The effects of social pressure on group recall

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In two experiments, individual subjects worked in conjunction with two perceived group members to recall six 30-item categorized word lists. The perceived group members' recall levels were manipulated to establish either high or low group standards. After participating in the perceived group, subjects completed a surprise final individual recall test that covered all of the presented material. On the basis of the hypothesis that the subjects' performance would be affected by social pressure, it was predicted that subjects working in high-performing groups would recall more words than subjects working in low-performing groups on both the group recall tests and the final individual recall test. These predicted results were observed. Thus, a complete analysis of the group recall environment should include a consideration of conformity theory whereby subjects' memories can be affected by their group members' output levels.

The pressure to conform to group standards represents one of the most predominant and powerful influences on human behavior. Although conformity effects have been systematically investigated since the early 1900s (see Binet, 1900, as cited in Fancher, 1996), perhaps the most widely known and influential laboratory demonstrations of conformity were conducted by Solomon Asch in the 1950s (Asch, 1952, 1955, 1956). Asch found that subjects often made incorrect line length judgments in accordance with confederates' responses, even though, presumably, they could easily discern which of three presented lines matched a target line. Asch's results were surprising in the sense that a majority of adults provided the experimenter with obviously incorrect information rather than contradict the members of a group in which they were working (see Bond & Smith, 1996, for a meta-analysis of studies using the Asch paradigm).

Since Asch's experiments (1952, 1955, 1956), a great many studies have examined the impact of social influences on behavior (see McIlveen & Gross, 1999; Wren, 1999, for reviews). In one particularly clever experiment, Asch's paradigm was modified to eliminate the inefficiency associated with using confederates. Crutchfield (1955) had subjects respond to questions in a perceived group environment while seated individually in separate cubicles. For each question, the subjects were exposed to a number of answers from purported group members and were then asked to respond themselves. Although dissimilar from the Asch experiments because the subjects were not seated face to face, the results were strikingly similar: The subjects often conformed to obviously incorrect responses in order to fit in with the group.

Despite the fact that there are numerous opportunities for social influences such as conformity to affect an individual's cognitive functioning, only a handful of studies have been conducted on the topic. Many of those have focused on the effects of social influences on memory. Social influences have been found to affect subjects' ability to recall word lists (Basden, Basden, Bryner, & Thomas, 1997; Weldon & Bellinger, 1997) and to recall stories (Betz, Skowronski, & Ostrom, 1996). In addition, misinformation introduced by others has been found to have a profound effect on what one remembers (Basden, Reysen, & Basden, 2002; Loftus, 1979; Roediger, Meade, & Bergman, 2001; Wright, Self, & Justice, 2000).

Although the aforementioned studies observed social influence effects on memory, none of them specifically addressed whether conformity pressure can affect memory performance. To date, three studies have demonstrated conformity effects on memory (Reysen, in press; Schneider & Watkins, 1996; Walther et al., 2002). However, all three were conducted using a recognition paradigm. Many real-world situations in which individuals remember information with the help of others involve recalling rather than recognizing information. Thus, demonstrating social influence effects on recall represents an important extension of prior observations of conformity effects on memory performance. The purpose of the present study was to attempt, for the first time, to examine the effects of conformity pressure on recall performance.

In the present experiments, individual subjects worked in conjunction with two perceived group members to recall six 30-item categorized word lists. A stimulus set of this size seemed likely to avoid ceiling effects, and it provided ample space for manipulating group output levels. The categorized word lists facilitated the administration of a final individual recall test by making it possible to ask subjects to recall instances from specific categories. Furthermore, the categorized lists allowed for a more de-

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tailed analysis of extralist intrusions. More specifically, if a subject ran out of items to recall but wished to keep up with his/her group members, he/she could more easily generate plausible items. A perceived group consisted of an individual subject under the false impression that (s)he was working in a group. The deception was maintained through misleading instructions and bogus responses (see Crutchfield, 1955). The perceived group members' recall levels were manipulated to establish either high group standards or low group standards. After participating in the perceived group, the subjects completed a surprise individual recall test that covered all of the presented material. Would the number of words that a subject's group members recalled affect his/her recall performance?

