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Scientific Posters

Planning

1

Some reflection

- *Taken from Zen Faulkes*
- Design = decisions with empathy.
  - Empathy
    - Make the poster because it is convenient for the audience.
  - Decisions
    - Deliberate choices: why this size, this color, this shape?
    - Danger of templates: decisions are already made.
- Design works best if you have a clear idea what you are trying to accomplish.
- Creating a poster takes time and careful planning.

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Planning

Logistics

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Submitting the poster

- Take care when submitting the poster title and abstract
  - Submitted far in advance
    - Make it high quality
  - Will be in program book, proceedings, special issues of journal, …
    - Citable pieces of literature
    - People use it to plan their conference
  - Title: most important part of the poster
  - Abstract: as complete and precise as possible

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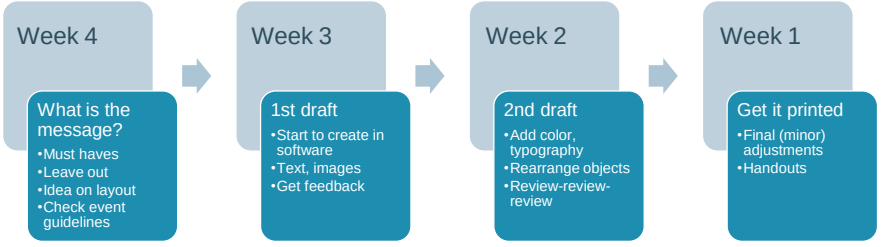
Scientific poster: planning (ideal world)

- Provide enough time!
  - Do not postpone until the last minute
  - Murphy will be there…
  - https://www.socialsciencespace.com/2018/05/4-steps-to-designing-an-award-winning-poster/



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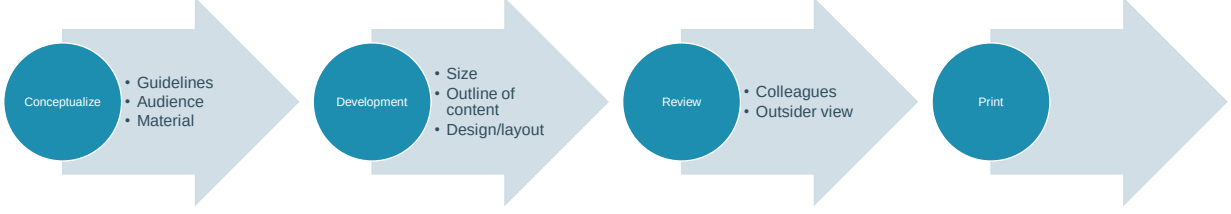
Development steps



https://dukeahead.duke.edu/sites/dukeahead.duke.edu/files/u94/Poster%20Creation%20Presentation.pdf

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Scientific poster: planning

- **READ THE INSTRUCTIONS**
  - Make sure your poster meets all the formal requirements
  - Dimensions1 large poster
    - individual A4 pages, …
  - Specification: dimension images, portrait/landscape, font, numbering poster, ...
  - Additional requirements? Tape, pushpin, …
  - Contact the print shop if you have special requirements (not every print shop can print all formats!)

- Try to get as much information on the poster session as possible
- Check *Judging criteria / rubric*

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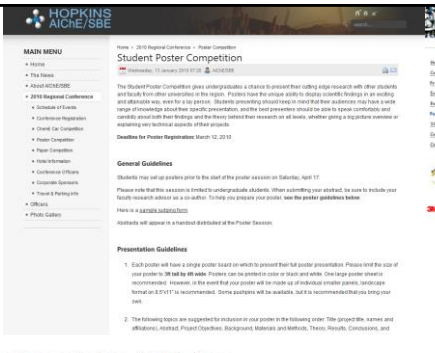

