

Memory for Information Paired with Humorous, Relevant Jokes

Stav Atir

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Yale University

### **Abstract**

The present study examines the effects of humor and relevance on memory for factual statements. Participants (N=48) read pairs of statements. Each pair included a fact that was always nonhumorous, and a joke that was either humorous or nonhumorous and relevant or irrelevant to its paired fact. In a later memory test, recall of pairs (i.e. both fact and joke) was better when the joke was humorous vs. nonhumorous and relevant vs. irrelevant. Further, the effect of humor on recall was greater when the joke was relevant than when it was not. Results suggest that when instructors present facts with jokes, jokes may cue memory for facts on later tests, and that relevant jokes may provide better and more memorable cues than irrelevant jokes.

### Memory for Information Paired with Humorous, Relevant Jokes

Many professors and teachers sometimes insert humorous comments or stories into their lectures, which results in various possible effects on students. Importantly, humor may affect memory for the material being taught. The effect could be positive: humor may enhance memory for the material it is paired with in class through heightened attention and cognitive engagement (e.g., Speck, 1991), favorable affect (e.g., Speck, 1991), or increased arousal (e.g., McGhee, 1983). Alternatively, the effect could be negative: humor may be distracting and thus impair memory for accompanying information (e.g., Lammers, Leibowitz, Seymour, & Hennessey, 1983). Finally, humor could have no effect on memory (e.g., Berg & Lippman, 2001). The current study examines humor's effect on memory and the possible mediating role of relevance (i.e., the degree to which the humor is relevant to the to-be-remembered material); perhaps relevant humor boosts memory while irrelevant humor hinders it or has no effect on it.

Studies on humor and memory focus on two distinct potential effects: (1) humorous information *itself* may be remembered better than non-humorous information, and (2) humor may aid memory for nonhumorous information that is presented together with the humor (concurrently, immediately following, or immediately preceding the humor; to the best of my knowledge no research to date has compared the effect produced by these different options). Results from previous studies provide evidence for the first effect. In a study by Schmidt (1994), each participant read a list of sentences, half of which were humorous and half were nonhumorous. Subsequent tests of free-recall and cued-recall found that participants were significantly more likely to remember the humorous sentences than the nonhumorous sentences. The same effect was found for the

proportion of words recalled from each sentence. Similarly, a study conducted by Schmidt and Williams (2001) presented participants with three types of cartoons: humorous (in which the cartoon and the caption were incongruous in a way intended to be humorous; for example, the cartoon showed a woman calling her dog as it runs toward a door with a nailed-shut dog-door, and the caption reads “Here Fifi! C’mon! ... Faster, Fifi!”), literal (in which the cartoon and the caption were not incongruous, and therefore not humorous; in the literal version of the example above, evidence that the dog-door is nailed shut is removed) and “weird” (in which the caption and the cartoon were incongruous in a way not intended to be humorous; in the “weird” version of the example above, the dog is replaced with a snake). The purpose of the “weird” cartoon type was to test the hypothesis that humor enhances memory only because it contains incongruous information. A recall test (administered after a short filler task) revealed that memory was better for humorous cartoons than for both literal and “weird” cartoons. A later study replicated the results (Schmidt, 2002). Finally, Kintsch and Bates (1977) conducted an experiment investigating the effect of humor in the context of education; participants attended a lecture and were later given a recognition test for various statements from the lecture. Compared to topic statements and details, extraneous remarks – which included jokes and other remarks – were better remembered.

Evidence for the second type of effect of humor (humor’s enhancement of memory for *other* information presented with the humor) is less consistent. Much of the research on the topic has focused on humor in the context of advertising (an effort that has led to several literature reviews: Duncan 1979; Madden & Weinberger 1984; Speck 1987; Sternthal & Craig 1973; Weinberger & Gulas 1992; and two meta analyses:

Berneman, Bellavance, & Jabri, unpublished manuscript; Eisend 2009). The typical experimental design included varying the humor level of advertisements and testing memory for ad information other than the humor (most commonly brand name, selling points, and/or product slogan). Results have been mixed. Many studies have found a positive effect of humor on memory (Chung & Zhao, 2003, Duncan, Nelson, & Frontczak, 1984, Furnham, Gunter, & Walsh, 1998, and Yong & Zinkhan, 1991), while others have failed to find an effect (Berg & Lippman, 2001, Duncan, & Nelson, 1985, Norris & Colman, 1994, Sutherland & Middleton, 1983, Sutherland & Sethu, 1987, and Wu, Crocker, & Rogers, 1989), and still others have found a negative effect (Cantor & Venus, 1980, and Lammers, Leibowitz, Seymour, & Hennessey, 1983). Outside of the advertising domain, two studies found a positive effect of humor on memory for accompanying information. Zillmann and colleagues (1980) presented kindergarten and first grade students with an educational television program that either did or did not have humorous segments (unrelated to the program's content) interspersed through it. Memory for information from the educational television program with humorous segments was better compared with memory for information from the same educational television program lacking such humorous segments. Researchers concluded that humor increased attentiveness and thus led to better memory. Further, McAninch, and Austin (1993) showed that recall of nonsensical line drawings was better when the drawing was accompanied by a humorous caption than when it was accompanied by captions that were either physically descriptive, abstract, or meaningful, or when there was no caption. Based on these findings, McAninch and Austin conclude that humor aids memory by organizing ambiguous information in a coherent, meaningful way, although it is not clear

why humorous captions would be more effective in organizing information than descriptive or meaningful captions.

Relevance may be an important factor in humor's effect on memory. If humor aids memory when it is relevant, instructors could use humorous, as opposed to nonhumorous, illustrating examples to enhance students' memory for the material. If humor is distracting when it is irrelevant, instructors may want to avoid telling funny stories that are unrelated to the course's educational material. The possible role of relevance in humor's effect on memory has been largely unexamined; only a few studies have focused on the topic. In an experiment by Kaplan and Pascoe (1977), classes of university students viewed one of four lectures: a nonhumorous lecture, a lecture with humorous examples that were related to concepts in the lecture, a lecture with humor unrelated to lecture concepts, or a lecture with a combination of these two types of humor. Kaplan and Pascoe found that in a test given 6 weeks later participants who viewed a lecture with humorous examples illustrating concepts (i.e., relevant humor; either exclusively relevant humor or combined with irrelevant humor) did better on questions about these concepts compared with participants who viewed a lecture with humorous comments that were unrelated to lecture concepts (i.e., irrelevant humor) or a lecture with no humorous comments. The results from this study suggest a positive effect of relevant humor on memory for accompanying information, but they should be interpreted with caution. First, there was no "relevant-nonhumorous" condition in which participants viewed a lecture with relevant examples that were nonhumorous. The absence of such a condition makes it impossible to know what role, if any, humor played in the memory boost. It is possible that simply adding relevant information, humorous or

not, is sufficient to produce an enhancement of memory. Further, the study used at least some humorous examples about sex and blood, making it difficult to disentangle the effect of humor from the effect of high-arousal topics that are not necessarily humorous but might affect memory because they serve as highly memorable retrieval cues or because they increase arousal and therefore improve encoding (Walker & Tarte, 1963).

In an advertising study, Krishnan and Chakravarti (2003) studied the effect of humor strength and relevance on memory for brand claims. In one experiment to test only the effect of humor strength, they varied the humor strength of ad's headlines, so that some participants saw very funny headlines, some moderately funny headlines, and some low-humor headlines. In this experiment humor was irrelevant to the brand claims the ad made. Researchers tested participants' memory (recall and recognition) for the brand claims of these ads, and found that memory was better when humor was moderate compared to when humor was low or high. They concluded that a low degree of humor was insufficient to aid memory, a moderate degree of humor did aid memory, and a high degree of humor was distracting and thus cancelled out the positive effect of humor. These results suggest that humor at a moderate level can enhance memory even when it is irrelevant, although it is difficult to draw conclusions without a nonhumorous condition as a point of comparison. In a related experiment, Krishnan and Chakravarti (2003) tested if the effect of high strength humor on memory could be made more positive by increasing humor's relevance. They therefore varied humor's relevance to the brand claims – either low or high relevance – while keeping humor strength high. Memory for brand claims was better when humor was relevant to brand claims than when it was irrelevant. As is the case with Kaplan and Pascoe's study, this experiment lacked a

relevant-nonhumorous condition, which leaves open the possibility that the effect is independent of humor. In other words, the results do not allow us to conclude that humor's effect on memory is mediated or altered by its relevance; the same results could potentially have been obtained without the humor component if relevance alone is driving the memory enhancement.

