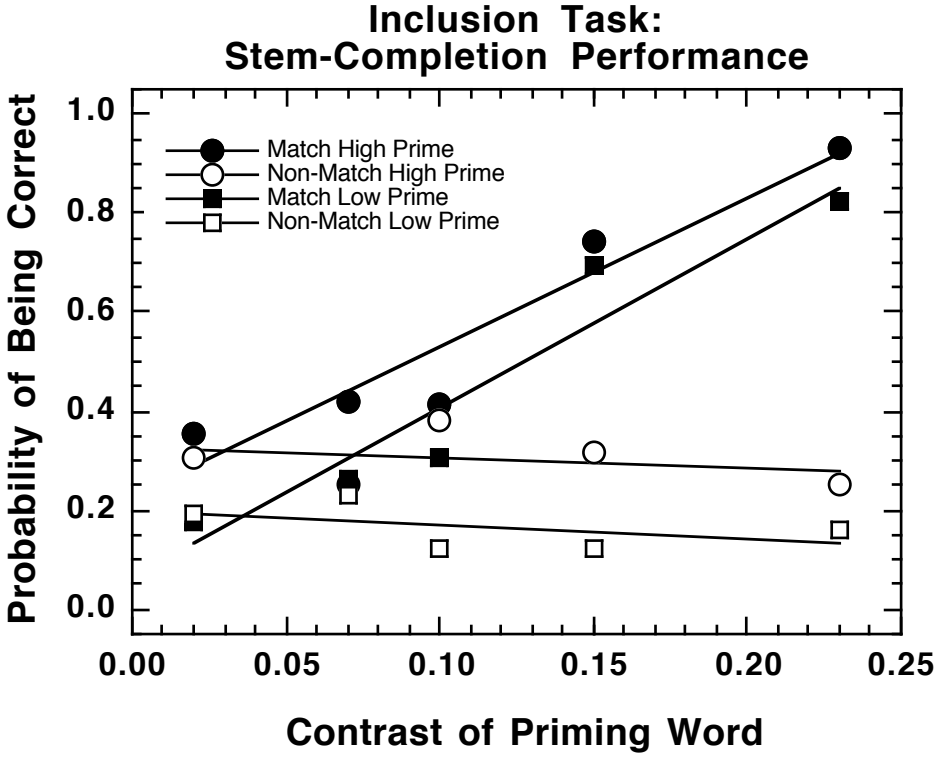
Psychology of Perception
Psychology 4165, Spring 2011
Laboratory 4
Group Project



This Page (except for this line) Intentionally Blank

Introduction

With this laboratory you will learn how to go through the various stages of scientific experimentation: from getting ideas for research to completing a finished experiment. You will work in groups to brainstorm about what questions to ask, then to search the recent experimental literature, then to design an appropriate experiment and finally to carry out the experiment and write up the results. You will proceed in six steps:

1. The class will be divided into four or five groups. Each group should choose a group leader to keep track of the group discussion by taking notes and then to summarize it to the rest of the class.

2. Each group will then discuss for 10 minutes what questions about perception they would want to answer. The group should make a list of the three most interesting questions.

3. Each group leader will make a three-minute (maximum) presentation of their group's questions. We will keep track of these ideas by writing them down on the blackboard. At the end of the presentations there will be at least 10 questions. There will then be a class discussion about these ideas. Each person should write down the three questions that most interest him/her.

4. The groups will now reconvene and pick one question from the lists of questions compiled by the group members. Each group member should go to the library and locate two papers published within the last ten years related to the question. The papers should be published in one of the journals listed below. Each group member should make copies of these articles for themselves and for of the other group members.

5. The group members should read all the articles gathered by their group and discuss these papers among themselves. The purpose of these discussions is to identify a question that can be answered by a relatively simple experiment.

6. The group should now design an experiment that will answer the question your group has chosen. Before the experiment is carried out you need to have it approved by the instructor or the TA and you need to have completed your CITI training.

Laboratory Report

The first draft of your lab report should contain **four** of the standard six parts: **Cover Sheet, Introduction**, **Methods**, Results, Discussion and **References**. In the introduction explain

what the question is that you propose to answer. You should refer to the relevant literature, including the papers that your group has assembled. The **introduction** typically starts out broadly and concludes with the specific question you intend to answer. In the **methods** section describe what you propose to do. Make this section as concrete as possible at this stage. Include a description of the equipment you need and the specific procedure you will follow. Be explicit about what independent variable(s) you will manipulate and what values they will have. Be explicit about the dependent variable(s) you will collect and how you will analyze the data. Include a **reference** list of all the papers you have cited. Use the standard format of the American Psychological Association for citations and references.

Conciseness and clarity are extremely important characteristics of good scientific writing. Strive for them. We will give you feedback on your first draft before you actually start to carry out your experiment. Remember: keep these reports short, clean, and clear.

