COMMUNICATE YOUR SCIENCE!... Producing punchy posters

Bernard S. Brown

The research has been done and you have a piece of work that is sufficiently complete to present at a conference. You've not done this before, and you feel both excited and queasy about it, but your supervisor thinks it's a good idea. So you write an abstract and send it off. And it's accepted. And the day of the conference draws nigh.

But then you notice the small print ... words to the effect that short communications, such as yours, are now normally presented as posters. And that you should give plenty of thought to the presentation of your poster, making sure that it is clearly laid out, readable at a distance and has an appropriate introduction, outline of work and summary.

So, what do you do? With no more advice to hand, you sit down at your word processor and write up your work as if you were writing a chapter in your thesis. The words flow easily, for you are familiar with the work. You switch on your printer. Out come six mangled sheets of single-spaced A4; the first five contain text from top to bottom, the sixth contains only two lines of text. But that doesn't matter – it's only for a poster. Nevertheless, you decide to make your poster look more interesting by adding some visual material. So you photocopy a couple of graphs from the report you once wrote about your work, and compile a table containing all the results you have got so far. You write detailed captions for the graphs and table, then print this additional page.

Off you go to the conference and pin up on the board provided your six pages, plus two diagrams, plus one table, plus three captions. You stand by your poster and wait, but no one seems particularly interested. Oh dear. I wonder why.

Overcrowded posters

The above is, of course, a caricature. Nobody would really do that, would they? Well, maybe not exactly that – but many do something like it. Many's the poster that is nothing more than a photocopy of a published paper – not even enlarged. Masses of small type that can't be read. Lots of tiny diagrams, spidery graphs and intricate tables, each bearing its own detailed but illegible caption. Such posters can be easily and quickly produced; no doubt they contain lots of information ... the only trouble is that few people can be bothered to read them.

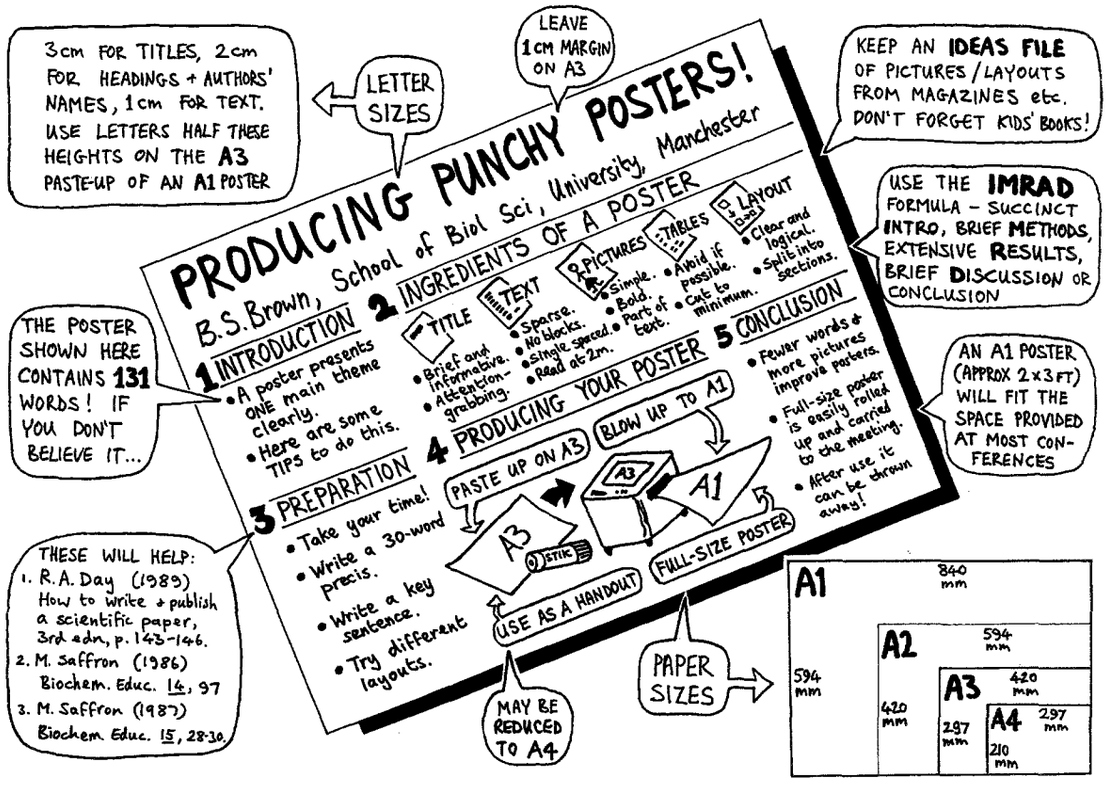
An opportunity to give and get information