Finally, Cline and Kellaris (2007) conducted a study looking at the effects of humor strength and relevance on memory for ad claims. Participants viewed an advertisement for a coffee product with either a high- or low-strength one liner joke as a headline. Additionally, the ad contained a tag line (i.e., a brand or product slogan) and product claims, which either referred to the one-liner (high-relevance) or did not (low-relevance). On a recall test for ad claims, there was a main effect of relevance; ad claims with a high-relevance one-liner were better remembered than ad claims with a low-relevance one-liner. There was no significant main effect of humor strength. The study did not include a relevant-nonhumorous condition; it is possible that humor's presence can boost memory for relevant information compared with humor's absence, but that increasing humor's strength from low to high does not enhance memory further. There was also an interaction of relevance and humor strength: relevance's positive impact on recall for ad claims was stronger when humor's strength was high than when it was low. If humor enhances relevance's effect, as suggested by these results, then a hypothetical nonhumorous condition should show a weaker relevance effect than the low-strength condition. The study's results support the enhancing or mediating role of relevance in humor's effect on memory for ad claims.

The two studies described above (Krishnan and Chakravarti, 2003; Cline and



Kellaris, 2007) looked at humor and relevance in the advertising domain. In advertising, the to-be-remembered information is a claim made by a company whose goal is to convince consumers to purchase a product or service. Consumers are not necessarily motivated to remember the ad claims or accept them as true. The current study focuses on humor and relevance in education, where the to-be-remembered information is factual and is communicated by instructors whose goal is to transmit knowledge. Students are presumably motivated to remember the factual information. Moreover, consumers may attend to humor because it grabs their attention, but be unmotivated to attend to product claims, which are less attention grabbing. Students, on the other hand, presumably attend mostly to the educational information because their main goal in attending lecture is to comprehend and retain educational information. Thus, humor's effect on memory for facts in an educational context, in which there is motivation to attend to remember facts, might be different from its effect in the context of advertising, where there is little or no motivation to attend to and remember product claims. For example, individuals viewing advertisements may focus on the humor and make no effort to attend to and remember product claims. Thus, humor may have no effect or an attenuated effect on memory for product claims, as they were weakly encoded to begin with. In contrast, in an educational setting students are motivated to attend to and remember the educational material, and will likely make an effort to encode it. In this case, relevant humor may have a significant effect on memory for educational material.

The current study explores the effect of humor and the effect of relevance on memory for factual information, as well as the interaction between them. If adding relevant information helps elaborate memory for the fact by providing more association

links to the fact than irrelevant information (see Craik & Tulving, 1975 for support of the positive effect of elaboration on memory), then there should be a main effect of relevance; it was hypothesized that relevance would enhance memory for accompanying factual information across humor conditions.

There are three possible effects humor could have on memory for accompanying information. If humor aids memory independently of its relevance to the to-be-remembered information (for example, if humor increases arousal and thereby enhances retention of any information encountered immediately after), there should be a positive main effect of humor. In accordance with results of previous studies described above (Cline & Kellaris, 2007; Kaplan & Pascoe, 1977; Krishnan & Chakravarti, 2003), there might be an interaction between humor's and relevance's effects on memory for accompanying factual information, so that humor would enhance memory more when it is relevant than when it is irrelevant to the factual information. If humor aids memory only through its relevance to the accompanying information, then humor's main effect would be qualified by this interaction. Alternatively, if humor in fact distracts from the information it is paired with regardless of its relevance, as several researchers have suggested (e.g. Berneman, Bellavance, & Jabri, unpublished manuscript; Kaplan & Pascoe, 1977; Krishnan & Chakravarti, 2003; Osterhouse & Brock, 1970; Zillmann et al., 1980), then there should be a negative main effect of humor.

## **Method**

### **Overview**

The experiment manipulated humor (presence versus absence) and relevance (high relevance versus low relevance).

In the study block, participants read pairs of statements, each composed of a joke and a fact. The jokes were either humorous or nonhumorous and were either relevant or irrelevant to the facts they were paired with. Although a “joke” generally refers to a humorous statement, for the purpose of this study the word will refer to the statement that was presented with the fact, even though it was not always humorous. Following a filler task, participants were tested on their memory for the jokes and the facts in a recall test and on their memory for the facts in a recognition test. The recall and recognition tests constituted the dependent measures for this study. Participants then rated each of the jokes according to their perception of how funny it was, and rated each fact according to their perception of how interesting it was.

### **Participants**

Forty-eight students (19 male, 25 female, 4 did not report sex); mean age = 18.00 years,  $SD = 1.53$ , range = 18-23 years (3 did not report age) were recruited from the undergraduate Yale community, and received either course credit or monetary compensation for their study participation.

### **Apparatus**

Participants were seated in front of a MacBook OS X 10.5.8 laptop computer, which they used to complete the study block (reading pairs of jokes and facts), the recall test, the recognition test, and the rating tasks (of the jokes’ humor and the facts’ interest). PsyScope 1.2.5 X B53 (Cohen, MacWhinney, Flatt, & Provost, 1993) was used to control stimulus presentation and record responses in the recognition test and the rating tasks. In the recall test, participants recorded their answers in a text editor program on the laptop.

### **Materials**

Forty short jokes were collected from Internet jokes websites (The Joke Yard, n.d., and Brain Candy Jokes and Humor, n.d.). Each joke was modified slightly to construct a nonhumorous version (e.g., humorous joke: “Why was 6 afraid of 7? Because 7 8 9!”; nonhumorous joke: “Why was 6 afraid of 7? Because 7 is greater than 6”). Various Internet sources were used to assemble a list of forty facts, each relevant to both humorous and nonhumorous versions of one joke (e.g., “Arithmophobia is the clinical name for fear of numbers”, relevant to the humorous and nonhumorous versions of the aforementioned joke about numbers).

Twenty additional short jokes were collected, also from Internet jokes websites. Half of these were kept in their original, humorous form (e.g., “Q: What did the big turnip say to the little turnip A: When did you turn up?”) and half were changed to be nonhumorous (“Why was the washing machine laughing? Someone told a joke.”). These jokes did not have relevant facts, and were used in the irrelevant conditions. A list of the jokes and facts used in the study can be found in Appendix B.

Forty fact-lures were construed for the recognition test by changing slightly each of the facts so that it was always irrelevant to the joke it was paired with in the study block; thus, if relevance helps individuals correctly recognize statements, it would do so only for the facts and not for the lures (e.g., original fact: “Arithmophobia is the clinical name for fear of numbers”; lure: “Apeirophobia is the clinical name for fear of infinity.”). Ten pairs of filler-lures, which were not similar to the facts, were added in order to check that participants were not simply making recognition judgments using strategies based on pair occurrence; for example, “whenever a statement appears that is similar to an already seen statement, make a positive recognition” (e.g., lure 1 of pair: “Avocados are

poisonous to reptiles”; lure 2 of pair: “Avocados are poisonous to birds.”) Altogether, there were one hundred items: forty facts, forty fact-lures, and twenty filler-lures. The filler-lures were not included in the analysis.

For the filler task, participants worked on Sudoku puzzles from an Internet archive of free Sudokus (Web Sudoku, n.d.)

### **Design**

The experiment used a 2 (relevance: relevant or irrelevant joke) x 2 (humor: humorous or nonhumorous joke) within-subjects design (some research has suggested that the effect of humor is more evident in within-subjects designs than in between-subjects designs; e.g., Schmidt, 1994).

