Twelve tips for effective PowerPoint presentations for the technologically challenged

J. HOLZL
Faculty of Health, Queensland University of Technology, Brisbane, Australia

SUMMARY *PowerPoint provides teachers with the opportunity to create dynamic and innovative presentations that not only command attention but also are fun to use. This paper offers practical advice and encouragement to potential users who may consider themselves to be 'technologically challenged', that is, those teachers who have always wanted to make more use of technology in their teaching, but lacked the confidence and/or the basic computer skills to actually go out there and, 'just do it!'. This advice covers basic and practical tips on such matters as the size of text, fonts and use of colour. It also covers some of the specific features of PowerPoint which some users have difficulty with. This includes the 'build', 'transition' and 'Clip Art' features. Perhaps the most useful tips, however, are the warnings about the technological traps and pitfalls which may strike the unwary or, most importantly, the unprepared!*

Introduction

Presentation of teaching material, research findings and other such items is an important part of the work of health professionals. Of equal importance, especially for teachers, is the need to engage the audience in a way that excites interest and enhances retention of the main messages. Electronic presentation packages such as Microsoft Power-Point offer the opportunity to create dynamic and innovative presentations that not only command attention but also are fun to use. Even if, like me, you fall into the 'technologically challenged' category, you can learn to use PowerPoint effectively. With the most basic computer literacy skills and some practical guidance, you can give memorable PowerPoint presentations. The key to effective presentations is preparation, preparation and preparation. Accordingly, the aim of this paper is provide some practical guidance for teachers in the use of PowerPoint. The discussion will follow a three-phase 'preparation' process that centres on session content, PowerPoint features and presentation, and technological rehearsal. Helpful suggestions for novices are included. If you are new to teaching and would like some details on instructional design, please refer to Madhumita & Kumar (1995).

Preparation phase 1: session content

It will come as no surprise to good teachers that the first step, as with all lesson preparation, is a structured framework of the session content. This will include decisions regarding topic, learning goals, specific learning objectives and logical flow of the content material. What should also be appreciated with PowerPoint presentations is that the framework is decided first, before adding colour, text, or audio and video. This is because in electronic media it is recommended that a storyboard is developed for the presentation (Howles & Pettengill, 1993). Storyboarding, a technique borrowed from film and advertising, requires you (as the designer) to create a paper representation that illustrates all of the text, techniques and interactions *in sequence* (Rubens & Krull, 1989). This will not only prompt you to think of your presentation as sequences of information but also provide an opportunity to improve the lesson design. Once you have transferred your storyboard into your PowerPoint presentation do not feel you are locked in to the sequence. You may change the sequence of your slides at any time using the PowerPoint feature *Slide Sorter*.

An additional advantage to developing a storyboard becomes apparent when there is more than one presenter involved. In the situation of team teaching or shared presentations, the storyboard outline can be displayed. The visual display has two important functions. First, everyone is provided with a clear understanding of all elements of the presentation which allows proper integration between related presentations. Second, the visual storyboard outline may prompt a sudden flash of insight or 'bright idea' by one of the team members which will impact on the presentation of others. The outcome will be a more effective presentation.

> **Tip 1**
> Develop a visual storyboard for your presentation that is displayed prominently.

Correspondence: J. Holzl, Faculty of Health, Kelvin Grove Campus, Queensland University of Technology, Victoria Pk Rd, Kelvin Grove Q 4059, Australia. Email: j.holzl@qut.ed.au

The next part of the process is to review the lesson outline. There are a number of questions that need to be answered to make the best possible use of computer presentations. This is an opportunity to link your own creativity with learning principles. A review of the lesson outline should include the following questions:

- Is a theme apparent (this will affect choice of possible clip art, drawings, and pictures for inclusion)?
- Should the text include illustrations (eg. graphs, flow diagrams, pictures)?
- What multimedia resources are appropriate for the presentation?
- Should video and sound be incorporated in the Power-Point presentation or could video and sound support the PowerPoint presentation? (See below for further discussion of this question.)

Decisions regarding sound and video are important for enhancing your presentation. PowerPoint allows you to incorporate these features by going to the *Menu Bar* and choosing *Insert Object* or *Insert Sound/Video*. If you choose this option a cautionary note is sounded. Sound and video requires lots of space which means your PowerPoint presentation will not fit on a floppy disk and cannot be easily transported from the development computer to the delivery computer. Of course this is not a problem if they are one and the same. Another option is to link your presentation to sound and video clips from a CD-ROM. A third option is to play your sound and video segments externally to your computer presentation. This means you will need a data projector which also handles video and some means of switching between your computer and a video player.