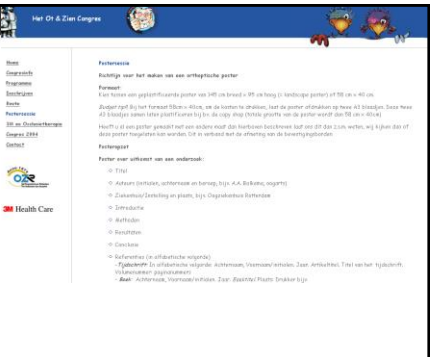

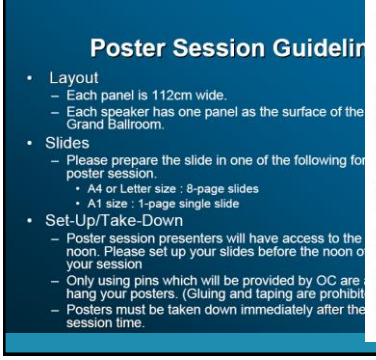

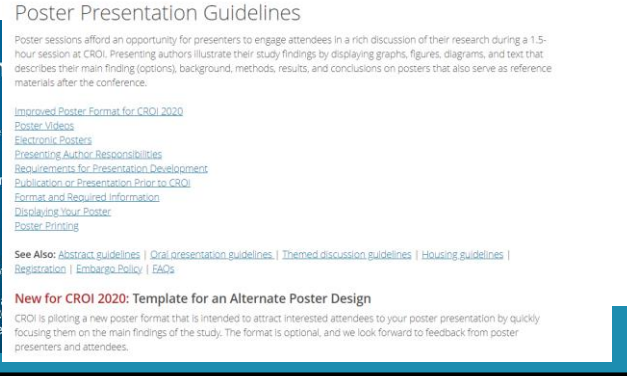

https://www.nutritioncare.org/uploadedFiles/Documents/ASPEN22/ASPEN22%20Poster%20Presenter%20Instructions.pdf

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Basics of communication

- Know your :
  - Audience
  - Subject
  - Medium (poster)
- Common errors
  - Unsuitable for the target audience
  - Key message obstructed by too much information
  - Excessive text
  - Poor design
  - (http://theta.edu.au/program/posters/designing-academic-posters-an-online-resource-to-develop-communication-skills-of-doctoral-candidates/ - accessed aug. 2015)

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Planning

Audience

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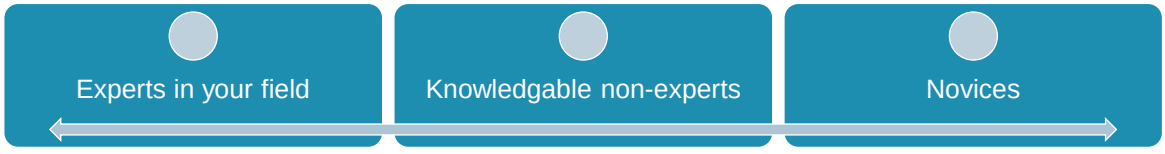
Think audience

- To make an effective story, first **know your audience,**
- Who is my audience?
  - Who do I want to reach?
  - What does the audience know about my research?
    - What information is new?
    - What elements need explanation?



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Think audience

- What does the audience want to know about my research?
  - What will capture their attention?
  - What will make your audience stay at your poster long enough?
  - What will they do with the information?
- What do you want from your audience? / Why do you want to convey that information?
  - The purpose of your poster
    - Start a conversation.
    - Feedback.
    - Networking.
    - …

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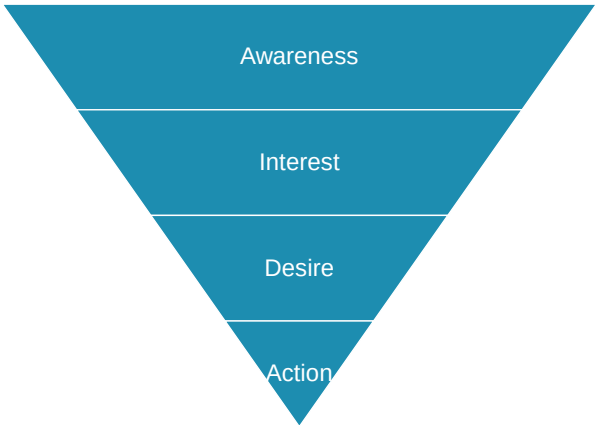
Think audience



- Consider the **context** of your audience,
  - Limited time?
  - Poster meeting at the end of the day?
  - Location of your poster
- **Interaction** with your audience.
  - Skimmers vs. In-depth
  - What do you want to happen?
    - Use your body language
      - Get collaboration
      - Get into discussion (talk to strangers!?)
      - Leave me alone
  - Leaving something for the audience to ask, can be a great ice breaker

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Planning

Content

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Think content

- The design and production of scientific posters can be split into 2 processes:
  - the creation of content: text, images, plots, graphs and data tables, …
    ► ***know your audience***
  - the design process
    ► ***help your audience***

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Think content

- Make a *storyboard*
  - What is the purpose of my poster?
  - What is the message that I want the audience to remember?
    - What should readers know once they have finished reading the poster?
    - What is the logical order to bring the message? Work backwards to determine what information is needed to get to that point.
  - Adapt the structure to your audience.
    - Familiar with your work? Leave out the descriptive part.
    - A specific interest? Focus on that.
    - …

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Think content

- Story
  - Introduction
    - What is this about?
    - Why is this interesting?
  - Main part
  - End
    - Conclusion
- Needs to be efficient
  - It is not a lecture
  - It is not an article

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Think content

- Start from scratch
  - Do not make a summary of a paper
  - Do not start from an existing presentation / slideshow
- Make a clear choice on the essentials :
  - What problem(s) are tackled? (Objectives)
  - Why is this important? (Background)
  - How did I do it? (Methods)
  - What are the results? (Results)
  - What is the conclusion(s), implication(s)? (Conclusion)

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Think content

- Write clear text.
- Discuss with colleagues.
  - Do it in an early stage!
  - Usually collaborative research program.
  - Get agreement on the key points.
  - Get agreement on author list.