The conformity literature suggests several specific predictions. First, conformity theory clearly predicts that subjects working in high-performing groups should recall more words than should subjects working in low-performing groups. Subjects working in high-performing groups should feel compelled to keep up with their high-performing members, whereas subjects working in low-performing groups should have no such motivation. Provided that subjects in high-performing groups recall more words than those in low-performing groups, two additional predictions can be made. First, one might expect the incidence of intrusions to be greater in high-performing groups than in low-performing groups as subjects strive to keep up with their high-performing group members. Second, subjects in high-performing groups should recall more words than should subjects working in low-performing groups on the final individual recall test. This prediction follows from the fact that one's having recalled items on a previous test increases the likelihood that those items will be recalled again (Roediger, Jacoby, & McDermott, 1996).

Interestingly, the literature on part-set cuing, a traditional memory phenomenon, predicts the opposite outcome. The group recall portion of the present experiments can be conceptualized as a kind of part-set cuing design. During group recall, list items are re-presented periodically (through bogus responses) with intervening opportunities for the subject to recall other list items. In part-set cuing experiments, subjects are provided with a portion of a previously studied word list at the point of recall. Such part-set cues have generally been found to hurt recall performance for both categorized and noncategorized lists (see Nickerson, 1984, for a review). Furthermore, for categorized lists, the greater the number of category instances that are provided as cues, the worse the subjects' ability to recall other words from the same category (Roediger, 1973; Rundus, 1973; Slamecka, 1968, 1972).

In the present case, when the level of group recall was manipulated from high to low, the number of part-set cues was manipulated as well. Subjects in high-performing groups were cued with more category instances than were subjects in low-performing groups. Thus, on the basis of the part-set cuing literature, it was predicted that subjects

working in low-performing groups should recall more words than would subjects working in high-performing groups. In addition, because recalling items on a previous test has been shown to increase the likelihood that those items will be recalled again, subjects working in low-performing groups should recall more items than would subjects working in high-performing groups on the final individual recall test.

EXPERIMENT 1

The purpose of Experiment 1 was to analyze the effects of social pressure on recall by manipulating the performance level of the perceived groups. The design consisted of a study/test phase followed by a surprise final individual recall test. The subjects worked in perceived groups that constituted either high-performing groups or low-performing groups. A high-performing group was operationally defined as a group in which the 2 perceived group members remembered an average of 9 out of 10 possible words. A low-performing group was defined as one in which the 2 perceived group members remembered an average of 5 out of 10 possible words.

Method

Subjects. The subjects in Experiment 1 were 124 Purdue University undergraduate psychology students participating in fulfillment of course requirements.

Design. The motivational level of the perceived groups (high-performing group vs. low-performing group) was manipulated between subjects. The manner in which the list items were re-presented to the subjects during the perceived group tests (items were presented in their original order or randomly) was manipulated within subjects. The order manipulation was employed in an attempt to detect the presence of retrieval strategy disruption. More specifically, re-presenting the list items randomly in the form of bogus recall might be expected to hurt subjects' recall ability more than would re-presenting the items in the order of their original presentation (Sloman, Bower, & Rohrer, 1991). A no-group control condition in which subjects worked individually and were not provided with any retrieval cues was also included. The primary dependent variables were the number of list items that subjects correctly recalled on the perceived group recall tests and on the final individual recall test.

Procedure. With the exception of the no-group control condition, the subjects arrived at the laboratory in groups of 3. Upon arriving, they signed informed consent sheets and then listened to the instructions for the experiment. The experiment consisted of two primary components. The first represented a study/test phase in which the subjects studied and were tested on six 30-item categorized lists drawn from Battig and Montague's (1969) norms. The second consisted of a surprise final individual recall test covering all of the studied material. The procedure followed in the no-group control condition was identical to that for the other conditions except that these subjects worked alone and received no cues.

Each subject was led to a separate testing room and was seated in front of a personal computer. The subjects were told that the computer that they were working on was one of three computers linked to a network. They were told that any responses typed on their computer would be visible on the other two computers and that any responses typed on the other two computers would be visible to them. Cords ran from the back of each computer through the wall into adjacent rooms in an attempt to increase the effectiveness of the deception. The subjects were also told that they were to take turns responding and that

their order (first, second, or third) in the turn-taking rotation would be chosen randomly when the experiment began. In fact, all subjects were assigned to the third position in the turn-taking rotation.

