How to Make a Great Poster Presentation

- Prepare a Great Poster
- Tell a Story
- Sell your Research/Work
**Purpose of Posters**

*Communicate/publicize information to audience*

- Posters are tools to communicate important message:
  - your research project/work/study
  - most important results
  - impact & significance of your work/research project
  - advertisement of your work/product/results
  - sharing of your project/work

- Poster is used to report a study; outcome of a project
- Characteristics of your organization
- Clear, Concise & Effective

*Presenter must be*

- Knowledgeable
- Enthusiastic
Poster must do the following:

Address:

….question that is asked; hypothesis that is tested; or “knowledge gap” that is closed
….means, by which question/gap is addressed.
... your results that should “persuade” reader/listener.
... your results & conclusion & why they are significant and/or important.
Common Sections of Poster Presentations

IMRAD

- Title including author(s) & affiliation
- Abstract (not required on poster presentation, but used as strategic tool); submitted ahead of poster presentation
- Introduction
- Materials & Methods
- Results and Discussion
  - Alternatively: one results & discussion section
- Acknowledgements
- References cited
Types of Posters

1. Stability of CI patterns
   - Asian systems (China) take place that the spread of the protolatangue between population in table 1 of race migration.
   - Horizontal or “Landscape”

2. Gene flow reduction
   - Bacterial strains show that the spread of the protolatangue between population in table 1 of race migration.

3. Runaway selection
   - Bacterial strains show that the spread of the protolatangue between population in table 1 of race migration.

Conclusions & Outlook
   - One main force that reduces the increase of Shangri-La’s evolution and spread is the reduction of CI spread in table 1 of race migration.

Acknowledgments
   - Thank you to all the students and faculty members for their contributions to this project.
   - Support from the National Science Foundation is gratefully acknowledged.
Before Starting Your Poster Presentation…

- Know your audience – scientific vs non-scientific
- Decide on the “basic message” to communicate
- Gather your information, graphs, tables, images…
- Allocate the correct amount of space.
- Allocate **TIME** to design the poster; this is especially true if there are several partners.
- Pre-sketch a layout.
- Be clear in your ideas
- Be as simple as possible in communicating your message.
Preparing for a Poster Presentation

- Read & follow instructions provided by organizers (page limits, poster size, etc.)

- Reflect on preparing a poster
  - Do you have enough data? Are they statistically significant?
  - Do your data support the hypothesis/question/knowledge gap?
  - Are your results novel & significant to merit dissemination?
  - Do you have a story to tell?

- Outline your poster presentation
  Why was the research project undertaken (most significant finding)?
  Which hypothesis was tested? What was done? What was learned? What does it mean? What is its impact? Why is it important?

- Identify most effective way to present your data & results
  Tables vs figures. Text vs figures & tables
  Revise & reorganize your material!!
  Plan ahead of time – start today, not tomorrow!!
Prepare for Your Audience?

*Who is is your audience:*

- **Are they scientists in your area of specialty?**
  - Then you can use *some* jargon (verbiage used in your profession) & *some* shortcuts.

- **Are they scientists in a related field?**
  - Then use less jargon, but you can assume basic knowledge.

- **Are they non-scientists in an unrelated field?**
  - Then use basic, simple language & terms.
What is the Message?

- State the goal, objectives, significance, methods, major result(s), conclusions.
- Use a short but informative title & an effective abstract & introduction.
- All other points are driven by main title & goal/objective(s) of the project & introduction.
- You do not have to report every result and/or detail.
- Corollary findings can be summarized as “bullet points”.
Be Strategic!

- Decide on presenting your data
  - *Tables are often better than written text.*
  - *Figures are often better than tables.*
- Use short, informative statements
  - A poster is not a publication … you do not have to use a graph or table for everything!
- Use graphs/tables for most important data.
- Check spelling and grammar.
Abstract three parts:
✓ Hypothesis or objectives
✓ Short methods & Results.
✓ Conclusions & impact

Introduction:
• Essential background information.
• Why is this problem being researched?
• What is your objective or questions?
• What is your hypothesis?

Methods:
What did you do? (How?). Enough detail to ascertain validity (Correct method? Reproducible?)

