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Advice on Giving a Good PowerPoint Presentation

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Many years ago the traditional way to give a talk at a conference or colloquium was to use a blackboard. Gradually, the blackboard was supplanted by the overhead projector. Now PowerPoint (or equivalent) presentations have become the standard. The April 1998 issue of *Math Horizons* had an article providing advice on how to give a good math talk using transparencies. In this article we update the previous one by focusing on how to give a good Power-Point presentation. The ability to do a PowerPoint presentation well is a valuable skill that many students will find useful in connection with their academic work and employment.

Preparation

1. Determine the level of knowledge of the target audience.

2. Choose a subject that will appeal to the intended audience.

3. Don't overestimate what the audience knows about your subject.

4. Don't try to do too much.

5. Use simple examples and concrete special cases. A "non-example" often helps to clarify a concept. For instance, if you use the integers modulo 7 as an example of a finite field, be sure to point out that integers modulo 6 is not a field and why.

6. Use intuitive definitions rather than technically correct ones. Avoid technical details. A "calibration" example often helps (i.e., test a new definition on familiar objects).

7. Mention applications.

8. Choose a title that is short and informative. Cute titles are usually poor titles. "On a Theorem of Erdös" is too vague. "On Erdös's Prime Number Theorem" is short and informative.

9. In your abstract, indicate the level of the talk. (Examples: "This talk is intended for a general audience;" "This talk is suitable for those who have had linear algebra;" "This talk is suitable for those who have had real analysis.")

10. Provide a context for your talk. Explain how you became interested in the subject. Mention others who have worked on the subject of your talk.

11. Prepare a crisp beginning. Perhaps start with an anecdote, a question, or an application.

12. Keep technical terms and unfamiliar symbols to a minimum. When you do use them, remind your audience of their meaning from time to time.

13. When possible, relate your topic to other fields.

14. Use a very large font (even for a talk in a small room). If you reproduce printed material, enlarge it.

15. Leave ample margins on all four sides with an extra wide margin at the bottom since many in the audience will have their line of sight to the bottom of the screen obstructed.

16. Restrict each slide to a small number of lines. People come to listen to you talk, not to read your slides.

17. Use key words and phrases on the slides instead of entire sentences. Make sure to proofread for spelling errors.

18. Avoid filling slides with equations and formulas.

19. DO NOT COMPUTE IN PUBLIC.

20. Use figures, pictures, tables, lists, models, props, and animations.

21. If you need a particular slide more than once in your talk, reproduce it at the appropriate places rather than going back to it.

22. Do not use features of PowerPoint that do not contribute

www.phdcomics.com
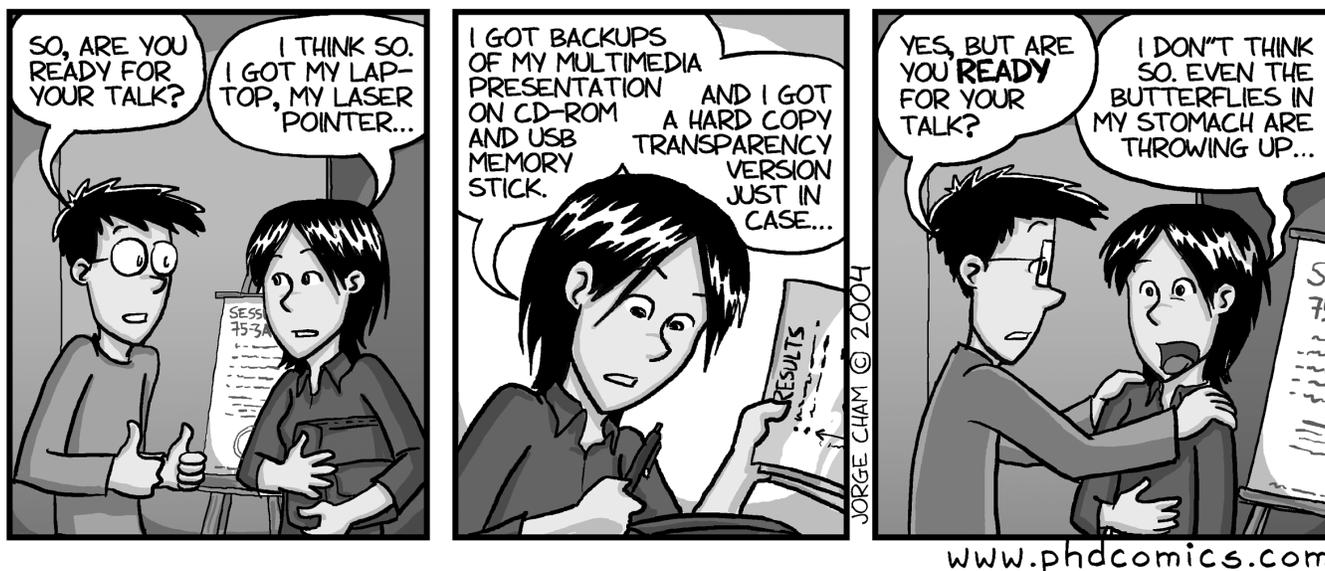
significantly to the presentation. Many people find unwarranted use of special features of PowerPoint annoying.

