

# Abstracts for Capstone Paper

## Sources

- Purdue OWL: <https://owl.english.purdue.edu/owl/resource/656/1/>

Note: Informational (not descriptive) abstracts are used in our discipline

## Purpose of an abstract

- Provide the reader with a general overview of your work
- Highlight main outcomes of your work
- Indexing – an abstract provides a synopsis of your work which may be used in place of the complete document to minimize electronic storage requirements
- Convince
  - the reader to continue reading  
**OR**
  - the reader to stop if your work is not relevant to their needs

## Writing an Effective Abstract

- An abstract must “tell your story” in a paragraph
- An abstract should contain i)introduction, ii) body, and iii) conclusion
- Concise and cohesive writing style – must be understandable independent of the report
- Abstract audience is one or two levels lower than the paper audience
- Is a summary of work in report and does \*not\* contain any information that is not in the report, i.e. if someone has already read the paper, they will not learn anything from reading the abstract.
- Do \*not\* copy sentences from your report -- sentences in your report should be written with greater specificity than what is appropriate for an abstract
- Readable to a wide audience
- Proofread, proofread, proofread
- Abstracts for talks can change each time you give the talk and, thus, can be tailored to the audience. Abstracts for papers will be tied to that paper forever and shouldn’t mislead the reader about what they will find in the paper.

## Before writing an abstract

- Complete the writing of your report
- Identify the main outcomes of your written work from a big picture perspective

## Abstract for a Talk

- Short literature review
- Outcomes
- Selling points
- Picture if you can

# Conclusions for Capstone Paper

## Sources

- Purdue OWL: <https://owl.english.purdue.edu/owl/resource/724/04/>
- North Carolina Writing Center <http://writingcenter.unc.edu/handouts/conclusions/>

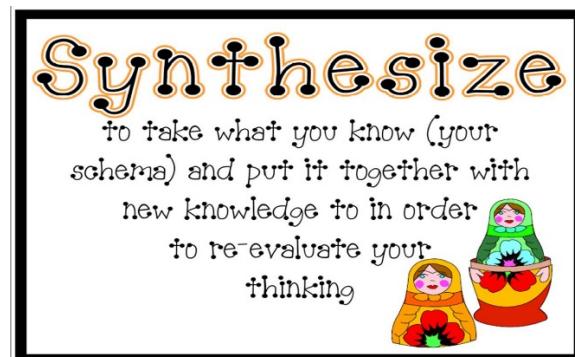
## Purpose of a Conclusion

- To provide an overview or summary of your main ideas
- An abstract should summarize all of your work; whereas, a conclusion synthesizes your contribution to the literature. E.g. Highlighting components of your literature review need not be included in your conclusion, but may be necessary in an abstract.
- Conclusion moves the reader from the substantial details contained in the main body of your work to more general ideas that you want to leave the reader with
- A conclusion is a place where you can be provocative and let the reader consider ideas beyond your existing work

## Writing an Effective Conclusion

- A conclusion should reiterate your main ideas in a concise and cohesive way
- Unlike an abstract, a conclusion need not stand alone and should synthesize earlier discussions
- Use the “So What?” or “Why do I care?” mantra to motivate the writing of your conclusion
- Also, consider using “the sum is much greater than each individual part” mantra, i.e. make sure the reader leaves with a holistic perspective of your work as the reader is unlikely to remember specific details
- Akin to abstracts, less specificity in your writing is appropriate for conclusions
- If a section is not devoted to “Future Research”, then a conclusion should contain such discussions

*Conclusion*   =   *Synthesis*  
                  ≠   *Summary*





# Guide to Research Posters

## Sources

- Colin Purrington "Designing Conference Posters" (<http://colinpurrington.com/tips/poster-design>)

## What is a Poster?

"A big piece of paper (or wall-mounted monitor) that can communicate your research at a conference, and is composed of a short title, an introduction to your burning question, an overview of your novel approach, your amazing results in graphical form, some insightful discussion of aforementioned results, a listing of previously published articles that are important to your research, and some brief acknowledgement of the tremendous assistance and financial support conned from others — if all text is kept to a minimum, a person could fully read your poster in under 5 minutes (really)."

