Guidelines to Good Oral Presentations

The important points

Good presentations:

- Follow the same general flow of a written report:
  - Title slide
  - Introduction – motivation or reason for the presentation
  - Theory / Procedure / Results / Discussion
  - Conclusion / Recommendations
  - References
- Are appropriate for the audience
- Focus on "telling the story" and generally limit complex or highly technical content
- Adhere to time limits
- Have a clear and definite ending with a request for questions

Good presenters:

- **Practice, practice and practice**
- Keep and hold the audience's attention
- Keep and maintain eye contact, speaking directly to the audience
- Rarely, if ever, turn away from the audience
- Do not read the words on the slides
- Do not use note cards, read from a script or try to memorize their part
- **Practice, practice and practice**
- Speak slowly and clearly, loud enough for those in the back to hear
- Do not ever tell jokes
- Smile, appear confident and enthusiastic
- Always introduce the next speaker in the group
- Do not distract from the presentation when not speaking
- Dress appropriately
- **Practice, practice and practice**

Good slides:

- Support a good presentation, they are not the presentation
- Are notes and reminders for the presenter
- Are legible with no misspellings
- Use at least 20-point sans-serif font, with high contrast between lettering and background
- Avoid the use of red and green, and never contrasting each other
- Avoid presentation animations and sound effects
- Contain only limited and necessary information
  - Maximum of 4 bullet points of 4-6 words each
  - Eliminate as many words as possible
  - Graphs properly prepared and clear
  - Never use clip art to fill up space

Why do I have to do a presentation?
Why can't you just read my report?

The main difference between a written report and an oral presentation is the engagement of more of our senses. Studies have shown repeatedly that people remember more content from a presentation than from a written report, and much of that is because more of our senses are engaged during a presentation than simply reading.

A written report sits on a desk or your lap, and as you read it, the only things that move are the pages as you turn them. It is an effective way to deliver a lot of information, but it is not interactive and it does not engage most of your senses. An oral presentation on the other hand is full of sights, sounds, and movements: the colorful slides change, the presenter talks and walks and gestures, there are questions and sometimes answers. As long as those colors, changes, and gestures do not get in the way of your message, your audience will remember more, and remember it more deeply, than if they simply read a report.

The need for good presentation skills will never go away. Short presentations are a very efficient and increasingly popular way for management to keep up to date on projects. This is one of the top skills expected from employers. Expect to do short presentations weekly for the rest of your career. People will notice and remember you by your presentation skills; it is entirely up to you whether that memory is good or not. Developing your presentation skills will make you stand out and can accelerate careers and open more opportunities.

Make it easy for your audience to pay attention

A good, effective presentation is all about getting and keeping your audience's attention. Paying attention is hard work. If you give someone a reason not to pay attention to you, they will always take it. Full or cluttered slides, confusing graphs, speaking to the screen or monitor, speaking too softly, too much detail or information, not making eye contact, turning away from the audience – all of these make it more difficult to pay attention and increase your odds of losing your audience.

Humans favor visual, moving input over all other sensory input; this is what helps make an oral presentation a particularly effective means of delivering information. It can also work against the presenter. Understanding how people pay attention is the key to effective presentations.

Transitioning to a new slide is new visual input and will always get the attention of your audience. However, their attention is on the new slide, not on you. When introducing a new slide, a professional presenter will often pause for a few seconds and let the audience do nothing but scan the new slide as the presenter watches their faces and eyes. The audience cannot help but look at the new slide. As they try to absorb and understand the new content, they cannot hear you. A good slide will only have limited information that can be scanned and understood in 10 seconds or less. Once the audience has scanned the new slide then they are ready for more information, their attention (signaled with their faces and eyes) comes back to you, and you can continue speaking with their full attention.

This human preference for visual, moving input can be used in other ways. For example, when transitioning between speakers, the new speaker can take a half step towards the audience to get their full attention. If you must display a complicated slide, taking a step or two as the slide appears is usually enough movement to get your audience's attention back to you so that you can explain the slide's content.

When presenting in a group, always introduce the next speaker: *"Amy will now explain the experimental results."* This helps the audience know their attention will be shifting to someone else and makes it easier for them to follow the flow of a multi-person presentation. If someone new simply starts talking, there is a time lag as the audience searches for that new speaker and can re-focus his or her attention, and in that time everything said by the new speaker is generally lost.