Participants were informed they would later be tested on their memory for the facts. This instruction was included in order to increase generalizability to educational contexts where students are motivated to remember facts for subsequent tests but not extraneous remarks such as jokes.

There were four possible types of jokes for each fact to be paired with in the study block: humorous-relevant, nonhumorous-relevant, humorous-irrelevant, and nonhumorous-irrelevant (relevant/irrelevant refers to relevance to the accompanying fact). A fourth of the facts were paired with each type of jokes (10 jokes in each category x 4 categories = 40 fact-joke pairs). The type of joke paired with each fact was counterbalanced across four lists of joke-fact pairs to control for item effects, and each participant was pseudorandomly assigned to one of the lists. The facts were presented in the same order in all lists. Within a stimulus list, trial order was pseudorandomized in such a way that no more than three jokes that were the same on humor and no more than

five that were the same on relevance appeared consecutively (i.e., no more than three humorous or three nonhumorous jokes, and no more than five relevant or irrelevant jokes appeared consecutively).

During the 5-minute recall test, the number of items recalled in the first three minutes and the last two minutes was noted. If the first three minutes are more influenced by humor and/or relevance (because initial recall is less effortful and deliberate than later recall), this act allowed the researcher to discriminate between recall during the first three minutes and later recall.

There were one hundred test items in the recognition test: the forty facts from the main study block, forty fact-lures, and ten pairs of filler-lures. The order of presentation was pseudorandomized so that no more than three facts, fact-lures, or filler lures appeared consecutively. No more than two facts of the same type (e.g. humorous-relevant, referring to the joke the fact was paired with in the study block), and no more than four facts that are the same on one dimension (humor or relevance, again referring to the joke the fact was paired with in the study block) appeared consecutively. The mean number of items separating the fact from the lure was roughly equal for all fact types (for stimulus list 1: humorous-relevant: 34.1 items (range: 16-54), nonhumorous-relevant: 35.5 (range: 11-59), humorous-irrelevant: 35.4 (range: 9-57), nonhumorous-irrelevant: 37.2 (range: 10-48); the numbers rotate around the four types in four stimulus lists). Participants were pseudorandomly assigned to one of two recognition test lists; the second version was the same as the first except that the order of the lures and the facts was reversed (in list 1, the order was such that some facts preceded their associated lures and some followed them. In list 2, the facts that preceded their associated lures in list 1

now followed them, and the facts that followed their associated lures in list 1 now preceded them).

The study also asked for participants' humor ratings of the jokes, which served as a manipulation check on the researcher's assignment of jokes to a humorous or a nonhumorous category. If the manipulated categories did not conform to participants' ratings, then perceived humor could be used instead of the original assignment. Participants' interest ratings for the facts were also collected to see if interest level alone could explain the memory tests' results.

### **Procedure**

Participants were seated in front of a laptop computer. They read the instructions for the first task on the computer screen, and were informed they would later be tested on their memory for the facts. Participants completed a practice trial in which they read one pair of a joke and a fact. They then read all forty pairs, one pair at a time as it appeared on the screen for 13,500 milliseconds (determined to be the optimal reading time by pilot testing). Participants could not control how long the pair stayed on the screen in order to keep constant the time each participant had to process the joke and the fact. The joke appeared on the top part of the screen, and the fact appeared simultaneously below it. The presentation of each pair was separated from the previous pair by the presentation of a blank screen for 400 milliseconds.

After the study block, there was a filler task that lasted ten minutes, during which participants worked on Sudoku puzzles. At the end of the filler period, participants filled out a short questionnaire about their experience of the Sudoku task; this was added to create the impression that the researcher was not interested in the participants'

performance on the Sudoku but rather in their experience. The intention was to prevent feelings of anxiety or stress (that performance evaluation can induce) from influencing performance on the memory tests.

Next, participants were given a recall test. They had five minutes to type in a text editor program all facts and jokes they could recall. Participants then completed a recognition test for the facts. They read one fact at a time on a computer screen and had to indicate for each one if they had seen it in the study block or not by pressing either “y” or “n” on the keyboard.

In the final task participants rated each joke they had seen in the main study block on a humor scale (1 indicating it was not funny at all and 5 indicating it was very funny). They then also rated each fact on an interest scale (1 indicating it was not interesting at all and 5 indicating it was very interesting). Participants rated one joke or fact at a time as they appeared on the computer screen. They were not limited in how long they had to decide the rating.

## Results

Unless otherwise indicated, the alpha level was set to 0.05 for all statistical tests, and *t*-tests were all two-tailed.

### Manipulation check

On a scale of 1-5, jokes assigned to the humorous category were judged by participants to be significantly funnier ( $M = 2.76$ , “somewhat funny”) than jokes assigned to the nonhumorous category ( $M = 1.58$ , “not funny at all”) [ $t(959) = 26.93$ , Cohen’s  $d = 1.17$ ]. Thus, the humor manipulation was successful.

### Recall scoring



The number of pairs recalled in each category (humorous-relevant, nonhumorous-relevant, humorous-irrelevant, and nonhumorous-irrelevant) was scored by counting the number of times each participant recalled both the fact and the joke that appeared together during the study block (e.g., a participant would get 1 point for recalling both the fact “Arithmophobia is the clinical name for fear of numbers” and its accompanying joke which would be “Why was 6 afraid of 7? Because 7 8 9!” if it was relevant-humorous in that stimulus list). The pairs scoring was insensitive to recall quality; participants received a point for remembering the joke and the fact even if they only had partial or inaccurate memory for either or both (e.g., a participant who remembered the Arithmophobia joke mentioned above as “*Arithiphobia* is the name for fearing numbers” and the numbers joke mentioned above as “Why did 6 *avoid* 7? Because 7 8 9” would get 1 point for remembering the pair, despite the recall’s inaccuracies).

In addition, in a scoring scheme sensitive to recall quality, each recalled fact was scored according to the proportion of meaning units remembered (e.g., the fact “Arithmophobia is the clinical name for fear of numbers” has three meaning units: “arithmophobia”, “clinical name”, “fear of numbers”). For each type of fact (humorous-relevant, nonhumorous-relevant, humorous-irrelevant, and nonhumorous-irrelevant), the number of meaning units remembered was divided by the total number of meanings units in all facts of that type to obtain the proportion of meaning units remembered. Recall scores were analyzed this way for all facts remembered, and also separately for facts that were remembered as part of a pair (paired facts, i.e., participant remembered both the fact and the joke that appeared together in the study block) and for facts that were remembered alone (unpaired facts, i.e., facts recalled without their accompanying jokes).

Facts were also scored using a lenient scoring scheme, in which participants received one point for recalling a fact regardless of how many meaning units were recalled. Finally, jokes were also scored using a lenient scoring scheme.

### **Recognition scoring**

Corrected recognition was computed by subtracting the number of false alarms (incorrectly judging that a fact appeared in the study block when it did not) from the number of hits (correctly judging that a fact appeared in the study block) and dividing by the maximum possible number of hits in the condition.

A summary of the results can be found in Tables 1, 2 and 3.

### **General lenient recall**

A *t*-test using a lenient scoring scheme found that participants recalled significantly more facts ( $M = 4.88$ ) than jokes ( $M = 3.85$ ) [ $t(47) = 2.72$ , Cohen's  $d = 0.46$ ].

### **Pairs recall**

Pairs recall scores were submitted to a 2 (humor: humorous, nonhumorous) X 2 (relevance: relevant, irrelevant) within-subjects analysis of variance (ANOVA; see Figure 1). There was a significant main effect of humor, with more pairs recalled if they contained a humorous joke ( $M = 0.55$  pairs) than if they contained a nonhumorous joke ( $M = 0.28$  pairs) [ $F(1,47) = 7.70$ ,  $MS_e = 0.46$ ,  $\eta^2_p = 0.14$ ]. There was also a significant main effect of relevance, with more relevant pairs recalled ( $M = 0.74$  pairs) than irrelevant pairs ( $M = 0.09$  pairs) [ $F(1, 47) = 34.88$ ,  $MS_e = 0.57$ ,  $\eta^2_p = 0.43$ ].