Results:
What did you observe? Outcome? Arrange data (graphs or tables) in logical order. Enough data to support conclusions

Discussion:
• What do your results “mean”? (don’t repeat results). Address any contradictions.
• How do results support your hypothesis?

Acknowledgements:
Grant agency or special assistance.

Use numbers to guide your audience
Logical Organization of Your Poster

Organize your poster in a logical way:

- Place the title across the top in large font size (>48 point) followed by author listing and affiliation in smaller font size (38 – 42 pt).
- Place a brief introduction (3 - 5 sentences) at the upper left.
- Place the conclusions, references cited, and acknowledgments at the lower right.
- Fit Methods and Results in the remaining space.
Project title
Your name and credentials

Introduction
What were the driving forces that led to the design of the project — how significant was the problem to your organization and nursing?

Project goals
Major goals and objectives you hoped to achieve with the project

Project description
Provide an overview of the design of your project, including specific initiatives implemented, staff/units involved and time frame of the study

Findings
Use graphic or pictures to present results when possible

Conclusions and implications
Impact on your organization and the implications for nursing

Evaluation strategy
What outcome measures did you use to evaluate your success?

Reference literature
Evidence-based literature to support the initiative

Acknowledgements
Acknowledge grant funding and clinical partnerships

Contact information
Who should be called for more information?
IMRAD Format – Title & Affiliation

Title should

- be informative and succinctly, clearly, and precisely reflect content of the poster
- draw reader to the presentation
- use descriptive (action) words closely related to content of the poster presentation
- use key words for purpose of indexing
- avoid unnecessary words (studies on, investigation of..), abbreviations, and “cute” or “offending” descriptors

- A Study of the Effectiveness of PQQ as a Cardiovascular Drug
- PQQ: Is it an Effective Cardiovascular Drug?
- Pyrroloquinolinequinone (PQQ) is an Effective Cardiovascular Drug by Protecting the Heart from Ischemia Reperfusion Injury
IMRAD Format – Abstract

Abstract: concise, stand-alone summary of the poster; entails the following:

- Introductory sentence stating purpose & significance of the research project
  - What was studied? Why was it studied? Which hypothesis was tested? Which question(s) was (were) addressed?
- Precise, short description of the major methods used
  - What was done?
- Summary of the most significant results
  - What are the major findings and results?
- One-sentence summary of the most significant conclusion(s) and impact of the research/work/study
  - What do the results mean?
  - So what?
IMRAD – Introduction

Introduction gives the scope of your research; is comprised of:

- **Description of the problem, question to be investigated**
  - What is the nature of the problem?
  - What is already published on and known about the research project?
  - Be selective in citing relevant sources – quality, not quantity

- **Description of why the research is important – engage your reader**
  - Provide rationale for your research
  - Which unanswered question, untested hypothesis, finding are you testing, challenging, or extending?

- **Description of your solution or steps toward solving the problem (last sentences of the introduction)**
  - State your hypothesis to be tested
  - Provide your solution to the problem to be researched, its significance, and its potential impact on scientific discovery and advancement
  - Describe the general experimental design or method and its novelty.
IMRAD – Methods & Materials

Materials & Methods

- Section provides information on the experimental design:
- Pictorial or short description of how the research was conducted, which methods were used & characterization & analysis methods
- How were the data acquired and experiments carried out, include:
  - chemicals, actions, conditions, experimental design, replications repetitions, analysis, types of assays
IMRAD - Results

Results section provides only results, no interpretation thereof. Section consists of:

- Presentations of data and observations in form of tables, graphs, figures, charts, pictures, and text
  - Number tables, figures, charts...sequentially
  - Give brief, but informative legends for tables (above table) and figures (below figure) and detail how results were obtained
- Report of most significant result(s) supported by data
  - Order multiple results logically
    - most to least important and/or significant
    - least to most complex
- Use past tense
IMRAD Format - Discussion

Discussion section
- Discusses most significant findings & provides interpretation and analysis of your results and data

Provides information on:
- how you arrived at your conclusion(s)
- which patterns, principles, and relationships your results show
- how the results relate to the literature cited in the introduction
- how your results may lead to new scientific discoveries
- pitfalls

Describes impact of your results on scientific discovery
- theoretical implications that your results may have
- practical applications that your results may have
- how your findings advance the knowledge in the field

Effective
- use bullets to highlight findings in a summary-like statement
End Poster with

- **Clear, straightforward conclusion(s)** that restate most important finding(s)/poster focal point and impact on scientific discovery and advancement.