Tip 2
Use sound and video *only* for educational purposes.

An additional advantage to pre-determining the design is the potential for effectively providing students with 'learning cues'. For example, consistent use of one colour or icon can cue the student to a main point or essential 'action' (Phillips & DiGiorgio, 1996). These cues can be reinforced effectively throughout a series of PowerPoint presentations as an aid to student learning. This means that your presentation can be designed with the dual purpose of encouraging learning and acting as a study aid for the class. The combination of visual cues and verbal explanation will facilitate student understanding and create an effective teaching–learning environment.

Tip 3
Look for ways to provide relevant 'learning cues' in your presentations.

Now that you have reviewed the lesson outline and identified any additional teaching resources you are ready for the second phase of the preparation.

Preparation phase 2: PowerPoint features

If this is your first experience with Microsoft PowerPoint, you may wish to choose the automated slide master feature *AutoContent Wizard or Pick a Look Wizard*. These are pre-designed master slide templates that let you fill in

titles, graphics and charts. They are available from version 4.0 onwards (Murray, 1994). If you are truly adventurous you will completely create your own slide design from the beginning. Whatever the case, there are design choices which will impact on the effectiveness of the final presentation. Some of these choices, and related practical advice, are discussed briefly below.

Text character, type and size

Clear, legible text is essential for electronic presentations. It supports the oral presentation, helps keep the audience focused, and assists student learning. Given the importance of text, the choice of font warrants some consideration. Basically, there are two font styles. These styles are serif and sans serif (Vetter *et al.*, 1995). The serif is the small tail added to the ends of letter strokes as a decoration. Fonts that have these types of letters include Times New Roman (seen here) and Dutch. Sans serif (no tail, therefore less decorative) fonts include Helvetica and Arial. While serif fonts are traditionally used for the printed page (the addition of the serif is said to guide the reader's vision along the line), they do not always work well when projected on screen (Crosby, 1994; Vetter *et al.*, 1995). The different thicknesses of the lines making up the characters can make them difficult to read (Vetter *et al.*, 1995). A sans serif font with uniform line thickness is easier to read and a better choice for PowerPoint presentations. I have found Arial font to be legible and rated highly in student evaluations.

Another consideration is whether to change the fonts in the presentation. A maximum of two different fonts per presentation, one for headings and one for the body of the text is better for audience viewing (Vetter *et al.*, 1995), and easier to manage in the design phase. I have also discovered that fonts can vary from computer to computer. Not all fonts are available on all machines. It is often better to select a standard font such as Helvetica or Arial whenever possible.

Tip 4
Pre-select a standard sans serif font for clarity and readability.

Font size decisions will depend on size of the presentation room. There seem to be varying estimates in the literature as to the optimal letter size but there is agreement that legibility is the key. In my experience the following guide works well:

- Classrooms > 200 seats Headings: 42 point
  Main text: 36 point
- Classrooms < 200 seats Headings: 36 point
  Main text: 28 point
- Rooms seating < 50   Headings: 32 point
  Main text: 24 point

Tip 5
Always consider the size of the room at the presentation venue when choosing font size.

Before leaving the discussion of text there is one rule the text designer should remember—the rule of six. Translated, it means six lines per visual, and six words per line.

In other words, limit the number of words on the screen and present one idea per screen. In addition, consideration should be given to the choice of upper case letters (capitals), lower case letters or a combination. Some authors have suggested that a combination is more readable than either on its own (Ekhaml, 1994; Vetter *et al.*, 1995).

Interestingly, research conducted by Hartley (1986) and Wheildon (1986), supported the use of lower case type styles for improved reader comprehension. Wheildon (1986) explains that the eye recognizes letters by the shape of the upper half. This is easier in lower case letters because the top half is distinctive and stands out against a white background. Conversely, when a word is in capitals the eye is presented with a rectangular shape that is a more difficult to read and less intuitive. Priestly (1991), in an interesting paper describing her experiences of text comprehension in educational settings, supports Wheildon's conclusions and recommends all lower case for lesson material except for headings. In my PowerPoint presentations, I have adopted the guideline suggested by Priestly and restrict capitals to headings only.

