

# How To Give a Good Talk

Uri Alon<sup>1,\*</sup>

<sup>1</sup>Department Molecular Cell Biology, Weizmann Institute of Science, Rehovot 76100, Israel

\*Correspondence: [urialon@weizmann.ac.il](mailto:urialon@weizmann.ac.il)

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We depend on talks to communicate our work, and we spend much of our time as audience members in talks. However, few scientists are taught the well-established principles of giving good talks. Here, I describe how to prepare, present, and answer questions in a scientific talk. We will see how a talk prepared with a single premise and delivered with good eye contact is clear and enjoyable.

Anyone can give a good talk. Everyone can improve their talks. I am writing this essay with a vision in mind of a science that teaches researchers about good lecturing skills (and many other subjects related to the human aspects of being a scientist). All scientists should be trained in the basics of giving talks, to the great benefit of both their research programs and the people in their audience. This essay is based on knowledge from theater (from Aristotle to modern improvisation theater) and principles from public speaking theory. The aim of these principles is not marketing—putting an external gloss on a product. The goal is letting your inner glow and insights shine out.

The three principles of a good talk are as follows (Figure 1):

Preparation: *Title each slide with a full sentence: the premise of the slide.*

Presentation: *Make eye contact with the audience, rather than with your own slides.*

Questions: *Listen to the question, repeat to see if you got it, and answer its content but not its tone.*

## Preparation

Preparing a good talk is an exercise in finding the main idea that you want to get across—the premise. This must be done before you start making the slides. Describe the premise of the entire talk to yourself in only a single sentence with a subject, object, and verb.

For example, a premise can be this: Cells change their shape by regulating their cytoskeleton. The following is not a premise: Cell shape and the cytoskeleton. Why? It is not a full sentence. The premise is your compass for what to include. The talk should contain only material that is relevant to the premise. Leave out cool, interesting stuff if unrelated to premise.

Now that you have the premise of the entire talk, make it into a continuous story made of slides. Each slide should have its own premise. Now, here comes the main point:

## Title Each Slide with Its Own Premise

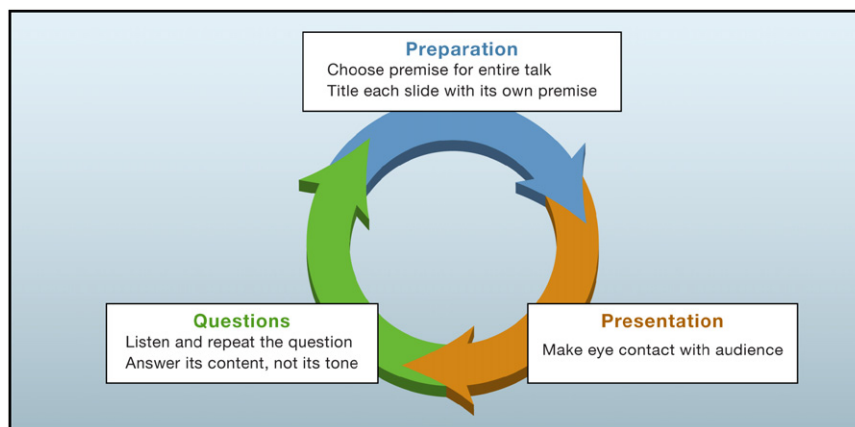
In each slide, the title should therefore be a full sentence that describes the main idea of that slide, with a subject, object, and verb (Figure 2). The title of the slide will help the audience grasp the idea at a glance. Avoid questions like, “What happens to the number of cells?” or fragments like, “An assay of cell number.” Instead, use a full sentence like, “The number of cells increases with time,” which conveys the idea you want to get across.

It is not easy to find the premise of your talk and the premise of each slide. This effort should be considered an integral part of your research; it can focus you on what is important and essential—and

help you to see if steps in your argument are missing.

The premise will also help you keep your slides simple. Each slide should contain only what is essential for the premise. If a slide has two premises—two important ideas—break it down into two slides. Experimental data should usually be used lightly; otherwise, the premise of the talk becomes, “I will impress you with the fact that I did a lot of work.”

As you prepare, learn the first two to three sentences by heart. Chew the text of the lecture: practice it until you know it in your mouth. Finish ahead of time—and never go overtime! Ideally, plan to use two-thirds of the time that you’ve been given for the talk. For a 60 min talk, plan 40 min, or about 20–30 slides. Focus on a nice introduction. Remember how much the audience doesn’t know—and how pleasant it is to hear about known and clear issues. Preparing a clear talk, with clear slide premises, is an act



**Figure 1. You Can Make a Good Talk with Three Principles: Premise Titles, Eye Contact, and Listening and Repeating Questions**

Address the questions in the next version of your talk, creating an upward cycle of improvement.

of nurturing and appreciation toward your audience.

