

In the April 1998 issue of the Undergraduate Mathematics Journal *Math Horizons*, Joe Gallion, of the University of Minnesota, Duluth, wrote an article describing how to give a talk. The staff has removed the points not relevant to RSI, and added a few comments of our own. Notice that Dr. Gallion divided his points into two subheadings; preparation and delivery, and that the two sections are approximately the same size. What you do before the talk is as important as what you do during the talk.

It is important to (1) outline (2) say (3) summarize the talk at the (1) beginning (2) middle (3) end

1 Preparation

Determine the level of knowledge of the audience. You are speaking to a general intelligent audience, the majority of them your peers.

Don't overestimate what your audience knows about your subject. You've spent a month with this material. Your audience has 10 minutes. If the audience isn't given enough background, they will not understand or care about the important results.

Don't try to do too much. You only have 10 minutes for 4.5 weeks of research.

Use simple examples and concrete special cases. A “nonexample”, something lacking an important property that you wish to emphasize, often helps to clarify a concept. Use intuitive definitions rather than technically correct ones. Avoid detail. Mention applications.

Choose a short and informative title. “What I did at RSI” is too vague. “Self-Avoiding Random Walks” is short and informative.

Keep technical terms and unfamiliar symbols to a minimum. When you do use them remind your audience of their meaning. Remember, your audience is a general one, *not* one specific to your field.

Use transparencies or slides. A chalkboard talk comes across as slow moving. Make transparencies up well in advance and number them.

Use multicolors in preparing your transparencies and slides. Blue, green, red and purple show up best on transparencies. Avoid orange and brown.

Write very large or use a large font. If you reproduce printed materials, enlarge them for your visuals.

Prepare a crisp beginning. Perhaps start with a question, an application or a prop to grab attention first. If you jump into technical material, people will never get hooked. answer “why is this important?” *first*.

Don't put much on the transparencies or slides. Use key words and phrases instead of entire sentences. Avoid filling the transparencies with equations and formulas. Keep the gory details out of your presentation.

When presenting data sets that are not small, use graphics. The audience does not have time to take in even moderately large tables. Graphics should draw attention to the data, not the graphics.

Use pictures, tables, lists, models and props. When interpreting them, summarize what the data mean. Technical numbers are meaningless to a general audience.

If you need a particular transparency more than once in your talk, make multiple copies and insert them at the appropriate places rather than trying to use a single one more than once.

Use overlays when appropriate. Tape them in place so that you can simply flip them over.

Replace the thin tissue paper separators that come with transparencies with heavier paper. Run off a copy of your transparency on the paper and use this as a separator. If you created the transparency from a page, use that page as your separator.

Use brief reminders to yourself (a word or two) on the sheets separating your transparencies to be sure you do not forget to mention certain items.

Rehearse your talk but do not memorize it.

Practice with an overhead/slide projector and time your talk.

For many people it is a good idea to **divide the latter portion of your talk into modules** that you can unobtrusively 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.)

Anticipate questions you may be asked and consider responses to them.

Conjectures and open problems add interest.

2 Delivery

Erase chalkboards even if you don't plan to use them. Minimize visual distractions.

Don't read your transparencies/slides. A glance should be all you need to see to speak about their content. This means that graphics are better than tables. Use them when you can. *Make sure to keep them up long enough for people to read.*

Be sure not to block the image. Glance at the screen often to check that the transparency is placed properly. When pointing to the transparency, point to the *screen*, not the transparency itself, otherwise you'll create huge shadows, often blocking the information that you are allegedly trying to present.

Don't stand in one place. Move, move, move! Occasionally move toward the screen. Move off to the side often. Step closer to the audience on occasion. A talk seems slow moving when the speaker is stationary. If you have a transparency that will remain up for a few minutes, you can walk in front of the table or from one side of the screen to the other. This does not mean that you should constantly be in motion, but that you should have a balance between motion and non-motion.

When you display a transparency, display the entire transparency. If you feel the need to cover part of the transparency, then it contains too much information and multiple transparencies should be used. The audience should be respected enough to allow them to read the transparency on their own, rather than being given a guided tour by the speaker.

Repeatedly remind the audience of unfamiliar definitions.

Personalize your presentation. An appropriate anecdote or quote can add life to a talk. Be sure not to overdo it and turn the talk into a circus.

Smile. Give the impression that you are enjoying talking about this subject and that you are excited to have an audience.

Show your 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.

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.

Speak loudly. Project to people in the back. Vary your voice for dramatic effect. Occasionally change pace. Careful use of pauses will greatly enhance your effectiveness. For example, a good time to pause is when stating a major result, raising a question or showing a complicated figure.

Speak clearly. Do not speak too quickly. If you have to speak very quickly to fit in all your information, you haven't properly prepared your talk. Clearly enunciate your words so that the audience can understand what you are saying.

Ask questions or rhetorical questions. Give the audience time to contemplate your questions, but you should not be expecting them to provide answers.

For Mathematical talks: **It is not necessary to prove anything.** If you can provide insight about a proof with a few words or a picture, do so.

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

Don't exceed your allotted time. (To do so indicates you were poorly prepared and have bad manners!)

Avoid annoying mannerisms in speaking. Don't overuse "OK"; don't interrupt yourself with "I mean" or "you know".

Have a grand finale. It could be a main result, a conjecture, an open problem or an application. Thank your audience. Don't ask for questions. The moderator should do that.

When you are asked a question, move towards the audience.

After your talk do a self evaluation. Make notes about what went well and what could be done better the next time you give a talk.

Relax. Being nervous is natural, but nervous people fidget, sweat a lot, and talk very quickly.

[1] Gallion, Joe, "How to Give a Good Talk", *Math Horizons*, April 1998, pp 29-30