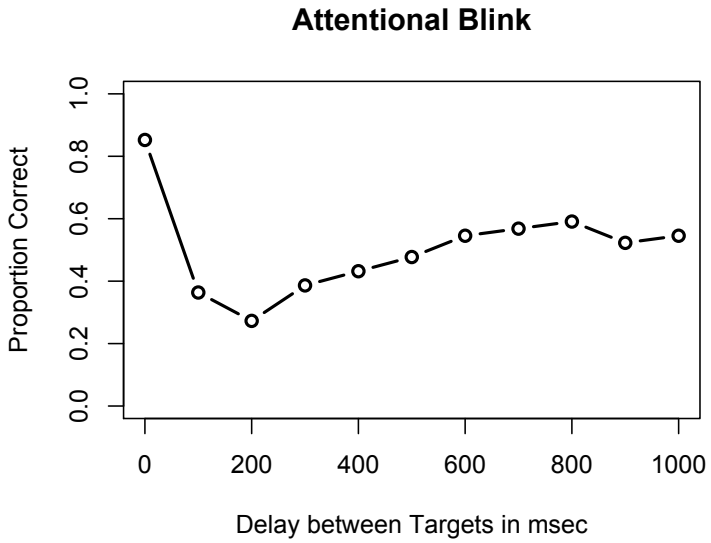
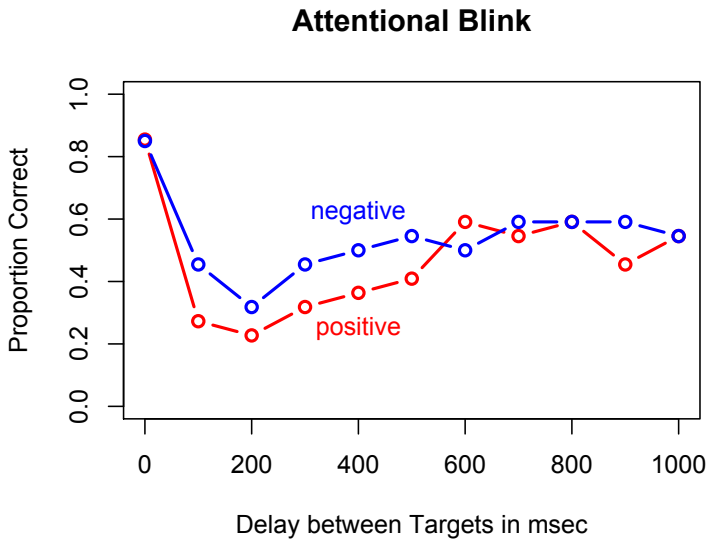
Psychology of Perception
Psychology 4165, Spring 2014
Laboratory 4
Group Project





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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. Today 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 summarizing your best three ideas 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 brief 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 Chinook or other internet resource 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 download pdf files of these articles and distribute them to 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 **six** of the standard six parts: **Cover Sheet, Abstract, Introduction**, **Methods**, Results, Discussion and **References**. In the

introduction explain what the question is that you propose to answer. At this point the **abstract** will just be a sentence or two. The **introduction** typically starts out broadly and concludes with the specific question you intend to answer. You should refer to the relevant literature, including the papers that your group has assembled in the **introduction**. 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://humanresearch.colorado.edu/pre-submission/citi-training

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). 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 Collaborative 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: **Clicking on the URL below will take you to the actual CITI web site:**

https://www.citiprogram.org/

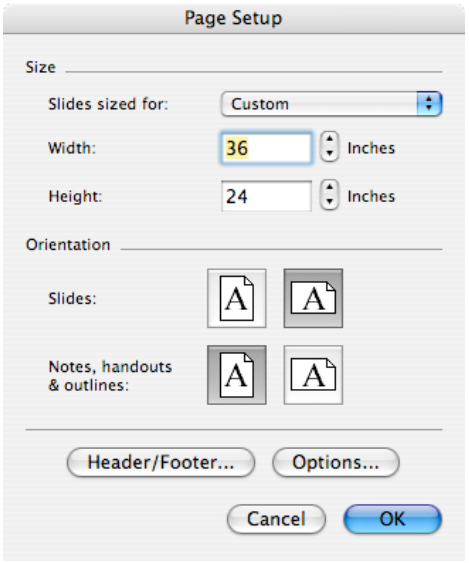
When you finish your training, print out your certificate and turn it in to us for our records.