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Planning

Layout

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The extremes

Full of information

Cry for discussion

Talk to me about my research

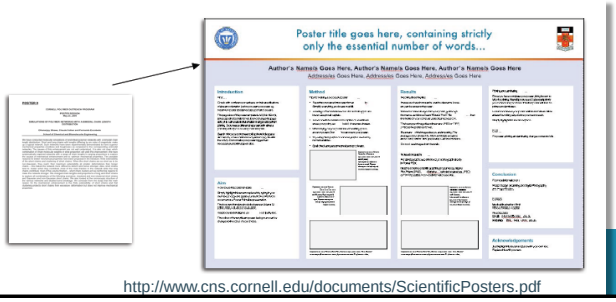
My posters always look terrible--I'm just not creative!

- Many scientists claim they're not "artsy" enough to make a good poster. *Designing a poster has nothing to do with art.*
- But it is still a **research** poster.
  - You're there to present your science, not your creativity.
  - The goal is to spread your ideas, the design should help your audience to grasp the message.
  - If the goal is simply to not look terrible, there are some simple layout guidelines you can follow to accomplish that.

- https://www.kmeverson.org/academic-poster-design.html

Think layout

- Start designing when you are satisfied with the content!
  - NO single simple recipe to create a poster.
  - Check as many samples as possible
  - Let your design fit the content
- Poster = illustrated abstract



http://www.cns.cornell.edu/documents/ScientificPosters.pdf

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Think layout

- Emphasize what is most important: what should the audience see first?
- Structure with blocks
  - Text blocks
  - Graphics
  - Balance
- Guide the eye
- Let your topic inspire you
- Use color intentionally
- Design consistency

http://blogs.monm.edu/writingatmc/files/2013/03/Research-Poster-Design-Tips.pdf

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Visual thinking

- Find balance between similarity and contrast
  - Too much similarity is boring
  - Too many contrasts is confusing
- Guide people's attention with
  - Size: bigger == more important
  - Position: center top is the most important spot
- Provide an *entry point*
  - Get people connected to the content
    - Image
    - Headline

Taken from Zen Faulkes

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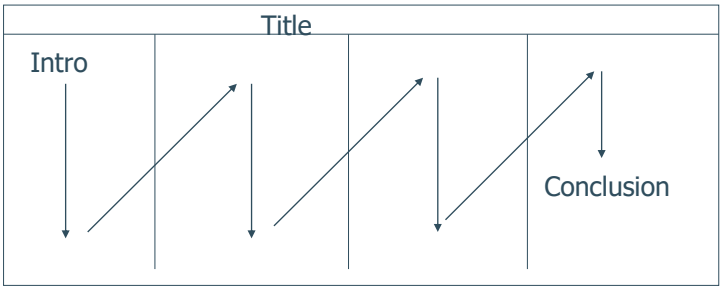
Guide the eye

- Read a poster as a newspaper
- Use columns, try to place the important points at eye level



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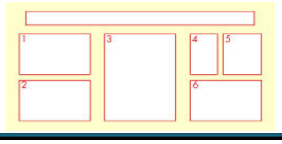
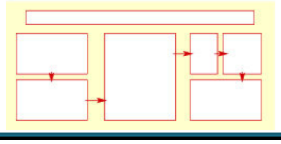
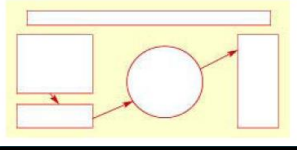
Guide the eye

- Columns: safe way to set up a poster
- Use 3 to 5 columns (landscape)
  1 tot 3 columns (portrait)
- Order the elements vertically from upper left to lower right
- Order the object logically
- Use sections
- Add graphics, tables, images
- Number sections or use visuals to guide the reader

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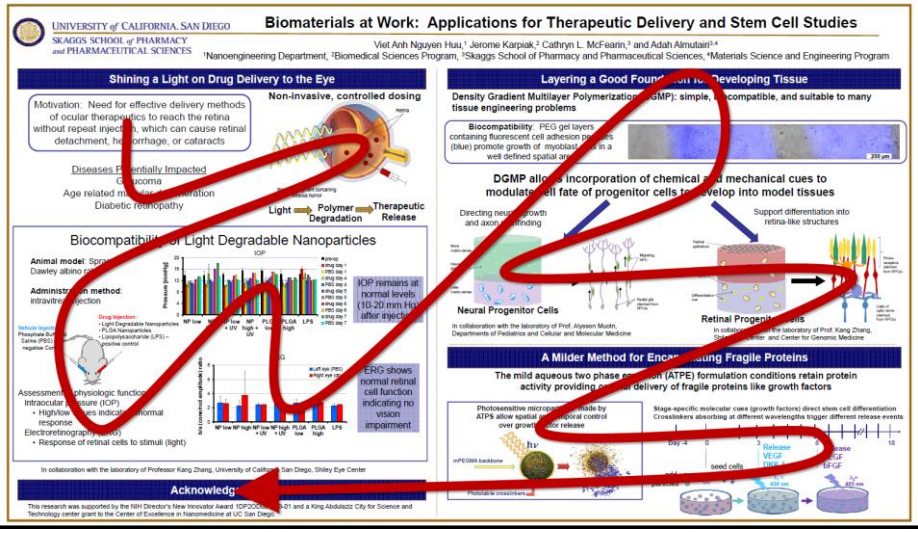
Guide the eye



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Poster layout: template or inspiration?

