How to give an effective presentation ?

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Abstract

In general giving a presentation is not considered a too much thought about skill and it is assumed that people can learn it their own. However, that does not happen always and some people remain terrible speakers forever. A good presentation not only makes the communication easier and enjoyable, it can also change the career trajectory of the speaker. After attending many presentations, in many seminars, conferences, workshops etc., over the period of last ten years, I am feeling to share some of my experiences with you about presentations.

I guess at some point of time in our academic carrier in scientific research, all of us have encountered speakers with eighty three slides for an hour long presentation, or slides which are hardly readable, or are filled with tons of mathematical equations, or have very loud and distracting power point background, or have spelling/grammatical mistakes, unnecessary animations or use of upper case letters etc. Apart from that, speakers who over-shoot the prescribed time limit, do not bother about correlating the answers with the questions audience ask, and speak too much about their personal life or trigger personal arguments are also not uncommon.

I am sure that there are more number of ways to give a bad presentation than I can think about. A successful presentation must be effective, in the sense that it should tell the audience something which they do not know (about the subject or about the speaker, if the presentation is for an evaluation or examination !). Before going to tell you how a good presentation should be given, let me first give a list of things which you should not do, if you are aiming for an effective presentation.

1 Things the speaker should not do !

1. **You should not waste time !**

   Since you have been given an opportunity to become the speaker therefore you should try to add something new in the knowledge of your audience. If twenty people do not get anything from your one hour long presentation then you have wasted twenty important working hours of important people !

   A good speaker should never overshoot the time limit in any case, no matter how little time the speaker has been given (particularly when there are other speakers also). A speaker should not complain about the shortage of time since he or she already knows how much time he or she will get.

   If something cannot be summarized in a given amount of time (no matter how small that is) then, I think, that is not worth saying. If the speaker cannot summarize the subject then that means the speaker does not understand the subject, and in that case, there is no point in explaining something to others which one does not understand.

   A presentation is not broadcasting, it is a two way communication. You should keep enough time for questions also.

   If at the end of your presentation there are no questions then there are three possibilities: (1) there was not enough time for questions (2) audience have understood nothing (3) audience have understood everything. The first two possibilities are the most common.

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2. **You should not make bad slides for the presentation !**

OK, how to avoid making bad slides, read the followings:

- You should not make slides in a portrait mode for a power point presentation.
- You should not use fonts which are too big/small/artistic.
- You should not use font colors which are hardly visible. In particular, a background which destructs, should be avoided. I will highly recommend using plane white or light color backgrounds.
- Note that you should not write too much text on a slide which is not possible to cover in an average time you will be spending on a slide. For example, if there are thirty slides for a one hour talk, then you should write only that much in a slide which can be covered in two minutes.
- You should not keep those slides which will not be used in the presentation. If You are planning to give a smaller version of the same talk which you recently gave somewhere, then it is better to make a fresh (just remove the extra slides) presentation in place of using the older one with skipping some slides.
- You should not use figures in which lines are not very clear. Particularly check the labeling along x and y axis (remember those!). What you say should be unambiguously supported by the figures.

  Figures should be used as pointers and it should not be expected that the audience will directly understand things from those. This is your responsibility to explain figures to the audience in the shortest possible time.

  You should always have some "take home" message for every figure.
- If possible, more than one figures should not be put in one slide, if that is not practical then you should show only that figure at a time which is being explained (using pause etc.,).
- If there is a table with a lot of numbers then either you should not use that (should use graph or shorter version of the table) or highlight the numbers which are relevant for the presentations. For example, if you are giving a list of WMAP parameters in order to discuss something related to re-ionization then you should highlight the re-ionization optical depth.
- You should not think that more content you have more you can impress the audience ! That never happens ! For giving details there are research papers and audience can be suggested to check those.

  Your audience should not get lost in the jungle of equations or figures. There is no point in showing all those one hundred thirty seven equations or fifty seven plots which you have in your paper. You should highlight important equations and spend more time on those.

3. **Do not get stuff from anonymous sources !**

You should never cut and paste things from anonymous Internet sources and things which you do not understand.

If possible you should give references to only those sources which are peer reviewed or are more reliable (no Wikipedia !) and cite papers published in scientific journals in place of arXiv (if possible).

4. **Avoid fear of speaking !**

I have seen speakers who never face the audience for a single second in an hour long presentation ! In fact such speakers use slides as a hiding cover from the audience, in place of a bridge !