Schedule

7.	25 & 27 Feb 2014	Lab 3 data analysis **Form Research Project Teams** (Martin Chapters 6 & 7)
8.	4 & 6 Mar 2014	**Lab 3 Report Due (50 points)** Work on Group Projects **First draft of project proposal due** (Cover Page, Introduction, References)
9.	11 & 13 Mar 2014	Work on Group Projects **Second draft of project proposal due** Cover Page, Introduction, Methods, Expected Results, References)
10.	18 & 20 Mar 2014	Work on Group Projects: Data Collection
11.	25 & 27 Mar 2014	**Spring Break–No classes**
12.	1 & 3 Apr 2014	Work on Group Projects: Data Collection
13.	8 & 10 Apr 2014	Work on Group Projects: Data Analysis
14.	15 & 17 Apr 2014	Work on Group Projects: Data Analysis
15.	22 & 24 Apr 2014	Work on Group Projects Work on Project Presentations
16.	29 Apr 2014, Tuesday 30 Apr 2014, Wednesday 2 May 2014, Friday 2 May 2014, Friday	**All Group Project Presentations: All Groups,** (10 points) **Undergraduate Research Day, 15:00–17:00, UMC Glenn Miller** (10 points) **Final Project Reports due in class** (40 + 20 points) **Analytic Paper due in class** (50 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 or Keynote. There are PowerPoint and Keynote poster template in Lab 4 Tools, which you can download from the course web site. If you create your poster without using a template, 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 using the department's poster printer. You should concentrate on getting the layout right. There are excellent web sites giving advice on how to prepare effective posters. My current favorite is by Colin Purrington:

http://colinpurrington.com/tips/academic/posterdesign

Look at it carefully and follow his advice. Below is a sample "good" poster from Purrington's web site, followed by two posters from a previous class

Title, formatted in sentence case (*Not Title Case* and *NOT ALL CAPS*), that hints at an interesting issue and/or methodology, doesn't spill onto a third line (ideally), and isn't hot pink

Colin Purrington
666 Teipai Street, Posterville, PA 19801, USA

Introduction

Your reader was mildly intrigued by the title, but you have exactly two sentences to hook them into reading more. So describe exactly what your interesting question is and why it really needed to be addressed. Gratuitous background information will cause them to walk away.

Typography research has shown that text is easier to read if you use a serif font such as Times. But use a non-serif font for title, headings, etc., to subtly tag them as different. Research has also shown that fully justified text (like this paragraph) is harder to read, so don't do this, even if it seems cool and professional looking.

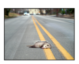


Figure 1. A catchy photograph can help lure people to your otherwise boring poster. Yes, I risked my life getting this shot.

Materials and methods

Few people really want to know the gruesome details of what you've been up to, so be brief. And be visual. Use a photograph, drawing, or flow chart if possible, supplemented with only a brief overview of your procedure.

If you can somehow attach an object, an iPad, etc., that can involve viewers in active way, do so. Refer to the companion website (see bottom right section) for more ideas if you are creatively challenged.

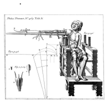


Figure 2. Hand-drawn illustrations are preferable to computer-generated ones. Just bribe or flirt with an artist to get them to help you out. A photograph of you actually doing something might be nice.

Results

The overall layout in this arena should be visually compelling, with clear cues on how a reader should travel through the components. You might want a large map with inset graphs. Or have questions on left and answers with supporting graphs on right. Be sure to separate figures from other figures by generous use of white space. When figures are too cramped, viewers get confused about which figures to read first and which legend goes with which figure. Cramped content just looks bad, too. The big thing to remember is that a Results section on a poster does not need to look like a Results section on a manuscript, so feel free to be creative.

If you can add small drawings or icons to your figures, do so — those visual cues can be priceless aids in orienting viewers. And use colored arrows or callouts to focus attention on important parts of graphs. You can even put text annotations next to arrows to tell reader what's going on that's interesting in relation to the hypothesis test. E.g., "This outlier was most likely caused by contamination when I sneezed into tube." Also, don't be afraid of using colored connector lines to show how one part of a figure relates to another figure.