Think about it. A poster session is an opportunity for you to tell others about your work. It is an opportunity for you to receive constructive comments, criticism and suggestions about your work. And your poster is an advertisement for both you and your laboratory. What a shame to botch such an opportunity by putting up an illegible, boring, overcrowded poster. But it's more than just a shame: others may judge both you and your work – and maybe even your laboratory – by your poster!

But I can't draw!

But it's not fair, you say. People go to art college and study graphic design, and here I am – didn't even do art at school – expected to design eye-catching posters. It's not fair.

If that's what you think then I would say that it isn't quite as bad as that. Although you may never be able to produce 'arty' posters, you can still produce very good ones that will be a credit to you and your laboratory, that



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people will read and understand. Indeed, a poster shouldn't be 'arty' if this means that it contains a lot of visual material that distracts the reader from its message. So, what can you do? I suggest a six-point approach to poster production. An approach that can be abbreviated to the word **POSTER** itself.

P – Prepared and Planned

You should prepare yourself for the task of making a poster. This can be done in two ways. First, there is short-term preparation. This means that, with the conference looming up, you should allow yourself plenty of time to think about the content and design of the poster. How much time? This depends on you, but I suggest at least two weeks! You won't spend two weeks working non-stop on your poster, of course, but even the time you don't spend on it is valuable. Ideas will come even when you are doing some unrelated work, perhaps even while waiting for a bus or having a shower! Note them down as soon as you can. You should not start on your poster the day before the conference – and certainly not on the day itself, even if the conference is being held at your own institution.

Second, there is also long-term preparation. This means being constantly on the lookout for ideas. Keep a file of adverts, pictures, pamphlets and magazine page-layouts. Choose anything that appeals to you, or strikes you as being particularly eye-catching. Look at other people's posters from your own laboratory, and also at advertisers' posters. Think about how you could adapt, or apply, their ideas to your own work. If you use a particular organism or tissue, then look out for appropriate pictures in magazines and put the clippings in alphabetical order in your file. If you are working, for example, on bovine collagen synthesis, then keep pictures of cows or bulls. You never know – one of these pictures might illustrate a poster of yours some day.

By Planned I mean that you should have a good idea of what is going on the poster before you start to assemble it. Obvious, isn't it, but how can you do it? One way is to summarize in a few words (perhaps 30) what the poster is going to be about. Then write a single sentence that summarizes what the poster is about; this could form your title. When writing your title, don't use 'empty' words such as THE, A, or even AN INVESTIGATION INTO. The title of this article could have been SOME USEFUL ADVICE ON HOW TO PRODUCE PUNCHY POSTERS ... but I managed with three words instead of nine.

O – One main theme

The poster should deal with only one topic and should tell a clear story. Keep the poster simple by not crowding it with too much information, particularly any that is irrelevant to your one main theme. If your research is so extensive that there are several different topics that you could present a poster on, then do just that!