I have also seen teachers who speak to the board in place of students ! The best way to get rid of the fear of speaking is to speak !

I will recommend that the speaker should talk to the audience very informally in the first few minutes of the talk, before directly jumping on the slides. In any case, I do not think the speaker needs to look at a slide when talking about the plan of the talk of introducing himself or herself.

The best thing will be that the speaker tells people about his plan of the talk and summary without any help from the slides.

5. **Do not ignore your audience !**

Recently I attended a talk by one international celebrity of physics. His talk was a cocktail of a graduate students class, conferences summary, colloquium and a public talk, in place of a pure public talk. In particular, the talk was useless for school students who were the main target, because the speaker expected too much from the audience.

A good speaker should keep in mind that something which is easy to understand for the speaker may not be so for the audience.

In any case, I do not think it takes too much to give a very short introduction or putting the problem in context.

Even for a very advanced talk, I have seen good speakers giving very clear-cut introduction and explaining all the conventions they might be using. Introduction can be avoided only when time is too short (less than fifteen minutes).

Not only the speaker should keep the level of the audience in mind, age group of the audience also should be taken into account. For example, if the talk is for school students and public, then it is very important to have attractive slides, animation etc.

I also attended a public talk by a noble laureate in which half of the people were sleeping because most of the time the speaker was talking to himself.

I think it is very important for a successful speaker to keep in mind the expectations of the audience. If the talk is for a review or for experts then the results and discussion should take more time than the introduction. I remember a student who spent 90 % of time in his review talk on text book material which was embarrassing.

6. **Do not speak in very low/high voice !**

I have seen speakers who speak in very low/high voice. If the audience cannot listen something clearly they feel frustrated.

If you are using a microphone then you should not speak very loud. Apart from loudness, you should also keep in mind that the pronunciation is understandable to the audience. You should not use difficult words/phrases which the audience are not familiar with.

You should not speak too fast and should give time for the audience to digest. If you are saying something very important then that should be repeated.

You should not speak too slow since there is finite time for the talk. In place of looking at the watch again and again, it is useful to give page numbering to slides which will not only help you, it will also make life easier for the chair-person and audiences also (particularly audience can use the page numbers for asking questions).

7. **Do not over-act !**

I have seen speakers jumping up and down or running around on the podium, wearing highly unappropriated outfits (shorts or dirty cloths or cloths with very loud colors) or doing a lot of overacting.

I think the body language is not that important for a scientific presentation unless it is not of negative type (person feeling shy or doing something objectionable). Speakers should keep in mind that a scientific presentation is a not a stage show and the content is always more important than the presentation.

8. **Do not try to cheat !:**

One of my mentors told me that the main art of giving a successful presentation is to know what to hide than to know what to revel ! I consider that cheating. Any scientific presentation should not be like an advertisement.

You should be 100 % honest to what you are speaking. If you are not clear about something then you should not speak about that.

You should never try to divert the audience or give ambiguous or wrong answers.

If you bother about the scientific ethics, you should not give the full reference of your star publications in the slides just to impress people ! I have seen garbage being published in top journals also !.

If you think that your work is important then that should be proved logically in place of naming top-shots as collaborators etc.

2 How a good presentation should be given : Remember 3Ps !

If your content is poor still you can give a good presentation but that has no scientific value. I do not think you can have everything poor.

In general there are three parts of a scientific presentation. The introduction part, the problem/result part and summary/conclusion/discussion part.

If you do not have good results then you cannot expect a very good second and third part but you can still have a very good introduction !

You should always keep in mind that what message you want to give by your presentation.

You should be clear that whether you are presenting a new idea, or supporting or rejecting an old idea, or presenting some new facts which are not known to public.

In order to give a successful presentation You should follow the following recipe.

1. **Planning:**

   If possible you should plan the talk well in advance and decide on a topic (if you have a choice for that) prepare an abstract and title and send that to the people arranging the talk.

   You should keep the abstract and the title fairly general so that there is enough freedom in selecting the content.

   You should avoid very long title and do not cut paste abstract from the papers and should write an original one.

   The abstract must contain the main idea you will conveying in the talk. You should keep in mind the nature and level of the audience, purpose and the duration of the talk when planning.

   You should not spend too much time on the format (transparencies, power point, black board etc.) and should take decisions as early as possible so that there is enough time for collecting the relevant material.

