

## Chapter 13

# Making a scientific presentation

### 13.1 Introduction

The quality of presentations in scientific meetings often leaves much to be desired. A number of sources are now available to help researchers improve their presentations. Some are listed under the references and additional sources for this chapter. A good scientific presentation must follow the following three “Ps”. It should be: Planned with care, Prepared with care and Presented with care. The following sections provide some useful guidelines, particularly for beginners.

### 13.2 Planning of the presentation

In planning a scientific presentation, presenters need to ask the organizers of the scientific meeting about: the audience and their level of knowledge and interest in the subject since the planning of the presentation will be different for a specialist audience, a generalist audience or a mixed audience; the time available for the presentation; and the type of visual aids available. Presenters should ask themselves what the main message (or messages) is that they would like to convey and how it can be conveyed to the type of audience concerned in the time allotted.

The manuscript of an article (as submitted for publication) should not be used as such for a scientific presentation. The difference between speaking and writing is the same as the difference between hearing and reading. A reader chooses his own pace; the listener must accept the pace chosen by the speaker. Listening to the news on television is different from reading the news in a newspaper.

To change a written scientific paper into an oral presentation, the presenter must follow three “s words”: Select, Synthesize, and Simplify. Select from the written article the points to present. Synthesize the information in the article to package it in the limited time available. Simplify the presentation of the data, so that it can be easily followed and understood by the audience.

In the planning stage, the title of the presentation has to be decided and an abstract has to be submitted to the organizers of the scientific meeting. A good title can be defined as the fewest possible words that adequately describe the contents of the presentation. The

abstract can attract or put off the audience. The abstract is the part of the presentation that will be published in the conference programme. A good abstract should be a miniature version of the presentation. The abstract should be sent to organizers before the deadline and in the format and length requested

## 13.3 Preparation

### 13.3.1 Preparation of text

In preparing the text of a scientific presentation:

- Avoid too much detail and resist the temptation to overload the presentation with information.
- Avoid jargon and abbreviations, unless they are clear to all the audience.
- Aim at the average person in the audience.
- Use plain English.

The structure of a presentation is different from the structure of a written paper. Normally, it should consist of three parts: introduction, main message and conclusions.

The introduction should tell the audience what the presentation will be about. Where possible, the opening sentences should capture the attention of the audience. It helps to have something like a “punch line”, which will alert the audience to the importance of the subject.

The main message should be clear and concise. The usual detail of a written paper is unsuitable for a presentation. It is generally unwise to introduce more than one new idea every 2 to 3 minutes.

The conclusion should summarize the main points. Try for a strong finish. Stopping speaking is not finishing. Leave the audience with a “take home message”.

### 13.3.2 Preparation of visual aids: speaking visually

#### *Objectives for using visual aids*

It has been said that we remember 20% of what we hear, 30% of what we see, but between 50% and 75% of what we see and hear (Sorgi and Hawkins, 1985). A Chinese proverb says “A picture is worth a thousand words”. Visual aids are not an objective in themselves. They are used to serve one or more of the following objectives:

- holding the attention of the audience
- presenting the data in a clear way
- delivering the presentation without having to read from notes.

Commonly used visual aids include slides, overhead transparencies and computer-assisted presentations.

### *Slides*

Slides are the commonest visual aid used in scientific presentations. They can make or break the presentation. Until recently photographic film slides were very commonly used; now electronic slides presented as a data show have largely taken over. The basic rules for a good presentation are the same for film slides and electronic slides. There are three main types of slide: text slides, data slides (tables, graphs, flow charts) and figure slides. A mix of text, data and figure slides helps to maintain the interest of the audience.

Text slides are not meant to be read by the speaker, but by the audience. Lettering should generally be limited to 4 lines and should never be more than 7, including the title. It is advisable not to use more than 8 words per line.

Complicated tables are not visual aids. They have been described as instruments of torture for the audience. Tables of data suitable for written publication are highly unsuitable for a scientific presentation. The term “Railway Timetable slides” is sometimes used to describe the difficulty with slides showing complicated tables. Do not use more than seven lines (including title) and four columns in any table. The writing on a film slide should be easily legible by the naked eye. Use the whole area of the slide. There is no need to put the data in an outer box. Note in the design of the table that the transparent area in a film slide is not square but oblong. Columns are preferably separated by a space larger than the width of the column.

Graphs should replace tables where possible in a visual presentation. They are better in showing relationships. Preparation of graphs has now been made easy by computer programs. Four types of graphs are often used: bar or column charts; curves; pie-charts; and scatter graphs.

- Bar charts are better for lettering than column charts. Avoid overcrowding the slide. The number of bars should be limited to five to seven. An overcrowded column chart is sometimes called a “New York Skyline” slide, to emphasize that it is not suitable for presentation.
- No more than two or three curves can be shown on a slide. Space on the slide should not be wasted.
- The slices of a pie-chart must not be too numerous nor too small. Three to five divisions are ideal.
- Scatter graphs are good for slide presentation. They give a clear and simple overview of the scatter of the data to show relationship.

- Flow charts should not be complicated. A complicated flow chart looking like a “subway” map is not useful for a presentation. A complicated flow chart can be built up in a number of successive slides.