- Some organizations have their own template.
- Department can have a template.
- Dienst communicatie.
- https://admin.kuleuven.be/mykuleuven/thema/ict-communicatie-evenementen/communicatierichtlijnen-tools/lay-out-en-drukwerk/postersjablonen
  - Standard template
  - Scientific posters
  - no white borders allowed!
- Web:
  - Search for: `powerpoint template scientific (academic) poster`
  - Other people will use the same template…

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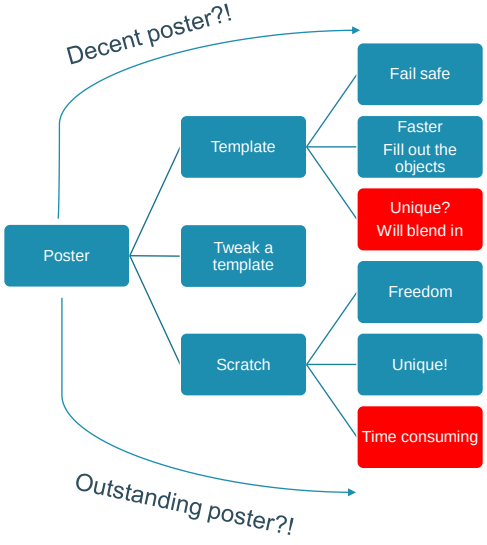
Objectives

Majority of posters will follow
A tried and tested standard format



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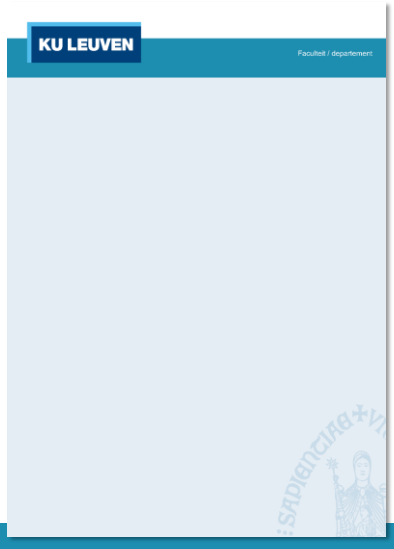

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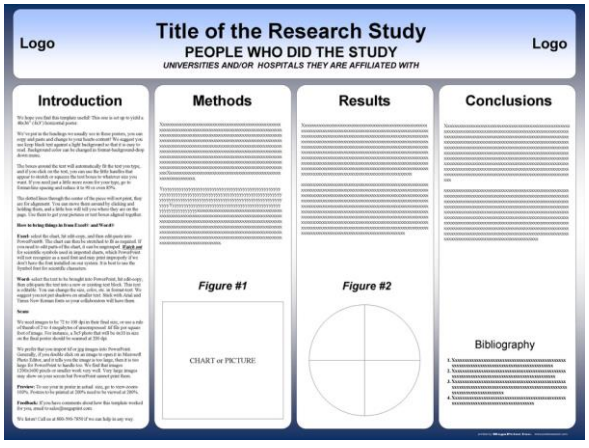
Standard format for a research poster



www.postersession.com

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Poster 2.0

New and improved?

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A shift toward visual representation of data

- Gray, A. L. et al. (2022) Innovative poster designs: A shift toward visual representation of data. American journal of health-system pharmacy. [Online] 79 (8), 625–628.
- Traditional Poster Design:
  - Advantages: Familiarity, detailed results, ample space for text and graphs, and ease of creation.
  - Disadvantages: Often too wordy, less visually appealing, and can overwhelm the audience, reducing engagement.
- Alternative Designs:
  - Better Poster:
    - Features: Simplified design with less text, prominent display of the main finding, and use of QR codes for additional details.
    - Advantages: Increases audience engagement and highlights key messages.
    - Disadvantages: Limited detail and smaller graphs.
  - Butter Poster:
    - Features: Utilizes visual communication principles like grids, visual hierarchy, and typography. Includes short and long versions of the poster synopsis.
    - Advantages: Flexible presentation, more graphics, and QR codes for extra information.
    - Disadvantages: More complex design, smaller text, and requires more time to create.
  - L Poster:
    - Features: Title and main idea prominently displayed in a corner, with content arranged in an L shape around it.
    - Advantages: Clear information flow, visually appealing, and uses images to display findings.
    - Disadvantages: Requires presenter presence for explanation, not suitable for all research types.