Additionally, there was a significant interaction of humor and relevance [ $F(1,47) = 4.92$ ,  $MS_e = 0.42$ ,  $\eta^2_p = 0.09$ ]. The joke's humor significantly increased the number of

pairs recalled when the jokes were relevant (mean increase = 0.48 pairs) [ $t(47) = 2.65$ , Cohen's  $d = 0.50$ ] but not when they were irrelevant (mean increase = 0.06 pairs) [ $t(47) = 1.90$ ,  $p = 0.32$ ]. Analysis of only pairs that were remembered early (in the first three out of five minutes of recall) showed similar results (for full results see Appendix A).

### **Facts recall**

Recall scores for facts were submitted to a 2 (humor: humorous, nonhumorous) X 2 (relevance: relevant, irrelevant) ANOVA (see Figure 2). There was a significant main effect of relevance, with better recall for relevant facts (i.e., facts paired with relevant jokes during the study block) ( $M = 0.12$  meaning units/total meaning units) than irrelevant facts ( $M = 0.07$  meaning units/total meaning units) [ $F(1, 47) = 15.52$ ,  $MS_e = 0.00$ ,  $\eta^2_p = 0.25$ ].

There was no significant main effect of humor and no significant interaction between the effects of humor and relevance [humor:  $F(1,47) = 0.05$ ,  $MS_e = 0.01$ ,  $p = 0.82$ ; humor X relevance:  $F(1, 47) = 1.21$ ,  $MS_e = 0.01$ ,  $p = 0.28$ ]. Analysis of lenient recall scores for facts revealed similar results (for full results see Appendix A).

### **Paired facts recall**

Recall scores for paired facts (i.e., facts that were remembered together with their accompanying joke) were submitted to a 2 (humor: humorous, nonhumorous) X 2 (relevance: relevant, irrelevant) ANOVA (see Figure 3). There was a significant main effect of humor, with better recall for paired facts with humorous jokes ( $M = 0.04$  meaning units/total meaning units) than nonhumorous jokes ( $M = 0.02$  meaning units/total meaning units) [ $F(1,47) = 7.05$ ,  $MS_e = 0.00$ ,  $\eta^2_p = 0.13$ ]. There was also a significant main effect of relevance, with better recall for paired facts with relevant jokes

( $M = 0.06$  meaning units/total meaning units) than irrelevant jokes ( $M = 0.01$  meaning units/total meaning units) [ $F(1,47) = 24.16$ ,  $MS_e = 0.00$ ,  $\eta^2_p = 0.34$ ].

Additionally, there was a significant interaction of humor and relevance [ $F(1,47) = 5.21$ ,  $MS_e = 0.00$ ,  $\eta^2_p = 0.10$ ]. The jokes' humor significantly increased recall of paired facts when the jokes were relevant (mean increase = 0.04 meaning units/total meaning units) [ $t(47) = 2.60$ , Cohen's  $d = 0.47$ ] but not when they were irrelevant (mean increase = 0.00 meaning units/total meaning units) [ $t(47) = 0.85$ ,  $p = 0.40$ ]. Analysis of only paired facts that were remembered early showed similar results (for full results see Appendix A).

### **Unpaired facts recall**

Recall scores for unpaired facts (i.e., facts that were remembered without their accompanying joke) were submitted to a 2 (humor: humorous, nonhumorous) X 2 (relevance: relevant, irrelevant) ANOVA (see Figure 4). There were no significant main effects, and no significant interaction [humor:  $F(1,47) = 3.47$ ,  $MS_e = 0.00$ ,  $p = 0.07$ ; relevance:  $F(1,47) = 0.96$ ,  $MS_e = 0.00$ ,  $p = 0.33$ ; humor X relevance:  $F(1,47) = 0.17$ ,  $MS_e = 0.00$ ,  $p = 0.68$ ]. Analysis of only unpaired facts that were remembered early showed similar results (for full results see Appendix A).

### **Recognition**

Corrected recognition scores for facts were submitted to a 2 (humor: humorous, nonhumorous) X 2 (relevance: relevant, irrelevant) ANOVA (see Figure 5). There was a significant main effect of humor, with better recognition of facts paired with humorous jokes during the study block ( $M = 0.79$ ) than facts paired with nonhumorous jokes ( $M = 0.73$ ) [ $F(1,47) = 6.22$ ,  $MS_e = 0.03$ ,  $\eta^2_p = 0.12$ ]. There was also a significant main effect of

relevance, with better recognition of facts paired with relevant jokes ( $M = 0.79$ ) than facts paired with irrelevant jokes ( $M = 0.72$ ) [ $F(1,47) = 9.40$ ,  $MS_e = 0.03$ ,  $\eta^2_p = 0.17$ ].

There was no significant interaction between the effects of humor and relevance [ $F(1,47) = 0.00$ ,  $MS_e = 0.03$ ,  $p = 0.97$ ]. Nevertheless, due to the study's a priori hypothesis that there would be different effects of humor depending on relevance, planned comparisons were conducted.  $t$ -tests revealed a pattern similar to pairs recall and paired facts recall: jokes' humor caused a marginally significant increase in recognition of relevant facts (mean increase = 0.06) [ $t(47) = 1.99$ ,  $p = 0.05$ , Cohen's  $d = 0.35$ ], but had no significant effect on recognition of irrelevant facts (mean increase = 0.06) [ $t(47) = 1.51$ ,  $p = 0.14$ ].

## Discussion

As predicted, relevance (compared to irrelevance) consistently enhanced memory for facts as measured by both recall (pairs recall, general facts recall, and paired facts recall) and recognition. This was true regardless of whether or not the relevant information was humorous. Presumably, adding relevant information increases the number of available association links to the to-be-remembered-fact (a form of memory elaboration), which leads to better memory (Craig & Tulving, 1975).

Humor had a positive effect on memory for accompanying information as measured by recall (pairs recall and paired facts recall) and recognition. Humor's effect interacted with relevance's effect, so that humor enhanced memory for accompanying information when it was relevant but not when it was irrelevant. It is noteworthy that humor had no *negative* effect on memory when it was irrelevant to the to-be-remembered information, challenging (but not disproving) the notion that irrelevant humor (compared

to irrelevant nonhumorous information) impairs memory for accompanying information by distracting from it (as suggested by several researchers, e.g., Kaplan & Pascoe, 1977). Thus, it seems that humor is only helpful to memory when it is relevant to the to-be-remembered-information.

There are at least two possible explanations for this finding. First, it is possible that humor can potentially aid memory by increasing arousal and thereby improving encoding of any subsequently encountered information (in this case facts) (McGhee, 1983). If this theory is correct, then when humor is relevant the increased arousal indeed leads to better memory for accompanying information. However, when humor is irrelevant it diverts attention away from subsequently presented unrelated information and the potential arousal-induced memory boost is lost.

Alternatively, humor might not aid memory through increased arousal at the moment of encoding, but rather help retrieval of accompanying information by acting as a powerful memory cue. One possible mechanism is memorability. Relevant information acts as a cue to the to-be-remembered-fact; humorous, relevant information makes for a more memorable cue than nonhumorous, relevant information because humorous material is remembered better than nonhumorous material (e.g., Schmidt & Williams, 2001). Since the humorous, relevant cue is more memorable than the nonhumorous, relevant cue, it is more effective in aiding memory for accompanying information. A second possibility is that humor is not merely a more memorable cue, but is a *better* cue. Often understanding a joke requires deeper processing than understanding a nonhumorous statement, because one has to think about a joke to “get” why it is funny. Consequently, the joke and its theme are processed better than a nonhumorous statement.

Understanding the joke and its theme strengthens the association link between the joke and the fact (since they are related to each other and share the same theme), and as a result the joke is better than a nonhumorous statement at cuing recall of the fact.

