MemCards Experiment — INFORMATION FOR INSTRUCTORS

**Purpose of this Project:** After completing this project, your students should have a better understanding of the difference between independent variables and dependent variables, as well as the use of t-tests to test the effect of an independent variable on a dependent variable. Your students will also gain some familiarity with the use of *reaction time as an index of mental processing*. This project also provides a good opportunity to review the concept of attention on memory. Additional resources for this project can be found at  
🡺 https://facultypsy.hope.edu/psychlabs/exp/memcards/resources.html

**Preparation for Data Collection**

1. Distribute the MemCards Data Sheet to each student as a handout, or post this direct link to the Data Sheet, or download the Data Sheet PDF and post that document.  
🡺 https://facultypsy.hope.edu/psychlabs/exp/memcards/docs/MemCards\_DataSheet.pdf

2. Explain that students will receive their own individual results the end of the experiment. They should copy those results onto their data sheet and should then graph their performance on the top graph of the data sheet.

3. Post this direct link to the Mental Rotation Experiment. Establish a due date for completing the experiment and announce a date when the pooled results will be available.  
🡺 https://facultypsy.hope.edu/psychlabs/exp/memcards/

4. Explain that, when the pooled results become available, students should copy the group results for use in their Lab Report and graph the pooled results on the bottom graph of the data sheet.

**Background for this Experiment**

This experiment is designed to test the effects of attention on learning. This is a between-subjects design in which participants are randomly assigned to one of three conditions: memory for words, memory for numbers, or memory for colors. The dependent variables will be time to respond and number of correct responses.

Participants will be presented with either 6 or 9 trials, depending on whether the instructor has assigned students to participate in MemCards6 or MemCards9. On each trial participants are presented with a rectangular card with the name of an animal (dog, cat, pig, rat, cow, hen, etc.) and a single-digit number (1-9). Each card is displayed with a different background color.

*The TASK INSTRUCTIONS for the three conditions of the experiment are as follows:*

* WORDS: You will be shown a series of cards. Try to remember the WORDS on the cards in the order they are shown. The trials will move quickly, so please concentrate on the task. When you are ready to begin press, the space bar.
* NUMBERS: You will be shown a series of cards. Try to remember the NUMBERS on the cards in the order they are shown. The trials will move quickly, so please concentrate on the task. When you are ready to begin, press the space bar.
* COLORS: You will be shown a series of cards. Try to remember the COLORS of the cards in the order they are shown. The trials will move quickly, so please concentrate on the task. When you are ready to begin, press the space bar.

*After the trials are completed, participants will receive the RESPONSE INSTRUCTIONS:*

* WORDS CONDITION:
  + Please write on each line (lines numbered 1-9) the WORDS in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
  + Please write on each line the NUMBERS on the cards in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
  + Please write on each line the COLORS of the cards in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
* NUMBERS CONDITION:
  + Please write on each line (lines numbered 1-9) the NUMBERS in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
  + Please write on each line the WORDS on the cards in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
  + Please write on each line the COLORS of the cards in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
* COLORS CONDITION:
  + Please write on each line (lines numbered 1-9) the COLORS of the cards in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
  + Please write on each line the WORDS on the cards in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.
  + Please write on each line the NUMBERS of the cards in the order they were presented once you have listed as many as you can remember press the space bar to submit your responses.

**Conditions and Variables**

This experiment has two independent variables: Condition (word, numbers, colors; within-subjects) and Order of Conditions (WNC, NWC, CWN; between-subjects). The experiment has nine dependent variables: Correct Responses in order for each of the three conditions (called CR score), then Correct Responses in any order for each of the three conditions (called MR score), and Reaction Time (called RT—the time it takes the participant to write down what they remember from each list, from the moment the slide with response instructions appears to the moment they press the space bar to move on).