**Boundary Crossing Mini-Lab Assignment**

Overview

This assignment is an exercise that requires you to design an experiment on **context dependent memory and encoding specificity**. You will develop a hypothesis, collect data from several participants, and interpret the results. You will complete a “mini” report on your experiment that will consist of your hypothesis, materials, results, and discussion. The purpose is to give you a first-hand look at the research process, so have fun!

In class, we talked about context dependent memory; that is when cues in our environment help us remember things—remember back to when we talked about studying where you will take a test, if possible. In the first in a series of experiments, Radvansky and Copeland (2006) investigated the relationship between this type of memory and the process of passing through a doorway. In their experiments, they had participants immerse themselves in a virtual reality environment in which they had to pass through doorways and remember items from one room to another. The participants tended to remember items less well after they passed through a doorway than if they stayed in the same room. They suggested this is happening because there is a “location updating effect.” In other words, when the participants left the original room and entered the new room, they updated their location in their cognitive map. When that happened, the importance of the information in the other room changed. Then the wondered what would happen if you sent them back to the original room (think back to encoding specificity). It turns out that their memory did not improve! Something very interesting is happening here!

Even though the authors of this paper used computers and virtual reality immersion in their study, you don’t have to. You will be doing something much simpler. **Your task is to use the same sort of design to investigate context dependent memory.**

You will need to have two rooms connected to each other somehow. You will also need some stimuli that your participants will have to remember. Then you will need to select a variable that you think will have an effect on your participants’ memory **related to a boundary crossing**. Here’s an example to help you think of something to try (and don’t use this example ☺). In a study I read, they had three identical tables in two identical rooms (like the ones in the figure below). One was a “learning” table, and the other two were “remembering” tables, which were equidistant from the learning table (see the diagram below). Participants would learn at the learning table and then would walk to one or the other of the remembering tables, which had a mix of items they had seen before and some new items. They were told that they would have to identify any items on the table that they had seen before. Here’s the neat part: to get to one of the tables, they had to walk through a doorway while the other was in the same room. Even though they had to walk the same distance, the participants who walked through the doorway remembered less. In this example, the boundary related variable was they either crossed a boundary (the doorway) or they didn’t.

Doorway

“Learning Table”

“Remembering Table”

“Remembering Table”

10 feet

10 feet

Report Format

Your report should follow the given format EXACTLY and must fit on TWO pages (no more, no less), as shown. Do not change the margins. Do not change the font size. Your report should be typed, using complete sentences, with careful attention being paid to grammar, spelling, writing style, etc. Originality of hypothesis and discussion of results will also factor into your grade. Details to include in each section are shown below:

# *Introduction*

* Provide a foundation for why this “boundary effect” is interesting. You should do this by writing (1) a brief introduction describing the phenomenon, (2) describe some studies that found the boundary effect, (3) explain any questions remaining related to the boundary effect, and (4) transition into your hypotheses.

# *Hypotheses*

* Briefly describe your hypothesis about the effect that the variable (type of boundary, location of boundary, etc…) will have on memory performance, i.e., state whether your condition will result in better or worse memory performance the original condition (e.g., same room). Justify why you are making this hypothesis, making sure that your justification is grounded in scientific principles.

*Materials*

* You will need some physical space (two rooms, etc…) in a building with some sort of boundary in it, three tables, and some objects to use as stimuli (e.g., small toys, office supplies, etc…). Make sure you clearly describe the objects you chose and if there was a relationship between the objects (all were blue or all different kinds of paperclips).
* You will need to either (1) clearly state the layout of the rooms so that someone who was not there can understand what you did or (2) include a diagram or picture of your area.

*Procedure* (this section does not go in the report)

* Administer your experiment to FOUR people in EACH condition—that’s a total of EIGHT people (don’t test yourself). Each participant will have to complete the experiment alone—you can’t test people in a group for this one.
* Four of the people will be in the control condition. That’s the condition where the learning and remembering tables are in the same space. Four of the people will be in the experimental condition. That’s the condition in which you manipulate your boundary variable.
* First, have your participant go over to the learning table. Give them one minute to examine all the objects. Make sure they just look at them and don’t touch them. Also, make sure they look at them silently, without speaking. You want to make sure everyone is doing it the same way every time. Next, have your participant go over to one of the remembering tables (four will have to go to the control table and four will have to go to the experimental table). Have them look at the items and verbally identify which items they have seen before. You will need to write down their responses.

*Results*

* The dependent measure is the number of items they identify having seen before on the learning table. For each person, write down the items they remembered correctly.
* Compute the average recall for each condition by summing the numbers in each condition and dividing by 4. That means that you will need to add up four numbers for the control condition then divide by four, then separately add up the four numbers for the experimental condition and divide by four. Display these averages in the Average row, as shown on the report.

# *Discussion*

* The discussion is a section for critical analysis of the significance of your data. Describe and interpret your results by comparing the averages in the two conditions. Answer at least the following questions: (1) Did you get more, less, or the same amount of recall for the two conditions, i.e., was your hypotheses supported? Why or why not? (2) What other factors could have possibly influenced these results, and why? (3) What conclusions can you draw from these results about context dependent memory? (4) How well do your results fit with the concept of encoding specificity?

**PSY 3420 Mini-Lab: Doorways and Forgetting**

Introduction

Hypothesis

Materials

Define each of the conditions in the space below:

Control Condition =

Experimental Condition =

Show or describe the physical layout of your experiment:

Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Control Condition***Number of old items identified correctly* |  |  | **Experimental Condition***Number of old items identified correctly* |
| Person 1 |  |  | Person 1 |  |
| Person 2 |  |  | Person 2 |  |
| Person 3 |  |  | Person 3 |  |
| Person 4 |  |  | Person 4 |  |
| Average |  |  | Average |  |

Discussion