Preparing a Poster Presentation
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Overview of Workshop:

Workshop description:

“In addition to helping you visually represent your research project, this workshop provides a wealth of advice for communicating with clarity and insight.”

In other words, this presentation will:

- Provide direction on the visual layout on the poster.
- Provide guidance for the oral communication of the poster.
Audience Poll

How many of you:

- participate in undergraduate research?
- are presenting at an upcoming poster session?
- have presented your work before?
Benefits of Presentations

Poster presentations give the speaker the opportunity to:

- Organize knowledge for the benefit of others.
- Motivate audiences to ask questions.
- Build credibility as a subject matter expert.
A large-format poster is a piece of paper (or monitor) that:

- Communicates your research.
- Introduces your question.
- Provides an overview of your novel approach.
- Summarizes your results in a graph, table, figure, or other visual means.
- Includes discussion of results.
- Lists previously published articles that are important to your research.
- Acknowledges assistance and financial support from others.

If text is kept to a minimum, a person could read your entire poster in under 5 minutes.

1. Miscellany: title bar, authorship, affiliations, logos, acknowledgements
2. Abstract (not always required)
3. Introduction/Background
4. Methods/Materials
5. Results
6. Conclusions/Discussion
7. References
Introduction

Congratulations—this reader is mildly intrigued by your title. Now you have 2-3 sentences to hook him/her into reading more by describing what your question was and why the answer might be of general interest. Gratuitous background information will chase them right out (if you’re standing next to your posture, that can be awkward).

Typography research has shown that body text is easier to read if you use a serif font such as Times. But non-serif fonts are great for titles, headings, figure legends, etc. Research also shows that fully justified text (this paragraph) is slightly harder to read even though it looks really cool.

Figure 1. A photograph in your introduction can help lure people to your otherwise dry, non-photographic research. If it’s not your image, ask photographer for permission to use, and cite him/her.

Materials and methods

Few people, if any, really want to know the grossest details of what you’ve been up to, so be brief. Use tightly annotated photographs, drawings, or flow charts to visually convey your general experimental approach. To better engage viewers in your protocol or system, try attaching actual objects such as study organism (dried specimen), research gismo, photo flip book, or a short movie (attach an old smartphone with Vicken).

Figure 2. Here’s an artist to illustrate the important step in your protocol. A photograph of you actually doing something might be nice, too. [Image by John Snow 1853]

Literature cited


Do treatments differ in their effects?

The overall layout in this area should be visually compelling, with clear cues on how a reader should travel through the components. Be creative. You might want a large map with inset graphs, or have questions on left with answers and 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.

If you can add small drawings or icons to your figures, those visual cues can be priceless aids in orienting viewers. Use color-coded arrows or callouts to focus attention on important parts of graphs. You can even put text annotations next to arrows to tell folder wearers what the arrows are pointing to. Another use of figures is to reference specific discussion points. This might include key graphs for published manuscripts, but posters can be more personal and thus better guide viewers.

Figures are preferred but sometimes unavoidable, like death. But go to great efforts to make it look professional. Look at a respected journal and emulate the layout. Use type: line thickness, text alignment, etc. Exactly. Again, use color only to draw attention to important parts of the table. Paragraph format is fine, but so are bullet lists of results:

- 9 out of 12 brain-examined rats survived
- Brain-examined rats are less
- Control rats completed maze faster, on average, than rats without brains


Do A and B respond differently to X?

As mentioned, all bars for each of the major treatment groups are statistically different (p < 0.05, icons of rat with, without brain).

Figure 3. Legends can briefly describe the experiment, answer the question, and even include statistics if you’re so chosen (within a manuscript figure legend).

Figure 4. Label elements instead of relying on annoying icons that are distant on most software. Add pictures of A and B if it is a charge (e.g., icons of rat with, without brain).

Figure 5. Don’t be tempted to reduce font size in figure legends, axes labels, etc. This is because viewers are probably more interested in reading your figures and legends.

Figure 6. Am I mixed up in treatment A and D different?

Conclusions

Conclusions should not be dry restatements of your results. You want to guide the reader through what you have concluded from results, and you need to state why those conclusions are interesting (i.e., don’t assume reader will guess). These first several sentences should refer back to the forming issue mentioned in the introduction. If you didn’t mention a question 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 study stack up to previously published on the topic? It’s important to be humble and generous in this section, partly because authors of previous literature may still be alive and even attending the conference. You can also display your appreciation of others’ input by citing conversations you have had with peers/colleagues.

Finally, you want to tell readers who have looked at what you might have been next and who should do it. E.g., are you currently taking the next logical step, or should another person with different skills follow up on your amazing results? It’s OK to let 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 text should do it for you).

