

University of California, Los Angeles

Guide to Giving Effective Journal Club

A Step-by-Step Guide

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Overview

When presenting a scientific paper, your job is **not** simply to reiterate what the author said, but to make the information easily understandable to your audience. Your audience needs to understand:

- ✓ The Question
- ✓ Why this is an important question
- ✓ How the question was studied (i.e. experimental approaches)
- ✓ What was learned

You should **use your judgment to evaluate whether the ideas presented by the authors are valid** and, if not, what alternatives may exist and how they could be tested. Basically you are telling a story and you need to make sure your audience can follow your story.

1. Getting Started

Outline the story so the audience can follow your talk – this helps them stay on track, and it gives them an idea how much you have left to say.

- ✓ Explicitly tell the audience what the question is, how the question is answered, and what the take-home points are.
- ✓ Don't make the audience "read between the lines". Also, don't assume that everyone in the audience will understand the methods used – they may be very smart but have a different scientific background than you. It is often useful to draw a cartoon explaining the methods used.
- ✓ Make sure you provide sufficient background information for your audience to understand why this is an important problem, how it relates to broader biological questions, and what others have done previously.
- ✓ Typically it will take at least 5 min to adequately describe the background for a talk that is 20 min or longer. Remember, often a cartoon summarizing the process is better than a thousand words. When possible, **tell the audience what types of experiments led to these conclusions.**

Be PREPARED

- ✓ Practice your talk before giving it the first time. It may help to write the complete talk out, however you should be able to give the talk with minimal notes.
- ✓ If you are prepared, you will have confidence and be able to relax. It also helps to remind yourself that you are the expert and members of your audience are ignorant (but want to learn).

SUMMARIZE It is a good idea to briefly summarize the major points after you have gone over each part of your story so the audience can refer to them at the time you present them, in the middle of your talk, and afterwards.

2. Basics of Giving Presentations (**Keep It Simple Stupid**)

Speak loud and to the back of the room. Stand straight and your voice will carry best. Never address your speech to someone sitting at the front of the room, no matter how important the person. It helps to find a friendly face in the back of the room to speak to. If friendless, you should speak into the space between two people at the back row. You cannot speak too loud. If a microphone is available, always use it.

Practice makes perfect. Practice your talk *out loud* at least ten times. I usually do this in my hotel room. To practice out loud is essential because it facilitates the circuits between our thoughts and the motor centers that control our vocal cords. Practice using a lab timer. In this way, you will have an idea of how you are doing at all times during the actual talk. If you are unsure you will be able to end in time, a good strategy is to have in reserve an alternative earlier ending point. As a general rule: one slide, one minute (or 1.5 slides per minute on a good day).

Podium: if there is a podium available, always use it. Stand next to the podium. Keep some notes next to the computer - this gives a more professional look. Take your watch off and place it next to the computer; in this way you can keep track of time without looking at your wrist (which is about the worst thing you can do). A lab timer can also work well for this purpose (start it so it is counting up). Have a paper cup with water on the podium; do not drink directly from a bottle in public.

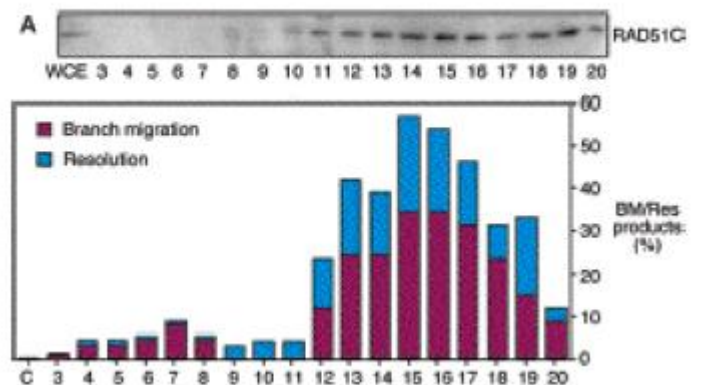
Write down the introductory paragraph on a sheet of paper. If you read it again right before starting, there will usually be no need to refer to it. If one is off to a rambling start, this can take a large part of the time one has available. Writing down those first few sentences saves precious time. Also write your concluding paragraph in another sheet of paper, sometimes you will have to read from it as this also saves time.

Arrive early at the lecture hall, at least ten minutes or more. Check out the lighting - talk to the projectionist if one is available - you would like to have the maximum illumination possible. It is most important that the audience can see your face while you speak. Some rooms have spotlights; you should stand under them whenever possible. The best lecturers draw the audience to them rather than to the slides. If some good Samaritan turns the lights off during a particularly dark slide, ask that the light be turned back up again after that. If the room has note lights in the ceiling, these should be at maximal intensity, particularly at the back of the room. Never speak in a darkened room.

