

# Planning a Scientific Presentation

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Department of Computer Science, Graduate Seminar

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As a graduate student in Computer Science you will have many opportunities to give a presentation on your, or others, work to your peers and faculty. Your presentation may be given in your research lab, a graduate course, an undergraduate tutorial or lab session, a conference presentation or a poster presentation. The goal of this seminar is to provide you with some tools to help you design and deliver your presentation.

## Questions to be answered by a scientific presentation

What is this paper about?<sup>1</sup>

What is the thesis (main point) of this paper?

What are the weaknesses of this work?

What are the strengths of this work?

How does this work relate to other research that I am familiar with?

What are the contributions of this work?

How could this work be applied?

What was the main experimental question(s) that the authors asked? <sup>2</sup>

Why did they ask this question?

Were there any particularly important previous studies that prompted this work?

What method(s) did the authors use to address their question(s)?

What results did they obtain?

Can you explain/describe each and every figure in the paper?

What do these results mean?

How do these results add to, change, update, etc. our understanding of the problem or the solutions?

What are the strengths and weaknesses of the work?

What new questions are revealed?

What questions remain unanswered?

If it's a new idea, has it been sufficiently proven or "battle-tested"?<sup>3</sup>

If it's a presentation of existing ideas, is this presentation better than existing texts or literature?

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<sup>1</sup> This set of questions from Joanna McGrenere.

<sup>2</sup> This next set of questions from Barbara Lom's reading guidelines at [www.bio.davidson.edu/Biology/balom/362/362jclub.html](http://www.bio.davidson.edu/Biology/balom/362/362jclub.html)

<sup>3</sup> Next set of questions from Journal of Graphics Tools reviewer guidelines.

# Purposes of presentations

At the same time you consider the specific purpose of your presentation, you may want to pick a generic presentation purpose to help you guide the design of your presentation. These are the main presentation purposes.

## 1. Informative

An informative presentation is brief and to the point. Present the facts and avoid complicated information. Present the information using either a logical, temporal, geographical or cause and effect structure.

## 2. Instructional

An instructional presentation leaves the participants with a new skill. You may have to cover the topic thoroughly and design activities for the participants to attempt to use their new knowledge and new skills.

## 3. Arousing

An arousing presentation makes people think about a problem or situation. You may be trying to get their active support or just their understanding. Arousing presentations use vivid language and visuals, they are often emotional and a bit manipulative. But never cold hearted

## 4. Persuasive

A persuasive presentation attempts to convince the audience to accept your proposal or solution to a controversy, dispute, or problem. You must convince the audience that you have fully examined the problem and all solutions, and have selected or produced the best solution possible. You may need to directly address alternative solutions. You may need to use logic, evidence and emotion.

## 5. Decision-making

As with persuasive presentations, in a decision-making presentation you have a suggested action that you want your audience to take. However, they could decide to do nothing. You must convince them to carry out your requests, and how to do so. You should also tell them the consequences of doing nothing.

While scientific presentations tend to be either informative or instructional, they often include elements of the arousing, persuasive and decision-making presentation purposes. For example, why is the problem (and solution) you are presenting interesting? Why should your audience accept your solution? Given two alternatives, which should they choose to solve problem X?

## Planning your presentation

When planning your presentation, there are several things that should be considered: Where will your presentation occur? What are the advantages and disadvantages of the venue? What does your audience already know about your topic? Does your audience have a certain opinion about your topic? Why is your audience attending your presentation? What is their purpose for listening to you?

The answers to these questions can provide considerable assistance to you when planning an effective presentation. Especially if you get the answers right.

However, many scientific presenters answer the questions in the following way, do you know why the answers are wrong?<sup>4</sup>

*Where will your presentation occur?* Room 3, I think it's that big room with the windows... or maybe it's that really small one with the moveable chairs and tables - who cares - I'll see when I get there....

*What are the advantages and disadvantages of the room?* Advantage: technical support if anything goes wrong. Disadvantage: room is a bit chilly.

*What does your audience already know about your topic?* Doesn't matter, because I define all of my terms. There are things I need to say and I've got it all scripted out... I can't change it now...

*Does your audience have a certain opinion about your topic?* Yes, but I don't know which one, perhaps I shouldn't express an opinion.

*Why is your audience attending your presentation?* Because they are getting seats for the following blockbuster presenter., Suppose I'll be lucky if anyone shows up...In any case the paper is in the proceedings. (And in my CV, and that is what really matters.)

*What is their purpose for listening to you?* Nothing better to do.

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<sup>4</sup> Thanks to Desiree Mou for some of these.

# The presentation basics model

One model that can be used to plan an effective presentation (and that helps deal with the questions above) is called the Presentation Basics Model. There are five steps to the model that are described in detail below. By using these steps to plan your presentations you are more likely to give an effective presentation - one that achieves what you hope it will achieve and that is memorable to your audience. In parenthesis are what an audience needs to hear from you.

## I. Bridge (“I will not waste your time”)

The Bridge connects the audience to the presentation. This is the time to “hook” your listeners. Help them answer the questions “Why should I listen to this?” and “Why does this matter?” The Bridge is your first impression to the audience, you have only a few seconds, and one sentence, to make a strong, sure and positive impression.

Possible audience “Hooks”: rhetorical question, screening question, new twist on the familiar, quote or anecdote, personal note, audience participation exercise.

## II. Purpose (“I am well organized”)

Know why you are delivering the presentation and clearly convey that to the audience. Let them know what they will gain or be expected to do at the end of the presentation.

## III. Pre-assessment (“I know who you are”)

Who are the members of your audience? How familiar are they with your topic and content? What do they know? What do they want or need to know? Pre-assessment is crucial to a successful presentation. Knowledge of your audience is an important pre-requisite in making decisions about the content, format, language and style of your presentation, and vital in connecting with your audience.

