Poster paper - not just an article up the wall

Abstract

The function of poster papers differs from that of traditionally presented oral or printed papers. The approach to their design is therefore quite different. This conference contribution provides generic guidelines for designing new poster papers; it discusses by example several means of increasing the impact of existing ones. Multiple entry points, stacks of bullet points, plain typography, simplified graphics, relevant photographs and supporting hand-outs are useful components of better poster papers.

Introduction

Scientific poster papers generally have little impact, in contrast to many displays advertising commercial products. A small budget and little time available for preparation often get the blame, but with very few resources an effective display can be put together.

Scientists are familiar with the editorial evaluation process of scientific papers where referees look at content almost exclusively. It may be hard to accept that poster papers tend to be judged for both content and presentation: assessed by judges with points; and assessed by readers quite literally with their feet.

Yet, the scientific poster paper is an excellent and legitimate means of making contact with fellow researchers and the public by
1. advertising the work you are going to do;
2. reporting on progress before your research is completed;
3. highlighting the main conclusions from recently completed research during or after the publication phase in a specialist journal. Unlike the specialist publication, a poster can reach out to a much wider audience.

Common mistakes

When deciding to present a poster paper at a scientific conference, many authors appear to rely as their main resource on an existing journal manuscript that is to be, or has recently been, published. Key sections from the papers are extracted together with some illustrations, enlarged photographically or using a photocopier, and mounted on cardboard which end up on the wall in a display area. More often than not such short papers, bloated to poster size, attract little attention at a conference, except for their poor design.

The reason for lack of reader interest is that many posters are too information-dense to be read in their entirety, let alone be inviting enough to start reading them. In crowded display areas, only part of a poster may be read so the links between various parts of the paper are lost. Lists of references do not make for exciting conversation

over the conference tea breaks. Small or unsuitable text fonts may be hard to read. Text panels may be too far below eye lines (nobody likes to kneel down to get a look at your small print).

Many of these mistakes can be avoided by putting some thought into the design process before starting to put material together.

Doing better

In designing a good poster paper, you need to bear in mind its purpose: to attract attention to your work, not to explain it in great detail. Just like an item on a newspaper page, there can be a lot of competition for space and reader interest in a poster session.

In that sense, the poster is more like an advertisement than a scientific contribution. The objective is to let people know what kind of work is being done by whom, rather than supply all the results to date. All going well, the validated data will eventually be published in a journal and that is the place for the full details.

A good manuscript for a published paper should follow the IMRAD structure, i.e. Introduction, Methods, Results And Discussion format, preceded by an Abstract and followed by References (e.g., Lynch 1994). By all means use the published paper as the basis for your poster, but do not copy its structure by putting a panel for the Methods section, Results, etc. in your poster; specifically, do not include Abstract and References.

The reasons for this recommendation are that
1. a poster paper is an abstract, therefore does not need to be abstracted (explicitly) again. However, many of the rules for good abstract writing (ISO 214) also apply to poster papers.
2. The IMRAD structure, and the contents of the paper, are totally lost to someone who starts reading the poster from the end - often forced to do so by crowds, or by the way the total collection of display panels is arranged at the conference. Therefore, every part of your display should be able to be appreciated by itself, almost independent of other parts.
3. References are useful to verify statements or to relate your work to further relevant publications: excellent in print but needlessly taking up valuable wall space in a poster.

However, abstract and references can provide suitable add-on material, in the form of a hand-out. Well-prepared hand-outs make excellent public relations documents, and also provide the place for your full contact details: address / affiliation / phone-fax-email / possibly a mug shot or team photograph.

Make sure you have plenty of hand-outs in an inviting place near the poster at all times. A cardboard or clear perspex box as part of the display can work very well, but make sure it's never empty. Material stacked on tables often forms a repository for tea cups!

Drafting the paper

As with drafting any document, people vary in how to go best about committing their thoughts to paper. Some like to start at the very beginning, and build up the draft to the last line. Others use an approach of committing ideas to paper almost randomly, then putting the paragraphs in the right order, and finally connecting these into a coherent draft. The use of word processors has greatly assisted the latter method, which is very effective in overcoming a writer's block.

