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# Memory Suggestibility in Entry-Level ROTC Students

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## ABSTRACT

The purpose of the current study was to test the theory that asking leading questions shortly after watching a video clip concerned with military safety will alter the viewer's memory of the events. This study was specifically directed toward a military population and used a military video clip. College students (10 men and 5 women) enrolled in entry-level ROTC classes volunteered to participate. Half of the students participating received questionnaires with leading questions and half did not. Contrary to the predicted hypothesis, the difference found between the numbers of correct answers on the two different questionnaires was not statistically significant.

In one of the original studies on the suggestibility of memory, Loftus (1975) found that merely changing the wording of questions given to participants following the viewing of a fast-moving video clip could distort the memory of what they saw, or at least their report of it. Brainerd, Reyna, and Kneer (1995) found that exposing a person to words similar to the test words, i.e. priming them, led participants to falsely recognize more items than when no priming occurred. More than one investigation has found that asking questions about a situation immediately afterward rather than later increases the chances of accuracy of memory (Ackil & Zaragoza, 1995; Lindsey, 1990; Thapar & McDermott, 2001). However, Pollard, et al. (2003) found that the amount of material remembered was very similar for immediate and delayed recall. Delayed recall can range from an hour to several days in between the initial viewing and the memory test.

There is some debate as to what happens to the original information when misleading post-event information is presented. Some research has shown that immediate post-event questions with incorrect information do not actually eliminate the correct data as previously thought; rather it imposes new information over the prior information making the correct data unavailable (McCloskey & Zaragoza, 1985). However, according to Loftus (2004) not only can memory be altered in some way, but also entirely new memories can be implanted.

Zaragoza and Lane (1994) investigated whether people really believe that they remember seeing the items suggested prior to presentation of the stimulus, an experience called the source misattribution effect. The researchers found that although the degree of the effect varies, participants will often display the source misattribution effect. This has been found when the questions were presented immediately after the video and the participants have no memory impairment. Additional research has shown that although younger children are more likely to remember suggested items or events, this

phenomenon occurs noticeably at all ages (Ackil & Zaragoza, 1995). Information of an emotional content is easier to manipulate than neutral information (McNeely, Dywan, & Segalowitz, 2004). People were susceptible to misleading postevent information even though they were told that some of the data may be intentionally misleading (Belli, Lindsay, Gales, & McCarthy, 1994; Greene, Flynn, & Loftus, 1982).

Considering this information, an experimental design was implemented to explore the suggestibility of memory in entry-level ROTC students. People associated with the military receive better training to notice details and should remember events better than the average person. However, it is believed that the misleading questions will override this and lead to incorrectly remembering the original information. Participants viewed a video clip about military safety which induced a somewhat emotional response. Manipulation of the question format should produce a difference in what participants remember of the video. This research attempts to support the claim that individuals given a questionnaire with leading questions will actually answer more questions incorrectly about specific events in the video than those not given leading questions, even if they have had some military training.

## METHOD

### *Participants*

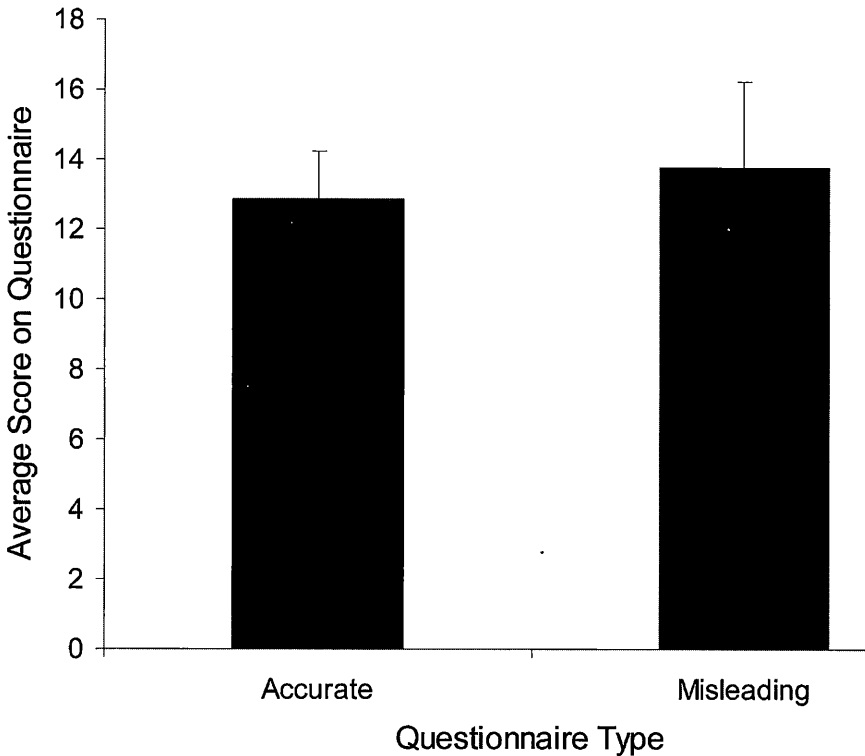
Fifteen college students (10 men and 5 women) participated in this research experiment. Students were required to be currently enrolled in an entry-level ROTC class to participate. The students received no monetary compensation for participating, although some professors offered extra credit. In addition, every participant received at least one prize, coupon, or gift card donated by a local business. All students read and understood the implied consent forms and were thoroughly debriefed after the experiment. All questions were answered. This project was approved by the SDSU Institutional Review Board and the ethical standards set by the APA were followed. Both of the investigators have completed the National Institute of Health online training.