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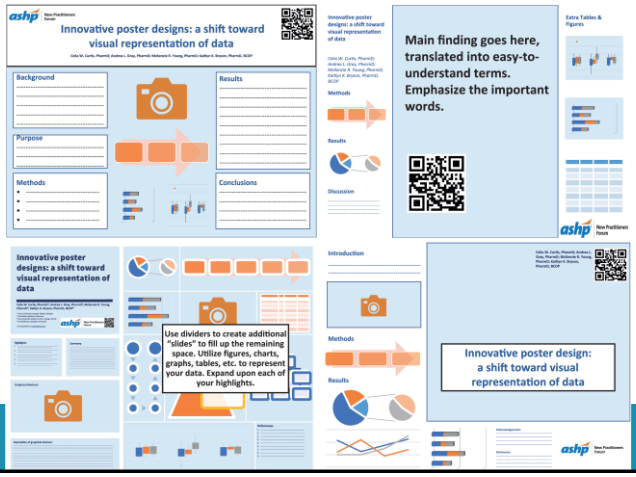
A shift toward visual representation of data

- Gray, A. L. et al. (2022) Innovative poster designs: A shift toward visual representation of data. American journal of health-system pharmacy. [Online] 79 (8), 625–628.



See also

- McEvoy, N. L. & Tume, L. N. (2022) Creating a conference poster: Out with the old and in with the new, moving from the traditional to the improved modern poster format. Nursing in critical care. [Online] 27 (5), 619–622.
- Pedwell, R.K., Hardy, J.A. and Rowland, S.L. (2017), Effective visual design and communication practices for research posters: Exemplars based on the theory and practice of multimedia learning and rhetoric. Biochem. Mol. Biol. Educ., 45: 249-261. https://doi.org/10.1002/bmb.21034

Poster 2.0: Better Poster

- Mike Morrison (@mikemorrison Michigan State University) - https://osf.io/ef53g/
- https://youtu.be/1RwJbhkCA58
- The typical conference poster:
  - Long on information and short on design
  - Overly technical and usually obscures the main finding(s) of the science being presented.
  - The time required to parse the information on a poster is too long (to really engage with 3-6 posters in an hour, severely limiting the dissemination of potentially useful knowledge through the scientific community.

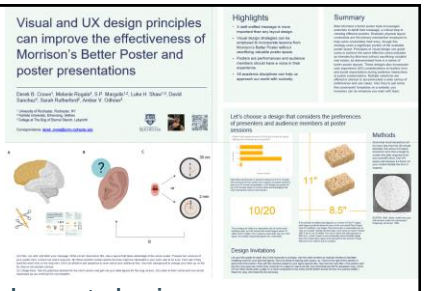
Poster 2.0: Better Poster

- Alternative poster design
  - A **large, central, simple takeaway message** that summarizes the point of the poster in accessible language;
  - A **standalone** bar on the left with a very basic introduction, methods, and discussion;
  - An **ammo** bar on the right with anything that the presenter might want to have handy when talking about their poster.
  - A **QR** code linking to a full version of the study and a copy of the poster
- https://www.qeios.com/read/P7N5BO

Poster 1.0 vs Poster 2.0

https://www.insidehighered.com/news/2019/06/24/theres-movement-better-scientific-posters-are-they-really-better

Poster 1.5: Butter Poster



- https://derekcrowe.net/butterposter
- Highlights
  - A well-crafted message is more important than any layout design.
  - Posters are performances and audience members should have a voice in their experience.
  - Visual design principles can help make poster sessions more effective.
  - All academic disciplines can help us approach our world with curiosity.
- https://www.forbes.com/sites/evaamsen/2019/06/18/a-graphic-design-revolution-for-scientific-conference-posters/#736ff3ac297c

Poster 1.5

- https://www3.beacon-center.org/blog/2019/09/01/the-evolution-of-academic-posters-from-poster-1-0-to-better-poster-2-0-to-hybrid-poster-1-5/
- hard to distil the main takeaway message, especially on preliminary and incomplete results.
- hard to distill an introduction, methods, results, and discussion into less than a quarter of the poster space.
- Poster 1.5
  - maintains the large, simple, prominent takeaway message and slightly abbreviated text,
  - but has significantly more text than 2.0
  - lacks the ammo bar.

