

How to Make an Effective Poster

Outline

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- II. Why should I make a poster?
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I. What is a poster?

A poster is one of many ways to communicate your research or scholarship. Researchers use books, talks, teaching, journal articles, press releases, and the popular media to communicate their findings. While at first glance, these bear more similarities than differences to a poster, a poster communicates in a very different way.

First, most of a poster's audience will not seek it out. And those who will would also likely read a related publication or attend a talk on your work. Most people that visit will do so because they are attracted to something on the poster. To bring people in, your poster must **look cool** and quickly communicate your topic. Eye-catching pictures and graphics combined with a large, informative title will pull in passersby and allow you to reach the biggest audience.

Second, posters communicate primarily with visuals, unlike writing and speaking that focus on language. Nothing communicates a big idea quicker than a picture. If you see a picture of an otter, the research is probably about otters. Graphs, maps, and diagrams take priority over text on a poster as they are an aid to the presenter who will fill in the finer details.

Finally, close interaction with the audience allows for the presenter to tailor each delivery and field questions on the fly. Presenters and their audience are empowered to network and continue the conversation after the event.

The most powerful form of communication is the story. A poster is no exception. At its core, an effective poster is centered on a concise and powerful story. With the help of visuals, the presenter can share the story of the work in just five minutes.

II. Why should I make a poster?

At a poster session, your ultimate goal is to share the story of your work with as many people as possible. This will give you the opportunity to meet new people that may be future advisers, employers, or collaborators. At many conferences, prizes are awarded for the best posters. A poster that stands out and attracts a large audience is easily in the running for an award.

Does your research fall into a niche that goes overlooked in your field? When you don't have the built-in profile of researching hot topics like cancer or HIV, poster sessions give you a unique opportunity to sell your research. You care about it; can you make others care?

Even at discipline-specific conferences, attendees come from a wide array of backgrounds and levels of expertise. And unlike other forms of communication, presenting a poster gives you the opportunity to tailor your story. This will help you grow as a communicator. Can you tell the same story with a different approach to your parents and a fellow researcher?

Are you planning to continue research in the future as part of graduate school, a career, or both? Presenting your research at a conference is one of many research products that can help show that you have the chops for the next level. One tangible outcome of making and presenting a poster is to say you have.

III. How do I make a great poster?

At its core, your poster is a story. Start by considering the research you've done. Do not attempt to stuff your poster full of information, sharing everything you've done. Identify the most compelling start-to-finish story you can tell in five minutes. What story you tell can depend on multiple influences:

- Your most important findings
- Consultation with your research adviser
- Expected audience at the event
- The best visuals you've produced

The second step in designing your poster is to decide on the visuals that help you tell that story. The number can vary widely, but a focus on two or three main figures will help to organize your poster and maintain a clean look. Create or remake graphs, maps, and diagrams for your poster. The sizes, ratios, and formatting that work on the printed page or computer screen will not translate well at many times their original intended size on a poster. Make everything bigger—bars, dots, labels, lines, etc.

Next, plan your approach. Here's a list of everything to consider before starting:

- Are there any guidelines from the event or conference organizers?
 - Poster size and orientation?
 - Required elements?
 - Some conferences may ask that the poster number be displayed
 - Other dos and don'ts?
- What software will you use to create your poster?
 - PowerPoint is common, but is not specifically designed for this purpose and lacks flexibility.
 - Consider using a vector-based illustration software such as Adobe Illustrator, Adobe InDesign, Inkscape, GIMP, or LaTeX.
- Who are the authors and what is the author order?
 - After deciding on the story, consult with your adviser on who should be included as an author.
 - Consider anyone else involved in the work for the acknowledgements section.
- What is your look?
 - Look through other posters online (see **Resources** below) and in person. Identify design elements you like and use them.
 - Have a favorite color or colors that relate to the research? Incorporate them into a consistent color palette.
 - Decide on a grid system to organize your sections.
 - Pick a font or two to use throughout.

Once you have a plan, it's time to get started. Here is more advice on the key elements of a poster in order of importance.

Pictures

Use at least one high quality image related to your research to grab attention and quickly let passersby know what your poster is about. Carve out space for a **big image** in the top left quadrant.

It's best to use your own image. Do you have a picture of your study organism, topic, or you collecting data? Photos of people are especially effective because our eyes and brain are hardwired to focus on faces. For images owned by others, be sure to get appropriate permissions and give attribution on the poster.

Title

An effective title should be easily read from many feet away and communicate the main result of the research. The best titles are **declarative statements** instead of a descriptive or interrogative title "Effects of X on Y" or "What is the effect of X on Y?" title (See table below). A declarative title has two key components:

1. Gives the result or main message of the conclusion
2. Uses a verb (past or present) that declares a certain action

Declarative	Descriptive	Interrogative
Big foot eats a diet of berries and roots.	The main dietary intakes of big foot.	What is the primary diet of big foot?
Michael Jackson and Justin Timberlake influenced the early work of Justin Bieber.	Influences on the early career of Justin Bieber.	What influences shaped the early career of Justin Bieber?