Tip 6
For maximum presentation effect, choose predominantly lower case letters.

Guidelines for colour

There is a wide choice of colour combinations with Power-Point. Colour can be used for: highlighting key messages; student learning cues; emphasizing relationships between topics; discriminating between objects; arousing interest; and providing a professional finish (Vetter *et al.*, 1995). It is best to plan the colour scheme for the whole presentation before choosing colours for individual elements. In choosing colours, the following guidelines may be helpful:

- Limit the number of colour regions on any one slide to a maximum of four.
- Be consistent with your colour choice.
- Select colours for audience meaning (e.g. red-and-white stop sign).
- Consider the cultural significance of colours.
- Text colour should complement, and be distinguishable from, the colour background (eg. white or pale text— dark background; black or blue text—lighter backgrounds).
- If you grade colours—moving from light to dark—the intensity should increase as you move to the bottom of the frame.
- Consider the psychological effects of colour. Bright colours project energy and pastels are more delicate, blues and greens are 'cool', reds and oranges 'hot'. White is perceived as more cheerful than black.

In choosing colours a further cautionary note must be sounded. First, consider the type of output when selecting colours. Colours displayed on your monitor may not be the same when viewed on a large screen projection display. What you see on the screen is not always the same as you see on other output devices. From experience of large lecture theatres, the colours are usually darker when projected. Small rooms may give the opposite effect. Colour

can also be affected by the design of the room. This is particularly important when giving presentations in rooms not originally designed for modern projection systems. The most common problems are control of lighting and dark coloured walls and ceilings. In these circumstances blue as the main background colour for your presentation is a good choice. Second, there can be a difference between the range of colours available on your computer (thousands and millions) and the number of colours available on the projection system (256). This will be considered in more detail under Technical Considerations.

Tip 7
Preview the effect of your chosen colours.

Fine tuning your slide show

The presentation of your slides is described as the slide show. Having previously chosen your slide template, text font and colours, the next step in the sequence is to decide how items of information will be displayed one point at a time, and how each slide moves to the next. These features are in the *Tools Menu* and are referred to as *Build* and *Transition* respectively (Murray, 1994).

Build. With PowerPoint you can create layers of 'slide builds' to reveal each point in your topic line by line on the slide. In transparency productions this is termed progressive disclosure or revelation (Ekhaml, 1994). By clicking on the *Build Body Text Box* you can create interesting visual effects (e.g. bullet points flying in from the left; dissolving), to reinforce your presentation and arouse the audience. Slide building is also useful for a question–answer format in teaching sessions. The question, or problem, is presented on the right-hand side of the slide and compared with point form answers controlled by the presenter on the left-hand side of the slide. Each point can be discussed or revised depending on the student knowledge base. An additional feature is the dimming of previous points so that only the current point is highlighted by clicking on the *Dim Previous Points* check box. These effects can be heightened by varying the type of slide and control of timing, allowing the audience to absorb the information one step at a time.

Transition. Moving from one slide frame to the next is termed transition. As the designer you can choose from an array of special effects (wipes, blinds, dissolve, checkerboard, fades to black) for each slide. The speed at which a slide appears and disappears can also be controlled. Both transition effects and timing can be rehearsed in the Slide Sorter view where miniature versions of the slides are displayed.

Tip 8
When choosing the *Build* and *Transition* features in PowerPoint, give priority to the effect on audience learning

Clip art—pictures

A small clip-art gallery is available with PowerPoint. Illustrations may support, reinforce or add variation to your

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presentation. Alternatively, you may choose to import pictures from an ever expanding and dazzling choice of clip-art CD-ROMS available on the market. If you decide to try this feature, there are a few simple rules. These include limiting the number of pictures on each frame, avoiding covering text, and choosing pictures relevant to the topic. Remember that, in adding features to your slides, you need to create a path for the eye, divide space in an interesting way and keep the slides organized.

Tip 9
Choose pictures and clip art that enhance your presentation message.

If you think that your slide show is almost ready, now is the time to *Spell Check* and review the customizing features before moving to the third and final preparation phase.

Preparation phase 3: technological rehearsal

This is the last phase of your preparation where changes are still possible. Essentially there are two areas to consider. The first area relates to the technical component of the presentation, and the second to your presentation skills. Each of these will now be addressed briefly.

