Misinformation Effect

In society information plays an important role in the outcomes of a wide range of events; some of which may become a solidified essense of one's memory. In this essay, I will discuss the idea of misinformation, and strategies of prevention during the memory consolidation process.

As Donald Webb described, memory is stored as interconnection between relations as a sequence of uniquely charged neutrons; which is stored in the hippocampus as LTP (long-term potential). According to recent research, all episodic memory requires the hippocampus in order to be retrieved, which is then rewritten/blended together with a new perception after retrieval (reconsolidation). Misinformation occurs during this reconsolidation process.

There are several key reasons why misinformation may occur. To begin, the opinions of other people who witnessed the event could lead to self-doubt and induce the distortion of memory after the retrieval process. This includes news reports, which highlight the scenario differently from how the person observed it, and the approval of other individuals. Repeated exposure to such misinformation may also lead to the distortion of one's own memory. The possibility of all of this occurring becomes higher as more time accumulates from the time of retrieval and the initial event; LTP connections to the hippocampus become weaker. Therefore, I will be outlining strategies which reduce misinformation.

In 2015, Malwina Szpitalak and Romuald Polczyk suggested that reinforced self-affirmation (confidence) before the retrieval of information should lead to better accuracy in the recall of episodic memory; also making it less susceptible to corruption. This stems from various research suggesting that increased confidence should lower the chance to be succumbed

by social pressure when recalling a relevant memory. The theory can be tested by boosting the subject's confidence through positive feedback and self-affirmation.

Paul Abeles and John Morton suggested a different strategy in 1999. Their idea was that the reinstating of the original modality of the information should make an individual more accurate when recalling the event. This is because, if the original memory is of a different modality than the form of retrieval, it does not need to be destructively updated if misinformation is presented in the new modality. This can be tested, by having an experiment which compares results between recall cues which are of the same modality as the original event and cues of different modality.

Lastly, Szpitalak et al. (2019) introduced the idea that training of subjects in the topic of memory, including its vulnerability to misinformation, should yield fewer errors during the retrieval process. This is because the subjects will be consciously aware of their situation and rely more on their personal knowledge. One can test this topic by training subjects on the topic of memory after it's retrieval.

I will outline an experiment which can test all three of the strategies above. In this experiment I will have 200 independent subjects separated into 4 random samples of 50. Each sample will be placed in a group: 1) Reinforced Self-affirmation. 2) Memory Training. 3) Target Modality. 4) Control. All the subjects will be presented a video containing different objects and events, and ask to remember as much as possible. After which, they will be asked to count backwards from 20. All the groups will be given misinformation regarding the specific media after it was shown. Groups 1,2, and 4 will be presented information about the previously presented media in a written passage, and asked to classify it as true or false. Group 3 will be presented images of objects and asked to identify if they were present (to retain modality). Group

1, will have an activity where the subjects are given positive feedback in order to boost their confidence. Group 2, will be given a briefing on the topic of misinformation and memory. The results from groups 1-3 will be compared to the results of control group 4 to conclude if the strategies were effective in decreasing misinformation. The independent variable in this experiment is the strategy group of a subject, and the dependent variable is the accuracy of their memory recall.

According to my prediction, all three strategies will produce better results as compared to the control group. Group 1 should have better results due to the increased level of confidence the subjects will have in general after being provided self-affirmation and positive feedback; negating their reliance on foreign information. Group 2 should have better results because the auditory misinformation will not interfere with the subjects visual memory which is solely required for the memory recall. Finally, Group 3 should perform better in the memory recall because participants will be aware of the different ways of being guilty of misinformation and avoid them during recall.

Citations

1) Szpitalak, M., Woltmann, A., Polczyk, R. et al. Memory Training as a Method for Reducing the Misinformation Effect. Curr Psychol (2019). https://doi.org/10.1007/s12144-019-00490-9
2) Abeles, P., & Morton, J. (1999). Avoiding Misinformation: Reinstating Target Modality. The Quarterly Journal of Experimental Psychology Section A, 52(3), 581–592. https://doi.org/10.1080/713755830
3) Szpitalak, M., & Polczyk, R. (2015). Reinforced self-affirmation as a method for reducing the eyewitness misinformation effect. Psychology, Crime & Law, 21(10), 911–938. https://doi.org/10.1080/1068316X.2015.1077243