### Presentation

A good presentation is a two-way communication with the audience. To do this, *make eye contact* with the audience. Don't bury yourself in your slides (a symptom of stage fright; see last section); be connected with the audience (Figure 3).

As in all performances, the audience empathizes and identifies with the lecturer. In fact, the audience wants you to succeed in giving an enjoyable talk. If you are disconnected from the audience and enclosed in your own slides, the audience will also be disconnected. When you make eye contact and are engaged, the audience will respond similarly.

Eye contact enables you to see if the audience is with you. If they are not, it enables you to adjust. If you sense a dip in attention, change voice or movement, or pause and say something that you feel right now ("It is hot," "I smell the coffee outside..."). Connection will instantly be made.

As you grow more proficient, build drama over arc of the talk. Remember how your research originated from your sense of wonder about a phenomenon. Tension rises as you describe the gap in our knowledge, foreshadowing the discovery. Then, there is a second wonder: "Ahh, that is what the answer looks like" (these two wonders were described by Aristotle).

Body language is also important for good communication. It is common today to see a speaker in a contorted position, shoulder turned to audience, eyes on his/her own slides, and arms crossed holding a laser pointer in one hand and changing slides with the other. This closed body language inhibits contact with the human beings in the audience and increases the speakers stress. Most people find, after an initial awkwardness,

that open body language makes them feel better than closed body language. Film a short clip of your practice talk, and you will see what I mean.

You are responsible for guiding the audience through your fascinating research. Instead of saying, "Do you understand?" try saying, "Did I explain myself?" That way, you place the responsibility for clarity on yourself.

### How to Answer Questions

Questions are a precious opportunity to get feedback on your research. For many, however, it is a stressful time, and we wish it was over as quickly as possible. The following approach will help you relax, understand the questions, and answer in a meaningful way.

First, make eye contact with the questioners as they are asking. Then repeat the question in *their* words —so everyone can hear it, and so you can have time to understand it. Check the eyes to see if you got the meaning. If not, ask for more context.

Now that you got the question, accept that the question is worthwhile. Say yes to the idea. Listen to the question; we often tend to start answering immediately after the first two words of the question, as if we already anticipate the question.

It's good to say, "I don't know", "I didn't think about this before", "Let's talk about it after the lecture", or "That is very important criticism."

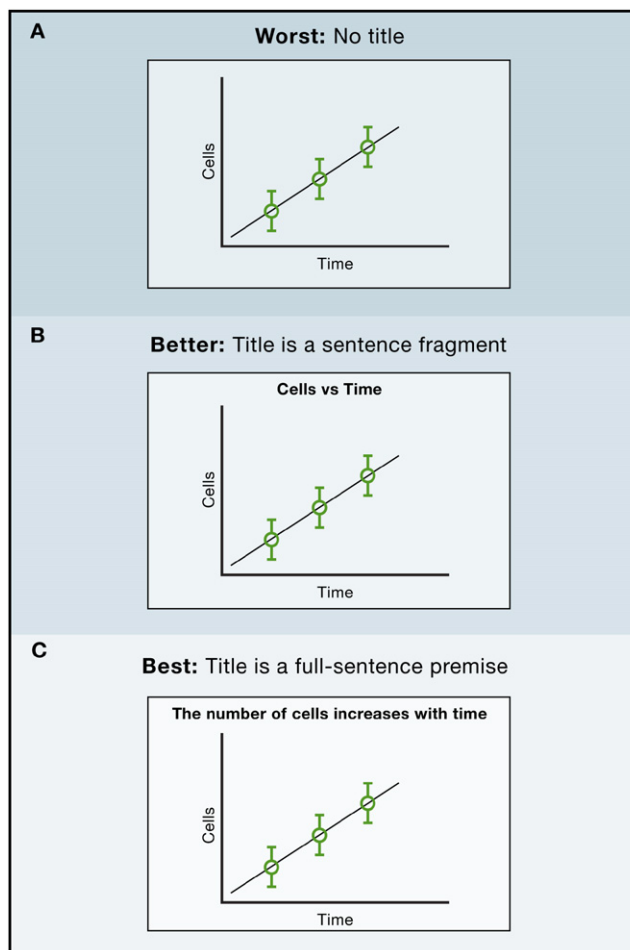
Unfortunately, some questions in science talks are spoken with a needlessly aggressive tone. To deal with aggressive questions, separate between the dramatic action—the music of the question, and the text—the content of the question. An aggressively asked question can trigger defensiveness, which can cause you to misunderstand an important comment/input. If one separates the aggression from the content, one can answer properly—

and, at the same time, leave intact the dignity of all involved.