S – Simple pictures

Simplicity, both in words and in pictures, is a key ingredient of success. Even without pictures, you can go a long way towards making your poster easy to understand by setting out your statements in note form rather than in long paragraphs. Wherever possible, however, use pictures instead of words. There are two reasons for this. First, a poster with lots of pictures is more likely to attract interest than one that's crammed full of words. Second, pictures are easier to understand at a glance than words, indeed it is said that a picture is worth a thousand words. If your poster contains a simple, boldly drawn picture, many people will stop to look at it; if it contains a thousand words then nobody will read it!

You may be frightened by this emphasis on pictures, especially if you are convinced that you cannot draw. But you don't have to be an artist. The pictures can be very simple and you can use the clippings you've been collecting. Children's books, particularly those for pre-school children, often contain simple, bold illustrations, that can be adapted even if you cannot draw.

T – Tables minimal

You may not agree, but complicated tables in a poster only make the poster's message harder to understand. You are aiming to make your point quickly, and the way to do this is with a picture or a graph. And if you are using graphs, make them bold and uncomplicated. If you do use tables, then make them simple too, and don't give them lengthy captions.

E – Explains itself

The poster should be easy to read, and the story it tells should be clear to the reader, without you having to explain it. Remember, at the conference you will not be standing continuously next to your poster – it must be able to do the explaining for you!

R – Readable at 2 metres

This means having large enough lettering on your poster which, in turn, means having fewer words. As a rule of thumb, the minimum letter height should be 5 mm, although taller letters should be used for the title and headings. Some suggestions for letter-sizes are given in the accompanying cartoon, but remember that the most successful posters have more pictures than words. If you use the blow-up system suggested below, then this problem will solve itself; you cannot physically get several hundred words onto a poster that is pasted up on an A3 sheet.

Producing your punchy poster

Having decided what to include on the poster, and having tried out a few layouts, paste it up on a sheet of A3 paper. You can either draw it by hand, or cut out sections of typed text and paste them into the appropriate places. Some computer programs, DTP or drawing packages, can be used to lay out posters. Whatever method you use, you should make sure that the poster is legible on the A3 sheet. (A font such as Courier 12 pt will give easily legible text.) Then use a photocopier to enlarge it to A1. Commercial printshops often have copiers that will do this. An A1 poster (840 mm × 594 mm) will fit into the space that any conference organizer is likely to supply. It is possible to enlarge even further to A0 size (1188 mm × 840 mm) to make a really impressive poster! You can strengthen the poster for pinning to a board by sticking masking tape round the edges (on the back, of course). The poster is easily carried rolled up, and you can throw it away after the conference has ended. But, more likely, it will have pride of place on your laboratory wall as a lasting monument to your creativity!

Some people suggest that posters be made in sections that can be pinned up separately at the conference. This method has the advantage of flexibility; the sections can be rearranged if you find that the space provided is smaller than you had hoped, and you can produce them using an ordinary photocopier. But I feel that the result is not really a poster, but a collection of separate cards. This is a matter of taste, of course.

If you reduce your A3 pasteup to A4 then – hey presto – you have a handout(!), a miniature copy of your

poster, which people can take away with them. Since it will be fully legible at this reduced size, you may even be able to persuade an editor to publish it in a journal – as I did with the cartoon included in this article!

Here's where to find more help:

ANHOLT, R. R. H. (1994) *Dazzle 'Em with Style – The Art of Oral Scientific Communication*, pp. 140–149, Freeman

BRISTOE, M. H. (1990) *A Researcher's Guide to Scientific and Medical Illustrations*, pp. 135–153, Springer–Verlag

DAY, R. A. (1989) *How to Write and Publish a Scientific Paper* (3rd edn), pp. 143–146, Cambridge University Press

EBEL, H. F., BLIEFERT, C. and RUSSEY, W. E. (1987) *The Art of Scientific Writing*, pp. 350–352, VCH

HARTE, R. A. (1974) Poster sessions: a better way to communicate, *Fed. Proc.* 33, 2087–2088