The poster paper can benefit from being written out in full sentences, even though it may not be presented that way in final form. Once the thoughts are organised, the main ideas can then be lifted out and summarised. Highlighter pens are very useful for emphasising parts that can subsequently be displayed on the poster, using bullet points. Use one bullet or line for each separate item or idea. If you write paragraphs, keep them short. Write punchy sentences.

Grabbing attention and holding it ("SEX" is not always appropriate)

Make sure that something in your paper grabs the attention of the passer-by. This can be an arresting graphic, cartoon, or photograph; clever typography; a device or anything relevant that breaks the two dimensions of the sheet of paper (Tufte (c.1990) speaks of "escaping flatland"). The device should relate directly to the content of your paper, and form a natural lead-in point to the rest of the text.

It is important that all segments of the poster can be read separately: they often lead their own life. For example, if you include a picture, make sure its caption is adjacent to it: readers of a poster may not have the interest, time, or physical space, to search elsewhere for an explanation. Don't use vertical type in graphs; this tends to strain neck muscles and leads to spilling tea!

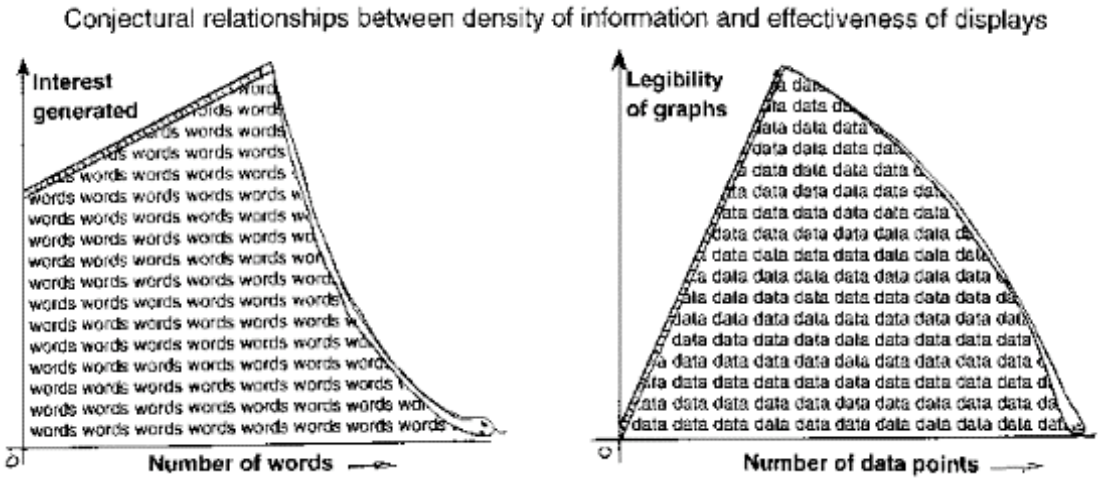
Similarly, give each panel its own heading. If a section "heading" refers to more than one text block, use "heading (continued)" to indicate the status of the follow-on text. Numbering panels is generally a good idea. Not only does it bring out sequences better, but also will you find the poster paper is much quicker to assemble in the display area.

Illustrations

If you are lucky enough to cover a topic with interesting, unusual or beautiful images, by all means use them to the best effect. Don't be scared to make the picture bigger than the explanation: the paper should generate interest in your research, be an advertisement, rather than tell all.

A photo of the researcher or the team can be quite suitable. It helps identify the poster participants to the public, who may then be inclined to get a conversation going, or ask specific questions.

If you use graphs, display the main relationships only. The poster is not the place for discussing the reliability of your data points: it needs to indicate trends only.



As an example, consider my conjectural relationships for poster papers (P = ?) between "Interest generated" as a function of "Number of words", and "Legibility of graphs" as a function of "Number of data points".

If your graphics illustrate a cyclic process, make sure all parts of the cycle are mounted on a single sheet: it can be embarrassing if a part goes missing, or doesn't fit in the right place. Clockwise cycles tend to have a more "natural feel" than anti-clockwise ones.

For numerical and textual tables, similar precautions apply: use them to summarise main points, not to supply raw data. Don't we all hate it when a speaker shows a detailed numeric table on an overhead projector, saying "I know you cannot read this, but...." Just don't do it, certainly not in posters either.

Which font, which attribute, which size?