Figures are preferred but tables are sometimes unavoidable, like death. If you must include one, go to great efforts to make it look professional. Look in a respected journal and emulate the layout, line types, line thickness, text alignment, etc., exactly. A table looks best when it is first composed within Microsoft Word, then inserted as an Object. Use colored text or arrows to draw attention to important parts of the table.

Paragraph format is fine, but so are bullet lists of results:

- 9 out of 12 brainectomized rats survived
- Brainectomized rats ate less
- Control rats completed maze faster, on average, than rats without brains

This sample results section is way too wordy, in case you were wondering.

Do treatments differ in their effects?

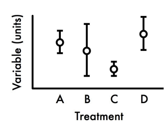


Figure 3. Legends can describe the experiment, answer the question, and even include statistics if you so choose (unlike a manuscript figure legend). And be brief.

Do As and Bs respond differently to X?

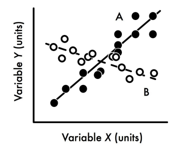


Figure 4. Label elements instead of relying on annoying keys that are defaults on most software. Add pictures of A and B if they are actually things (e.g., icons of aster and begonia flowers).

Are medians of treatment A and D different?

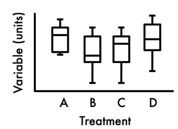


Figure 5. For the love of God, don't be tempted to reduce font size in figure legends, axes labels, etc. Your viewers are probably *most* interested in reading your figures and legends.

Conclusions

Conclusions should not be mere reminders of your results—that would be boring. You want to guide the reader through what you have *concluded* from the results, and you need to make the first several sentences understandable on their own and interesting…because many conference attendees will start reading this section first. If you don't hook them, they'll walk. These first several sentences should refer back, explicitly, to the burning issue mentioned in the introduction. (If you didn't mention a burning issue in the introduction, go back and fix that.)

A good conclusion will also explain how your conclusions fit into the literature on the topic. E.g., how exactly does your research add to what is *already* published on the topic? It's important to be humble and generous in this section, so assume that authors of previous literature may be at the conference, and further assume they are crabby and influential. You can also draw upon less formal types of context such as conversations you have had with smart and important people (God, personal communication).

Finally, you want to tell readers who have lasted this long what needs to be done next, and who should do it. E.g., are you taking the next logical step, or should another discipline follow up on your amazing result? It's OK to put a bit of personality into this ending because viewers expect posters to be personal, and if you're not actually standing there to convey your enthusiasm, your poster should be doing that for you.

If you have a graphical way to express the next iteration of your hypothesis, by all means include it. For example, you might make a graph of hypothetical data that shows an expected result in a future experiment. That's something you couldn't do in a traditional manuscript, but it's totally fine for a poster.

If you're curious, this poster has 876 words (just look in File Properties to get this statistic). Aim for 500 words. If you are above 1000 words, your poster will be avoided.

Literature cited

Bender, D.J., E.M Bayne, and R.M. Brigham. 1996. Lunar condition influences coyote (*Canis latrans*) howling. *American Midland Naturalist* 136:413-417.
Brooks, L.D. 1988. The evolution of recombination rates. Pages 87-105 in *The Evolution of Sex*, edited by R.E. Michod and B.R. Levin. Sinauer, Sunderland, MA.
Scott, E.C. 2005. *Evolution vs. Creationism: an Introduction*. University of California Press, Berkeley.
Society for the Study of Evolution. 2005. Statement on teaching evolution. < http://www.evolutionsociety.org/statements.html >. Accessed 2005 Aug 9.