If you have a graphical way to express the next step of your hypothesis, by all means include it in this section. For example, you might make a graph with hypothetical data that shows an expected result in a future experiment. That’s something you normally don’t show in a traditional manuscript, but it’s totally fine for a poster.

If you’re curious, this poster has 683 words. Aim for 500 words. If you are above 1000 words, your poster will be annoyingly long to everyone except your mentor or colleague.

A well designed poster retains plenty of white space separating edges of text boxes, graphics, and tables. You also want space between your text and edge of box. Without white space a poster will look cramped and uninviting.

Acknowledgments

No thank you! Figure support (and more tips and comments) can be found at “Designing conference posters”.

Further information

http://colinpurrington.com/tips/poster-design

Tips for Preparing a Poster

- Limit the amount of words on your poster (but save them for a journal article).
- Revise several times.
- Ensure that it is readable from a few yards away.
- Do not use first person.
- Tell a story about your research.
Poster Talk
The Spoken Presentation
Oral Presentation guidelines

- Introduce your subject with an attention-getting question, statistic, or image.
- Tell your audience what they can expect to learn.
- Clarify/support what they should remember.
- Conclude with a strong take-away message.
The struggle with Audiences

- Listening requires work.
- Too much or disorganized information hinders their comprehension.
- Listeners think faster than you can speak, so their minds wander while they listen.

Strategies:

- Before introducing new material, stop to remind your audience what they have learned so far.
- Highlight important terms and repeat them often.
Speaking to colleagues and experts gives you more freedom to use specialized terms without providing definitions or context.

Speaking to a more general audience allows you to convince those outside your field of the importance of your project.

The ability to shift gears for different audiences (sometimes all listening at the same time) is a quality of a successful communicator.
Delivery

- Practice
- Practice
- Practice
Practice Presenting

Practice your speech with someone who is familiar with your work (such as a co-worker or mentor) and someone who is not familiar with your work (such as a non-engineering roommate).

Know your audience. You do not need to dumb down your work. Rather, tailor your work to your audience so that you present an overview of the project without eliminating technicalities.

Develop a hook that will lead right from your introduction into your background.

Describe your methods in the order you performed them.

Verbally tie your results back to your background section. Your audience will appreciate the oral call back to your introductory material.

Feel free to postulate about the future direction of your work.
Does the introduction:
1. Prompt interest in the project?
2. Forecast your objectives (what your listeners can expect to learn)?
3. Adopt a tone appropriate to the audience?
Does the body of your talk:

1. Give your audience a map and help them understand the relationship of one topic with another?
2. Define key terms and concepts?
3. Visualize your subject from multiple perspectives?
4. Employ analogies to help audiences grasp unfamiliar materials?
   a) Example: Watson and Crick described the structure of DNA as a zipper.
Does your conclusion:

1. Discuss your results?
2. Remind your audience of your initial objectives and how you achieved them?
3. Forecast the future of your research?
Resources

- http://academics.umw.edu/speaking/speaking-center/useful-handouts/
- https://speakingcenter.uiowa.edu/resources
- https://speakingcenter.uncg.edu/resources/tip-sheets/
Questions?
Poster Text

The Written Presentation
Crafting your Title

- Write a list of keywords and key points that have been demonstrated by the study.
- Preserve the technicalities of your work, but do not over-explain.
- Draft a few titles and have a co-worker or a mentor review them before deciding on a final version.
- Save writing the title until the end of the poster-drafting process.
Start with the problem that your study addresses.
- Describe the current research in this area.
- Mention any established models that you are using,
- Narrow in on your specific research question, hypothesis, and the purpose of your study.

Describe previous research studies, shortcomings in your research question, and other possible results of a literature search.
Methods

- Describe the techniques used.
- Include information about sample sizes used for data analysis.
- Utilize a Data Flow Diagram.
- Be as concise as possible while still including all elements necessary to allow interpretation and replication of the results.
Results

- Present your results as figures and additional statistics.
- Do not interpret your results, because any discussion should be saved for the conclusions section.
Conclusions

- Keep your discussion focused on what you demonstrated in your study.
- Re-iterate the major statistics from your data analysis.

**CONCLUSIONS**

- Software is accurate at obtaining axon counts and can replace using trained human experimenters to generate manual counts.
- Determined optimal magnification level for optic nerve cross sections is 40x.
- There is now more data that demonstrates that transgenic mice have 9% fewer cells ($p = 0.0004$). Transgenic mice show greatest loss in small-sized axons.
- Future work should be directed towards determining if a correlation exists between axon counts and ganglion cell layer thickness acquired from OCT images.