Figure slides of drawings and pictures, if meant for humour, should be selected with care and sensitivity to the type of audience. They should not offend the feelings of anyone in the audience.

### *Tips in slide preparation*

- A common mistake is to try to put too much on one slide. As a general rule, no slide should be shown unless it can be read by the back row of the audience. As a general rule, lettering on a film slide should be large enough to be read by the naked eye without projection.
- The shape of a film slide is rectangular: 36 × 24 mm. The dimensions of the material on the slide should be prepared with this in mind.
- Upper case letters are less legible than lower case letters. This is why lower case is commonly used in direction signs on motorways and on the underground. Our eyes are more accustomed to small letters in books and newspapers.
- While choice of colour is a matter of taste and judgement to a certain extent, colour should not be used for decoration but to improve understanding. Select colours that project well. Popular combinations are blue and white, and green and yellow. Red text may be more difficult to read. The number of colours should be limited to what is really necessary for presenting the data in a clear way.

### *Computer software*

Computer software is used for preparation of electronic slides for a data show. A widely used program is Microsoft Powerpoint. The same program can make the preparation of 35-mm film slides easier and better. The file of slides created on the computer can be sent as a floppy disk or via a modem to a bureau for creating film slides. Computer generation of electronic or field slides offers a number of additional advantages. The software guides you through the preparation, provides templates and recommends consistent colour schemes. Preparation of graphs is easy. Photographs and drawings can be imported from other software programs. The program allows each slide to have a text note attached and the slide and note can be printed out on the same paper page to serve as speaker’s notes. A number of slides can be printed out on one page of paper to be used as audience handouts. The slides created for a presentation can be viewed and edited on the computer screen. Slides are saved and can be included in another presentation. The slides created for a presentation can be viewed in a timed fashion on the screen and the timing of the accompanying talk can be checked and adjusted.

### *Overhead transparencies*

The overhead projector is a natural successor to the chalkboard. It is particularly useful in presentations to small groups. Overhead transparencies, as visual aids, have advantages and disadvantages.

The advantages of overhead transparencies are that:

- they may not need to have the room darkened;
- the speaker faces the audience, allowing better eye contact;
- they are inexpensive to make;
- they can be made quickly, using the copy machine or a computer printer with compatible transparent plastic sheets;
- overhead projectors are usually readily available, are easy to set up and are less likely to break down; a projectionist is not required;
- the speaker can write directly on the film by a marking pen;
- information can be built up in a dynamic way by either drawing directly on the transparency, or by adding transparent overlays;
- colour can be easily used.

The disadvantages of overhead transparencies are that:

- they are not suitable for large audiences;
- the projected image is not as sharp as the slide;
- the projector cannot be put in a projection booth;
- they can give the impression of being prepared in haste if not carefully revised and well presented.

Overhead transparencies are easily prepared. Handwriting does not produce an elegant transparency. It gives the impression of last minute preparation. It may be more acceptable if the writing or drawing is done during the presentation. A photocopy machine can produce a nice transparency from the printed output of a word processor. Only special transparency sheets suitable for a photocopy machine should be used. A computer printer can print directly on special transparency sheets suitable for either laser jet or colour ink-jet printers. Note that transparencies need longer drying times than regular paper. The computer software may allow printing the transparency as a flipped document, in which the text and pictures are reversed. The transparency printed in this way is projected face down. This allows the speaker to write on the back of the transparency during the presentation. It is easy then to wipe the writing off later without scratching the original.

### *Computer-assisted presentation*

The same computer software that is used to produce 35-mm slides can produce a screen show of slides, with manual or automatic control over timing between individual slides. The slide show can be projected directly to the audience. Notebook computers have a port to allow connection to an external monitor or to a special projector. The equipment is rather expensive but it produces a very elegant presentation, including the use of moving text and images. However, do not overuse the animation features as they can distract the audience and become annoying. A good presentation is also a simple presentation. Slides can be easily sorted and their order re-arranged. The technology is rapidly becoming the standard for the use of visual aids.

Before preparing a computer-assisted presentation check about the availability of the equipment. Since the new technology is prone to equipment failure, it is advisable to have a backup of slides or overhead transparencies. It is better not to try using this new technology for the first time in an important meeting, particularly in settings which may not have experience with it.

### **13.3.3 Rehearsal**

The preparation of the text and of the slides has to take the allotted time into consideration. Rehearsal is the key to making sure that you will deliver the presentation without exceeding the time. Even very experienced speakers rehearse their presentations. You can rehearse on your own, or with the help of colleagues.

A pleasant average rate of delivery is not more than 120 words a minute. A word processor can give the exact word count of a written presentation. A double spaced typewritten page is about 240 words. For a ten minute presentation, plan on no more than five pages of double-spaced text.

A general rule is one slide per minute if the slide contains information, and one slide every 5-10 seconds if the slide contains only titles, key words, or is designed just to remove another visual from the screen. The exact time for the non-information slide will also depend on the amount of script to be covered while it is displayed. Having to skip slides during the presentation, because the slides are too many, means that preparation of the presentation was poor.

