

20.109 Communication Workshop 3: Journal Clubs

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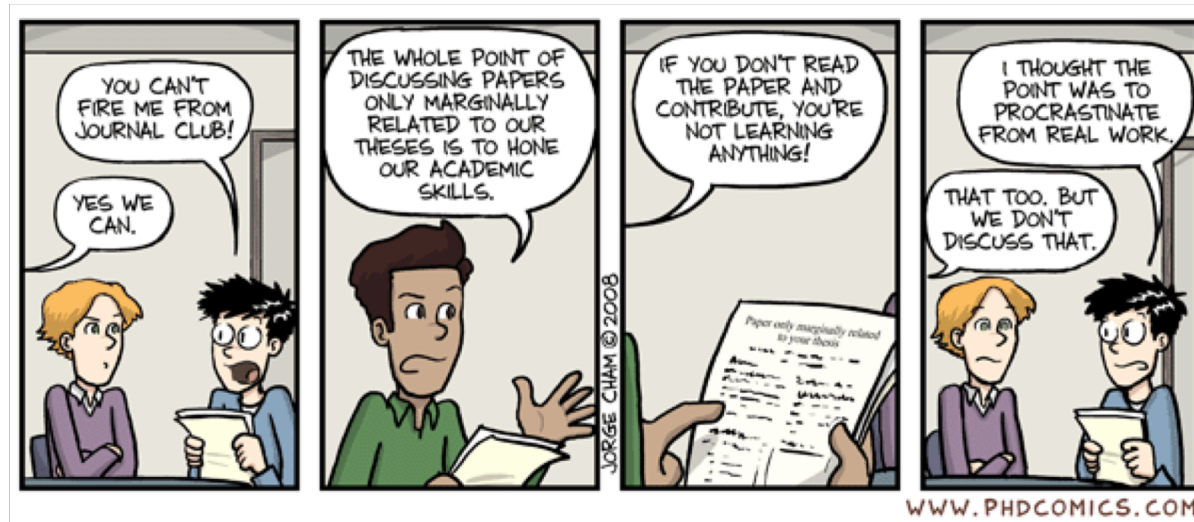
BE Communication Lab Instructors

Spring 2019

be.mit.edu/communicationlab

Helping you communicate effectively.

Who has been to a journal club before?



What are they like?

Journal clubs build transferable skills



- Critically evaluate a paper
- Communicate YOUR work
- Essential professional activity
 - Stay up-to-date
 - Learn collaboratively

Journal clubs have different **objectives**

Know the 20.109 goals

In life:

- explain a method, how to apply it
- make sure people read a really important paper
- determine how close a project is to your story

20.109:

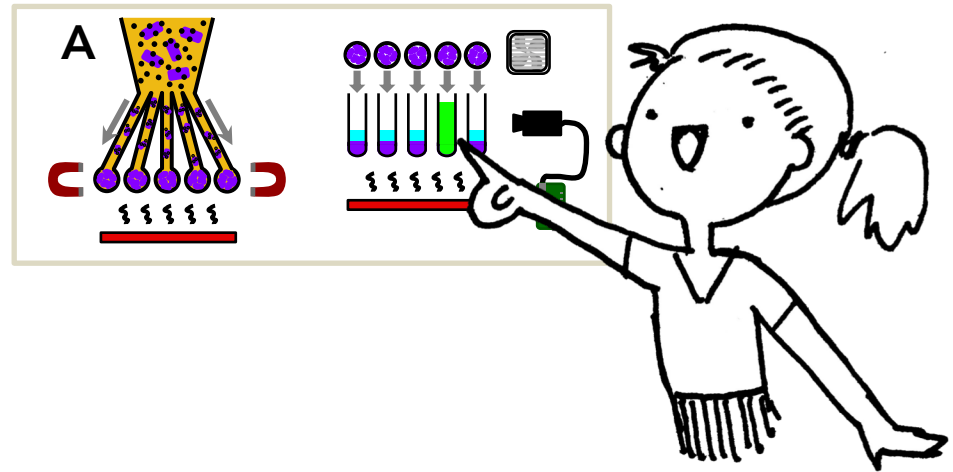
Show that you understand the paper and can present clearly:

- the take-home message
- **WHY** and **HOW** the experiments were done
- what the conclusions were