   You should start reading about the subject early and make notes. In fact notes can be quite useful for reviewing at the last moment.

   Last but not the least, you should think about a main thread for your presentation.

2. **Preparation:**

   Once the talk is planned, timing and audience of the talk are known you should start writing down slides.

   You should not start from the introduction part and should write the middle part (problem/results) first and should try to keep that strong.

   Figures can be cut from the published papers if they still look good, if not, then you should look for the original figures (or try to get the source file from the arXiv).

   You should write content in the form of bullet points which can be used as pointers and big paragraphs and over-crowding should be avoided.

   You should write equations in boxes and underline/highlight important parts of equations and should give short references in the text and give full references at the end of the slides or at the bottom of the slides.

   Too many references should be avoided.

   If possible you should not try to talk about everything you have done, in particular, if that does not fit in in the main thread of the presentation.

Once slides are ready, you should proof read and use spell-checker for spelling mistakes etc. If possible show your slides to some of friends who have good English and can make comments about the content also.

You should not keep more than 30-32 slides for an hour long presentation. Before putting an extra table or figure you should think if that is going to support the case you are presenting.

You should not put figures and tables which are just fillers and should try to put only those figures and tables which have been published (if one is not presenting something original).

You should keep text book material minimum and limit that only to the introduction part. Note that in any case introduction should not be more than 30 % of the talk.

You must have an actual summary (not a summary of five pages !) and if you feel comfortable then that can be given right in the beginning also.

By the way it may be useful to give a mock talk before a first presentation and take feedback.

You should make sure things (projector etc.) which one needs for the presentation are available and working.

3. **Presentation:**

You should not be nervous on the day of presentation and should have a good sleep. Over-excitation should be avoided since that can spoil things.

You should avoid the last minute changes which may lead errors and mistakes. You should not worry that what you are going to present is not very important (most talks are of the day to day type and do not have always something important).

Arriving late for a presentation is unforgivable !

When your turn comes for the talk you should go directly to the podium and give a very short introduction, if needed (should not read the name from the slide people can do that).

I think it is annoying to say your name if that is already written there on the slides.

You should try to motivate people first and then should present the results.

If there are questions in between you should give short and pointed answers and should request people for the presentation to get over.

If you think that some questions need longer answer then the speaker should request for an off-line discussion.

You should make sure that the important results are nor presented in hurry due to shortage of time.

In fact you should have enough time for discussion on results and for questions. When somebody asks a question the speaker should listen that very carefully and should try to give an answer which is as short as possible and as close as possible to the question.

Once the talk is over one should take feedback and use that for future presentations.

It is useful to add some humor in presentation but only when it comes out naturally.

3 Type of presentations

On the basis of the aims, a presentation can belong one of the following categories:

1. **Report talk:**

This is one of the most common type of presentations. Basically, you have to report about something you have been working to your audience. This type of presentation is common in private companies also in which you may need to report the results or have to present a progress report etc. In this type of presentation there is only the result part and there is no need for any introduction or discussion part.

2. **A regular seminar:**

   A regular seminar must have an introduction which can motivate the problem. Note that since in this case most audience will be having all the prerequisite, so a lengthy introduction in unnecessary. In this type of presentation, questions are very important. The success of your presentation is directly proportional to the number of questions you have successfully answered.

3. **A conference talk:**

   In general, time schedule in a conference is very tight and audience may have mixed background. In order to keep everybody on board, you must have a short but effective introduction.

   In a conference talk, you should request your audience for the talk to finish for questions, and may be you should invite people for an off line discussion.

4. **A course talk:**

   If you are a giving a course then prepare it accordingly. In general, you need a lot of homework for it. Since you will be teaching something new to students, you must have an expertise. These type of presentation should be slow since they can be continued in the next session also.

5. **A colloquium and public talk :**

   In these type of talks technical details should be avoided and simple language should be used.

4 Summary and conclusions

In this article I tried to cover some of the important issues related to scientific presentations. I am sure I have left many other important aspects of scientific presentations. In particular, a lot can be written about the nature of different type of presentations. I want to end this article with the following important point.

When you are showing slides, one after another, you have the sequence of those in your mind. For example, you should start talking about the content of the slide four before the slide three ends. This reflect the coherency of your presentation. If content of a new slide is a surprise for you, then that is a disaster.

Best of luck !

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