The study/test phase of the experiment began with the presentation of a 30-item categorized word list. The words were presented one at a time in the middle of the screen at a rate of 1.5 sec per word. Following the presentation of each list, the subjects solved simple addition and subtraction problems for 10 sec. The math problems were followed by a perceived group recall test. The test began with the appearance of two items on the monitor, purportedly generated by other group members. The items appeared one at a time at a rate varying randomly from 4 to 7 sec per word. Following this, the appearance of an arrow on the screen cued the subject to type in a word. Following the subject's response, 2 more words appeared one at a time and the process continued. In the low-performing groups, the process continued until the two perceived group members had recalled an average of 5 words (the range was 4–6 words). At that point, the subject was notified by a message on the monitor that neither of his/her group members was capable of recalling more items from the list. With the recall from the perceived group test still visible on the screen, the subject was prompted to recall as many more words as possible from the list on his/her own until the screen was full with three 10-item columns (representing the original 30 items). Thus, the subjects working in low-performing groups had an opportunity to recall an average of 20 words.

In the high-performing group condition, the same procedure was employed, but the normal perceived group recall process continued until the two perceived group members had recalled an average of 9 words (the range was 8–10 words). Thus, the subjects in the high-performing group condition had an opportunity to recall an average of 12 words. The subjects were not able to terminate a trial until each of the perceived group members had recalled the prescribed number of words. For a random half of the lists, the items re-presented during the perceived group recall tests were presented in the order in which they were originally shown. The other half of the lists were re-presented randomly during the perceived group tests. In both the high-performing and the low-performing groups, the perceived group members' actual recalled words were always different from those recalled by the real subject.

After completing the initial study/test phase of the experiment, each subject completed a surprise final individual recall test. The subjects were notified that their group members would not be able to view their responses. During the individual recall test, a category name appeared on the screen and each subject was asked to type in as many words as (s)he could remember from the list in any order. When a subject could no longer remember any words from a list, (s)he pressed the enter key twice and another category name appeared on the screen. After the subjects had recalled as many words as possible from all six categories, they were debriefed and received credit for their participation.

Results and Discussion

The proportions of items correctly recalled on the perceived group recall tests and the final individual recall test are displayed in the top part of Table 1 along with the values obtained from the no-group control condition. Proportions were computed by dividing the number of items recalled on each trial by the number of words in each list. Note that this is a fairly conservative presentation of the data, because the subjects in the group conditions never had an opportunity to recall 30 items. Remarkably, even if the number of possible recall opportunities was ignored, the subjects working in high-performing groups tended to outperform those working in low-performing groups. The difference was statistically significant [$t(82) = 2.02, p < .05$].

Table 1
Mean Proportions of Items Correctly Recalled on the Initial Recall Tests and the Final Individual Recall Tests as a Function of Group Type

Group	Initial Group Tests		Final Individual Test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Experiment 1				
High	.26	.04	.44	.10
Low	.23	.07	.39	.11
Control	.51	.10	.44	.12
Experiment 2				
High	.36	.04	.35	.09
Low	.31	.07	.30	.06

This result was obtained despite the fact that it was presumably much more difficult to recall items in the high-performing groups. The subjects in high-performing groups were faced with the difficult editing job of recalling items in the presence of a greater number of harmful part-set cues. In addition, during the later stages of group recall, the subjects in the high-performing groups had to recall items from a much smaller item pool. The subjects tended to recall a similar proportion of items on the perceived group recall tests regardless of whether the items were presented in the order in which they were originally presented ($M = .25$) or randomly ($M = .25$). Thus, the order in which the items were re-presented did not affect the level of retrieval strategy disruption.

An alternate way to present the data can be obtained by treating the experiment as a traditional part-set cuing study (i.e., divide the number of words recalled on each trial by the number of recall opportunities). Doing so sheds a slightly different light on the outcome with high-performing groups ($M = .64$) > control condition ($M = .51$) > low-performing groups ($M = .35$) (all $ps < .01$). Such an analysis further highlights the potentially powerful effects of social pressure on recall performance.