Today, we will discuss 3 aspects of presentation prep

1. Crafting a story
2. Designing slides
3. Presenting your slide deck orally

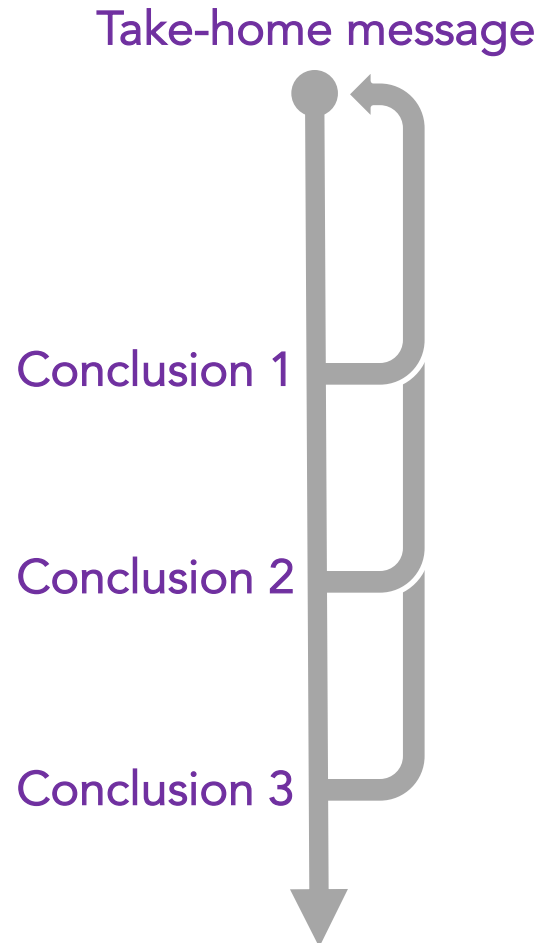


1. Crafting a story


“Excellent students tell a story.”
-Noreen

Create a single storyline.

Identify a **take-home message**; everything else leads to it.



Chronology is actually confusing



The authors ligated DNA into a plasmid,
then they transformed it into cells,
then they looked at fluorescence data,
and then they had a calcium sensor.

But why did they do these things?

Storytelling conveys logic & motivation



The authors wanted to engineer a calcium sensor's binding sensitivity.

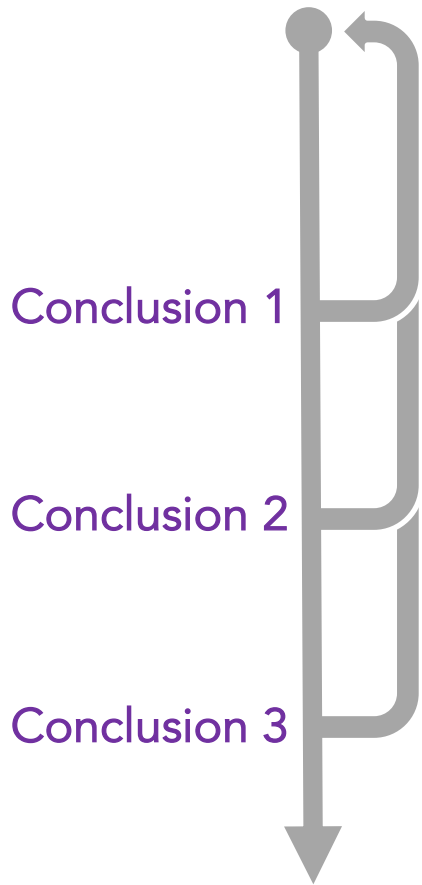
To change the binding site, they did site-directed mutagenesis,

then they expressed the mutant protein in cells,

and then they assessed its binding properties with a fluorescent assay.

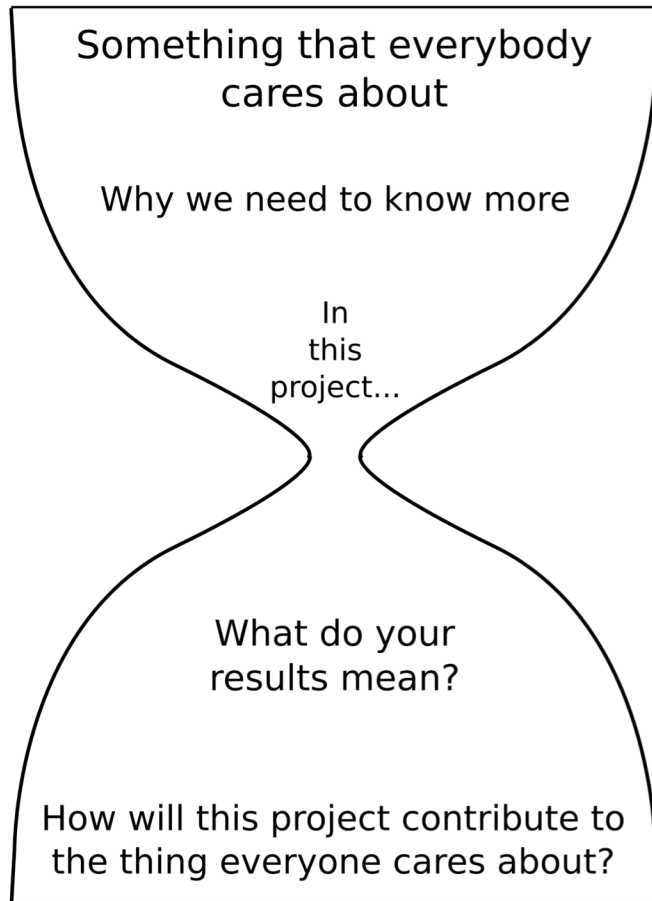
When you organize your journal club presentation, **tell us a story**