Suggested Journals

Journal of Experimental Psychology: Human Perception and Performance
Perception and Psychophysics
Vision Research
Perception

CITI Certification

You will be conducting an original experiment that you design. To meet ethical and institutional requirements all students in the class must do an on-line training on issues surrounding the testing and protection of human subjects. The web link below is the place to get started.

http://www.colorado.edu/VCResearch/integrity/humanresearch/index.html

All research involving human participants that is conducted by UCB faculty, staff or students must receive some level of review by the Institutional Review Board (IRB). Information, instructions, and downloadable forms needed to complete the review process can be found at this site. **Click here** for more information about the IRB.

All UCB faculty, staff, students, and faculty advisors engaged in research must have current educational certification. Certification is valid for three (3) years. If your certification is due to expire, please complete the Colaborative Institutional Training Initiative (CITI) Program tutorial to maintain your certification. If you have not completed any tutorial, you must complete the CITI Education program prior to obtaining approval to run your experiment.

This web site below gives specific information about how to do the CITI course and how to print your certificate:

http://www.colorado.edu/VCResearch/integrity/humanresearch/CITI.html

Clicking on the URL below will take you to the actual CITI web site:

https://www.citiprogram.org/

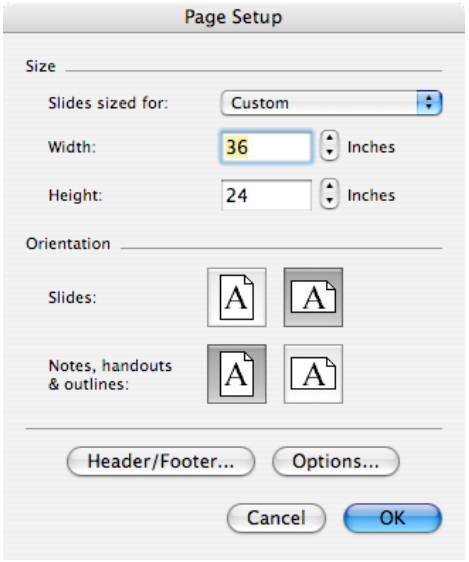
When you finish your training, print out your certificate and turn it in to us for our records.

Schedule

7.	22 & 24 Feb 2011	**Form Research Project Teams**
8.	1 & 3 Mar 2011	Work on Group Projects **First draft of project proposal due** (Cover Page, Introduction, References)
9.	8 & 10 Mar 2011	Work on Group Projects **Second draft of project proposal due** (Cover Page, Introduction, Methods, Expected Results, References)
10.	15 & 17 Mar 2011	Work on Group Projects Data Collection
11.	22 & 24 Mar 2011	**Spring Break**
12.	29 & 31 Mar 2011	Work on Group Projects: Data Collection and Analysis
13.	5 & 7 April 2011	Work on Project Presentations
14.	12 & 14 April 2011	Work on Project Presentations
15.	19 & 21 April 2011	**Group Project Presentations: Both lab groups meet on Thursday, April 21, 12:30–15:20** (20 points)
16.	26 & 28 April 2011 27 April 2011 (Wednesday) 28 April 2011 (Thursday)	No regular lab meetings this week **Undergraduate Research Day, Glenn Miller Ballroom, 15:00–17:00** **Final Project Reports Due in Class** (40 + 20 points)

Hints for Making Posters

Posters are more formal than verbal presentations, but you still don't want to have too much material that will clutter the poster and distract the reader from understanding the main points you want to make. It is easy to prepare your posters using PowerPoint. Start up PowerPoint and make a new slide show with a single slide. You will make your poster on this single slide. Go to the File menu and select Page Setup… Choose Custom paper size and set it to 36 inches wide and 24 inches high. The dialog box should look like this:



Below is a sample poster: When making the layout keep the following points in mind:

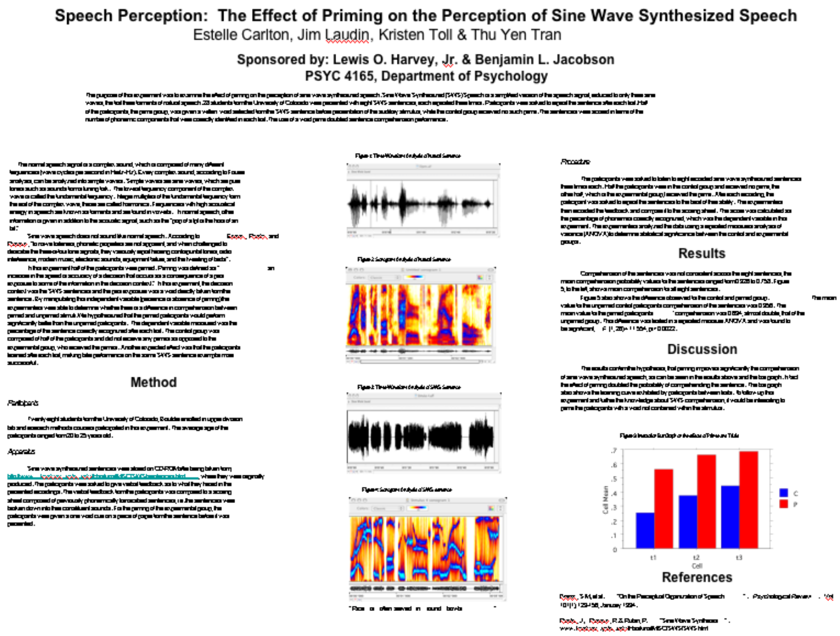
- The font size of the title should be around 80 points and should fit on one line
- The font for the authors names and affiliation should be around 60 points
- About 1/3 of the area of the poster should be blank
- Use attention-grabbing graphics (a picture is worth a thousand words). The goal is to attract and focus attention on the important parts of your poster.
- Don't make your poster cluttered, put only essentials on it. You want to make it easy for the reader to grasp the main conclusion.