Humor did not have a significant effect on general facts recall (which included all facts recalled). However, when facts were separated into paired facts (facts recalled with their accompanying jokes) and unpaired facts (facts recalled without their accompanying jokes), it was found that humor did not enhance memory for unpaired facts but did enhance memory for paired facts. That recall of unpaired facts was unaffected by humor lends further support to the notion that humor does not aid memory simply by virtue of increasing arousal and thereby improving encoding for information presented after the humorous statement. In other words, humor does not seem to aid memory for accompanying information independently of memory for the humorous statement. If it did, then there would have been better recall of facts that were originally paired with humorous jokes even when the jokes themselves were not recalled, but this was not the case. Rather, it seems that the humorous statement itself must be remembered in order to exert a positive effect on memory for accompanying information (by acting as a cue), as indeed was the case with paired facts.

Consistently, memory for unpaired facts was unaffected by relevance as well. If relevance enhances memory by drawing more association links to the to-be-remembered-fact, it seems that the mere existence of such association links is insufficient to enhance memory; it is necessary to remember the relevant information that is the source of the association link. Thus, knowing a fact that is relevant to many other known pieces of

information does not help remember said fact unless the relevant pieces of information are remembered as well.

Previous research has found that humorous information is remembered better than nonhumorous information (e.g., Schmidt, 1994). However, in the current study participants recalled significantly more nonhumorous information (facts) than humorous information (jokes), even though they judged the humorous information to be at least somewhat funny. Presumably, the fact that participants in this study were specifically told in advance that they would be tested on their memory for the facts and not the jokes made the humor effect disappear, despite the recall instructions asking participants to type in all recalled facts *and* jokes.

Although facts recognition was moderately high ( $\bar{x} = 0.75$  out of 1), suggesting that participants had indeed read the statements during the study block, facts recall was generally low ( $\bar{x} = 0.09$  overall;  $\bar{x} = 0.10$  for relevant facts), as was jokes recall ( $\bar{x} = 0.10$  overall;  $\bar{x} = 0.13$  for humorous jokes). Research has shown that contextual knowledge is necessary for high recall (Bransford & Johnson, 1972). In the present study, each joke was relevant at most to a single fact, but there was no contextual link connecting all or some of the jokes. As a consequence, each joke could only cue one fact at most. Had the jokes been connected to each another in a coherent way, each joke could have acted as a cue not only for its associated fact, but also for other jokes, which in turn could have cued their associated facts. Because that was not the case, recall was low. In the classroom, recall would potentially benefit when the material (and the humorous examples) is presented in a way that tells a coherent story.



The study's results have several practical implications for instructors. To enhance students' memory for factual information, instructors can insert additional relevant information into their lectures. Adding relevant *humor* would be particularly effective in boosting memory. Because it is likely that relevant humor acts as a cue to factual information, instructors should make the humor itself memorable, and highlight its relevance to the factual information so that students remember both joke and fact as a unit. Humor has potential value for processes other than memory; for example, it may enhance positive affect toward the instructor and the course (suggested by humor's positive effect on affect in advertising; see Eisend, 2009 for a review) and motivate students to attend class. The current study suggests that instructors can use irrelevant humor for this and other purposes without risking a detrimental effect on students' memory (compared with adding irrelevant, nonhumorous information).

Future studies should further explore humor's role as a memory cue by using jokes (humorous and nonhumorous and relevant and irrelevant) as cues in a cued recall test. If humor (vs. nonhumorous information) enhances memory when it is relevant only because it is a more memorable cue, then providing the cue might make relevant humor's positive effect on memory for accompanying information disappear. However, if humor is also a *better* cue than nonhumorous statements because it leads to better processing of the joke and of the theme that binds it to the fact, then there would still be a positive effect of relevant humor. More research is needed on humor's potentially distracting effect; for example, will highly distractible (vs. less distractible) individuals' memory be negatively affected by irrelevant humor (compared to irrelevant nonhumorous information) because humor is distracting? It is also necessary to examine humor's

potential effect on memory through arousal; if humor-induced arousal plays a role in memory enhancement of factual information, the effect should only occur when the factual information is presented after the humor, but not before. Thus, future studies should manipulate the presentation time of the factual information relative to the humor. Another way to study arousal's role is to use a design in which one block would consist only of humorous jokes, and another only of nonhumorous statements (paired with relevant and irrelevant facts). If humor increases memory through arousal, facts in the humorous block would be remembered better than facts in the nonhumorous block regardless of relevance.

Future research should also test the effects on memory of different types of humor. Speck (1987) suggests three dimension of humor: arousal-safety humor (in which the joke first causes anxiety and is then exposed as playful, producing relief), incongruity-resolution humor (in which the joke includes incongruous information that is later resolved), and dispositional humor (in which the joke mocks a third party; it can also contain incongruity-resolution and/or arousal-safety humor). Potentially each humor type has a different effect on memory due to varying degrees of arousal (e.g., an arousal-safety joke may increase arousal more than an incongruous-resolution joke, leading to better memory for information paired with the former) or because different types of humor require more or less cognitive processing for understanding (e.g., processing an incongruity-resolution joke possibly is more complex than processing a dispositional joke, so that information is processed less well if it is presented after the former than after the latter). Finally, research should also examine more closely how memory is affected by humor's relevance. The degree of relevance should be manipulated in order to find

how strongly relevant humor needs to be to enhance memory; there might be a linear relationship, where the more relevant humor is, the more it enhances memory, or possibly slightly relevant humor enhances memory more than highly relevant humor because it requires greater elaboration at encoding to grasp the relevant link. Relevance can be achieved in various ways. In the current study the joke was considered relevant to the fact if they shared a theme, but humor can also be relevant if it is used to illustrate a fact or a concept. Illustrating humor may have a stronger effect on memory than humor related by theme because the associative link between a fact and its example is potentially stronger than the associative link between a fact and a theme-related joke.

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Table 1.  
*Mean Recall of Pairs and Facts, and Proportion Corrected Recognition of Facts*

	<b>Condition</b>			
	Humorous- relevant	Nonhumorous- relevant	Humorous- irrelevant	Nonhumorous- irrelevant
<b>Pairs recall</b>	0.98	0.50	0.12	0.06
<b>Recall of facts</b>	0.12	0.10	0.06	0.07
<b>Recall of paired facts</b>	0.08	0.04	0.01	0.01
<b>Recall of unpaired facts</b>	0.04	0.06	0.05	0.07
<b>Corrected recognition of facts</b>	0.82	0.76	0.75	0.69

For all measures except unpaired facts, memory was best in the humorous-relevant condition (only for recall of facts was this difference not significant compared with the nonhumorous-relevant condition).

*Note.* Pairs recall = mean number of times participants remembered both the fact and the joke that appeared together in the study block. Recall = mean number of meaning units of facts recalled divided by the total number of meaning units for each pair category. Paired facts = facts remembered with the jokes that accompanied them in the study block. Unpaired facts = facts remembered without the jokes that accompanied them in the study block. Corrected recognition = number of false alarms subtracted from the number of hits, divided by the maximum possible number of hits.

Table 2.

*F-values for Main Effects and Interaction: Pairs and Facts, and Recognition of Facts*

		F	
	Humor (main effect)	Relevance (main effect)	Interaction (Humor X Relevance)
Pairs recall	7.70*	34.88**	4.92*
Recall of facts	0.05	15.52**	1.21
Recall of paired facts	7.05*	24.16**	5.21*
Recall of unpaired facts	3.47	0.96	0.17
Corrected recognition of facts	6.22*	9.40*	0.00

\*  $p < 0.05$ \*\*  $p < 0.001$ 

There was a main effect of humor for pairs recall, recall of paired facts, and corrected recognition of facts. There was a main effect of relevance for all measures except for unpaired facts. There was an interaction of humor and relevance's effects for pairs recall and recall of paired facts.