In each of the above examples, the declarative version is most captivating. For big foot, the descriptive and interrogative titles make the reader wonder what big foot eats. However, in the declarative version, what big foot eats is already shared and the audience will engage to find out **how** the researchers know that--a more compelling inquiry. For Justin Bieber, now that the audience knows the influencers, they'd like to know more about **how** this is known and what evidence exists.

Research shows that articles with short, declarative titles are more often clicked on, read, cited, and shared. When crafting a title, consider the audience that will encounter it. Write for as broad of an audience that might be expected. The same economics research project presented at the UC Davis Undergraduate Research Conference and the Society for Institutional & Organizational Economics Conference would have a very different title at each. Because the former brings together attendees from all disciplines, the title must speak to a much broader audience than at a discipline-specific conference that only gathers experts in the field. Here are a couple examples:

Discipline-Specific	Broad Audience
DNA Damage-Induced HSPC Malfunction Depends on ROS Accumulation Downstream of IFN-1 Signaling and Bid Mobilization	Stem Cell Malfunction is Caused By DNA Damage Produced by Reactive Oxygen Species
Cumulative Effects of Growing Up in Separate and Unequal Neighborhoods on Racial	Race and Neighborhood Affect Health in Early Adulthood

Disparities in Self-Rated Health in Early Adulthood

A two-part title can help to emphasize the big idea to everyone in large type while also providing the key details to a more curious passerby. For example, this title grabs attention with just three words and offers further details below. It is also a great example of a declarative statement.



Christian Laurent, 2017 Society for Integrative and Comparative Biology Meeting

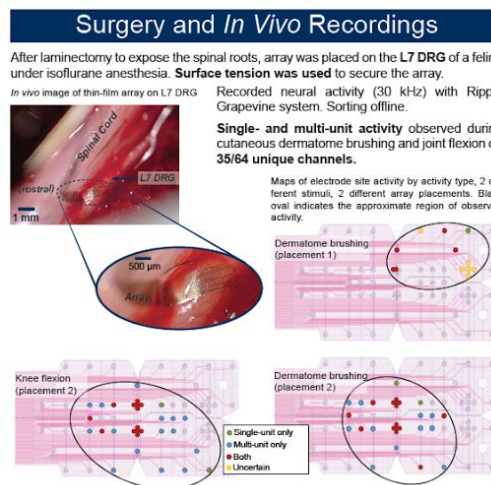
Once your image and 'look' have grabbed someone's attention, the title must deliver. Craft a concise, declarative, and positively-framed title and use as large of a typeface as possible. Headline case and sentence case are always more readable than all caps.

Data Visualizations

The graphs, pictures, maps, diagrams, and other visuals that help tell your story form the focus of your poster's story and should occupy most of the space.

Choose the key results and support them with visual representations. Emphasize graphs, maps, and drawings over tables and lists. In every element of your poster, consider how text can be replaced with graphics. Can you show your methods with a drawing, flow chart, or cartoon? How about your hypothesis or conclusion?

A graph that would be suitable for publication in a journal probably will not be ideal for a poster, where it will appear at many times its intended size. Maximize the size of labels and components. Make dots, lines, bars, arrows, and legends as large as possible while retaining the message of the figure. Cut unnecessary details like precise tick marks, gridlines, and excessive labelling. Annotate figures to draw the viewer to the key takeaways. Can you add an arrow or circle to draw attention to the important parts? If there are unimportant parts, can they be dropped from the figure without losing meaning?



Zachariah J. Sperry, University of Michigan

An effective use of annotation to aid the viewer

Avoid vertically-aligned text, especially when labelling the y-axis of two-dimensional plots. It's more difficult to read and the main motivation for it is to compact the size of the figure, while on your poster, spacing and negative space are very important.

Your figures should match the rest of the poster. Use colors from other parts of the poster in your maps, arrows, bars, points, etc. Get familiar with the eyedropper tool in your software of choice to ensure an exact match.

A Grid System

Set a grid system first. Even and consistent spacing between sections will give your poster a clean, professional look. Use a generously spaced grid to ensure ample negative space. To start, leave inches between columns and sections.

A grid also creates the organization needed for unambiguous reading. Your poster should read like a print newspaper or magazine article—starting at the top left, going all the way down the first column before beginning the next. If your poster design lends itself to any confusion, just number the sections to help guide the reader where to go next.

Headings

Replace uninformative headings like “Methods” and “Results” with **informative statements** like “Assay to measure X” and “Levels of X determine the amount of Y”. As in the title, use this space to provide information rather than making the reader wonder. If the heading makes a claim, the section that follows should back it up with evidence.

Body Text

The writing on your poster is less important than the components above. You'll quickly find that at a poster session, visitors want to hear it from you, not do all the reading themselves. The purpose of the text is to allow the poster to stand alone if you are unavailable and for it to live on in a hallway somewhere.