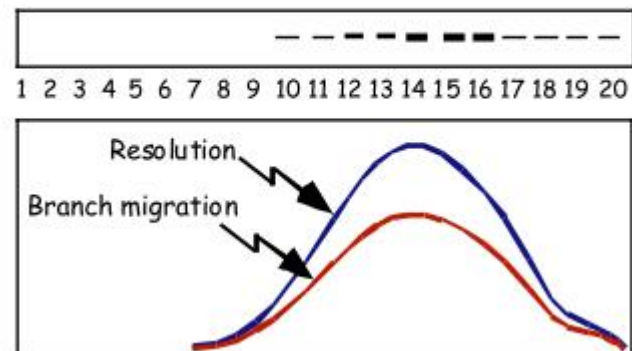
3. Presenting Data

- ✓ Often you will need to redraw the results to emphasize the major points; this may make it faster and easier to draw the figures). For example, the following figure from one of the presented papers might be redrawn as shown in the second figure below – the redrawn figure makes the same points.

Original figure:



Redrawn figure:



- ✓ Sometimes **you may want to simplify a table or figure**, removing the unnecessary data so that the audience will focus on the salient results. Remember, **SIMPLE IS BETTER!!!**

- ✓ The numbers in tables can often be rounded off without affecting the conclusion – fewer numbers makes it easier to write and it keeps your audience focused on the important point rather than insignificant differences between the 5th decimal place. In fact, sometimes it suffices to indicate differences as —, +, and ++ (e.g., if the point is simply when the activity comes off of a purification column).

- ✓ **It is important that the audience understands the assay** used. It is impossible to evaluate what numbers mean if you do not know how they were derived, and what the controls were. Again, it is often easier to convey these points with a simple cartoon than simply with words.
- ✓ **Many papers present the same point in many different guises.** Sometimes this is important (e.g. when proving how effective a new method is, or when making a scientific point that disagrees with previous dogma) – if so, your audience should be told. However, other times it is simply redundant and you can spare your audience by simply saying that such-and-such method yielded the same conclusion.
- ✓ When you are in front of the room, **use visuals to make your points** – either write something on the board or point to something on the screen. “Talking heads” are hard for an audience to follow and frequently put the audience to sleep.

4. Powerpoint Presentations

It is very easy to cut and paste into powerpoint presentations, but if not done carefully this can result in a talk that is unintelligible because there is too much data to explain adequately or because the pasted figures are too small for the audience to see. Some common sense rules can avoid this problem:

- ✓ If you copy a figure from the paper it should be sufficiently large that it fills the screen and is readily readable from the rear of a large room.
- ✓ Text should fill the screen and be in a large, readable font.
- ✓ The text/figures should have maximal contrast from the background so it is easy to read -- often two colors can be distinguished on a personal computer but look nearly identical upon projection onto a larger screen.
- ✓ It is not possible to simply copy all of the figures from a paper -- you may need to draw some cartoons to describe a technique or hypothesis.
- ✓ Restrain from adding miscellaneous bells-and-whistles to a powerpoint presentation – cute transitions between slides, noises, etc.
- ✓ Use 22-point Verdana (18-point for smallest letters) , or some other sans serif font, so that the writing is easy to read from the back of the room.
- ✓ Use font size, color, boldness, spacing on the page to focus on important information.
- ✓ Remember that approximately 10 % of the male population is color blind and red-green is the most common type of color blindness. If possible, avoid those complementary color sets in your visual aids.

Delivery of Information

- ✓ **Point briefly** to the object you wish to indicate, and then retract the pointer. Do not circle the object while you continue talking, this distracts the audience. Just point once, and then return to face the audience. You want people to be able to make eye contact with you.
- ✓ **PowerPoint slides should have a title using the exact same wording you will use** in you talk. This greatly helps the audience, for they can follow what you are saying. A brief conclusion can also be included for particularly important points.
- ✓ **Do not use black or blue background** in you slides; the maximal possible amount of light compatible with the images is the ideal.
- ✓ **Transitions between slides are most important.** Before advancing to the next slide you should start the sentence introducing it, and your words will usually correspond to the title of the next slide. For example: “This raises the question of whether... change slide... Surface receptors are required for signaling”. This is why it is essential that one has memorized what the next slide is about. When preparing for a PowerPoint presentation, I print the slides as handouts with six slides per page, and write down the transitions below each slide and in the beginning of the next one. These transitions between slides are the main reason you must practice your talk.
- ✓ **Good versus bad slides.** Bad slides are those that are complex and contain many data panels. Show these only briefly, and point the audience to exactly what is important in the slide. Explain: “in this panel, the relevant lanes are [X] and [Y], and [X] and this means that...” Then move on. Do not leave complicated experimental

slides up for long. Good slides are simple, for example a diagram of an embryo or a cuddly animal. A useful habit is to project your nicest slides for longer times. For example, while explaining the conclusion of one of the three parts of your talk and that you are now moving into the next section, you should use a “good” slide as background.