Take-home message



- Identify the question/message
- Include only essential results, key experiments and relevant data
- Connect all results back to the question/message
- Explain logic & motivation with titles & transitions

The abstract structure can help you build a compelling storyline.



General background

Specific background

Knowledge gap, Unknown

HERE WE SHOW...

Results

Implication

Significance

Activity

What storyline would you use for this paper?

A Functional Cancer Genomics Screen Identifies a Druggable Synthetic Lethal Interaction between *MSH3* and *PRKDC*

Felix Dietlein¹, Lisa Thelen⁴, Mladen Jokic⁴, Ron D. Jachimowicz⁴, Laura Ivan⁴, Gero Knittel⁴, Uschi Leiser⁴,
Johanna van Oers⁵, Winfried Edelmann⁵, Lukas C. Heukamp², and H. Christian Reinhardt^{3,4}

What content will you include?

Which parts of the figures would you choose to present?

What is their significance to the main question?

2. Designing effective slides

Good slides are a lot like good figures

Title = take-home message

Show **minimal essential data**

Maximize signal-to-noise

Control pace: separate or mask figure panels

Add or remove labels

Effective redundancy: align visual, written, + spoken!

“What would help my audience understand this faster?”

If you're not going to talk about something, leave it out.

Use all parts of your slide to support your message.

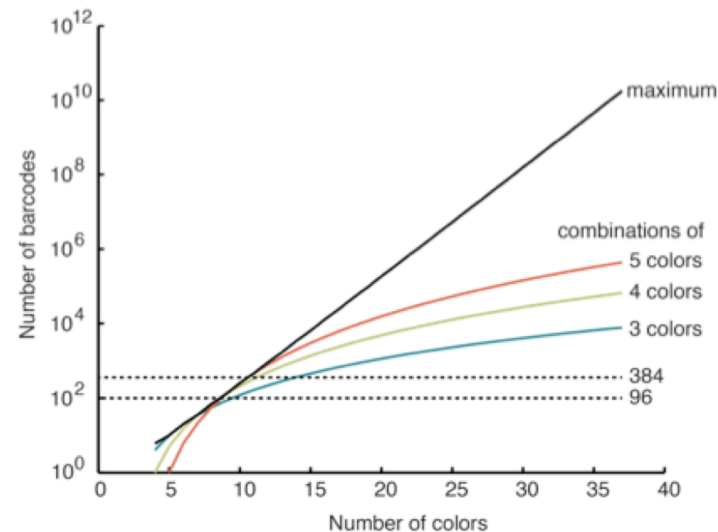
The **title** conveys the "so what"

One message per slide: only include data that supports that message

No unnecessary content: only figures you discuss

Text supports the message, not a script (make sure font size is large enough!)

Optical barcoding scheme is easily scalable to ultrahigh library complexity (>384 combinations)



Only 9 colors needed for library of 96
Only 11 colors needed for library of 384

Make slide titles take-home messages

	DON'T use	DO use
	<i>General descriptions</i>	<i>Sentences that answer "so what?"</i>
Methods	EMK-1 Knockdown	EMK1/Par1 was knocked down in MDCK (kidney) cells using siRNA
Results	Ca-switch	MDCK cells form a lumen after changing extracellular $[Ca^{+2}]$
	Mitochondrial ROS induction in cell lines	Mitochondrial ROS induction is decreased in adk^{-} cells
	Comparison of primer specificity	Primer 1 is better than Primer 2 at differentiating closely-related HIV strains

Avoid light or bright colors and tiny fonts

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Templates are visual noise.

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the frame, creating a layered, modern aesthetic. A thin, light gray line also extends diagonally across the lower right portion of the image.

PowerPoint basics: 3. Style

Don't drown the audience with data.

Less is more.



Susan McConnell (Stanford),
Designing effective scientific presentations
<https://youtu.be/Hp7ld3Yb9XQ>

Activity:

How would you improve your slide(s) for Figure 2?