*Note.* Pairs recall = mean number of times participants remembered both the fact and the joke that appeared together in the study block. Recall = mean number of meaning units of facts recalled divided by the total number of meaning units for each pair category. Paired facts = facts remembered with the jokes that accompanied them in the study block. Unpaired facts = facts remembered without the jokes that accompanied them in the study block. Corrected recognition = number of false alarms subtracted from the number of hits, divided by the maximum possible number of hits.

Table 3.

*Paired t-tests: Mean ( $\bar{X}$ ) Difference between Conditions for Contrasts Involving Pairs and Facts, and Recognition of Facts*

	$\bar{X}$ (SE)			
	Humorous-relevant vs. Nonhumorous-relevant	Humorous-irrelevant vs. Nonhumorous-irrelevant	Humorous-relevant vs. Humorous-irrelevant	Nonhumorous-relevant vs. Nonhumorous-irrelevant
<b>Pairs recall</b>	0.48 (0.18)**	0.06 (0.06)	0.85 (0.18)***	0.44 (0.09)***
<b>Recall of facts</b>	0.02 (0.02)	-0.01 (0.01)	0.05 (0.02)**	0.03 (0.01)*
<b>Recall of paired facts</b>	0.04 (0.02)**	0.00 (0.01)	0.07 (0.02)***	0.03 (0.01)***
<b>Recall of unpaired facts</b>	-0.02 (0.02)*	-0.01 (0.01)	0.01 (0.01)	0.00 (0.01)
<b>Corrected recognition of facts</b>	0.06 (0.03)*	0.06 (0.04)	0.07 (0.03)**	0.07 (0.03)**

\*  $p < 0.10$

\*\*  $p < 0.05$

\*\*\*  $p < 0.001$

There was significantly better memory in the humorous-relevant than the nonhumorous-relevant condition for pairs recall, recall of paired facts, and corrected recognition of facts. There was no significant difference between the humorous-irrelevant and the nonhumorous-irrelevant conditions for any of the measures. There was significantly better memory in the humorous-relevant than the humorous-irrelevant condition for all measures except for recall of unpaired facts. There was significantly better memory in the nonhumorous-relevant than nonhumorous-irrelevant condition for all measures except recall of unpaired facts.

*Note.* Pairs recall = mean number of times participants remembered both the fact and the joke that appeared together in the study block. Recall = mean number of meaning units of facts recalled divided by the total number of meaning units for each pair category. Paired facts = facts remembered with the jokes that accompanied them in the study block. Unpaired facts = facts remembered without the jokes that accompanied them in the study block. Corrected recognition = number of false alarms subtracted from the number of hits, divided by the maximum possible number of hits.

## Figure Captions

*Figure 1.* Recall of Pairs. There was a significant main effect of humor, with more humorous pairs recalled than nonhumorous pairs. There was a significant main effect of relevance, with more relevant pairs recalled than irrelevant pairs. There was a significant interaction, with humorous pairs recalled better than nonhumorous pairs in the relevant condition but not in the irrelevant condition.

*Figure 2.* Recall of Facts. There was a significant main effect of relevance, with more facts recalled that were paired with relevant jokes in the study block than those paired with irrelevant jokes.

*Figure 3.* Recall of Paired Facts. There was a significant main effect of humor, with more paired facts recalled than nonhumorous paired facts. There was a significant main effect of relevance, with more relevant paired facts recalled than irrelevant paired facts. There was a significant interaction, with humorous paired facts recalled better than nonhumorous paired facts in the relevant condition but not in the irrelevant condition.

*Figure 4.* Recall of Unpaired Facts. There were no significant main effects or interaction.

*Figure 5.* Recognition of Facts. There was a significant main effect of humor, with more facts recognized than nonhumorous facts. There was a significant main effect of relevance, with more relevant facts recognized than irrelevant facts.