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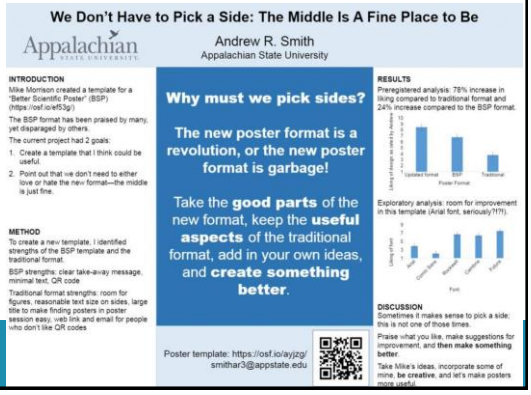
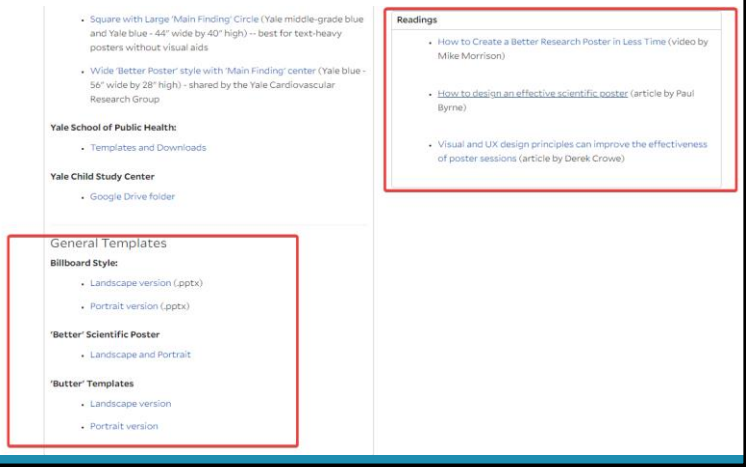
Poster 1.5

- More usage of Poster 1.5
- https://www.posterpresentations.com/free-poster-templates.html
- Check also http://betterposters.blogspot.com/2019/04/critique-morrison-billboard-poster.html



Poster 1.5

- https://guides.library.yale.edu/academic-poster-resources/alternative-templates



Poster 1.5

- Martin Trauth
- Creating Better Scientific Posters
  - http://mres.uni-potsdam.de/index.php/2019/08/20/creating-better-scientific-posters/
  - http://mres.uni-potsdam.de/index.php/2019/09/03/creating-better-scientific-posters-part-2/
  - http://mres.uni-potsdam.de/index.php/2022/04/15/creating-better-scientific-posters-part-3/

ePoster

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Note: Traditional poster vs ePoster

- Traditional poster
  - Printed on paper
  - Recent development: printing on canvas
- ePoster
  - ePoster is the digital version of traditional posters.
  - Environmentally-friendly initiative
  - Setup might be different
    - https://www.nanoge.org/HOPV20/eposter
    - ePoster will be also presented through a Flash Talk during the ePoster Session.
      - Extended discussions and close conversations about the ePosters presented will take place in different meeting points onsite.

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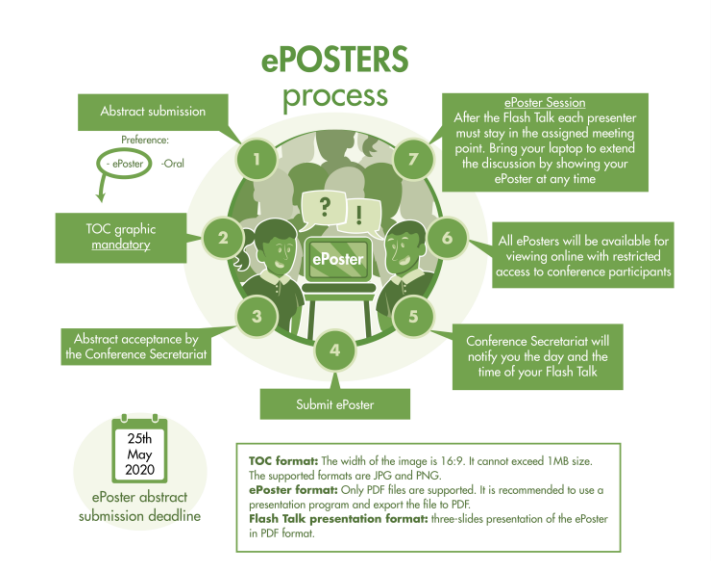
The cycle

- https://www.nanoge.org/HOPV20/eposter



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ePoster

- Large flat screen monitors in a dedicated ePoster display area
  - Can be co-located with traditional poster displays.
- Can present information that may not be possible to convey with a traditional printed poster.
  - enhance visualization to attract interest of attendees
    - use of videos
    - embedded media.
- A static screen will also be available where users can navigate through ePosters at their leisure.
  - rotate automatically and each will be shown for approximately one minute duration at a time.
  - able to navigate to specific posters from a main menu and pause individual posters to view them in more detail and access embedded content.
- https://betterposters.blogspot.com/2016/06/what-is-eposter-format.html