The text on your poster should mirror the story you would tell a visitor to your poster. To increase readability, write efficiently and in short passages of two or three sentences. Longer paragraphs can be overwhelming and will be only skimmed. Cut words, stay on message, and leave out extraneous details. For each passage, consider what the reader needs to know to understand the story. Writing that you've done for publication on the same project likely has far too much detail than is needed for your poster to tell the story. While effective posters can vary widely in word count, a target of under 800 words may help you cut and focus on important details.

Bulleted lists are extremely common on posters; however, bullets are effective when drawing attention to a list among other text. When everything is bulleted, the bullets have no power. Use bullets to highlight lists amongst text, but don't bullet every passage.

Logos are too often given large swathes of valuable real estate at the tops of posters. While your affiliations may be impressive and worth acknowledging, their insignia generally is not recognizable. For example, the University of California, Davis seal, less the words inside it, does not carry the association of a recognizable logo such as the Nike Swoosh or NBC Peacock. In fact, the seals of the ten UC campuses are virtually identical. To find out where you are from, the reader must read and thus, the words in the

seal/logo are redundant with the words that give author affiliations. If you must include logos, reduce their size and relocate them to the bottom right corner or bottom border. This will improve your poster by freeing up space for larger images and a larger title.

Acknowledgements of people, organizations, and funding sources that assisted your work are very important to include. However, since this section of your poster is not integral to the story, minimize the size of it.

Similarly, references should first be minimized in number, and then in font size. Generally, you can take many more liberties in not citing information on a poster than you can in a publication. Take advantage of that and only include citations that you feel an enthusiastic visitor to your poster should know about. To decrease the real estate taken up by references on your poster use superscripts for in-line citations (instead of parentheses) and use a citation style that limits the number of authors listed, abbreviates journal titles, and perhaps leaves out the title. The reference style of [Science](#) is a good example of an efficient citation.

Do not include an abstract unless absolutely required. An abstract is a short summary of your work and so is your poster. Including an abstract is redundant with the rest of the poster.

Togetherness

The easiest way to have a clean, professional look to your poster is to have everything match. To get that look, remember to start with a plan. Pick your colors, fonts, sizes, and other formatting rules up front.

Avoid design choices that limit the readability of your visuals and words. For example, do not use background images and always use dark text on a light background. Before going to print, show your poster to a few people. If any mention that it's "too busy" consider revising for cleaner lines and more negative space.

In the final stages of designing your poster spend time critiquing each nuance. Ask yourself the purpose of each use of color, italics, bold, underline, circles, arrows, font size, etc. What is the purpose and is that purpose applied consistently throughout the poster?

You - What to do on the big day

Your poster is designed, printed, and ready to be displayed. All along, you've created the poster to serve as a guide for you to use when telling the story of your work. When the poster session comes around, it's time to tell that story.

It's your job to guide readers through. Get comfortable walking someone through your poster in under five minutes and avoid standing awkwardly to the side as visitors just read what you've done. Poster sessions are fun, different, and useful because of the focus on one-on-one interactions.

Talk to your colleagues and past attendees to learn about the audience at the session. What is the range of backgrounds as it relates to your work? Is everyone a researcher in the field or are they the general public? For a broad audience, be prepared to tell your story to guests on a spectrum from your parents to a close colleague of your research adviser. Simply practice it a bunch of times and do your first practice before the poster is printed to ensure that its layout and components are all helpful.

Engage your audience right away. Introduce yourself and where you're from. Ask the same of them. Probe their level of background knowledge. A great way to do this is follow up on the interest they had

in walking over. If your research is about saving otters, a great first question for you to ask is, "Are you interested in the conservation of otter populations?"

Because conference attendees visit dozens of posters and attend talks, it helps to have a takeaway for visitors to your poster so they remember you. Some effective options are business cards, a small handout, or a QR code on the poster itself.

Good luck!

IV. Resources

The URC and Posters

We print all Undergraduate Research Conference posters **for free**. The deadline is usually two weeks prior to the conference. All posters require research advisor approval. We will also print, for free, any poster for any other conference provided you are accepted or planning to be accepted as a presenter.

Helpful Websites

[Better Posters](#) - Highly recommended, the inspiration for this document.

[ePosters](#) - Good resource for viewing posters from all disciplines.

[The Noun Project](#) - A great source of icons and clip art for creating graphics.

[Academic Poster](#) - Great advice on making posters that wow.

[Colin Purrington](#) - Excellent source of dos and don'ts for poster design.

[Twitter](#) - Search a word from your discipline and "poster" or just "research poster" to find lots of examples and inspiration. Use the Photos tab in search results to just see pictures. Look out for conference-specific hashtags.

Contact Info

Benjamin Plourde – btplourde@ucdavis.edu - Email me for poster advice, troubleshooting, and critiques.

Program Coordinator

Undergraduate Research Center, 2300 Student Community Center, UC Davis

Email urc@ucdavis.edu to set an advising appointment at the URC.