

Psychology 306

Working Memory Lab - Experimental Instructions

Motivation

The motivation and background for this lab can be found in the on-line lab documentation.

1. On the desktop, double-click “Main”, and click continue to get past the welcome screen.
2. Double-click on Working Memory, and click OK.
3. Read the instructions; click Next. You will now see the experiment’s parameter screen.
4. In the upper left corner, choose Lab Manual → Contents, and read the sections called “Introduction”, “Instructions”, and “Parameters and Procedure”.

This experiment concerns how we encode things into memory and recall them later. The items to be learned in this case are meaningless strings of letters (e.g., GCX,BFJ). The idea of using these “nonsense strings” is that, because they have no semantics or meaningful associations in subjects’ minds, the process of learning them will reflect memory mechanisms in a pure form.

A key element in this experiment will be the use of a distractor task, in this case a series of subtraction problems that the subject must indicate are correct (left mouse button) or incorrect (right mouse button). Of course, performing this task doesn’t help you remember what you are supposed to remember—in fact, it makes it very difficult; that’s the idea. Doing the subtraction task means you can’t keep repeating the nonsense string over and over in your mind, or, as we would say more formally, it interferes with holding the nonsense string in working memory. Of course, this might depend on how long you have to keep performing the subtraction task; this variable, called the *delay*, is one of the key independent manipulations in the experiment.

Starting the experiment

Before running the experiment, read the Instructions in the Lab Manual (as described above). We will run **two blocks of 25 trials** each, one with 3-letter strings and the other with 5-letter strings. Set the parameters of the two blocks by clicking on the values you want, clicking **Set** to set a particular block’s parameters, and clicking **Step** to move onto the next block. You can tell which block you are working on by looking in the Block field.

- Use all the default (starting) values, except
- In Block 1, set Stimulus Size to 3; and
- In Block 2, set Stimulus Size to 5.

Once the parameters are set correctly and you understand the task, start the experiment.

Saving the data

When the experiment is over, save the data.

1. You will see an error message about the A: drive. Click cancel to get rid of it.
2. Put the data in the folder C:\psy306\YOURSECTION\, using “workMem” plus the last four digits of your social security number in the filename.
3. Click “close and save data”; exit “Main” by clicking the red X in the upper right corner.

(More instructions on back →)

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Opening the data in SPSS

1. On the desktop, double-click on SPSS.
2. Click cancel to get rid of the initial screen.
3. Choose: File → Read Text Data. Find your .txt datafile in C:\psy306\YOURSECTION\ and click OK.
4. Proceed through “Text Import Wizard”. The only changes you will make from the default settings are:
 - In Step 2, choose “Variable names are included”.
 - In Step 4, choose “comma” as the **only** delimiter.Aside from that, keep clicking “Next” and then click “Finish”.
5. You should now see your data in the main data screen.
6. Save the data file as an SPSS file (.sav) in C:\psy306\YOURSECTION\ .

Scoring the data

The program doesn't record whether each particular item was recalled correctly. So the first task is to manually score the trials by comparing the *stim* and *resp* fields.

1. In the Variable View in SPSS, create a new variable called *correct*, by typing in the “Name” column (make sure it's a numeric variable). Then return to the normal view (data view) by clicking on the data view tab at the bottom. You should drag this row and move it after the *resp* field to make the next step easier.
2. For each row in the data view, compare the *stim* and *resp* fields. If they are the same, enter 1 in the correct column; otherwise, enter 0. The mean of these 1's and 0's in each condition will give the proportion that are correct.
3. Be sure to save your work!

Note that the 5-letter strings sometimes aren't completely visible in the table, but if you click on one you will see the whole thing in the entry field at the upper left.