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Rereading, Answering and Generating Questions

**Background**

In the world of students’ study strategies, one of the most effective techniques for helping students to improve their long-term memory is self-testing. Taking a test on material has helped to double memory retention in comparison to control conditions involving unrelated tasks or restudying the material. However, Karpicke, Butler, and Roediger surveyed college students regarding their study habits and only one student out of eight reported using self-testing as a strategy. So, why does self-testing not occur as frequently as it should? One theory is that students are not aware of the benefits of self-testing, that they believe there will be no change in retention during practicing the retrieval of newly learned information. Another theory why students are reluctant to engage in self-testing is the effort involved in retrieving from memory. In an experiment, students were to generate and answer their own questions after reading a passage. The main goal of this article is to determine if generating and answering questions could be as effective as self-testing. A critical motivation for this technique is that it is frequently encouraged by teachers to help students deepen their understanding and improve their retention.

**Hypothesis**

In the experiment, the experimenters wanted to find out if generating and answering one’s own questions would be beneficial to later memory. They collected the participants predictions of how they would perform in three conditions: rereading the passage, answering the questions set by the experimenter, and generating and answering their own questions. Basically, the experimenters wanted to know if the predictions of the participants followed their performance.

**Methods**

In the experiment, twenty-nine participants volunteered for the experiment for $10 an hour. The participants were recruited over the summer from the Psychology Department Subject Pool at Washington University in St. Louis. As for the procedure, participants were tested one by one with the experimenter. The participants were told that they would study some passages for a later test, and that for each passage, they would either read the text twice, or answer questions after the reading, or generate their own questions. The participants were not told the number of passages or the order of conditions. Instructions appeared on a computer and a passage was handed to a participant on a sheet of paper. First, the participants took a practice test to get familiar with the passages, comprehension questions, and the test. After reading the practice passage, the experimenter handed them a sheet of paper with eight comprehension questions. After the participants completed the comprehension questions, the experimenter removed the passage and questions, and the practice test began. The practice test consisted of eight short answer questions on the computer screen. Four of them were based on the material tested in comprehension, and the other four were based off untested material. When the participants completed the practice phase, they were handed a randomly selected passage to read at their own pace. After the participants read the passage, they were instructed to do one of the three tasks: reread the passage, answer eight comprehension questions while keeping the passage with them, or generate eight of their own comprehension questions while keeping the passage with them. If they chose to answer questions, they got a sheet of paper with eight comprehension questions. If they chose to generate them, they were handed a sheet of paper with long blank lines for questions and shorter lines for responses, and to create two questions for each of the four paragraphs in the passage. Upon completion of the assigned tasks, the participants were asked approximately how much of the information they would remember at the end of the experiment by ranking a number from 0 to 100, 0 being you won’t remember anything and 100 being you’ll remember everything. Finally, during a 15-minute period of retention, they were tested on the material from each passage.

**Results and Discussion**

The results of this experiment are given on condition of prediction, performance, and time task. Based on predictions, participants guessed how much information they would remember on a scale of 1-100. The participants though they would do better on the test after having generated and answered their own comprehensive questions (predicted accuracy of 72.4%) than if they read the passage twice (63.0%) or answered comprehension questions set by the experimenter (63.4%). The performance was measured by the proportion of questions answered correctly on the final test. Performance did not follow the same pattern as predictions. Participants performed equally well with answering and generating questions (72% of answers correct), but did worse by rereading the passage (57% of answers correct). Unlike the participants predictions, performance did not differ between answering and generating questions. There is no additional benefit of generating and answering one’s questions over answering questions provided, even though both tasks led to better performance than simply rereading the passage. The hypothesis of this experiment was that generating and answering one’s own questions could bring benefits equal to that of self-testing, and it turns out that it did. Both generating and answering one’s own questions and answering provided questions proved to be equally better than rereading a passage.

**Conclusions**

The main aim of this experiment was to determine if an often-recommended study technique could help aid memory retention. The advantage of this technique is that it does not require any additional material other than the passage itself. The experiment proved that generating and answering one’s own questions produced benefits equal to answering provided questions.

**Citation**

Weinstein, Y., McDermott, K. B., & Roediger, H. (2010). A comparison of study strategies for passages: Rereading, answering questions, and generating questions.*Journal Of Experimental Psychology: Applied*, *16*(3), 308-316. doi:10.1037/a0020992