## Benefits of a Poster

- More personal interaction than a talk, more like a conversation than a lecture
- If done well, can attract someone who otherwise isn't interested in your field
- They function fine without you if you have to step away

## Bare Essentials

- maintain sufficient white space
- keep column alignments logical
- provide clear cues to your readers how they should travel through your poster elements

## Basic Elements

- Title  
Briefly convey the idea, but okay to be 1-2 lines long.
- Abstract: Do Not Include One  
Written for the poster to be indexed by the conference, not necessary on the actual poster (unless explicitly required)
- Introduction  
Get the viewer interested in the question as quick as possible. Good place to put a photograph or illustration that communicates some aspect of your research question. ~200 words
- Methods/Build-Up/Motivation of Solution  
Briefly describe your procedure, the motivating themes that led to your results, and/or any required background material. Use figures and flow charts to illustrate experimental design and/or flow of ideas if possible; mention statistical analyses that were used. ~200 words

- Results  
State the main thing that the project discovered, i.e. your contribution whether in the form of a theorem, algorithm, relationship, etc. Include any pertinent figures that support or illustrate your results. ~200 words
- Example (optional)  
If your research is very theoretical in nature, applying the ideas of the results section to a specific example can help the reader comprehend. If your research is already analyzing a specific case, then an example would be redundant and any findings should either be in the results or conclusion section
- Conclusion  
Remind the reader (without sounding like you are reminding the reader) of the major result, state the relevance of your findings to other published work, and indicate future possible directions.
- References  
Cite using same format you would in a paper. Also mention the paper associated to the poster (if there is one).
- Acknowledgements  
Thank research mentor (full name) and anyone who gave you assistance, data or money to do the research and/or attend the conference. ~40 words
- Further Information  
Give your contact info, web address, QR code, etc. that someone who is really interested can follow up on.

## Technically Speaking – Part II

### Delivery

Source: [http://techspeaking.denison.edu/Technically\\_Speaking/Delivery.html](http://techspeaking.denison.edu/Technically_Speaking/Delivery.html)

#### Face the audience

Recall a time when you've had a great conversation with a friend. Certain non-verbal actions of this communication took place – some without thought. More than likely the two of you were facing each other throughout this conversation. On the other hand, we tend to turn on our backs on each other and walk away from each other during stressful communications, e.g. arguments.

A good speaker engages the audience throughout their presentation. Certain non-verbal actions enhance this engagement and one of the most important actions is to face the audience as you are speaking. If you must interact with the screen stand next to the screen not in front of the screen. Your posture must remain open to the audience at all times.

#### Avoid Annoying Mannerisms

Most identify annoying mannerisms as the most distracting actions a speaker can make during a presentation. Mannerisms of this nature are usually done unconsciously and are physical in nature. You must identify any annoying mannerisms before they can be corrected. To better understand and witness first-hand your mannerisms, you should record your presentations. Consider your gestures, body movement, posture, and eye contact when reflecting upon your recorded presentations.

#### Don't Use a Chalkboard

A speaker may be tempted to use a chalkboard when a presentation is given in a classroom type environment. A chalkboard is rarely available when presenting at professional conferences. The audience's attention is divided when a chalkboard is used in conjunction with a screen. Most often the content to be placed on a chalkboard should be incorporated directly into your presentation. The use of a chalkboard is acceptable during the questioning period of your presentation.

#### Show Enthusiasm

If you are not interested in the content being presented it shows. If you must present on this content, you should work hard to invoke enthusiasm into your presentation somehow. Certain aspects of non-verbal communication may help enhance enthusiasm when it is lacking. Of course, a speaker who exhibits passion and enthusiasm for their presentation is much more enjoyable to listen to than one who lacks these characteristics.

### Say it Loud and Clear

An excited and dynamic speaker who enthusiastically presents their material will engage the audience over a long period of time. Speaking tends to increase in speed when a speaker is excited. This is especially true when the speaker is comfortable with the content being presented. You should face the audience and ensure that your voice is projected outward when you are speaking. You should speak slightly louder than usual and reduce your speed a bit from a normal conversation. Other characteristics of your speech patterns may also need to be adjusted when speaking in front of an audience, e.g. I purposely incorporate more pauses in my speech when speaking to an audience.