- ✓ **Using the blackboard is highly recommended** whenever possible. You might, for example, write the three parts of the talk, draw relevant diagrams, or list the names of collaborators (before the talk if you can). You can point to these as the talk progresses. A useful trick for complicated figures is to draw your diagram on the chalkboard ahead of time and then erase it. This leaves faint traces that you can retrace during your talk; people will think you are a master illustrator. Regrettably most modern lecture rooms no longer have boards, but if you have one make sure you use it.
- ✓ For each major section of your talk, **follow the 3T rule**:
 - **Tell** the audience what you will talk about on an introductory slide.
 - **Tell** them again by giving the actual section of the talk.
 - **Tell** them one last time by summarizing what you just talked about. This strategy makes the logic clearer in scientific talks.
- ✓ **For each slide, it helps to first introduce the main idea of the slide** or to state simply what the slide shows. After carefully describing all aspects of the slide (e.g. axes on graphs), you should make a short summary statement to help transition to the next slide.
- ✓ **Each slide should convey only one major idea or point.** The moment you put a new slide up, everyone will stop listening to you and read the slide. If your slide contains small text, is hard to understand, or contains a lot of material, you will lose your audience until they have figured it out.
- ✓ However, sometimes you have to show a complex slide. You can keep control of your audience by revealing part of the slide, talking about it, and then revealing the rest. Do it with a simple hide/show. Do not use goofy effects. **KEEP IT SIMPLE.**
- ✓ **Simplify figures and figure legends.** Figure legends are usually not suitable for slides. Remove them, and write your own in large text that is simple and clear. Sometimes it is preferable to retype tables too, if the text is small and cluttered.
- ✓ **For biochemical experiments always describe the assay used.** This is most important. You might include a diagram of the experimental procedure. Write the conclusion from the assay on the slide in which you show the data. If there are new methods or reagents (such as a particularly good commercial antibody) tell the audience; this is always appreciated.

5. Overview of Format for Presentations

The first slide should be already being projected before you take the floor. It should show the title, your name and affiliation, and contain the three main subdivisions of your presentation. The background can be a soft picture related to the problem you will discuss.

In all PowerPoint slides use large font, in bold, so that it can be read from the back of the room.

Begin by saying: “Today I will tell you about... [Title]”. Then, after one or two additional sentences (which you have written and have available on the podium), say:

“I will divide my talk in three parts...” and explain the three parts listed in the first slide.

Any talk can be divided in three parts. Artificially subdividing a complex problem is a very ancient rhetorical device. Three is an ideal number and we have inherited this division into three from ancient Greece. (Always divide your grants in three specific aims as well). Once you reach the end of each section, restate its conclusion and say you have come to the end of the first (or second) part and you now turn to the next part. In this way, the listener does not lose track of where you are, and the story will have a certain ring of familiarity that they will appreciate.

Then tell the audience what the main conclusion will be. A common mistake is to leave the main conclusion as a surprise revelation for the end of the talk. People have short attention spans and by then they will usually have drifted away. The audience will be more comfortable if they know what you are going to tell them, in this way they can follow the flow.

The Presentation Sandwich

1. Beginning: give the background and motivation needed to appreciate the paper

- ✓ Two or three slides will follow the initial one. **Provide enough background for everyone to understand the problem being discussed.** Do not use jargon. Place yourself in the shoes of the listener. Your objective is to offer a lesson to those who do not know your field (Lecture comes from the Latin **Lectio**, which means Lesson).
- ✓ **Avoid jargon.** Define all unavoidable acronyms (e.g., BMP = Bone Morphogenetic Protein) in writing on your slides when first used. Sometimes the listener will not quite understand a technical word or two, but this is much easier if read as well.
- ✓ **Build up slowly in the introduction.** For example, describe the general topic, relevant definitions, the specific topic and its importance, and the precise question at hand. You could also state the answer to the question and the message of the paper at this point, although this is a matter of preference.
- ✓ Edit the introduction ruthlessly. Give only the necessary details regarding methods (unless, of course, your talk is on methods). Narrow the focus rather than try to cover a large, complex topic with generalities in a short period.
- ✓ Even when the program specifically calls for an overview, pull out one or two points to discuss in as much detail as time permits (probably about 10 min).

