable about the event in question, the use of the article had no impact on the respondents' judgments (Smith & Ellsworth, 1987).

Moreover, as we have outlined before, Study 3 shows that there is another limit to suggestibility. When the suggested information seems to be very implausible for the individual (in this study the belief that loud music facilitates memory performance), it is unlikely that it is used for drawing inferences. Thus, the effectiveness of misleading information depends mainly on the perceived discrepancy between the participant's memory, knowledge, and the suggestive information (see Köhnken, 1987). Suggestion is only effective if the individual does not discount the informational value of the suggestive information.

As was shown in Study 1, participants preferred metacognitive knowledge and even ignored the simultaneously provided suggestive information. One might speculate that individuals have more confidence in their own knowledge than in socially mediated information (see Wagenaar, 1988). Whether preference for metacognitive knowledge leads in fact to more accurate judgments than social influence depends on the validity of both the socially mediated information and the metacognitive knowledge. However, the studies presented here demonstrate that the only precondition for the preferential use of metacognitive knowledge was that individuals had to believe that their memory was affected by a specific variable.

Conclusion

In this chapter, we have focussed on the reconstructive aspect of memory, which includes inferences besides recollective experiences. In accordance with a reconstructive approach, we have argued that individuals' knowledge about their own psychological functioning can serve as a basis for memory judgments and even decrease the effect of social influence. The present approach could be a fruitful framework for understanding the somewhat elusive phenomenon of suggestion, or more generally, of social influence on memory. Moreover, these studies suggest that idiosyncratic metacognitive knowledge is an opponent to susceptibility. Thus, from the studies presented here one could draw the following conclusions:

If a person has a clear recollection of the occurrence of an event, it is difficult to suggest that the event has not occurred. If a person has no clear recollection of the occurrence of an event, but knows that its occurrence would have caused such a recollection, it is difficult to suggest that the event has occurred. Suggestions - social influences on memory - are most likely to be successful when (1) there is no recollection of occurrence, (2) no knowledge about the occurrence's potential for recollection, and (3) low confidence that the event had been encoded.

We might speculate that an increase in individuals' knowledge about their own attitudes, beliefs, and behaviors is one of the keys to decreasing the susceptibility to social influence.

References

Banaji, M.R., & Greenwald, A.G. (1995). Implicit gender stereotyping in judgments of fame. *Journal of Personality and Social Psychology, 68*(2), 181-198.

Baron, R.B., & Byrne, D. (1994). *Social Psychology. Understanding human interaction* (7th ed.). Boston: Allyn and Bacon.

Bartlett, F.C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge: University Press.

Bless, H., & Strack, F. (1998). Social influence on memory: Evidence and speculations. In V. Yzerbyt, & B. Dardenne (Eds.), *Metacognition: Cognitive and social dimensions*, 90-106. Thousend Oaks, CA: Sage.

Cialdini, R.B. (1993). *Influence: Science and practice* (3rd ed.). New York: HarperCollins.

Clore, G.L., & Parrott, W.G. (1994). Cognitive feelings and metacognitive judgments. *European Journal of Social Psychology, 24,* 1, 101-115.

Craik, F.I.M., & Lockhart, R.S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior, 11*, 671-684.

Dodd, D.H., & Bradshaw, J.M. (1980). Leading questions and memory: Pragmatic constraints. *Journal of Verbal Learnig and Verbal Behavior, 19*, 695-704.

Dweck, C.S., Hong, Y., & Chiu, C. (1993). Implicit theories: Individual differences in the likelihood and meaning of dispositional inference. *Personality and Social Psychology Bulletin, 19*, 5, 644-565.

Eagly, A.H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth: Harcourt Brace Jovanowich.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7,* 117-140.

Fiske, S.T., & Taylor, S.E. (1984). *Social cognition.* Reading, MA: Addison-Wesley.

Förster, J., & Strack, F. (1998). Subjective theories about encoding may influence recognition: Judgmental regulation in human memory. *Social Cognition, 16(1),* 78-92.

Gilbert, D.T., Pelham, B.W., & Krull, D.S. (1988). On cognitive busyness: When person perceivers meet persons perceived. *Journal of Personality and Social Psychology, 54,* 733-740.

Glanzer, M., & Adams, J.K. (1985). The mirror effect in recognition memory. *Memory & Cognition, 13*, 8-20.

Hall, D.F., Loftus, E.F., & Tousignant, J.P. (1984). Postevent information and changes in recollection for natural events. In G.L. Wells, & E.F. Loftus (Eds.), *Eyewitness testimony: Psychological perspectives* (pp. 124-141). Cambridge: University Press.

Jacoby, L.L., Kelley, C., Brown, J., & Jasechko, J. (1989). Becoming famous overnight: Limits on the ability to avoid unconscious influences of the past. *Journal of Personality and Social Psychology, 56*(3), 326-338.

Kahneman, D., & Tversky, A. (1972). Subjective probability: A judgment of representativeness. *Cognitive Psychology, 3,* 430-454.

Köhnken, G. (1987). Nachträgliche Informationen und die Erinnerung komplexer Sachverhalte - Empirische Befunde und theoretische Kontroversen. *Psychologische Rundschau, 38*, 190-203.

Kruglanski, A.W. (1989). *Lay epistemics and human knowledge: Cognitive and motivational biases.* New York: Plenum.

Levy, B., & Langer, E. (1994). Aging free from negative stereotypes: Successful memory in China among the American deaf. *Journal of Personality and Social Psychology, 66,* 6, 989-997.

Loftus, E.F. (1975). Leading questions and the eyewitness report. *Cognitive Psychology, 7,* 560-572.