Figure 1

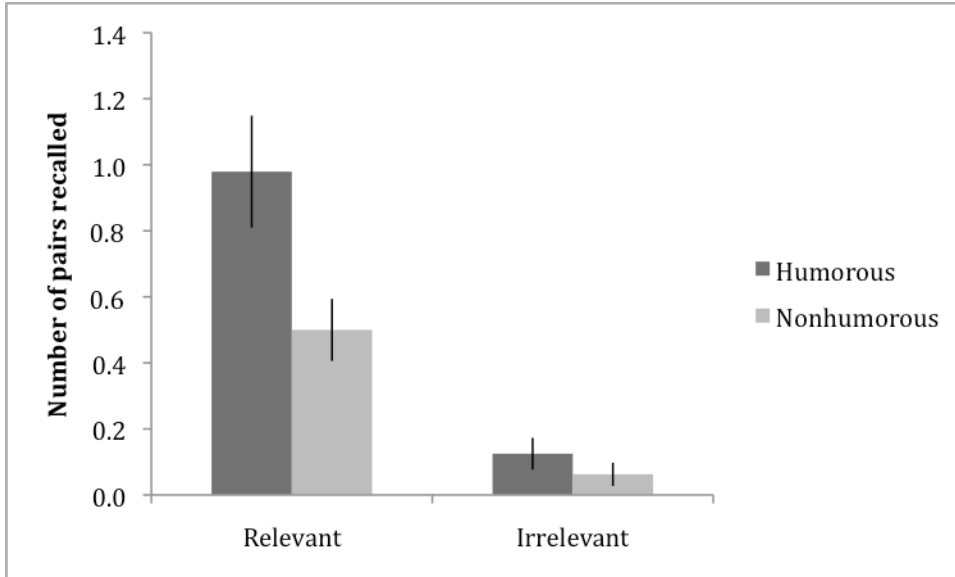


Figure 2

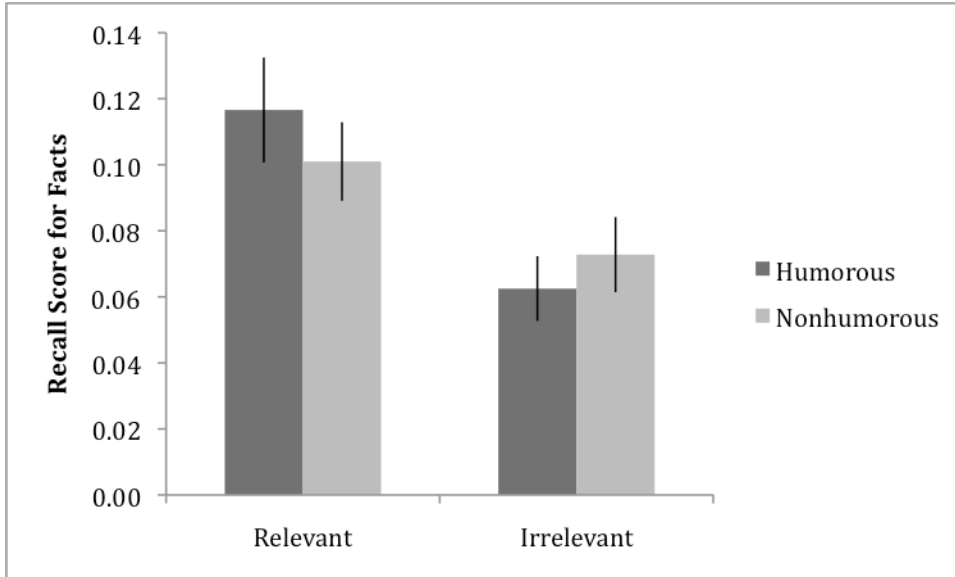


Figure 3

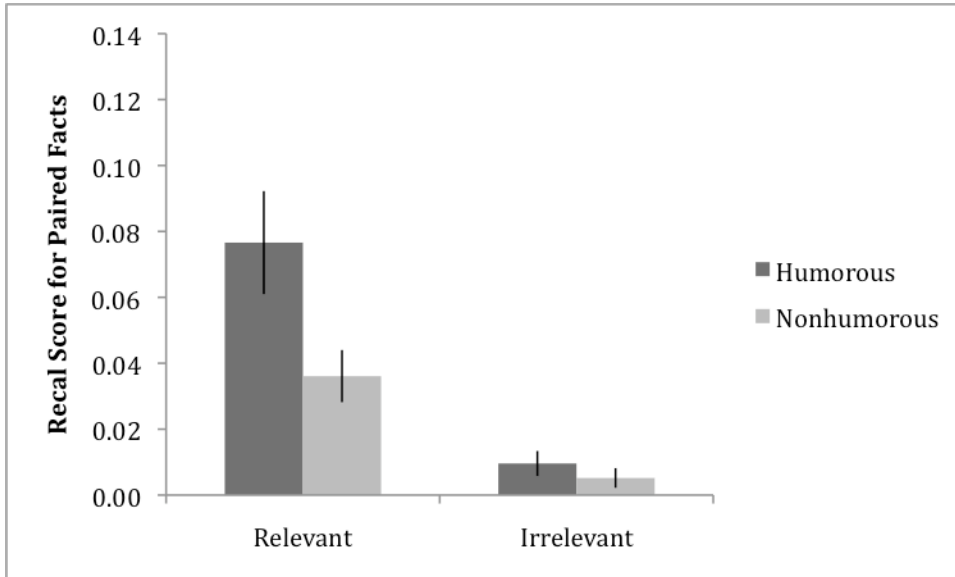


Figure 4

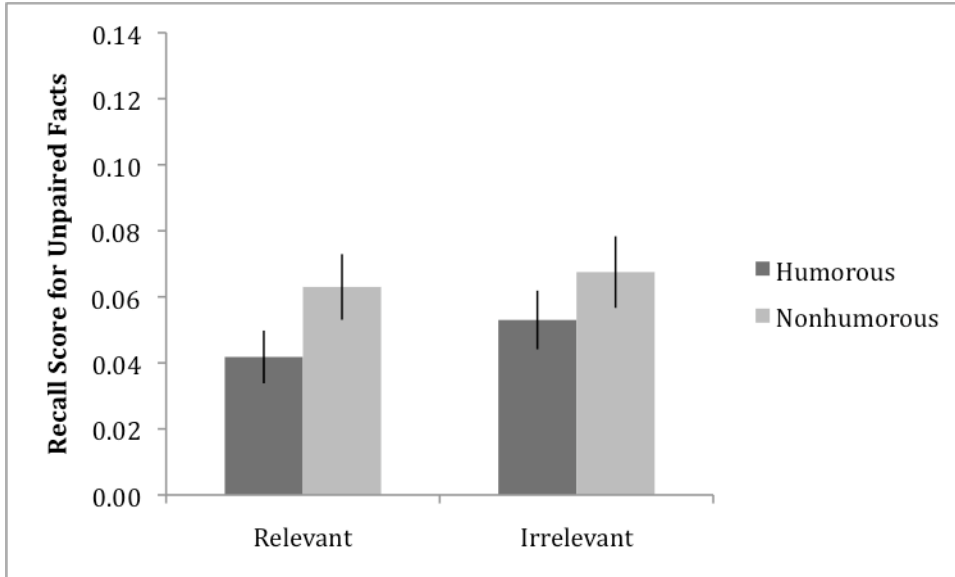
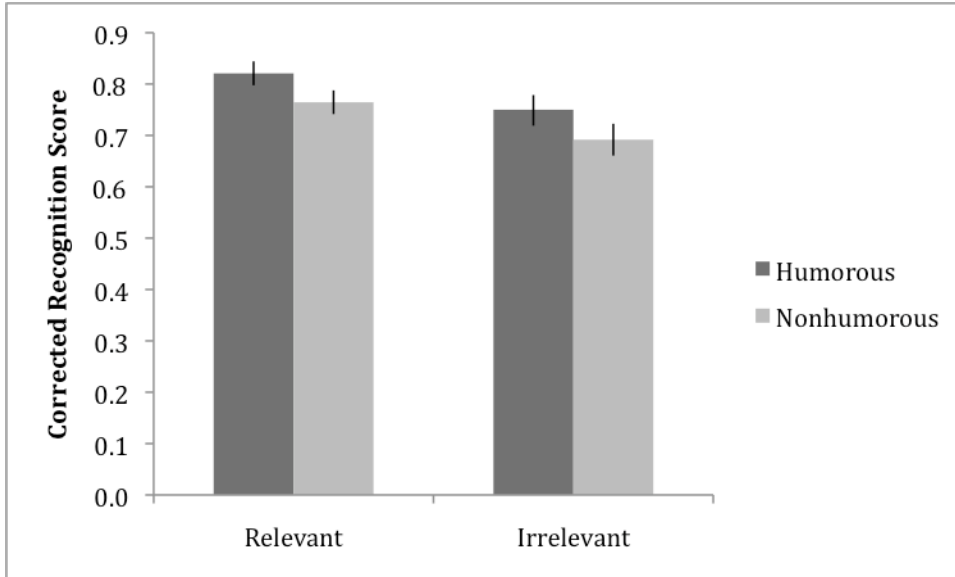




Figure 5



## Appendix A

Table 1.

*Main Effects and Interaction: Pairs, Paired Facts and Unpaired Facts Recalled Early, and Lenient Recall of Facts*

	Humor (main effect)	F Relevance (main effect)	Interaction (Humor X Relevance)
<b>Pairs recall – early</b>	6.13*	28.74**	5.03*
<b>Recall of facts – lenient</b>	0.08	18.01**	0.64
<b>Recall of paired facts – early</b>	5.22*	17.44**	3.11
<b>Recall of unpaired facts – early</b>	1.75	2.09	1.20

\*  $p < 0.05$

\*\*  $p < 0.001$

There was a main effect of humor for pairs recall – early and recall of paired facts - early. There was a main effect of relevance for all measures except for unpaired facts. There was an interaction of humor and relevance's effects for pairs recall - early.

*Note.* Pairs recall = mean number of times participants remembered both the fact and the joke that appeared together in the study block. Recall = mean number of meaning units of facts recalled divided by the total number of meaning units for each pair category. Early = recall during the first 3 out of 5 minutes of the recall test. Lenient = scoring of 1 point per fact regardless of number of meaning units recalled. Paired facts = facts remembered with the jokes that accompanied them in the study block. Unpaired facts = facts remembered without the jokes that accompanied them in the study block.

Table 2.

*Paired t-tests: Pairs, Paired Facts and Unpaired Facts Recalled Early, and Lenient Recall of Facts*

	Mean change (Standard Error of the Mean)			
	Humorous-relevant - Nonhumorous-relevant	Humorous-irrelevant - Nonhumorous- irrelevant	Humorous-relevant - Humorous- irrelevant	Nonhumorous- relevant - Nonhumorous- irrelevant
<b>Pairs recall – early</b>	0.34 (0.13)**	0.03 (0.05)	0.56 (0.13)**	0.25 (0.07)**
<b>Recall of facts – lenient</b>	0.17 (0.23)	-0.08 (0.20)	0.65 (0.20)**	0.40 (0.19)**
<b>Recall of paired facts – early</b>	0.03 (0.01)**	0.00 (0.01)	0.04 (0.01)**	0.02 (0.01)**
<b>Recall of unpaired facts – early</b>	-0.02 (0.01)**	-0.00 (0.01)	-0.02(0.01)*	-0.00 (0.01)

\*  $p < 0.10$

\*\*  $p < 0.05$

\*\*\*  $p < 0.001$

There was significantly better memory in the humorous-relevant than the nonhumorous-relevant condition for pairs recall – early and recall of paired facts – early, and better memory for nonhumorous-relevant than humorous-relevant for recall of unpaired facts - early. There was no significant difference between the humorous-irrelevant and the nonhumorous-irrelevant conditions for any of the measures. There was significantly better memory in the humorous-relevant than the humorous-irrelevant condition for all measures except for recall of unpaired facts, where there was significantly better recall in the humorous-irrelevant than the humorous-relevant condition. There was significantly better memory in the nonhumorous-relevant than nonhumorous-irrelevant condition for all measures except recall of unpaired facts.

