Research Experience- Part 6

Presenting Your Research

Introduction

You are now at the final step of this research project -- telling your fellow scientists what you found out! While you have been collaborating with your colleagues throughout your research, this is the time when you bring it all together and include the conclusions you inferred from your data. This is a very important step in the iterative nature of the scientific process.

For this lab, you will prepare a presentation using any software package you want (e.g., Powerpoint, Keynote, Prezi) with a goal to clearly present all the aspects of your research. This is not the time for flashy effects: it is the substance, not the show, which is important in scientific presentations.

Here are some guidelines to help you present that substance. Use the grading rubric, as well, to make sure you’ve covered all the important information.

General Guidelines

1 or 2 slides: Introduce your topic to the reader. An introduction should include:
Your question/hypothesis- what were you testing? Why were you testing it? What is known about what you were testing? Include background information that acquaints your listener with the subject. Your audience will be other students in your Bio 1010 section who have not done this project. You could include information you might have heard, read or what might be considered common knowledge, but you should include sufficient scientific background so that your reader is ready to understand the intention of your research as well as your hypothesis. For information, you may use the internet, books, newspaper articles, scientific articles, but be sure that your sources are credible and the information is accurate.

Any information that is not common knowledge should be referenced. You may put numbers in parentheses referring to a particular reference, or you could put the author and date of publication in parentheses.

1 slide: The last slide/presentation element of the introduction should state the intention of your research project (for example, “The purpose of our experiment was to determine ...”). State your hypothesis and the basis for your hypothesis.

Experimental Design

1 slide: What did you do? How did you test your hypothesis? This should not be a list of materials, but should be a brief description in words or in picture format of what you did. Everyone will have used the iWorx system, so you don’t need to go into great detail on this, but you should include the relevant information about what you did to test your
hypothesis. When talking, **be sure to use the past tense**. This slide is not an instruction manual; it is a description, including materials used, of how you conducted your experiment. If you changed or adapted your experiment over time, include that in this narrative. You want to put in enough detail so that your listener could repeat your experiment exactly as you conducted it. Remember to explain it so that another Bio 1010 student could repeat your experiment. Explain what you did clearly. If you want to include a flow diagram, do that (this often makes it easier for people to quickly see what you did in a single slide). Any pictures of the setup should be included here. Any pictures should have labels or a title that explains what the viewer is looking at.

**Results**

1-2 slides: What were your results? What data did you collect about the testing that you did? This should be both a word description (bullet points are okay) and a data table. **This section is for the facts, not the conclusions.** You need to present a clear and accurate description of your results. You may also make charts, tables, pictures, whatever communicates the facts of your results to your readers. Remember, all figures need a brief description above or below them. You can make graphs in Excel (they’re called “charts” in Excel) and put them here.

Any figures you present must be interpreted in this section. These figures must have a caption for the figure, as well as a title for the slide. For example, if you found that drinking caffeine increased the heart rate of your subjects, you might have a title on the data slide stating that “Caffeine consumption resulted in an increased heart rate in college undergraduates”. Below are some examples of both good and bad figure presentations.

**BAD** figure presentation: What is bad: the background (although potentially providing information about the data) is distracting, so the data gets completely lost. The title is not descriptive of the take-home message of the slide (in general, avoid generic titles such as “Results” or “Discussion”). The chart should be bigger, as well as the font size for all labels. A good point about this slide: the graph includes labels for the axes and a key for what the different colored bars indicate. This is important and needs to be included. It would be better to also include a caption about what the data in the figure are showing.
GOOD figure presentation: Some good things about this figure: a title that summarizes the data shown; a figure legend that tells you what the different symbols mean; axes are clearly labeled; the background is not too busy; and important information is included (onset of exercise) in a relatively simple figure. This slide originally came from a journal article, which is why it’s black and white; for an oral presentation, you can certainly add color, just keep it from being overly busy!

Consuming caffeine prior to exercise reduces the heart rate elevation during exercise

Conclusions and Discussion

1-2 slides: What can you conclude about your hypothesis based on the data you collected in your group? You may want to think about whether further testing should be done, or if you think something didn’t work right in your experiment, discuss it in this section. The first slide should address your hypothesis. You could state “These data do not support our hypothesis that...” OR “These data support our hypothesis that...”

The second slide can address the following topics - one or more of these should be included for a good presentation:
You could describe why these results were unexpected. For example, maybe the caffeine treatment did not increase heart rate in college students, but you expected it would. What might explain this?
If you know others that have done this experiment, compare your study and/or results to theirs. This includes other groups in our class. Maybe you both studied the same thing, or used the same treatment in a different way, or used another similar product.
Discuss any information that you found in your readings that help explain your results. If you find similar experiments, refer to them here.
Offer any alternative explanations for the results. Also discuss what you might do differently if you were to do the experiment again. What is a logical next step? How could you improve the experiment?

References

If you needed to look up any information to put your presentation together, or if you’ve used any images that were not your own, you should cite the source of that information on the final slide; this can be in small print and you don’t need to discuss it.

General Notes

- Use good grammar and check your spelling!

- Avoid light colors or colors that don’t contrast well. Keep in mind that what looks great on your home laptop or computer screen often doesn’t look very good when it gets projected.

- Make sure each slide is easy to read and is uncluttered

Image source, “good” slide:  

Image source, “bad” slide:  
Adapted from Knight, WEJ and NS Rickard, J Music Ther. 2001 4:254-272  
- Heart image from http://www.springdaleclinic.com/can-anxiety-cause-a-slow-heart-rate/  
- Pachelbel Canon in D major sheet music image from http://www.printmusiconline.com/Shop/Item.cfm?itm_id=2149