Loftus, E.F., & Hoffmann, H.G. (1989). Misinformation and memory: The creation of new memories. *Journal of Experimental Psychology: General, 118(*1), 100-104.

Loftus, E.F., Miller, D.G., & Burns, H.J. (1978). Semantic integration of verbal information into a visual memory. *Journal of Experimental Psychology: Human Learning and Memory, 4,* 19-31.

Loftus, E.F., & Palmer, J.C. (1974). Reconstruction of automobile destruction: An example of the interaction between language and memory. *Journal of Verbal Learnig and Verbal Behavior, 13*, 585-589.

Nelson, T.O. (1996). Consciousness and metacognition. *American Psychologist, 51 (2),* 102-115.

Nelson, T.O., Kruglanski, A.W., & Jost, S.T. (1998). Knowing thyself and others: progress in metacognitive social psychology. In V.K. Yzerbyt, G. Lories, & B. Dardenne (Eds.), *Metacognition. Cognitive and social dimensions* (pp. 69-89). London: Sage.

Nisbett, R.E., & Wilson T.D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84,* 231-259.

Sherif, M. (1935). A study of some social factors in perception. *Archives of Psychology, 2*, 187.

Smith, V.L., & Ellsworth, P.C. (1987). The social psychology of eyewitness accuracy: Misleading questions and communicator expertise. *Journal of Applied Psychology, 72*, 294-300.

Strack, F., & Bless, H. (1994). Memory for nonoccurrences: Metacognitive and presuppositional strategies. *Journal of Memory and Language, 33*, 203-217.

Strack, F., Erber, R., & Wicklund, R. (1982). Effects of salience and time pressure on ratings of social causality. *Journal of Experimental Social Psychology, 18*, 581-594.

Strack, F., & Förster, J. (1998). Self-reflection and recognition: The role of metacognitive knowledge in the attribution of recollective experience. *Personality and Social Psychology Review, 2*(2), 111-123.

Strack, F., Förster, J., & Werth, L. (2000). Know thyself! The role of metamnestic knowledge in recognition memory. *Manuscript submitted for publication.*

Strack, F., Schwarz, N., Bless, H., Kübler, A., & Wänke, M. (1993). Awareness of the influence as a determinant of assimilation versus contrast. *European Journal of Social Psychology, 23,* 53-62.

Swann, W.B., Giuliano, T., & Wegener, D.M. (1982). Where leading questions can lead: The power of conjecture in social interaction. *Journal of Personality and Social Psychology, 42,* 1025-1035.

Tetlock, P.E. (1992). The impact of accountability on judgment and choice: Toward a social contingency model. In M.P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp.331-376). San Diego, CA: Academic Press.

Turner, J.C. (1991). *Social influence*. Buckingham: Open University Press.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science,* 1124-1130.

Von Restorff, H. (1933). Über die Wirkung von Bereichsbildungen im Spurenfeld. *Psychologische Forschung, 18*, 299-342.

Wagenaar, W.A. (1988). Calibration and the effects of knowledge and reconstruction in retrieval from memory. *Cognition, 28,* 277-296.

Wegener, D.T., & Petty, R.E. (1995). Flexible corrections processes in social judgment: The role of naive theories in corrections for perceived bias. *Journal of Personality and Social Psychology, 68*, 36-51.

Wegner, D., Erber, R., & Raymond, P. (1991). Transactive memory in close relationships. *Journal of Personality and Social Psychology, 61,* 923-929.

Whittlesea, B.W.A. (1993). Illusions of familiarity. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 19*(6), 1235-1253.

This research was supported by a grant from the Deutsche Forschungsgemeinschaft (Fo244/3-3). We would like to thank Hans-Peter Erb, Roland Deutsch, Michael Häfner, Thomas Mussweiler, Roland Neumann, Beate Seibt, and Sabine Stepper for their helpful comments. We would also like to thank Markus Denzler, Sonja Eiden, Simon Finkeldei, Susanne Fuchs, Yvonne Körner, and Bärbel Schöppner for collecting the data. We would like to acknowledge Herbert Bless for his helpful comments and cooperation in this project.

Suggestibility and Imagery during Attribution of Meaning to Ambiguous Figures

Francesco S. Marucci and Maria Meo

High and low suggestible subjects were compared in their ability to attribute meanings and to recognize both things and objects in relation to a composite figural pattern via cognitive integration of information. Figural stimuli with high and low number of attributed meanings were used. Two different kinds of instructions inducing opposite expectations were also used. One instruction suggested to subjects, plausibly, that high levels of cognitive capacity support the attribution of a high number of meanings. The second instruction, in contrast to usual belief, suggested that a more efficient cognitive ability does not favour such a high number of meanings. The number of meanings and reaction time to the first attributed meaning were obtained. Split-plot ANOVAs were performed between high and low suggestible groups. The high suggestible group, compared to the low suggestible one, showed a higher number of attributed meanings for the stimuli suggested and produced high levels of meaning. High suggestible subjects, as compared to low ones, displayed shorter RT for figural stimuli in the condition suggesting a low number of meanings. Results support Gheorghiu's and Kruse's ambiguity-disambiguity theory wherein high suggestible persons, as compared to low ones, display higher ability in the attribution of meanings and clearer solutions to ambiguous stimuli.

In recent years the systematic study of the nature of suggestion and suggestibility and their relationship with other psychological phenomena (such as hypnotizability, absorbtion, imagery and imagination) has shown strong effects both from a theoretical and experimental point of view. Suggestibility is clearly a multidimensional phenomenon. Different theoretical and experimental approaches to the study of this phenomenon reflect different conceptions relating to the relationship between suggestion and