*Note.* Pairs recall = mean number of times participants remembered both the fact and the joke that appeared together in the study block. Recall = mean number of meaning units of facts recalled divided by the total number of meaning units for each pair category. Early = recall during the first 3 out of 5 minutes of the recall test. Lenient = scoring of 1 point per fact regardless of number of meaning units recalled. Paired facts = facts remembered with the jokes that accompanied them in the study block. Unpaired facts = facts remembered without the jokes that accompanied them in the study block.

## Appendix B

*Pairs of Jokes and Facts (for list 1; type of joke paired with each fact – i.e., humorous-relevant, nonhumorous-relevant, humorous-irrelevant, and nonhumorous-irrelevant – was counterbalanced across four lists of joke-fact pairs)*

<b>Joke</b>	<b>Fact</b>	<b>Condition</b>
Why was the washing machine laughing? Someone told a joke.	Dogs have been known to show up at a train station everyday at the same hour to receive their returning masters	nonhumorous-irrelevant
A Horse goes into a bar and the bartender says: 'Hey buddy, what's up?'	Pig excrement is processed in plants to produce nitrogenous manure for fertilizing.	nonhumorous-irrelevant
How do you make a dog stand? Steal its chair	The shape of the peroneus longus muscle is important for how a dog stands.	humorous-relevant
What is an oak's favorite drink? Root beer.	A mature oak tree can draw up to 50 or more gallons of water per day.	humorous-relevant
Why does Santa have a garden? So he can ho ho ho!	Putting bags of green tea over the eyes can be soothing for strained eyes	humorous-irrelevant
Men are like parking spaces; there are few of them in cities	Each year, 7.5% of men in the United States get married.	nonhumorous-relevant
What do two oceans do when they meet? Say hello.	It takes about 1.5 pounds of grapes to produce one bottle of wine.	nonhumorous-irrelevant
What do cows do for entertainment? They rent a movie	Buying the Cow is a 2002 movie starring Alyssa Milano	nonhumorous-relevant
What do you call a dinosaur that smashes everything in its path? Tyrannosaurus wrecks	The rear limbs of Tyrannosaurus rex are proportioned for speed	humorous-relevant
What did one eye say to the other eye? I think something smells.	A squirrel typically makes its home in a treetop; it is commonly referred to as a drey and may consist of two rooms and even a nursery.	nonhumorous-irrelevant
How did the pig get to the hospital? In a hambulance	Because of their small lungs in relation to body size, pigs are susceptible to bronchitis and pneumonia.	humorous-relevant
What do you get if you cross an insect with a rabbit? Bugs Bunny	There is a fundamental difference between how insects and mammals detect odors	humorous-relevant
Why didn't the mummy have any	Reports suggest that due to global	humorous-

friends? Because he was too wrapped up in himself	warming sea level will rise by between 7.5 inches and 23.3 inches by the end of this century	irrelevant
What's the difference between an aerobics instructor and a well mannered professional torturer? No difference - both torture you.	The Gregorian calendar is the international calendar used almost everywhere, including India and China.	nonhumorous-irrelevant
Two elderly ladies discuss the upcoming ball. 'We're supposed to wear something that matches our husband's hair, so I'm wearing black,' says Mrs. Smith.	Many piano songs are impossible to play if one does not know the correct way to position and move the wrist and fingers.	nonhumorous-irrelevant
A man goes to a doctor and says: 'doctor, I cant stop my hands from shaking!' The doctor replies: 'do you drink much?' The man says 'no, hardly ever'.	Women spend \$4 trillion annually and account for 83% of U.S. consumer spending	nonhumorous-irrelevant
Why did the jazz musician like the wooden board? Because it had a nice groove in it	Frog and Toad are the main characters in a series of easy-reader children's books; each book contains five simple, often humorous, short stories.	humorous-irrelevant
What do you call a fish with no eyes? Blind	The fish called 'Black Moores' has big, bulging eyes but does not see well.	nonhumorous-relevant
How many politicians does it take to change a lightbulb? Four, one to change it and the other three to deny it.	In the Muppets, Miss Piggy often uses karate chops when she is insulted or angry.	humorous-irrelevant
Why did Dunkin Donuts close? The owner got tired of the hole business	William Rosenbrg founded Dunkin Donuts in 1950 in Quincy, MA.	humorous-relevant
What does a guy say when he walks into a building? Ouch	Most buildings in European countries are made out of bricks, mortar and timber.	humorous-relevant
Why was the Energizer Bunny arrested? He was guilty	Certain re-chargeable Energizer batteries take only 15 minutes to charge	nonhumorous-relevant
Two truck drivers trying to drive under a bridge. Driver1:'Oh no, the height of bridge is 2.7m and our truck is 3m.' Driver2: 'Then turn the truck around.'	Walking is generally distinguished from running in that only one foot at a time leaves contact with the ground	nonhumorous-irrelevant
Q: What did the big turnip say to the little turnip A: When did you turn up?	During World War II, American submarine crews would hoist a broom onto their boat's foretruck	humorous-irrelevant

	when returning to port to indicate that they had 'swept' the seas clean of enemy shipping.	
Why did it take so long for Barrack Obama to name his vice presidential running mate? He was just Biden his time.	In the year 1613, two cows died as a result of an earthquake in the Azores.	humorous-irrelevant
A magician was driving a car down the road; then he parked in a drive way	In one of David Copperfield's tricks he made a car disappear.	nonhumorous-relevant
How can you tell when a lawyer is lying? He always lies.	The punishment for perjury is a fine of up to \$15,000, and/or imprisonment of up to 15 years	nonhumorous-relevant
Question: What shouldn't you wear at a coffee bar? Answer: A 'tea' shirt	Arithmophobia is the clinical name for fear of numbers.	humorous-irrelevant
What do you call a fairy that hasn't bathed in a year? Stinkerbell.	There is a company called 'The Smell Good Fairy', which sells perfumes and colognes	humorous-relevant
Teacher: I can say one thing about your son. Father: What? Teacher: He's definitely going to college.	In Greek mythology, Scylla is a six-headed serpentine sea monster that devours six men from each ship that passed by	nonhumorous-irrelevant
What do you get when you cross a duck with cheddar? Cheese and quackers	There is a company called Quacker that sells duck soap	humorous-relevant
What did the whale say to the dolphin when he pushed him? I didn't do it on porpoise	When a bird is sick, it is critical to keep its environment warm - around 90 degrees.	humorous-irrelevant
Why won't sharks attack lawyers? They are tasteless.	The perception of sharks as dangerous animals has been popularized by a few isolated unprovoked attacks, such as the Jersey Shore shark attacks of 1916.	nonhumorous-relevant
How can you get four suits for a dollar? Go to a very cheap store.	Cold sensations to the feet can come from poor circulation and disorders of the nervous system and cold exposure and low thyroid condition.	nonhumorous-irrelevant
Why don't oysters give to charity? Because they're thrifty	The price of the biggest pearl in the world is about 40 million dollars.	nonhumorous-relevant
What did the fish say when it hit a brick wall? Damn!	Traditionally, glass has been used to build fish tanks, but over the past 50 years, acrylic has become	humorous-relevant

	a very popular material for the purpose.	
What do you get when you cross a Rottweiler with a Collie? A dog who bites off your arm and then goes to get help.	Bears like to roll around in anything smelly, so their smell is recognized from afar.	humorous-irrelevant
Two fish in a bowl talking: fish 1: Do you believe in God? Fish 2: Of course I do! Who do you think created the water?	According to the bible, fish were created by God on the 5th day of creation	nonhumorous-relevant
A family of mice was surprised by a cat. Father Mouse yelled, 'Bow-wow'. The cat ran away. Baby Mouse: 'What was that?'. Father Mouse: 'Well, son, this is a stupid cat.	Less than 20% of Americans speak a second language fluently	nonhumorous-relevant
Did you hear about the guy who gave narcotics to seagulls? He left no tern unstoned.	In the 19th century the toilet went into widespread use, increasing hygiene and making people less likely to get hepatitis.	humorous-irrelevant