One critical aspect of Experiment 1 was that it allowed an analysis of the data from the surprise final individual recall test as a function of whether the subject worked initially with a high-performing group or a low-performing group. This allowed a test of whether the subjects' initial performance in the group, which was presumably mediated by social pressure, would alter their subsequent memory for the studied items. The subjects who completed the study/test phase of the experiment in a high-performing perceived group did, in fact, have a tendency to recall more items than did the subjects who initially worked in a low-performing group. However, the difference was only marginally significant [$t(82) = 1.84, p = .07$]. This result was more closely examined in Experiment 2. Note that the relatively high final recall levels observed in this experiment were likely the result of using a small number of categorized word lists.

Although item intrusions were relatively rare in the present experiment, the intrusion rates followed the pattern predicted by conformity theory (Wren, 1999). If

subjects in high-performing groups are struggling to keep up with their group members, they should tend to intrude more nonpresented items than should subjects working in low-performing groups. In addition, generating more intrusions on the group test should increase the likelihood of intrusions appearing on the final recall test. In the high-performing groups, 4% of the items recalled on the group tests represented intrusions, whereas in the low-performing groups, only 1% of the items recalled were intrusions [$t(82) = 5.29, p < .0001$]. On the final recall test, the subjects in the high-performing groups intruded items 2% of the time, whereas the subjects in the low-performing groups intruded items only 1% of the time [$t(82) = 2.13, p < .05$]. Thus, the subjects who worked in high-performing groups generated more intrusions than did the subjects who worked in the low-performing groups on both the group recall tests and the final individual recall test.

Experiment 1 provided evidence in favor of the idea that social pressure can affect an individual's memory in a group setting. Furthermore, it suggested that part-set cuing effects are not the only factor affecting subjects' output in group recall studies. But without further information, it is difficult to partial out the relative contributions of social pressure and part-set cuing effects on the subjects' performance. The aim of Experiment 2 was to achieve this goal through an apparent paradox, conducting a group recall experiment without exposing subjects to harmful part-set cues.

EXPERIMENT 2

Experiment 2 was identical to Experiment 1 in every respect except one. During the perceived group recall tests, the subjects were not shown the actual words that their purported group members recalled. Instead, all that the subjects saw was a line consisting of eight asterisks, indicating that a purported group member had recalled an item. In other words, the subjects knew how many items their group members were recalling but did not know what those items were. Thus, if social pressure was influencing the subjects' responses, the subjects should recall more words in the high-performing groups than in the low-performing groups, despite the absence of part-set cues in either condition.

Method

Subjects. The subjects were 79 Purdue University undergraduate psychology students participating in fulfillment of course requirements.

Design. The motivational level of the group (high performing vs. low performing) was manipulated between subjects. The primary dependent variables were the numbers of list items that the subjects correctly recalled on the perceived group recall tests and on the final individual recall test.

Procedure. The procedure used in Experiment 2 was identical to the procedure used in Experiment 1 with one exception. Instead of re-presenting actual list items during the perceived group recall tests, the subjects instead saw an eight-character line of asterisks in lieu of each word. Because the subjects were not provided with

feedback about their purported group members' responses, except for the number of words each group member had recalled, there was some concern that the 12 recall opportunities provided for the subjects in the high-performing group condition might not be sufficient (i.e., could lead to ceiling effects). This concern arose because, in Experiment 2, all subjects had the entire pool of 30 items to recall from and no subjects were subjected to harmful part-set cues. As a safeguard against this potential problem, the subjects in the high-performing group condition were granted an additional 5 recall opportunities. This number was not chosen as an arbitrary value but rather was the exact number of items that could be added to the third column of words and still fit on the monitor. Thus, the subjects in the high-performing group condition had an average of 17 recall opportunities.

Results and Discussion

The proportions of items correctly recalled on the perceived group recall tests and the final individual recall test are displayed in the bottom part of Table 1. Even if the number of possible recall opportunities is ignored, the subjects working in the high-performing groups tended to outperform those working in the low-performing groups. An independent samples t test revealed that this difference was statistically reliable [$t(77) = 3.16, p < .01$]. This result provides further evidence that social pressure can affect an individual's recall performance. As in Experiment 1, the data can be analyzed as if the study were a typical part-set cuing experiment by dividing the number of words recalled on each trial by the number of recall opportunities. With reference to the control condition from Experiment 1, the results were as follows: high-performing groups ($M = .64$) > control condition ($M = .51$) > low-performing groups ($M = .46$) (all $ps < .01$).