## IV. Presentation (“I know my subject” and “Here is my most important point”)

This is the body of your presentation. It should connect directly to the purpose or bridge. Clearly state your message and main points. Give adequate support for each.

## V. Closing (“I am finished”)

Don’t just end your presentation with “any questions?” Instead, start the closing by giving a summary of your main points, referring to the main purpose of your presentation – perhaps by rewording your opening. Leave the audience with a clear understanding of what is expected at the next step.

On the next page is presentation planning tool to help you further plan your presentation.

## The presentation planning tool

In addition to including all of these steps in your presentation, you may want to include the time allotted for each step to ensure that you are able to reach the end of your presentation within a given time. Further, it is helpful to consider at each step, what audiovisual aids you will be using and what the audience will be doing during different parts of your presentation. Having said this, you may find the following Presentation Planning tool useful:□

<b>Presentation Purpose</b>			
<b>Opening/Hook/Bridge</b>			
<b>Pre-assessment of Audience</b>			
<b>Time</b>	<b>Presenter</b>	<b>Media</b>	<b>Audience/Participants</b>
<b>Closing</b>			

## **Tips for planning your presentation<sup>5</sup>**

Be clear about your purpose. Have one dominant theme and write out what you want your audience to know or do or come aware with when you are finished.

Write for the ear. A paper can never serve as a speech or vice versa.

Repetition is important. The ear only retains 10-25% of the impressions that the eye does.

Use a strong beginning and get to the point fast.

Use simple language and active verbs that are clear and concise.

Use analogies, illustrations, and metaphors; try to paint pictures with words.

Present information in small increments – illustrate with examples and figures.

Present a review at the beginning of the session, and a summary at the end.

Use “memory tools” if at possible – for example, acronyms, visual aids, and mnemonics.

Leave visual aids posted when possible.

Be aware for the physical setting – for example, too noisy, too hot, microphone echo, can people see?

Have a dramatic (but not drastic) ending, appeal to emotions; end with a story or a quote.

Humor helps.

Never never start with an apology.

Never read your slides. Never read your slides. Never read your slides.

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<sup>5</sup> From UBC’s Presentation Skills Workshop manual, December 1998

## Using PowerPoint to deliver your presentation

While the use of PowerPoint in scientific presentation is endemic, the use of PowerPoint does not automatically mean that a presentation will be a good presentation. For example, recycling a presentation given to your lab for a department presentation will probably lead to the use of terms and references that other Computer Scientists not working in your area of research will not be familiar with. Also, simpler mistakes, such as a spelling mistake in a PowerPoint presentation is worse than with handwritten slides (IMHO) and there are all of the technical glitches that can be thrown your way. PowerPoint has only raised the level of expectation and difficulty, not raised the level of performance.

Effective use of PowerPoint is closely linked to creating a clear plan for your presentation. If you plan your presentation completely, and then create your slides using only black on white text slides with a few figures then your presentation will probably go well and be received positively. However, if you start by sitting down in front of PowerPoint before you plan your opening, purpose and closing then your presentation will be less effective and probably take much more time to create.

Therefore, when you are planning your presentation, ask yourself at each step of the way “How can I use PowerPoint most effectively in this part of the presentation?” The key here is to keep PowerPoint serving your presentation and its purpose. PowerPoint is a presentation tool that should support and enhance your presentation. Plan your presentation before you sit down with PowerPoint. Use the presentation planning model to sketch out your presentation including its visuals. By preparing this information you will be able to quickly transform your presentation from a sketch into a polished PowerPoint presentation.

## Where to get more help

UBC’s Centre for Teaching and Academic Growth, <http://www.tag.ubc.ca/>

TAG holds the famous two-three day Instructional Skills Workshops and Presentation Skill Workshops as well as workshops on PowerPoint, webpage creation, teaching perspectives, grant writing, question asking (and answering). Workshops are offered throughout the fall and winter semesters and in a compressed two week “Tag Institute” in May/June.

# How to give a bad talk

David A. Patterson  
Computer Science Division  
University of California-Berkeley  
Circa 1983

Ten commandments (with annotations gleaned from Patterson's talk by Mark D. Hill):

1. Thou shalt not be neat  
Why waste research time preparing slides? Ignore spelling, grammar and legibility. Who cares what 50 people think?
2. Thou shalt not waste space  
Transparencies are expensive. If you can save five slides in each of four talks per year, you save \$7.00/year!
3. Thou shalt not covet brevity  
Do you want to continue the stereotype that engineers can't write? Always use complete sentences, never just key words. If possible, use whole paragraphs and read every word.
4. Thou shalt cover thy naked slides  
You need the suspense! Overlays are too flashy.
5. Thou shalt not write large  
Be humble -- use a small font. Important people sit in front. Who cares about the riff-raff?
6. Thou shalt not use color  
Flagrant use of color indicates uncareful research. It's also unfair to emphasize some words over others.
7. Thou shalt not illustrate  
Confucius says ``A picture = 1,000 words," but Dijkstra says ``Pictures are for weak minds." Who are you going to believe? Wisdom from the ages or the person who first counted goto's?
8. Thou shalt not make eye contact  
You should avert eyes to show respect. Blocking screen can also add mystery.
9. Thou shalt not skip slides in a long talk  
You prepared the slides; people came for your whole talk; so just talk faster. Skip your summary and conclusions if necessary.
10. Thou shalt not practice  
Why waste research time practicing a talk? It could take several hours out of your two years of research. How can you appear spontaneous if you practice? If you do practice, argue with any suggestions you get and make sure your talk is longer than the time you have to present it.

Commandment 10 is most important. Even if you break the other nine, this one can save you.