- **Key references**

- **Acknowledgment Section**
  - Give credit where it is due.
  - Have an **Acknowledgement** section, in smaller size type (14 - 18 point), where you acknowledge all support (contributors, funding organizations, stockroom personnel, support from technicians)
General Suggestions

Layout

- Use numbered heading sub-titles so that audience reads the poster *in the order that you want*.
- Balance placement of text and graphics (symmetry).
- Don’t CRAM! Use white spaces between sections.
- Follow normal flow of reading:
  - Top to bottom
  - left to right.
- Use Right- and Left-justification alignment of text; but make sure that there is no awkward space between words.
**General Suggestions - Text & Font**

**Line Spacing:** 1.5 or double-spacing, single spaced text difficult to read

**Font:** Large enough for text to be read from 6 feet away.

- easy to read - *San serif* fonts (no curlicues)

**Font options:** Helvetica, Arial, Geneva, Times Roman (ok – not great), Palatino, Century Schoolbook, Courier, Prestige.

**Size:**

- Boldface, 36 point for section headings (Introduction)
- at least 24 point for supporting text (introduction, figure captions…)
- larger font size for results & conclusion
- smaller font size for methods
- at least 48 point for Title & Affiliation

Be consistent – use one font throughout the poster.

- Keep narrative brief – posters are not publications – they are visuals.
- Bring handouts to the poster session if required.
- Add emphasis by using boldface, underlining, or color (strategically); text in italics is difficult to read.
General Suggestions
Photos, Figures, Tables

- Should be clear, self-explanatory, uncomplicated, and sufficiently large.
- Tables and figures must have titles.
  - Tables: columns and rows should have titles.
- Graphs: horizontal and vertical axes should be labeled. Symbols for each condition (; ·, ·; ·) should be robust (visible at 3–4 feet).
- Line on graph should be “tagged” with a label.
- Images: Should be cropped & enlarged to clearly; show your key point.
General Suggestions

Images & Figures

BAD

BETTER

Symbols are indistinguishable

No label or numbers for x- or y-Axis
General Suggestions

*Color and Contrast*

- Use a white background, but a colored border line to draw attention to important parts of your poster.
- White background also saves ink.
- Use pleasing contrast to reduce eye strain.

Good: This is a **good contrast for a poster.**

Poor: This is a **poor contrast for a poster.**
**Use of Color**

- Easiest to use & most cost-effective: white background
- Use colored background to unify your poster - no more than 2 or 3 related colors (methods, data, interpretation).
- Muted colors, or shades of gray are best for the background.
- Use more intense colors for borders or for emphasis, but be conservative - overuse of color is distracting.
- Color can enhance the hues or contrast of photographs
  - Use a light background with darker images
  - Use a dark background with lighter images.
  - Use a neutral background (gray) to emphasize color in photos;
  - Use a white background to enhance the impact of colored photos.
- Poster sessions are often held in halls with fluorescent light. If exact colors are important, balance colors for use with fluorescent light
  
  **Note:** Fluorescent light intensifies color; bright colors may become unpleasant to view.
Good or Bad?

If you can read this you must be nocturnal...

Abstract

Introduction

Methods & Materials

Results

Discussion

Conclusion

References

Acknowledgements
Good or Bad?
Good or Bad?
Good or Bad?
Cooling Effects of Dirt Purge Holes on the Tips of Gas Turbine Blades

Eric Couch, Jesse Christophel, Erik Hohlfeld, and Karen Thole

Gas turbine engines run better at higher combustion temperatures

At higher combustion temperatures, these engines generate more power and use less fuel. However, these temperatures are restricted by melting temperatures of the turbine blades downstream of the combustor (see Figure 1).

Dirt purge holes on turbine blade tips allow for higher combustion temperatures

Harmful hot gases from the combustor leak across the gap between the blade tip and the shroud (see Figure 2). Dirt purge holes expel foreign particles from the blade tip so that film cooling holes are not blocked.