NEWBLE, D. and CANNON, R. (1983) *A Handbook for Clinical Teachers*, pp. 28–31, MTP Press Ltd

SAFFRAN, M. (1987) The poster and other forms of scientific communication, *Biochem. Educ.* 15, 28–30

SIMMONDS, D. and REYNOLDS, L. (1994) *Data Presentation and Visual Literacy in Medicine and Science*, pp. 129–134, Butterworth–Heinemann

Microscopy and the World Wide Web

Chris J. Jefferies

The rapid growth of the World Wide Web makes it hard to keep track of useful material. Although there are some good search tools, they can be slow and may produce off-topic detail. An alternative to using search tools is to take advantage of one of the many pages on the Web on a specific topic. These provide relevant links in digested and organized form.

The microscopy pages

'Microscopes and Microscopy' (the URL for the UK is `http://www.lars.bbsrc.ac.uk/micro/` mirrored at `http://metro.turnpike.net/jefferie/` in the USA) leads directly to Internet material on this topic. Providing little original information, these pages form a centralized collection of resources. The emphasis, as with many such pages, is not on graphics and advanced features, but on lists of information arranged for easy access.

A short monthly article (prepared by C. J. J.) outlines a particular aspect of microscopy and links the reader to related Web sites. Topics covered so far include virus research, scanning-probe microscopy, 3-D imaging and the history of microscopy.

A collection of Web pages

Three main listings supply catalogues of Web sites ordered either geographically, by the name of the publishing organization or by subject, making it easy to find information. Although only started in February 1995, these lists already hold 158 sites.

Scanning through the listing by subject, it is clear that traditional microscopy is poorly represented on the Web. Pages on atomic force microscopy and 3-D reconstruction abound, but similar resources for bright-field light microscopy are hard to find. This tendency to concentrate on the exotic is likely to change as the Web is used more widely and becomes a normal part of academic (and everyday) life.

Most Web sites concerned with microscopy are based at universities and research institutes, but a considerable commercial presence has appeared recently and is expanding. Scanning through the Web-site list by organization shows this clearly, whereas the geographical list illustrates how the sites are clustered in the USA. California alone has more Web sites concerned with microscopy than the whole of the UK, which is the second most represented nation.

Other Internet information resources

Internet news groups and mailing lists are useful ways of exchanging information, and a page in 'Microscopes and Microscopy' lists these for easy access. The user can read and send replies simply by selecting direct from the page. These groups help to solve difficult problems – sending a technical question usually provokes several knowledgeable replies, often within hours. General microscopy groups are listed, as well as those dedicated, for example, to confocal microscopy or image analysis.

ftp sites contain files that can be copied to your own computer. Free or cheap software is available for image analysis, image processing, 3-D reconstruction and display, and for transmission electron microscopy (TEM) image simulation. Some of these treasure houses are especially useful and 'Microscopes and Microscopy' provides convenient access from a central location.

Another section covers meetings, conferences, courses and workshops. These are often listed in society proceedings and in journals, but the Web is more up to date as items can be added or modified more frequently, even daily, if necessary. Conference and course details are published sometimes on the Web, and links are provided making it possible to check the list of meetings, see an interesting title, read details direct from the organizer and book a place by email, all from your own computer.

The 'Reference Library' section of 'Microscopes and Microscopy' points to further information. Examples include a glossary of electron microscopy terms, material safety data sheets and fluorochrome excitation and emission wavelengths.

Although there is a degree of overlap in interest between microscopists and cell biologists, many aspects of cell biology are not catered for directly by 'Microscopes and Microscopy'. A final section on the page provides links to other Web starting points that may be of interest to cell biologists. If you do not find the site you are looking for, why not set up your own?

trends in CELL BIOLOGY are pleased to receive information about Web sites of interest to cell biologists. Please contact the Editor by Email at: **TCB@elsevier.co.uk**

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