### *Apparatus*

All participants watched a short video clip concerning military safety procedures, which is in public domain and was obtained from the college ROTC office. Following the video, all participants answered one of two questionnaires designed by the researchers of the experiment. The control questionnaire contained 20 multiple choice questions about events that happened in the video. The experimental questionnaire contained 20 multiple choice questions about the video, but 10 of these questions were misleading questions. One of the choices for every question was "none of the above." For the control questionnaire, this was sometimes the correct answer. However, for the experimental questionnaire, this was always the correct answer for the leading questions, because something in the question implied that something was true about the video when it actually was not true.

### *Procedure*

The participants were recruited from entry-level ROTC classes on the SDSU campus. The researchers briefly explained the experiment and used the title “Military Safety and Cognitive Functions” so that the data would not be biased because of the participants knowing the true purpose of the study. Next, the informed consent was read and all questions concerning the experiment were answered. Students were told at this point that if they needed to leave due to not meeting the requirements or feeling uncomfortable, they could do so without consequence. Following this, the students all watched the same video clip on military safety, which lasted about four minutes. Immediately after the video clip, the drawing for the prizes took place. The questionnaires were then completed. The participants were debriefed and all questions concerning the experiment were answered. Anyone who did not want their data included at this point was instructed to e-mail the researchers with the number that was used in the drawings. The total time involved was approximately 25 minutes.



**Figure 1.** The average scores and standard deviations of the questionnaires are displayed for the accurate and misleading groups.

## RESULTS

Figure 1 displays the average number of correct answers on the questionnaires, which are separated into accurate or misleading groups. The standard deviations for both groups are also included. The scores of the experimental group are slightly higher ( $M=12.63$ ,  $SD=1.41$ ) than the control group ( $M=13.89$ ,  $SD=2.37$ ), however the two groups do not differ significantly with respect to number of correct answers,  $t(13) = -0.84$ ,  $p = 0.21$ .

## DISCUSSION

The current research did not support the hypothesis of memory suggestibility because the average score on the misleading questionnaire was higher than that on the accurate questionnaire. The small number of participants made it difficult to detect a difference between the control and experimental groups. Increasing the number of participants in a study lowers the  $t$  value needed to reach significance. Therefore, if this study had a larger sample size, the results might have reached significance. Most studies that found memory suggestibility had sample sizes larger than 35 people (McCloskey & Zaragoza, 1985; Mitchell & Zaragoza, 2001; Thapar & McDermott, 2001). Loftus' (1975) foundational experiments had sample sizes ranging from 40 to 150 participants. One reason for the small number of participants who volunteered could be that many research experiments that had large samples used psychology students but this experiment used only ROTC students. In general, it is thought that psychology students have more of an interest in research and do their best to get involved as well as perform their best during the experiment. There are, of course, exceptions to this assumption. However, ROTC students are not very familiar with psychology research and may have been more hesitant to volunteer without knowing exactly what to expect.

Another reason that no significant difference between the groups was found may be attributed to the fact that the participants were entry-level ROTC students and may have in fact received attention and memory training which took precedence over the memory suggestibility. One might suspect that the training these students received taught them to be meticulous in everything they do and attend very closely to everything that is seen and heard. Thapar and McDermott (2001) stated that it makes logical sense that when participants are better at remembering the original information, they will make fewer errors. It is also of interest to note that not only were the results not significant, but they were closest to being significant in the opposite direction of the hypothesis. The ROTC students actually did better on the questionnaire with leading questions than the control questionnaire, which is contrary to the researchers' prediction. Higher ranking military officers have no doubt received even more training in this area than these students have. This is why continued research in this area is encouraged.

Initially the researchers intended to spend about ten minutes handing out the incentives to the participants in between the viewing of the video clip and the completing of the questionnaires. This was planned because research indicates that the shorter the amount of time in between the video and the questions, the better people are able to remember the information correctly. (Ackil & Zaragoza, 1995; Lindsey, 1990; Thapar &

McDermott, 2001). However, due to the low number of participants the amount of time needed to distribute the prizes was reduced to less than five minutes. It is possible that the information was not able to be manipulated as well as previous studies found because the shorter delay period in this study resulted in more accurate memories of the events due to the memory being recently learned and easier to access.

Although most studies support memory suggestibility, some specific factors that increase or decrease memory suggestibility are worth looking at. For example, researchers who have examined the difference in memory suggestibility between children and adults found interesting results. One such study done by Loftus and Davies (1984) found that if an event viewed by children and adults is interesting and engaging, there is little difference in the amount of memory suggestibility between the two groups. However, when understanding and integrating a suggestion into memory requires complex concepts or ideas, children were found to be less prone to suggestibility because they did not assimilate the information as completely as adults did. This experiment does not claim that memory suggestibility does not happen; it simply demonstrates that the depth of integration of the suggestion affects memory.

Similar to the importance of depth of integration of the information is the effect of attention on memory suggestibility. Lane (2006) found that participants were less likely to display memory suggestibility if they were focusing all their attention on the original stimulus or information rather than just divided attention. Level of anxiety also affects the probability of one being susceptible to suggestibility. Ridley and Clifford (2006) found memory suggestibility less likely to occur when the participants were in a state of high anxiety. In addition, Reyna (1998) claimed that misleading suggestions often, but not always, alter memory of original information. However, no specific cases unresponsive of memory suggestibility were given.

No situations could be found in the literature that exactly reflected the results and confounds of this experiment, perhaps due to the unique population used. This experiment did not work out as the researchers had planned due to several confounding variables, but lead to interesting results. An additional study could be done with a larger sample to see if the effect of memory suggestibility is present. Future studies could continue this area of research with high ranking military officers and memory suggestibility to compare the results with those of ROTC students to increase the knowledge and information base in this area of memory research.

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