Technical considerations

The question that arises is how well the graphics capabilities of your computer match those of the presentation equipment. The quality of the projected image is determined by a combination of resolution and range of colours. The higher the resolution the 'sharper' the image, with nice rounded edges instead of a jagged edge where two colours meet. Resolution is measured in pixels along the X and Y axis of a computer screen e.g. 800×600 is a higher resolution than 640×480. Older versions of some types of data projectors are incapable of displaying more than 640×480 pixels and 256 colours whereas many computers can now display much higher resolutions and millions of colours. In order to use these older projectors it is necessary to go into the Windows or Macintosh control panel to reconfigure the graphics display. It goes without saying that it is much better to know about this problem in advance so you can reconfigure your graphics display and develop your presentation at a lower resolution with fewer colours. The alternative is to arrive at the lecture room and discover that the projector will not display your computer output and that you are prompted to insert the Windows system disks when you try to change Windows set-up to a lower resolution.

Another common problem arises with the use of LCD panels which rest on the top of an overhead projector. Many people do not realize that they are designed to be used with a special overhead projector with a more powerful quartz-halogen bulb. If they are used with a 'normal' overhead projector, the picture is very dull and may even be unreadable from the back of the room. That takes care of the 'hardware' problems; now let us look at the 'software' problems. The first relates to knowing what version of PowerPoint is on the computer you will use with the projection system. Newer versions of PowerPoint will read files developed on earlier versions but not vice versa. It is usually not necessary to load your program into the PowerPoint program although you may choose to do so. A PowerPoint Viewer with a read-only function will display your slide presentation.

Tip 10
Identify the version of PowerPoint available at the venue where you are presenting, and discuss your needs with the technical support staff.

Other software problems relate to the size of your PowerPoint files, especially if you decide to include high-resolution images, animation, sound or video. These files are likely to be very large and will require a number of floppy disks if you decide to develop your presentation on one computer and then transfer it to another computer in the lecture theatre. You need to ensure there is enough space on the hard disk to hold your files and that the necessary 'players' are installed to display your animation, sound or video. If you wish to use sound or video clips which come from a CD-ROM it is best to develop your PowerPoint presentation so it reads these clips from an external file rather than 'embed' them in the presentation. When you install your files on to the computer you will be using for your presentation, you can copy these larger files on to a separate directory on the hard disk, or load the CD-ROM into the computer and configure your presentation to run these clips direct from the CD. Note, however, that they normally run faster from the hard disk than from a CD.

Within my university, the computers in the lecture theatres which are used for data projection are protected by a password and a key. Now is the time to know all the secrets rather than on the day of the presentation. Have a 'wet weather' plan. Consider your actions if there is a computer equipment failure. PowerPoint allows you to prepare overhead slides, and audience hand-outs based on the slides themselves, and you may want to investigate these options. Some projection systems allow you to load your prepared presentation into the system ready for the actual day. The projected colour, graphics and timing of the slide presentation should be evaluated. Note the available lighting. Will students be taking notes? How does this affect your presentation? What supporting activities have you planned? Do these fit well with your presentation?

Tip 11
Always be prepared for the unexpected, and have a 'back-up' plan if the technology should suddenly fail.

Presentation Skills

It is not my intention here to provide a lengthy discussion on the skills required by effective presentations. There is a veritable treasure trove of information on this topic in all libraries. For readers with limited time who would like an overview, please see Hay (1994). For those who would like more in-depth information, McCarthy & Hatcher (1996) may be useful. Regarding PowerPoint presentations, the most important features are the rehearsal of timing of slides, control of the *Build* function, and planned breaks in the presentation. You may choose to control the presentation via the mouse or, if available, a remote control.

I particularly like the remote control because of the freedom of movement and increased potential for interaction with the audience.

Tip 12
Always conduct a full dress rehearsal in the venue where you will be presenting.

Conclusion

PowerPoint presentations are an interesting, dynamic and effective way of presenting information to an audience. The software is not only user-friendly but also fun to use. You are limited only by your creativity and imagination. With elementary computer skills, a willingness to experiment and some precautionary measures you can develop and deliver memorable presentations.

Note on contributor

J. HOLZL is a lecturer in the Faculty of Health, Queensland University of Technology, Brisbane, Australia. Special interests include learning theories and use of new technologies in tertiary teaching and learning.

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