# Visual Tips for Research Posters

Sources:

- "Creating Effective Poster Presentations" George Hess, Kathryn Tosney, Leon Liegel  
<http://www.ncsu.edu/project/posters/index.html>

## Visual Aspects of a Research Poster

- Layout
- Headings
- Graphics
- Text
- Colors
- Software

## Layout

- Use a visual grammar to guide readers to the important parts of your poster.

- | <u>DO</u>   | <u>DON'T</u>   |
|---|--|
| <ul style="list-style-type: none"><li>• Use type size proportional to importance. If it's important, make it BIG.</li><li>• Show, don't tell. No need to write down every detail.</li><li>• Use simple figures and graphs, which should dominate the poster visually.</li><li>• Make all graphic elements large enough to be visible easily from one meter away.</li></ul>  | <ul style="list-style-type: none"><li>• Use same sized font for just about everything.</li><li>• Include every detail as you would for a journal article</li><li>• Use complex, difficult to understand graphics, which are only a small portion of the poster.</li><li>• Use figures that are all small enough to fit on a small portion of a journal page.</li></ul> |
| <ul style="list-style-type: none"><li>• Use a column format to make your poster easier to read in a crowd. A row-oriented format moves readers past your poster very quickly.</li><li>• Use organization cues to guide readers through your poster. A column format will mostly accomplish this on its own. Use headings intelligently to help readers find your main points and key information. You can also use numbers, letters, or arrows to help guide viewers through your poster.</li><li>• Use "reader gravity" which pulls the eye of English readers from top to bottom and left to right.</li><li>• Balance the placement of text and graphics to create visual appeal. Use symmetry if possible.</li></ul> |  |

## Headings

Headings - including the title, section titles, and figure captions - should ...

- **Summarize:** Use headings as opportunities to summarize your work in large letters. A hurried reader should be able to get the main points from the headings alone.
- **Organize:** Good headings are part of the visual grammar that helps move readers through your poster.
- **Be Hierarchical:** The more important the point, the larger the type.
- **Be Bold:** Make the strongest statements your research allows.

## Text

- Minimize text - use images and graphs instead.
- Keep text elements to 50 words or fewer.
- Avoid jargon (depends somewhat on audience).
- Left-justify text; avoid centering, right-justifying, or full-justifying text.
- Use a serif font (e.g., Times New Roman) for most text - easier to read.
- Sans-serif font (e.g., Helvetica) is okay for titles and headings
- Text should be at least 24 point in text, 36 for headings.
- Pay attention to text size in figures - it must also be large.
- Title should be at least 5cm tall.
- Note: If you print your poster on a standard sheet of paper, you should be able to read all of it – including text in figures – comfortably. If you can't, your text is too small.

## Graphics

Good graphics - graphs, illustrations, photos - are the centerpiece of your poster.

- Ten simple rules for better figures:  
<http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003833>
- Good graphs communicate relationships quickly.
- Graphs should be simple and clean.
- Graphs vs Tables: <http://www.ncsu.edu/project/posters/SideWindows/TableVGraph/>
- Write explanations directly on figures, instead of referencing from elsewhere. Minimize abbreviations and cross-references.
- Use simple 2-dimensional line graphs, bar charts, pie charts.
- Avoid 3-dimensional graphs unless you're displaying 3-dimensional data
- Text on graphs must follow same guidelines as all other text so that it will be visible.
- Use photos that help deliver your message.
- Use spot art - but not too much - to attract attention.
- Be careful with the defaults of your software choice. They might not be the best option for posters.
- Example: <http://www.ncsu.edu/project/posters/SideWindows/GoodGraphs/>

## Colors

- Use a light color background and dark color letters for contrast.
- Avoid dark backgrounds with light letters - very tiring to read.
- Stick to a theme of 2 or 3 colors - much more will overload and confuse viewers.
- If you use multiple colors, use them in a consistent pattern - otherwise viewers will spend their time wondering what the pattern is rather than reading your poster.
- Overly bright colors will attract attention - and then wear out readers' eyes.
- Consider people who have problems differentiating colors, especially when designing graphics - one of the most common is an inability to tell green from red.

## Software

- LaTeX, PowerPoint, OpenOffice
- Adobe Photoshop, GIMP, etc.