We will print the posters for you here in the department. So you should concentrate on getting the layout right. Here are two examples of posters from previous classes.

There are excellent web sites giving advice on how to prepare effective posters. My current favorite is at Swarthmore College:

http://www.swarthmore.edu/NatSci/cpurrin1/posteradvice.htm

Look at it carefully and follow their advice.



Olfactory Memory and Cognitive Recall

Caitlin Froehlich, Jessica Graham, Jessica LaBudda, Colleen Micalizzi and Jessica Munday
Psychology of Perception (PSYC 4165)
Sponsors: Lewis O. Harvey, Jr. and Benjamin L. Jacobson

Odors are not forgotten as quickly as other perceptual events and are able to evoke older memories than other sensory stimuli. Olfactory stimuli creates a unique memory in the brain related to the scent which when paired with another sensory cue is stronger than when it is presented alone. Through this experiment, we predict that smell is recalled more often when paired with a cognitive task, specifically writing a word or drawing a picture associated with a smell. The basis for this hypothesis is olfactory memory occurs because humans have been found to assign verbal representation to the olfactory stimuli. 30 smells were randomly chosen to be presented for the first training session in the three different experimental groups: visual imagery, word association, and control. The second training session consisted of 40 smells randomly presented with the participants rating on a scale of confidence that the smell has been previously experienced. The results showed that there was no significant difference between any of the groups, thus demonstrating that cognitive processes do not have an impact on olfactory recall.

Method

Participants

The participants in this experiment were 31 college students at the University of Colorado, Boulder enrolled in a psychology class. None of the participants were paid for their time. The participants were both male and female and ranged in age from approximately 18 to 25. All participants were randomly assigned to one of the following groups: control, visual imagery, and word association.

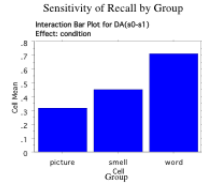
Apparatus

120 plastic Ziploc bags containing various olfactory stimuli. A list of smells is located in Appendix 1. For the visual imagery and word association groups a pencil and paper was provided.

Procedure

30 smells were randomly chosen by the experimenter for the first part of the experiment. All three groups were blindfolded and the experimenter opened a plastic bag and instructed the participant to smell for five seconds. The order in which the smells are presented was random for each participant. Immediately following smelling the contents of the container, the control group waited for 15 seconds until the next smell was presented. Within a time span of 15 seconds, the word association group was instructed to write one to two words that best described the smell that was perceived. Also, within a time span of 15 seconds, the visual imagery group was instructed to draw a picture that they associated with that particular. The procedure was repeated for each group for all of the remaining smells. All groups were given a 15 minute break. Following the break, 40 smells were presented, 20 of which were from the original training phase, and 20 new smells. Using the six-point rating scale shown below, each participant rated each smell on his/her confidence that the smell had been previously experienced in this experiment (one of the training smells) (Harvey 3).

Sensitivity of Recall by Group



References

Blake, R. & Sekuler, R. (2002). *Perception*. McGraw-Hill, 541-592.

Chu, S. & Downes, J. (2002). Proust nose best: Odors are better cues of autobiographical memory. *Journal of Memory and Cognition*, 30, (4), 511-518.

White T. and Treisman M. 1997. A comparison of the encoding of content and order in olfactory memory and in memory for visually presented verbal material. *British Journal of Psychology* 88:n3 459-469.

Whitfield, P., and D. M. Stoddard. 1984. Hearing, Taste, and Smell; Pathways of Perception. Torstar Books, Inc., New York, N.Y.

Zucco, G. (2002). Anomalies in Cognition: Olfactory Memory. *European Psychologist*, Vol. 8, No. 2, pp. 77-86.

Results

The results to this experiment show no significance difference between the participants ability to recall olfactory stimuli when paired with a word association or picture association. Though there were no significant values the participants in the word association group recalled more smells than that of the picture association group or control group.

Conclusions

Even though the results did not support our hypothesis the word association group did have a higher sensitivity than both the control group and the visual imagery group. Thus, if this experiment was conducted again with more accuracy it is likely that significance would be found to support the hypothesis that pairing olfactory memory with a cognitive cue aids in more efficient recall.