The project goal was to find the film cooling effects of these dirt purge holes

To find the effects, we performed wind tunnel experiments with scaled turbine blades. The wind tunnel was low speed and low temperature, and the blades, shown in Figure 3, were scaled at 12 times their normal size. To measure temperatures on the blade tip, we used an infrared camera. Tip gap sizes and amount of coolant flow from the dirt purge holes were both varied.

Temperature measurements were converted to dimensionless cooling effectiveness

\[
\text{Effectiveness } \eta = \frac{T_{2p} - T_{c}}{T_{a0} - T_{c}} \quad \text{where} \quad T_{2p} = \text{coolant temperature at gap (perforated)}
\]

Cooling increased with blowing ratio

The effectiveness contours of Figure 4 show that cooling increased with blowing ratio.

Tip size dramatically affected cooling

In Figure 5, the lateral averages of effectiveness plotted against the axial chord length show that tip size dramatically affected the cooling.

In summary, dirt purge holes provide cooling to the tip surface

While intended to remove dirt from the blade, dirt purge holes also provide cooling to the tip surface. This cooling is enhanced with a small tip gap as the dirt purge floods the tip region near the leading edge with cool air.

Acknowledgments
The sponsor for this project was Pratt & Whitney.
Good or Bad?

The neural representation of behaviorally relevant acoustical sequences

Neurons in NCM are sensitive to temporal combinations of song elements

Starlings can discriminate between probabilistic acoustical sequences

Responses in NCM are biased by the familiarity of elements & sequences

Over half (45/70) of units are modulated by an interaction between context and target identity

Starlings learn to discriminate between these strings and differentially weight individual transitions.

Offset responses are stronger for familiar motifs

Responses to pairs of motifs have more information about familiarity than reward value
Good or Bad?
Synthesis of Novel Di-Substituted Tetraphenylporphyrins as Potential Agents for Photodynamic Therapy (PDT) of Cancers

Lenin Parrales, Ursula Simonic
Department of Chemistry, San Francisco State University, San Francisco, CA 94132

Introduction

Experimental Methods

Nitro Group Reduction

Experimental Results

Experimental Methods

Nitro Group Reduction

Results

Discussion & Conclusions

The synthesis of novel di-substituted tetraphenylporphyrins has been explored as potential agents for photodynamic therapy (PDT) of cancers. These compounds exhibit high fluorescent activity, making them promising candidates for PDT applications. The goals of this research were to synthesize and characterize these porphyrins, evaluate their photodynamic activity, and assess their potential as PDT agents.

The porphyrins were synthesized through a Lindsey-modified Adler-Longo procedure, which involves the condensation of tetraphenylporphyrin with a di-substituted aromatic compound.

Fluorescence microscopy images of cultured cancer cells treated with the synthesized porphyrins showed significant fluorescence, indicating their successful uptake and potential for photodynamic activity.

Further experiments are needed to fully evaluate the efficacy and safety of these porphyrins as potential PDT agents. Future work will focus on optimizing the synthesis process and conducting in vivo studies to confirm their therapeutic potential.

Acknowledgements

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References


Good or Bad?
Good Visual Communication

Poster should …

- be informative.
- be a conversation starter.
- tell a story
- capture the attention of the audience within 15 seconds.
- Be pleasing to the eye & “exciting”.
- Be succinct and well organized.
- Be readable from 3–6 feet.
Poster Dimensions at the Showcase

Prepare poster size for:

- Tri-fold poster = 48 in. length x 36 in. height.
- Foam board = 60 in. length x 40 in. height.
- First 60 posters = No charge.
- Prepare poster & email final version to:
  
  Ctrl+P Digital Print Shop – copyctr@sfsu.edu
  and cc Lannie science@sfsu.edu for approval
For the Showcase Day ...

- Prepare & rehearse a 2–3 minute presentation for the judges.
- Focus on the main point. Explain how your different data support the main point.
- Explain why your research is important or how it solves a problem or need.
- Limit technical language (“jargon”).
- If you present a special technique, prepare a concise (3–4 sentence) explanation for it.
- Arrive early to set up. Bring your poster & tacks.
- Bring a 1-page version of poster (optional).
- Attend the Student Project Showcase on May 3rd, from 2–5:00 pm.
- Please stay through the award ceremony ≈ 6:30 pm