Of course, unnecessary and unwanted movement can take the audience's attention off the speaker and sometimes away from the entire presentation. For this reason, avoid using laser pointers. Speakers tend to move the laser dot around quickly, often distracting attention away from the very content they are trying to focus attention on. In a PowerPoint presentation, activating the mouse or touchpad immediately brings up the mouse cursor, which can be used to point in a much less obtrusive way. Better still, revise the slide so there is no reason to point at all.

If you are presenting in a group, pay attention to what you are doing when you are not speaking. Fidgeting, moving your hands, feet or your head can attract attention away from the presentation. In these cases, it is always best to face the current speaker (letting the audience know who to pay attention to), pay attention to what he/she is saying and try to control any unnecessary movement.

The structure of a good presentation

Good oral presentations follow the same general flow of a written report: introduction, results, discussion and conclusion. However, an oral presentation is not just a spoken version of the written report. Due to the time constraints and the style of communication, only a limited amount of detail can be delivered and understood during an oral presentation. It is much better to "tell the story" than to try to explain complex mathematics or complicated derivations. Spend more time getting your audience to understand the overall big picture rather than intricate details.

By the end of the first minute, your audience should know what you did, why you did it and how the rest of the presentation is organized. A design presentation needs a general overview of the design problem and the solution. The remainder of the presentation explains and fills in details.

Know your audience. If the presentation is only to one's team then there is no need to spend much time on the motivation or background. However, if other teams or project sponsors attend the presentation, it is important to make sure that everyone has the same background information.

When describing sub-components or sub-systems in design presentations, be sure to place that component in context (for example, by highlighting a section of a CAD model and indicating that "*next we will discuss the design and functionality of the solenoid valve shown in this schematic*").

When presenting design solutions, provide reasons for design choices. Merely displaying a graph of data or a FEA stress plot is not enough, you must interpret the results for the audience, pointing out the important features as you describe how that information impacts, for example, the overall design project or experimental results.

The presentation should have a proper ending and not just taper off into nothing. Always ask for questions as you finish.

The slides are NOT the focus of the presentation

The slides are for the presenter, not the audience.
There is a temptation to make the slides contain all the presented information. This strategy always results in disappointing presentations, with speakers simply reading the slides to the audience. If the slides contained all the information, then why not skip the presentation and simply hand out the slides? The focus of a presentation is what the speaker is saying, not what is on the slides. Think of the slides as notes for the speaker, not the audience.

Use only about 1-2 slides per minute and severely limit the amount of information on any slide. Each slide should have a separate, distinct purpose in the presentation, much like a paragraph in a written report. Many studies have shown that the maximum amount of information that can be absorbed quickly from a slide is 4 bullet points, with at most 4-6 words per bullet point.

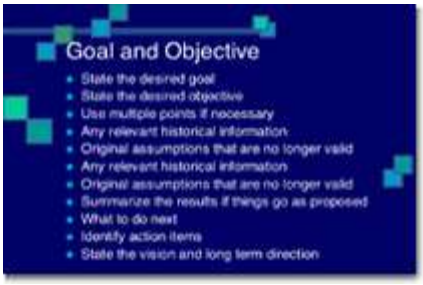
Studies have also shown that if a slide with a lot of information (anything that takes more than 10 seconds to absorb) is displayed, the audience has only two choices: they can try to read and understand the displayed information (and stop listening to you), or they simply shut down from sensory overload (and stop listening to you).

To be instantly legible, try to stick to sans-serif fonts of at least 20-point. There must be high contrast between the lettering and the background. Black text on white background, or white/black, is ideal but a few other combinations also work. About 11% of males have some degree of red-green color blindness; avoid the use of these colors, especially adjacent to each other.

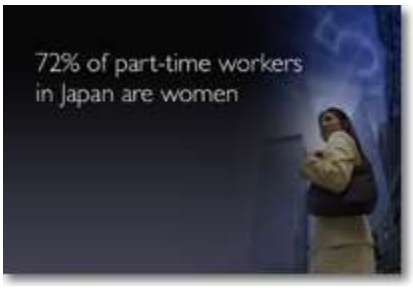
Always try to present data and results in graphs, charts, CAD images, etc. Tables of numbers are impossible to understand quickly, and your audience will immediately lose interest. Of course, the graphs and figures must be prepared properly, with titles for the graph and all axes (with units), curves that clearly show up on the background, etc., with font sizes that can easily be read at a distance. Properly prepared graphs and charts generally need no extra words on a slide.