A comparison between the group recall results obtained in Experiments 1 and 2 allowed a determination of the relative contributions of part-set cuing and social pressure to the obtained outcomes. Overall, subjects in Experiment 2 ($M = .33$) recalled substantially more items than did subjects in Experiment 1 ($M = .25$) [$t(161) = 8.86, p < .0001$]. So, as expected, the part-set cues presented in Experiment 1 were detrimental to recall performance. In addition, a 2 (high- vs. low-performing groups) $\times$ 2 (cues vs. no cues) between-subjects ANOVA contrasting the results of Experiments 1 and 2 provided no evidence of an interaction between group condition and cuing status [$F(1,159) = 0.62$]. Thus, the social pressure effects seemed to operate similarly both in the presence and in the absence of part-set cues.

Remember that on the surprise final individual recall test in Experiment 1, the subjects who completed the study/test phase of the experiment in a high-performing group tended to outperform the subjects who worked initially in a low-performing group, but that difference was only marginally significant. In Experiment 2, the subjects who completed the study/test phase of the experiment in a high-performing perceived group tended to recall more items than did the subjects who initially worked in a low-performing group. This time, an independent samples t test revealed this difference to be statistically significant.

cant [$t(77) = 2.55, p < .05$]. Thus, initially working in a high-performing group led to better subsequent final individual recall performance in the absence of group pressure.

As in Experiment 1, the subjects' intrusion patterns provided valuable insights into the group recall process. Because all the subjects had the entire pool of 30 items to recall from, intrusions should have been extremely rare on the group tests in Experiment 2. In fact, less than 1% of the items recalled on the group recall tests represented item intrusions. However, on the final individual recall test, the subjects in the high-performing groups intruded items 1.6% of the time whereas the subjects in the low-performing groups intruded items less than 0.5% of the time [$t(77) = 2.01, p < .05$]. This result supports the idea that the effects of social pressure present on the group tests influenced subsequent performance on the final recall test.

GENERAL DISCUSSION

The pressure to conform in a group represents one of the most predominant and powerful influences on human behavior (McIlveen & Gross, 1999; Wren, 1999). Although numerous studies have examined conformity pressure in a variety of situations (e.g., line length judgment tasks, brainstorming tasks, jury deliberation tasks), the present experiments represent the first attempt to examine the effects of social pressure on group recall. Of primary interest was whether individuals would adjust their memory output in accordance with the performance of fellow group members. The answer appears to be "yes." The subjects working in high-performing perceived groups tended to recall a larger proportion of words than did the subjects working in low-performing perceived groups. This difference was present even when the subjects in high-performing groups were provided with a large number of part-set cues and had a limited pool of items from which to recall.

An important question concerning social pressure on memory tasks is whether initial group participation can affect subsequent performance. In the famous Asch (1952, 1955, 1956) experiments, the answer was clearly "no." To fit in, the subjects may have chosen obviously incorrect responses during the group tests, but they were not susceptible to these "visual deficits" prior to or following the experiment. However, when conformity theory is combined with the knowledge that previously recalled items are more likely to be recalled again (e.g., Roediger et al., 1996), the effects of social pressure on memory tasks might be expected to carry over to later tests.

The present experiments provide evidence that conformity in cognitive tasks may, in fact, prove more dangerous to the conformer. Once the pressure to conform was removed and subjects were given the opportunity to respond individually, subjects who had initially worked in low-performing perceived groups still tended to suffer

memory deficits relative to subjects who had worked in high-performing perceived groups. Thus, in the case of this specific group recall task, the effects of social pressure were not temporary and appeared to affect subjects' subsequent memory for previously studied material.

The present results also provide new insights into the mechanisms in operation during group recall. It has long been suspected that part-set cuing effects influence memory performance on group recall tasks (Basden et al., 1997). The data presented here confirm this suspicion. However, it is now clear that part-set cuing may be one of several factors affecting group recall performance. A subject influenced by sufficient social pressure can overcome the effects of part-set cuing and remember more than other subjects provided with fewer cues. Furthermore, relatively large differences in the number of words that individual group members recall can occur systematically as a result of manipulating common factors other than part-set cuing.