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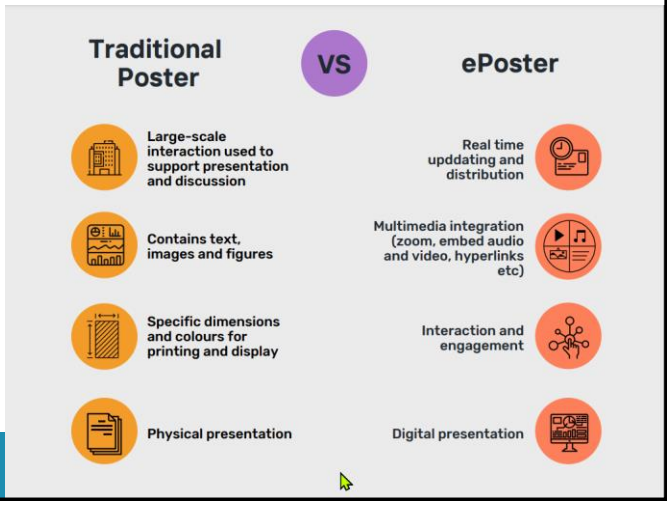
ePoster

- https://libguides.jcu.edu.au/ld.php?content_id=50397847



Planning

Review

Review, review, review: content

Critique from colleagues / outsiders

- Is the poster audience friendly?
  Is the poster suited for the audience?
- Is title short and powerful, a reflection of the research?
- Do the objectives correspond with the content of the poster?
- Are the methods used well explained, understandable? Do they correspond with the conclusions/
  objectives?
- Are the conclusions strong enough?
- Is the language used clear, free of any jargon?

www.postgraduate.uwa.edu.au

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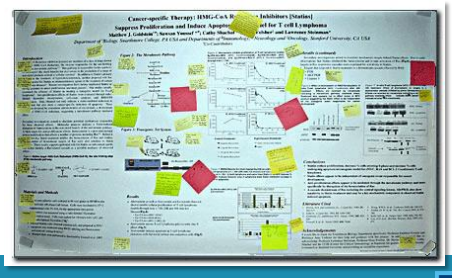
Review, review, review: format

- Are the dimensions / shape correct?
- Is it readable from a distance (2-5 meter)?
- Is the layout ok, not too messy, consistent?
- Typos? Spell check!
- Other errors?



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Judging Criteria for Poster Presentation

- First Impression:
  - How difficult is it to read the poster?
  - How are color schemes used, are they easy on the eye?
  - How crowded is the poster?
  - Is there a good flow of information (logical, layout of information)?
  - Does the poster stimulate interest and discussion?
- Layout:
  - Is the poster visually jumbled?
  - How easy is it to follow the sequence in the poster?
- Readability:
  - Is font size or style easily readable?
  - How much text does the poster contain?
  - Are there many grammar or spelling mistakes?
- Title:
  - How specific/adequate/long/short is the title?
- Identification:
  - Can the author(s) be easily identified?
  - Is contact information available (i.e.. Department/ University)
- Aims/ Objectives:
  - Are they clearly stated?
- Methods:
  - How detailed, appropriate, original are the methods and is there enough explanation?
- Results:
  - How clear and well labelled are graphs and figures?
  - How complex are graphs?
  - How well are the results presented?
- Conclusions:
  - Are any conclusions presented and if so do they reflect the aims and are they supported by the data?
  - Is there a memorable "take-home" message?
- Scientific content:
  - Was the research put into broader context/ justification for research?
  - Was the content suitable for experts and non-experts alike?
  - Was there sufficient scientific explanation?
- Student:
  - How much do the student's explanations demonstrate knowledge/ ownership/ enthusiasm for his/her work?

http://www.ncl.ac.uk/fms/postgrad/skills/documents/JudgingCriteriaforPosters.doc

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Judging Criteria for Poster Presentation

Judging Rubric for Presentation of Research

"adapted from the rubric developed by the American Society for Microbiology and the Committee for the Annual Biomedical Research Conference for Minority Students (ABRCMS)."