Limit the use of special effects or animations, like flying words or sounds or distracting backgrounds. These effects become annoying very quickly, or worse, your audience will be paying more attention to the effects than to what you are saying.

Examples
From the Garr Reynolds site (an excellent site if you want to learn more about good presentations) below; these are typical PowerPoint slides with far too much content. Slides like this will always get in the way of a good presentation:



Like most slides, they can be improved greatly by removing most of the words:



Moreover, this slide can get even better, forcing the audience to focus on the presenter to provide detail and context:

But I'm presenting really complicated stuff, or I need long lists

Sometimes you must display a slide that has a lot of information, such as a complicated electrical circuit diagram, a complex mechanism or a convoluted flowchart. Assuming that you cannot break this content into smaller pieces that are easier to digest, understand that you are going to lose at least some of the audience as you explain the complicated content. Always follow up this slide with something easy to understand, even a simplified summary of what you have just explained, in order to get the entire audience back into the presentation.

The only time animation effects are useful is when you have a long list of items that belong together, such as a list of design specifications that would not make sense to split up into several slides. You do not want to display the entire list to your audience; you would lose their attention immediately. In this case, you can display the slide with the first item, and then add the other items one at a time as you talk about them, eventually ending with the whole list on the slide. If you do this, simply let the items appear, do not have them "fly in" from sides, etc. You can use

this same idea when, for example, presenting a complicated diagram of a laboratory set-up (callouts appear one at a time to identify pieces of equipment) or on any graph or figure where you need to highlight important regions to focus the audience's attention.

What to do if something goes wrong during a presentation

Despite careful preparation, there is always a possibility that something will go wrong during a presentation. Knowing what to do in advance will turn a potential disaster into a simple annoyance. There are three common things that go wrong during a presentation:

My equations aren't displaying!
If possible, test your slides on the presentation system before you start to make sure everything will display correctly. PowerPoint can be configured in many ways, and it is possible that the configuration you used to develop your slide deck is not the same as the presentation system. Often there is no time to revise your slides, so always bring a laptop loaded with your presentation to plug into the system as a backup.

My teammate is advancing the slides too fast, or too slow!
Even with extensive practice, it is difficult to advance slides for someone else at exactly the right time, every time. Remember that it is difficult to pay attention during a presentation, and that goes for your teammates, too. Having to pay complete attention to the current speaker to properly advance slides, during a presentation that you've practiced dozens of times, while mentally rehearsing your own part coming up, is nearly impossible.

Rule: It is always better to control your own slides. Using a wireless mouse or remote presentation device will get you out from behind the computer and in front of your audience. If you must have someone else control your slides, and they are advancing too slow or fast (despite having practiced many times), don't make a big deal of it, simply ask for the next or previous slide and continue the presentation.

My project won't turn on!
Live demonstrations of projects are cool and fun. There is no better way to show off weeks of hard work than to let your project itself be the star of the presentation. There are two pitfalls that you need to plan for to make a live demo a success.

If your project is physically small, the people in the back of the room may not be able to see the demo at all. You can get around this by either displaying a video camera feed on the screen of the live demo (difficult, since it involves more items that must work properly) or showing a video of the demo that you've taken during practice (easy).

All too often, a project that hasn't malfunctioned in weeks of testing refuses to work when you show it to a crowd of important people. When planning for a live demo, always plan for that demo to fail by having a video immediately available that shows the device working properly. During the demo if something goes wrong (you flip the power switch and nothing happens), do not try to fix the device, simply go to the backup video as if that was the plan all along.

Resources:

Garr Reynolds – Best Selling Author, Speaker
http://www.garrreynolds.com/preso-tips/

43 Effective PowerPoint Presentation Tips (To Improve Your Skills)
https://business.tutsplus.com/articles/37-effective-powerpoint-presentation-tips--cms-25421

Tips for Making Effective PowerPoint Presentations
http://www.ncsl.org/legislators-staff/legislative-staff/legislative-staff-coordinating-committee/tips-for-making-effective-powerpoint-presentations.aspx

PowerPoint Presentation Tips for Students
https://www.lifewire.com/presentation-tips-for-students-2766920