2. Middle: describe the study and its importance

For each experiment that will be discussed, make these four points clear:

- ✓ Question – why they did the experiment
- ✓ Experiment – what they did
- ✓ Results – what they found
- ✓ Answer to question and its implications – the message of what the results mean
- ✓ Link to experiments to each other and to the message, for example, tissue level, molecular level, and in vitro- in vivo, steps in genetic pathway. Link each experiment to the message of the paper. **REMEMBER YOU ARE TELLING A STORY!**

3. End: wrap up

- ✓ Final statement of the message
- ✓ Critique of the experiments
- ✓ Future directions

Write your conclusions on a sheet of paper. After a very good talk you will be shaken up and exhausted by the end. Frequently I end a seminar by taking the concluding paragraph from the podium and reading directly from it. This conveys certain earnestness as well. An alternative strategy is to include a final slide with the take-home lessons or conclusions after the acknowledgements.

Never, ever end a talk by saying “I will stop there.” You must always have a concluding statement (this also applies to your grants).

End on a simple slide - a nice picture perhaps with the main conclusion written over it, after the list of collaborators. Then say “thank you for your attention” or “I leave you with that thought, thank you”. The purpose of not ending directly on the list of collaborators is to draw applause. During the seminar always use the last names of your colleagues; no one will remember John or Jill. Full names can be written at the bottom of the relevant experimental slides. I usually include a photograph of the main person responsible for the work in the body of the talk – this helps postdocs find jobs.

6. Timing

Although time seems to fly when you are talking, time goes much more slowly for an audience sitting passively in a dimly lit room. When you speak beyond the allotted time, the audience begins to get annoyed, and their appreciation of your talk will decrease rapidly for every minute beyond the time limit that your talk continues. Moreover, if your talk runs too long, you may not have time for questions. Hence, **it is important to practice your talk so that you finish on time.** Keep the following points in mind:

- ✓ Speaking as fast as you can and flashing through your visual material at the speed of light is not the way to condense your talk into the specified time. Your audience will be annoyed and will absorb little of your presentation.
- ✓ A useful technique to help stay within your allotted time is to have one visual piece that can be shown at any time and used to deliver your closing message or summary. It should take no more than three minutes to get through. When you are three minutes from your time limit, show this piece and end.

- ✓ Even if you find that you have run out of time, never close your talk by saying, "I think I'll stop here." It sends a loud and clear message that you have not adequately prepared.

7. Questions

Questions are often the most fun part of a seminar for the audience, providing a chance to participate instead of listening passively. Questions can also be the most useful part of a seminar for the speaker, revealing some great idea that you had not thought about previously.

- ✓ **You are expected to be an expert on the topic of your paper.** You should be able to answer questions about the paper, including background, methods, content, conclusions, etc.
- ✓ **Answers should be direct, and as short as possible.** Don't hesitate to use the board if a figure would answer the question more clearly than words alone. If the answers are too longwinded then there may not be enough time for everyone to ask their questions.
- ✓ **You cannot know everything**, so if someone asks a question you do not know the answer to it is a good idea to think about the question, then respond "that is a good question, I will look into it", or "I'd like to talk with you about it later", or something to that effect. Someone else in the audience may be able to provide a comment that helps clarify the answer, but the speaker should never count on someone in the audience to answer questions (including your research advisor).
- ✓ **Remember that the questioner is your friend.** You always know more than him/her, and questions will greatly enrich the discussion. The worst outcome for a lecturer is to have no questions. Often there is a pause from the audience prior to the first question as they collect their thoughts. During that tense time, just look into the audience calmly. Do not start gathering your papers or disconnecting the computer. Once you get the first question the ice is broken and you will draw many more.
- ✓ **Never interrupt a questioner.** It is not at all easy to formulate a question and one must always be very respectful. Pause after the question has ended as if you were thinking about it, even if you know the answer. Take a step forward so that you are more exposed to the audience. This indicates you welcome discussion.
- ✓ **Look straight into the person's eyes and reformulate the question:** "The question concerns..." This is particularly important if you get an adversarial question, because it denotes that you understood the objection and will treat it seriously. Other times it is difficult to understand the exact point being asked, so it is best to restate what you are answering to. If your answer was not a simple one it may be polite to ask "does that answer your question?"
- ✓ **If questions arise during the course of a seminar, always answer the question right away.** Never answer this will come later in the talk. Advance a few slides if needed, but answer completely there and then.

8. References

This guide was modified from the following sources:

- ✓ <http://www.sci.sdsu.edu/~smaloy/CMS-J-Club/J-club-presentations.pdf>
- ✓ <http://www.sci.sdsu.edu/~smaloy/MBIO600B/>
- ✓ <http://www.sci.sdsu.edu/~smaloy/CMS-J-Club/J-club-presentations.pdf>
- ✓ http://keck.ucsf.edu/neurograd/seminars/jcguidelines_new.pdf
- ✓ Eddy De Robertis Tips for Talks: <http://www.hhmi.ucla.edu/derobertis/>