Missouri State Human Subjects Protection Application

**Title:** Adjusting Bias in Associative Judgments #11057

**Description:** Maki (2007) has shown that judgments of associative memory (JAM) are highly predictable and extremely biased. He tested participants ability to judge the relationship of words and found that people over rate word pairs, especially word pairs with very low relationships. Therefore, when the actual relationship is used to predict participant scores, a very shallow slope occurs (where a slope of 1 would indicate that people are perfect at judging relationships). In another paper, it was seen that this slope is fairly unmoveable. However, if you give participants feedback on how much they overrate word pairs, you can bring the y-intercept of the slope down (Maki, 2007). Judgments are still biased, but that feedback brought down the constant factor in the JAM function. Koriat and Bjork (2006) have speculated that judgments of learning are also biased upwards because word pairs’ backwards relationship. They had participants rate how well they thought they had learned word pairs that had strong backwards relationships. First, however, they explained to the participants how backwards relatioships can affect judgments. Participants who received this instruction were able to more accurately judge their learning of the word pairs. This experiment will incorporate their research to see if the slope of the JAM function can be changed or if again, participants can only be induced to bias all their judgments down lower. De-biasing instructions will be given to participants in order to see if those judgments can be brought in sync with the actual relationships.

**Description change:** The first experiment mentioned above was able to improve judgment ability for experimental groups significantly, but not greatly. The protocol change proposed seeks to determine the cause of poor judgments. We expect any cognitive load (difficult mental task or extra mental information to remember) to decrease the ability to make associative judgments.

**Protocol:**

**Participants:** Participants will be recruited from the Psychology Undergraduate Pool by use of the SONA system. Generally, these participants will be undergraduates and over 18 years of age. Participants will be run in medium to large groups and approximately 100 to 200 participants will be recruited. The experiment takes from 30 to 60 minutes to complete depending on experimental condition.

**Procedures:** Participants will first sign up for an experimental time through the SONA system. When they arrive for the experiment, they will be given an informed consent to read and sign. After their consent has been obtained, they are given a rating form and packet (control and experimental condition packets attached). The control group will be lead through the packet instructions attached in order. As indicated on the bottom of each page, there will be a short time spent waiting for all participants to finish reading. The experimenter will indicate when it is time to turn the page. The de-biasing or experimental group will receive an extra set of instructions after page 3 (the sample rating form). These instructions ask them to compare their answers to the correct ratings for associative judgments, followed by a comparison of ratings across participants. Both groups complete the experiment by rating 96 word pairs for their associative relationships.

**Procedure change:** The same information from the control and experimental group packets will be used. Instructions from the groups will be given the same way, with pauses between sections to allow participants to continue at the same pace. The first change in this protocol is the instructions and experiment will be taken on a computer. There will still be interaction between subjects and experimenter but answers will be typed into survey software online (packets are still attached for viewing purposes). The control group will continue after the instructions as planned, until the end of the experiment. At the end of the experiment, some control group participants will get a surprise memory quiz, asking them to type all the words they remember rating in the experiment. Half of the control group participants will not get this variation. The experimental group will being rating pairs as before, but get surprise memory quizzes every 3 to 7 word pairs. Therefore, they will have several breaks in ratings to write down the words they remember rating in order. Their answers will only be kept on our research lab computers. Participants are given subject numbers, and no identifiers are kept.

**Study Completion:** When the study is completed, the packets are entered into a spreadsheet for further analysis. After the experiment has been published, the original packets are shredded and recycled. Until this time, packets are stored in a locked filing cabinet. The information collected in this experiment will be used to understand memory judgments and bias. This study will be combined with some previous research on associative judgments, which will be sent for publication in a cognitive psychology journal.

**Benefits:** There are no direct benefits to participants in this study. However, the general knowledge can be applied to judgments of learning. When studying, students often believe they have enough memory of the material to do well on an exam. As previous research has shown, these judgments are biased toward a better understanding of the material (which is not always the case). This research looks at more basic memory to see if that bias can be reduced to aid in judgments.

**Benefits change:** This experiment examines cognitive load on judgments. When students take exams, they are often under great pressure and load (a lot of material to remember). We can use these experimental results to determine if this cognitive load is one cause of poor judgment ability.

**Risks:** There are minimal risks involved in this study, as it is similar to taking a classroom exam.

**Informed consent**: Attached. Participants will be asked to provide consent at the beginning of the study. No penalty is given for withdrawing from the study.

I hereby agree to conduct this study in accordance with the procedures set forth in my project description, to uphold the ethical guidelines as set forth in the Code of Federal Regulations 45 CFR 46, 45 CFR 160 and 164, and the Missouri State University HIPAA Policy, and to report to the IRB any outcomes or reactions to the experiment which were not anticipated in the risks description which might influence the IRBs decision to sustain approval of the project.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Department Head

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Principal Investigator (Faculty) Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other Investigators Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other Investigators Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other Investigators Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other Investigators Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other Investigators Date