Word processing today offers so many choices, and novices are often confused into thinking they need to use at least several fonts to get a point across. Nothing is further from the truth! Remember Bringhurst's (1992) first principle: "Typography exists to honour content."

As in most well-designed documents, a single font making sparse use of bold and italic will prove effective for most purposes. A separate font may be used to set headings aside from the main text. Use a serif font such as Times or Bookman for the main text (a sans-serif font such as Helvetica may be used for headings and in illustrations). Research has shown this improves legibility, speed of reading, and comprehension (Wheildon 1990; Rollo 1993).

The font size should be such that the poster can be read easily from a distance of about a metre. My rule of thumb is to choose a size large enough to withstand photographic reproduction of the entire display (panel) to A4 size, without loss of legibility. Working backwards from a reduced size of 8-10 points will give an

optimum display size of body text of 24-36 points (6-9 mm tall). Serifs of a font increase the blackness of the letter: this may explain its greater legibility, but at very large sizes the opposite occurs. Really large serif fonts tend to look too unpleasantly solid and black to the eye. Choose a light-bodied type face to overcome this problem; you may also need to reduce the letter and line spacing slightly. A recommended width for your text columns is 1.5-2 alphabets, or 35-50 characters, per line. Punctuating headings or bullet points is usually not necessary.

My own preference is to draft everything in Courier 10 or 12 points: it is unpretentious, and indicates clearly I am working in draft not proof. This non-proportionate font (all letters and the space are the same width) also allows better proof-reading because its 1 (one), l (elle), and I (eye) are different, as are O (oh) and 0 (zero). In ragged (non-justified) text, unnecessary extra spaces are easy to spot. Courier is not so suitable for displays, especially in larger font sizes; my preferred choices for display are the Bookman and Helvetica combination. (NB: proportionate fonts such as the latter take a single space after the full stop.) Italics are usually reserved for species and journal names; never underline italics - even though each word processor can manage it! Use bold for emphasis, and for headings. NEVER WRITE SENTENCES IN ALL-CAPITALS, AS THEY ARE MUCH HARDER TO READ (see Wheildon 1990; Rollo 1993).

Choice of paper colour and size

Colours can add a lot of impact to a display, but be careful how you use them. If information rather than art is the main objective, use bright colours sparingly. Printing or photocopying on to dark hues of tinted paper can badly reduce legibility, especially in places that are not well lit. Easier, and often just as pleasing, is the effect obtained by mounting white prints on to coloured paper panels.

How large should the display be? If the poster is a one-off, in a size pre-determined by the conference organisers, you have one less thing to worry about: find out the specifications and stick to them. In reality though, many posters are used for a secondary purpose, if only to brighten up a laboratory, corridor or office after the conference. The keyword here is flexibility in designing shapes and sizes.
Sheets of A1 paper (594 mm x 841 mm) are easy to work with, easily transportable, and their multiples often form the basis for display panelling provided at poster paper sites. Both landscape (wide) and portrait-style (tall) posters have their merits and disadvantages. The main ones to remember are, that "landscape designs" are often read from either end and should allow for this; information on "portrait designs" may be hard to read below the midline. Put your largest pictures there (caption above it), not the most important text. You will find few people prepared to drop on their knees for your paper!

"Putting it up"

Before taking your display to the conference, make sure you have put together all final parts at least once. Don't forget to bring with you the means to fix your poster to display panelling. Thumb tacks are best for cloth-covered soft board panelling, Velcro

dots are excellent for smooth, hard surfaces. When using sticky tape, use preferably the double-sided type, keep it out of sight where possible. Scissors, hammer and pliers can come out very handy when setting up the display. Avoid wasting valuable time by having to search for tools in the display area when everyone else needs them, too!

Conclusion

It is tempting to experiment with type fonts, sizes, attributes etc. Remember, this is likely to be at the expense of the real job: communicating your content in the most effective form to a captured (rather than a captive) audience. Make your paper inviting to look at, interesting enough to draw attention from various directions. Always aim for good readability and have a hand-out with your contact details ready. Take a mental photograph of it: if you cannot reduce the overall display to one or two A4-size photographs and retain its legibility, you probably have missed your mark. Try again. Break the pattern. Good luck.

Acknowledgements

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Acknowledgements such as these have no place in a poster paper, of course, although the logo of a sponsor may introduce a useful graphical element.

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