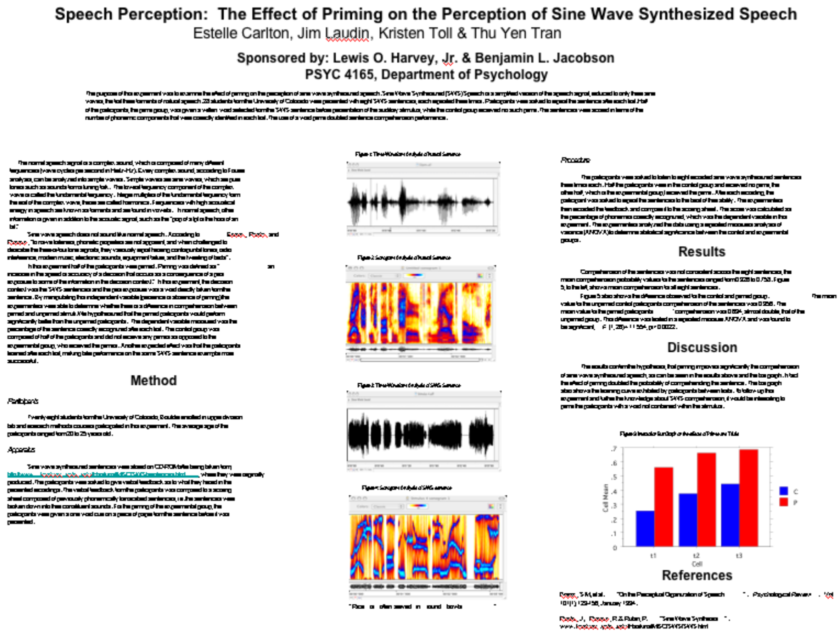
[Don't just make up a format for your references — follow the standard citation format for your discipline exactly. Trust me, if you deviate from absolute perfection, the Type A citation police will be on you within a few minutes, and it won't be pretty. Note that you should not place a period after the journal name.]

Acknowledgments

We thank I. Güor for laboratory assistance, Mary Juana for seeds, and Herb Isside for greenhouse care. Funding for this project was provided by the Department of Thinkology. [If you want to clutter your poster with annoying logos, shrink them down so that they can fit inside this area without smooshing text too much. Note that people's titles are omitted…titles are TMI.]

Further information

More tips can be found on "Designing conference posters," at http://colinpurrington.com/tips/academic/posterdesign. Note that URLs should always be stripped of any automatic hyperlink formatting (right-click, then "remove hyperlink").


Speech Perception: The Effect of Priming on the Perception of Sine Wave Synthesized Speech
Estelle Carlton, Jim Laudin, Kristen Toll & Thu Yen Tran
Sponsored by: Lewis O. Harvey, Jr. & Benjamin L. Jacobson
PSYC 4165, Department of Psychology
Method
Results
Discussion
References
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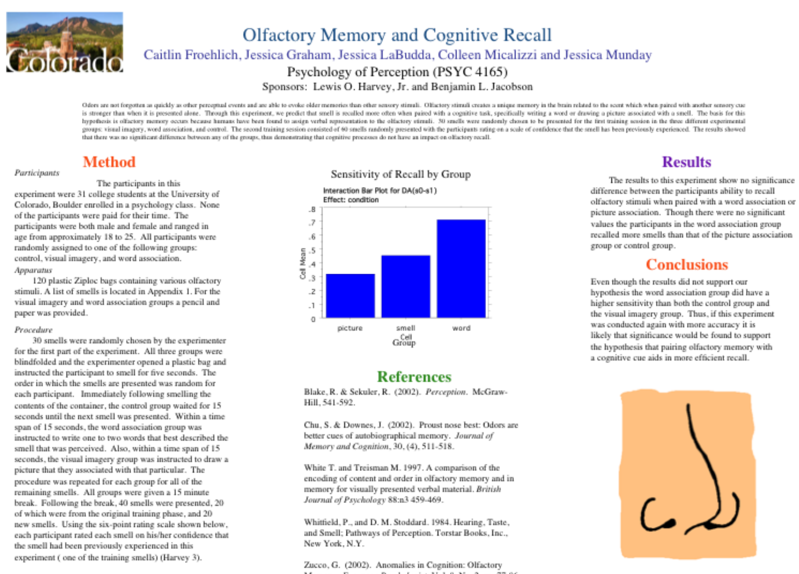
Olfactory Memory and Cognitive Recall
Caitlin Froehlich, Jessica Graham, Jessica LaBudda, Colleen Micalizzi and Jessica Munday
Psychology of Perception (PSYC 4165)
Sponsors: Lewis O. Harvey, Jr. and Benjamin L. Jacobson
Colorado
Method
Participants
The participants in this experiment were 31 college 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
Interaction Bar Plot for DA(s0-s1)
Effect: condition
Cell Mean
picture
smell
word
Cell
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.