## **13.4 Presentation**

The challenge to the speaker is to hold the attention of the audience. Particularly when the lights are dim, the audience can have sweet dreams during a boring presentation (Harvey et al., 1983).

- Get ready
- Speak well
- Manage your slides
- Keep to the time
- Be prepared to answer questions.

### *Getting ready*

It is always advisable to check the room where the presentation will be given, in advance. Check the podium for the microphone, the remote control for the slide projection, the slide pointer and the lights. Provide your slides, properly arranged, or diskette to the technician for projection.

### *Speaking well*

Perfection in speaking is acquired. It is acquired by practice, by observing good speakers, and by learning from your own mistakes as well as the mistakes of other speakers. If you are excited and eager to share, others will warm to you. If the microphone is to be attached, attach it to the lapel of the jacket or dress, and not to a movable part such as the necktie. It can produce a distracting background noise when you move. Look the audience in the eye.

It is more effective not to read your presentation. If, however, you read from a script, the script should be written for hearing not reading. Prompter cards or prompter slides can help the speaker to deliver the presentation without having to read. The generally accepted rate for easy hearing and understanding is not more than 120 words-a-minute, as indicated above. Pauses in speaking replace punctuation in writing: comma: break of one second; semicolon: break of two seconds; period/full stop: break of three seconds; paragraph: break of four seconds. Varying the tone, pitch and volume helps to maintain the attention of the audience.

### *Managing slides*

Mark and number film slides. If a slide is projected upside down, there are seven possible ways of showing it again wrongly, before the correct orientation is discovered. The international convention calls for a spot to be placed in the lower left-hand corner as the slide is viewed by the naked eye. This should be visible at the upper right corner when the slide is inserted. Check your slides before the presentation. Well organized conferences usually have a preview room where this can be done.

Remember the saying that if anything can go wrong, it will. Be prepared for the possibility of breakdown of visual equipment. It is generally advisable to start the presentation with the lights on. Keep the lights off till you complete showing the slides.

Use “filler” slides if needed, to avoid having lights on and off during the presentation. But, it may be good to conclude while the lights are on, to make a strong finish.

Do not read the slides. You can safely assume that the audience is literate and is not blind. An exception can be made in case of simultaneous translation, so that the translators can translate the slide which is read. Better still, provide translators with a copy of your text notes. Do not go back to a previous slide. Insert a copy.

The use of two projectors in parallel, with two screens (dual projection), and two sets of slides is really only useful when you want to show changes that are difficult to demonstrate unless two slides are compared side by side. The audience must be given time to look at both slides. A good rule is never to show two text slides at the same time.

### *Keeping to time*

The speaker who exceeds his allotted time is guilty of gross bad manners. He imposes not only on his audience, but also on all the speakers who come after him. It is a sign of poor preparation.

### *Answering questions*

Answer politely: Do not answer questions in a dismissive or confrontational manner. Answer knowledgeably. Remember that “I do not know” is a good answer.

## **13.5 Guide to how to give a “bad” presentation**

(Based on a humorous piece by Richard Smith, editor of the *British Medical Journal*, 2000)

- Forgetting altogether that you agreed to speak is a good way to make a mess of your presentation. A variant is to arrive late. Don’t arrive too late because they will simply have cancelled your session, probably sending a thrill of pleasure through an audience facing the prospect of five consecutive speakers.
- One way to prepare for a bad presentation is not to prepare at all. Step up to the platform, open your mouth, and see what comes out. This is, however, a high-risk strategy because spontaneity may inspire both your audience and you. Inspiration must be avoided at all costs.
- A really bad presentation needs careful preparation. A good piece of advice is to prepare for the wrong audience. It is much the best strategy to give an overcomplicated presentation than an oversimplified one.



- Be sure to prepare a presentation that is the wrong length. Too long is much the best. Most of the audience will be delighted if your talk is too short. But something that is too long always depresses an audience, even if what you are saying is full of wit and wisdom.
- Another trick is to ignore the topic you are given, and speak on a completely different subject.
- You may be able to enhance your bad presentation by sending the organizers in advance a long and dull curriculum vitae to read before your presentation.
- Bad slides are the traditional aid of a bad presentation. They must be far too many, contain too much information and be too small for even those in the front row to read. Flash them up as fast as you can, ensuring that they are in the wrong order with some slides upside down. Ideally there should be little connection between what you are saying and what is on the slide.
- The essence of a bad presentation is to be boring. Anything that isn't boring will detract from your bad presentation.
- Never look at the audience. Mumble your presentation, and preferably read it. A presentation that is read will usually be satisfyingly bad, but for the full effect you should have long complicated sentences with dozens of sub-clauses.
- A truly bad presentation rarely produces any questions. Most people will just want to get away. If you do get questions, you may have failed in giving a bad presentation. But all is not lost. By sticking to the basic rules of being boring and overcomplicated, and by speaking too long, you may still be able to rescue your bad presentation. The extra rule on answering questions is that under no circumstances should you really answer them. Once you have finished say, "Does that answer your question?" If the questioner has the effrontery to say no, then do it again, only at greater length.

## References and additional sources of information

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