Score	Goal, Hypothesis or Description	Methods	Results	Conclusions and Future Work	Presentation
5	• Project had a goal or a logical hypothesis that was stated clearly and concisely or the creative endeavor was well described. • Background information was relevant and summarized well. Connections to previous literature or works and broader issues were clear. • Broad impact beyond project clearly stated.	• Excellent choice of empirical methods to address hypothesis or goal of project or demonstrates original thinking or approach to creative endeavor. • Excellent original thinking regarding innovation of technique or choice of how creative work will be presented. • Clear discussion of controls or comparative groups; all appropriate controls or comparative groups were included.	• Substantial amounts of high quality data were presented sufficient to address hypothesis or goal of project or original, creative work was presented. • Presentation of data was clear, thorough and logical or program notes were provided that provide insight into the creative process.	• Reasonable conclusions were given and strongly supported with evidence. • Conclusion was connected to project goals or hypothesis and their relevance in a wider context was discussed. • Potential problems and alternative approaches were presented and discussed.	• All expected components are present, clearly organized, and there is a logical flow to the presentation. • Text is concise, free of spelling or typographical errors; presentation is appropriate. • Figures and tables are appropriate and labeled correctly. • Photographs/tables/graphs improve understanding and enhance visual appeal.
4	• A logical goal or hypothesis was presented or the creative endeavor was adequately described. • Background information was relevant, but connections were not clear. • Mention of Broad Impacts beyond the project.	• Very good choice of empirical methods to address hypothesis or goal or project or demonstrates very good original thinking or approach to creative endeavor. • Very good original thinking. • Clear discussion of controls or comparative groups; most controls or comparative groups were included.	• Substantial amounts of good data were presented sufficient to address the hypothesis or goal of project or creative work was presented. • Presentation of data was clear and logical or program notes were provided that provide some insight into the creative process.	• Reasonable conclusions were given and supported with evidence. • Conclusion was connected to hypothesis or project goals but their relevance was not discussed. • Potential problems and alternative approaches were presented but not discussed.	• All components are present, but not organized well. • Text is relatively clear, mostly free of spelling and typographical errors; presentation is appropriate. • Most figures and tables are appropriate and labeled correctly. • Photographs/tables/graphs improve understanding.
3	• A questionable hypothesis or project goal was presented or a description of the creative endeavor was incomplete or confusing. • Background information was relevant, but connections were not made.	• Good choice of empirical methods to address hypothesis or goal or demonstrates good original thinking or approach to creative endeavor. • Good original thinking. • Adequate discussion of controls or comparative groups; some significant controls or comparative groups were lacking.	• Adequate amounts of reasonably good data were presented to address hypothesis or project goals or the creative work seemed incomplete. • Presentation of data was not entirely clear or program notes were not entirely clear and the creative process was unclear.	• Reasonable conclusions were given. • Conclusions were not compared to the hypothesis or project goal and their relevance was not discussed.	• Most expected components are present, but not organized well. • Text is relatively clear, but some spelling and typographical errors. • Figures and tables not always related to text, or are not appropriate, or poorly labeled. • Photographs/tables/graphs limited and do not improve understanding.
2	• A questionable hypothesis was presented and was not well supported or the goal of the project was not clear or the creative endeavor was not described sufficiently.	• Method not appropriate to address hypothesis or goal of project or demonstrates no original thinking or approach to creative endeavor. • No original thinking. • Controls or comparative groups not adequately described; some controls or comparative groups missing.	• Some data were lacking, not fully sufficient to address hypothesis or project goal or the creative work was inadequate. • Presentation of data or program notes was included, but unclear or difficult to comprehend	• Conclusions were given. • Little connection to hypothesis or goal was apparent. • Potential problems and alternative approaches were not presented.	• Some expected components are present, or organization is confusing and disorderly. • Text is hard to read due to font size or color, some spelling and typographical errors. • Figures and tables not related to text, or are not appropriate, or poorly labeled. • Photographs/tables/graphs limited and do not improve understanding.
1	• The hypothesis or goal was inappropriate or not stated or the description of the creative endeavor was missing. • Little or no background information was included.	• Methods section missing. • No original thinking. • Serious lack of controls or discussion of controls.	• Results are not yet available or reproducible or the creative work was incomplete. • Presentation of data or program notes was missing.	• Conclusions were missing. • There was no connection with the hypothesis or project goal.	• Some of the expected components are present, but poorly laid out and confusing. • Text hard to read, messy and contains multiple spelling and typographical errors. • Visual aids not used.

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Judging Criteria for Presenter

Judging Rubric for Presenter

Score	Knowledge of Project	Logical Presentation	Background Information	Presence
5	Answers difficult questions clearly and succinctly.	Presentation is consistently clear and logical. Comfortably uses visual aids to enhance presentation.	Demonstrates a very strong knowledge of the project and project background.	Speaks clearly, naturally and with enthusiasm; makes eye contact. Presenter was well prepared and professional.
4	Answers most questions.	Presentation is clear for the most part, but not consistently. Comfortably uses visual aids to enhance presentation.	Demonstrates a good knowledge of the project and project background.	Speaks clearly, naturally; makes eye contact. Presenter was prepared and professional.
3	Has some difficulty answering challenging questions.	Presentation is generally unclear and inconsistent. Uses some visual aids to enhance presentation.	Demonstrates some knowledge of the project and project background.	Reads from visual aid or script some of the time. Presenter was semi-prepared and professional.
2	Has difficulty answering challenging questions.	Presentation unclear and illogical. Does not use visual aid to enhance presentation effectively.	Demonstrates poor knowledge of the project.	Reads from visual aid or script most of the time. Presenter was not prepared or professional.
1	Does not understand questions.	Presentation very confusing. Does not use visual aids to enhance presentation effectively.	Does not demonstrate any knowledge of the project.	Reads from visual aid or script all of the time. Presenter was unprepared and unprofessional.

https://universitycollege.wsu.edu/units/undergraduateresearch/SURCA/docsart/Judging%20Rubric%20-%20combined_2012%20(3).pdf

Bottom line

Pay attention to:

- Audience
- Clear structure
- Visual impact

- https://www.slideshare.net/muir31/designing-a-poster-for-conference-display-oct11

AI?

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AI?

- 10 AI Prompts to Help You Design Your Next Research Poster
  - https://eposterslive.com/node/673
- AI-Powered Poster Generator
  - https://piktochart.com/ai-poster/

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