23. Use color for emphasis but do not overdo it.

24. Rehearse your talk but do not memorize it.

25. Practice your talk using a projector and time your talk.

26. Divide the latter portion of your talk into modules that you can discreetly disregard if time becomes a problem. If you have to omit portions of your talk, don't tell your audience that you are doing so. (You will come across as not well prepared.)

27. Conjectures and open problems add interest.

28. Anticipate questions you may be asked and have a response to them prepared.

29. Prepare for an off campus talk by first giving it in your department or a class.

30. Prepare transparencies as a backup.

Delivery

1. Show up early to check out the room and the equipment.

2. Erase chalkboards even if you don't plan to use them.

3. If possible, remove objects such as a podium, tables or chairs that won't be used that are between you and the audience.

4. Bring a laser pointer and use it to highlight items.

5. Bring a remote control device so that you do not have to stand by the computer.

6. If you use your own laptop, use a power cord and turn off your screensaver.

7. Keep some room lights on. The audience wants to see the speaker.

8. Begin by letting your audience know that you are happy for the opportunity to speak to them.

9. Work to convey the impression that you are enjoying talking about this subject and that you are excited to have an audience.

10. Show enthusiasm for the subject. If you don't, your audience won't be enthusiastic either. Put a lot of energy in your talk. Your energy will energize the audience. (Why do so many people enjoy rock concerts even though the music is greatly inferior to the recordings? Answer: The energy of the live performance.)

11. Generally stay off to the side but MOVE, MOVE, MOVE! Occasionally move toward the screen. Occasionally move toward the audience. Occasionally move from one side of the screen to the other. A talk seems slow moving when the speaker is stationary. Keep your body "open" to the audience.

12. Don't read your slides to the audience. A glance should be all you need to see to speak about their content. Spend most of the time looking at the audience.

13. Personalize your presentation. Sprinkle anecdotes, humor, quotes, and personal items throughout your talk. Make clear what your contributions to the subject are.

14. Don't distribute handouts at the beginning or during your talk. People will read them rather than listen to you. Mention at the outset the handouts will be available after the talk so that the listeners don't have to take notes.

15. Repeatedly remind the audience of unfamiliar definitions.

16. Go over big ideas twice. When you get to the main thesis of your talk, recapitulate the main ideas.

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18. MAKE EYE CONTACT. Single out a particular person in the audience who appears to be interested in what you are saying. Look directly at him or her. Then move on to another person, then another. Their interest will energize you.

19. Speak loudly. Project to people in the back.

20. Vary your voice for dramatic effect. Occasionally change pace. Careful use of pauses will greatly enhance your effectiveness. A good time to pause is when stating a major result, raising a question or showing a complicated figure.

21. Ask questions or rhetorical questions. Give the audience time to contemplate your questions.

22. It is not necessary to prove anything. If you can provide an insight about a proof with a few words or picture, do so.

23. Don't belittle your own results or downplay your knowledge of the topic. It reduces your credibility to no benefit.

24. DO NOT EXCEED YOUR ALLOTTED TIME. To do so indicates you were poorly prepared and have bad manners!

25. Avoid annoying mannerisms in speaking such as repeated use of "OK" or interrupting yourself with "I mean" or "you know."

26. Have a grand finale. It could be the main result, a conjecture, an open problem or an application.

27. Close by thanking your audience.

28. When you are asked a question, move towards the person who asked it and repeat or rephrase the question for the audience.

29. Plan to stay a while after your talk. People may want to talk with you about it.

30. After your talk, do a self evaluation. Make notes about what went well and what could be done better next time. ■

Further Reading

Joseph A. Gallian, How to give a good talk, *Math Horizons*, April (1998), 29-30.

Advantages of PowerPoint Versus Transparencies

1. Image is brighter, sharper and larger.

2. No keystone effect (where the image narrows towards the bottom).

3. Entire image is in focus.

4. No need to reposition slide.

5. Permits use of sound.

6. Permits use of animation and sophisticated graphics.

7. Permits use of the web or software programs.

8. Line of sight not blocked by projector or speaker.

9. Easy to find a particular slide.

10. No need for a table to put transparencies.

11. Instant transition from slide to slide saves a significant amount of time.

12. Using a remote control permits the speaker to have greater freedom of movement.

13. Typically rooms equipped with a PowerPoint projector provide a superior overall setting for giving a talk.

Disadvantages of PowerPoint Verses Transparencies

1. Unlike transparencies where the speaker gets to glance at the next slide while putting it up and make an appropriate segue, with PowerPoint the speaker is sometimes caught off guard about what comes next.

2. Possibility of technology failure is much greater.

3. Need to have backup transparencies.