The first question is very important, because the way that you answer it will set the frame for the next questions. So, take time with the first question. And, after the talk, address the questions in the next version of your talk (back to the preparation phase). In that way, you can avoid hearing the same questions over again, and learn from the next layer of questions.

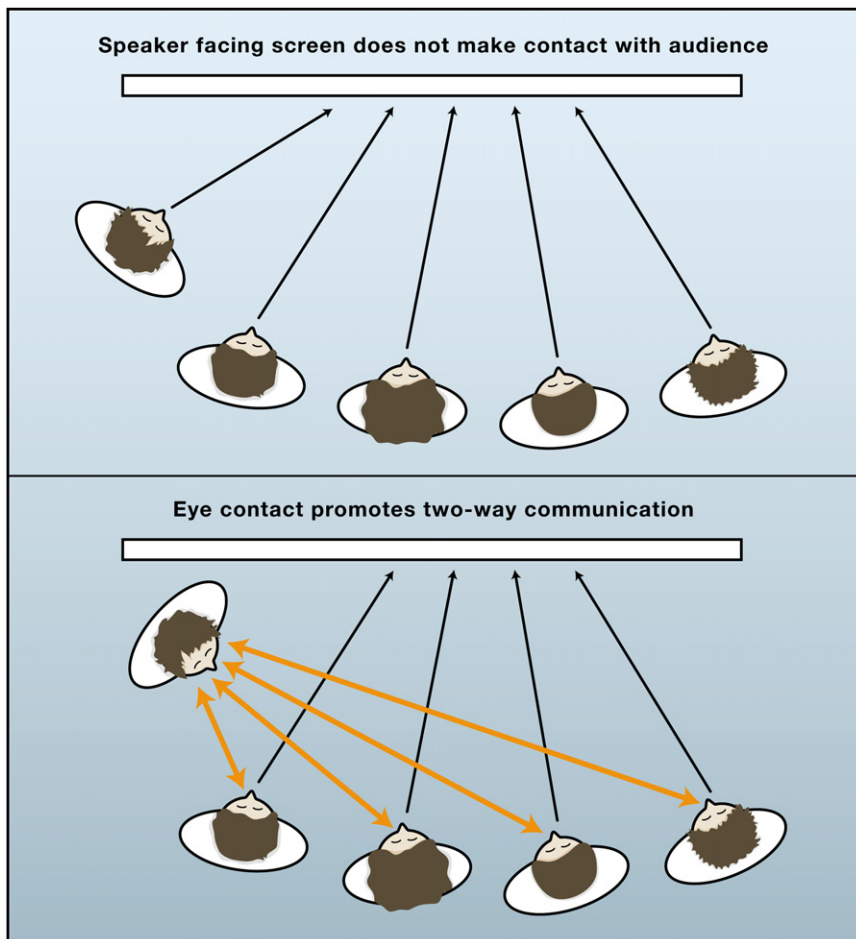
### Overcoming Stage Fright

If you are nervous about giving the talk, you are not alone. Most people, including me, have stage fright: the fear that the audience will judge you, find you at fault, and throw you out of the community. Stage fright is an awful feeling that makes you



**Figure 2. Title Each Slide with a Full-Sentence Premise**

- (A) A slide with no title is a challenge to the audience.  
 (B) Slides titled with only a sentence fragment are not much better.  
 (C) A full-sentence premise helps the audience get the main idea at a glance.



**Figure 3. Make Eye Contact with the Audience to Make Two-Way Communication**

(A) Looking at your own slides prevents open communication with audience.

(B) Making eye contact helps you see the state of audience, enabling you to guide them through the talk interactively.

overprepare, write every word on the slides lest you forget, try to accumulate all possible information, or freeze and delay preparing. Perhaps the only good thing about stage fright is that it can make you a more compassionate audience member, sending approving looks to encourage the speaker.

One of the best ways to overcome stage fright is to tell yourself an empowering story: instead of coming before a pack of wolves, you are a shepherd leading the audience, holding each member's hand through a fascinating story. You will care for them and make sure they are with you. If you have a friend or two in the audience, imagine that you are having a conversation with them, and gradually include the entire audience.

I promise you that preparing your slides with clear premise titles, making eye contact, and listening to questions will make your talk clear and enjoyable (even to you).

#### ACKNOWLEDGMENTS

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