REFERENCES

- ASCH, S. E. (1952). *Social psychology*. Englewood Cliffs, NJ: Prentice-Hall.
- ASCH, S. E. (1955). Opinions and social pressure. *Scientific American*, **193**, 31-35.
- ASCH, S. E. (1956). Studies of independence and conformity: I. A minority of one against a unanimous majority. *Psychological Monographs*, **70**(9, whole No. 416).
- BASDEN, B. H., BASDEN, D. R., BRYNER, S., & THOMAS, R. L., III (1997). A comparison of group and individual remembering: Does collaboration disrupt retrieval strategies? *Journal of Experimental Psychology: Learning, Memory, & Cognition*, **23**, 1176-1189.
- BASDEN, B. H., REYSEN, M. B., & BASDEN, D. R. (2002). Transmitting false memories in social groups. *American Journal of Psychology*, **115**, 211-231.
- BATTIG, W. F., & MONTAGUE, W. E. (1969). Category norms of verbal items in 56 categories: A replication and extension of the Connecticut category norms. *Journal of Experimental Psychology*, **80**(3, Pt. 2), 1-46.
- BETZ, A. L., SKOWRONSKI, J. J., & OSTROM, T. M. (1996). Shared realities: Social influence and stimulus memory. *Social Cognition*, **14**, 113-140.
- BOND, R., & SMITH, P. B. (1996). Culture and conformity: A meta-analysis of studies using Asch's (1952b, 1956) line judgment task. *Psychological Bulletin*, **119**, 111-137.
- CRUTCHFIELD, R. S. (1955). Conformity and character. *American Psychologist*, **10**, 191-198.
- FANCHER, R. E. (1996). *Pioneers of psychology*. New York: Norton.
- LOFTUS, E. F. (1979). *Eyewitness testimony*. Cambridge, MA: Harvard University Press.
- MCILVEEN, R., & GROSS, R. (1999). *Social influence*. London: Hodder & Stoughton.
- NICKERSON, R. S. (1984). Retrieval inhibition from part-set cuing: A persisting enigma in memory research. *Memory & Cognition*, **12**, 531-552.
- REYSEN, M. B. (in press). The effects of conformity on recognition judgments. *Memory*.
- ROEDIGER, H. L. [III] (1973). Inhibition in recall from cueing with recall targets. *Journal of Verbal Learning & Verbal Behavior*, **12**, 644-657.
- ROEDIGER, H. L., III, JACOBY, J. D., & McDERMOTT, K. B. (1996). Misinformation effects in recall: Creating false memories through repeated retrieval. *Journal of Memory & Language*, **35**, 300-318.
- ROEDIGER, H. L., III, MEADE, M. L., & BERGMAN, E. T. (2001). Social contagion of memory. *Psychonomic Bulletin & Review*, **8**, 365-371.
- RUNDUS, D. (1973). Negative effects of using list items as recall cues. *Journal of Verbal Learning & Verbal Behavior*, **12**, 43-50.

- SCHNEIDER, D. M., & WATKINS, M. J. (1996). Response conformity in recognition testing. *Psychonomic Bulletin & Review*, **3**, 481-485.
- SLAMECKA, N. J. (1968). An examination of trace storage in free recall. *Journal of Experimental Psychology*, **76**(4, Pt. 1), 504-513.
- SLAMECKA, N. J. (1972). The question of associative growth in the learning of categorized materials. *Journal of Verbal Learning & Verbal Behavior*, **11**, 324-332.
- SLOMAN, S. A., BOWER, G. H., & ROHRER, D. (1991). Congruency effects in part-list cuing inhibition. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, **17**, 974-982.
- WALTHER, E., BLESS H., STRACK F., RACKSTRAW, P., WAGNER, D., & WERTH, L. (2002). Conformity effects in memory as a function of group size, dissenters and uncertainty. *Applied Cognitive Psychology*, **16**, 793-810.
- WELDON, M. S., & BELLINGER, K. D. (1997). Collective memory: Collaborative and individual processes in remembering. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, **23**, 1160-1175.
- WREN, K. (1999). *Social influences*. New York: Routledge.
- WRIGHT, D. B., SELF, G., & JUSTICE, C. (2000). Memory conformity: Exploring misinformation effects when presented by another person. *British Journal of Psychology*, **91**, 189-202.

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