Think about the tricks we just discussed!

A Functional Cancer Genomics Screen Identifies a Druggable Synthetic Lethal Interaction between *MSH3* and *PRKDC*

Felix Dietlein¹, Lisa Thelen⁴, Mladen Jokic⁴, Ron D. Jachimowicz⁴, Laura Ivan⁴, Gero Knittel⁴, Uschi Leeser⁴,
Johanna van Oers⁵, Winfried Edelmann⁵, Lukas C. Heukamp², and H. Christian Reinhardt^{3,4}

3. Oral presentation skills

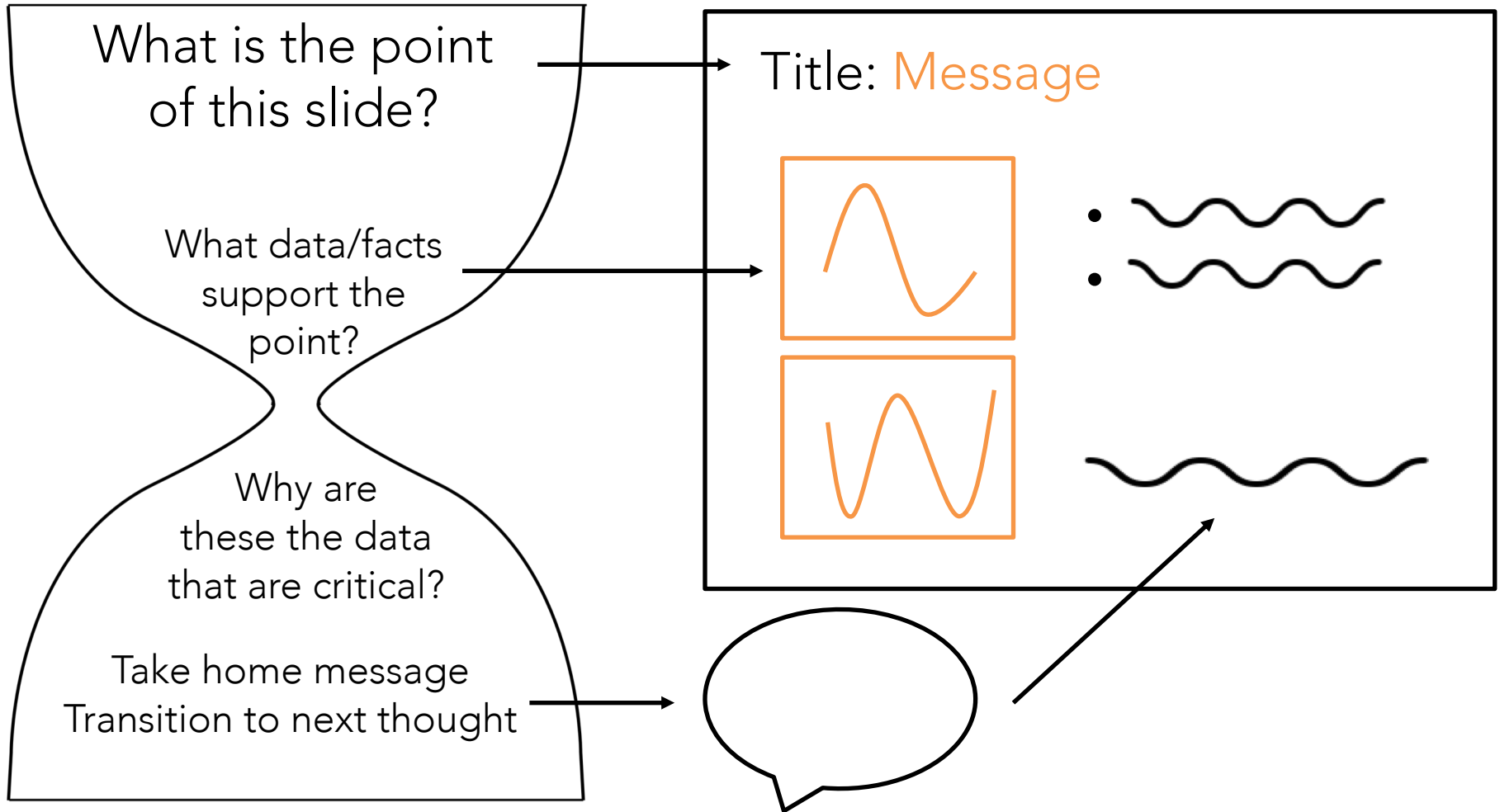
We're a friendly audience, so help us out



- **Practice** the take-home messages and transitions
- **Record yourself** for **10-minute** timing
- If you're **not** going to talk about it, **take it out**

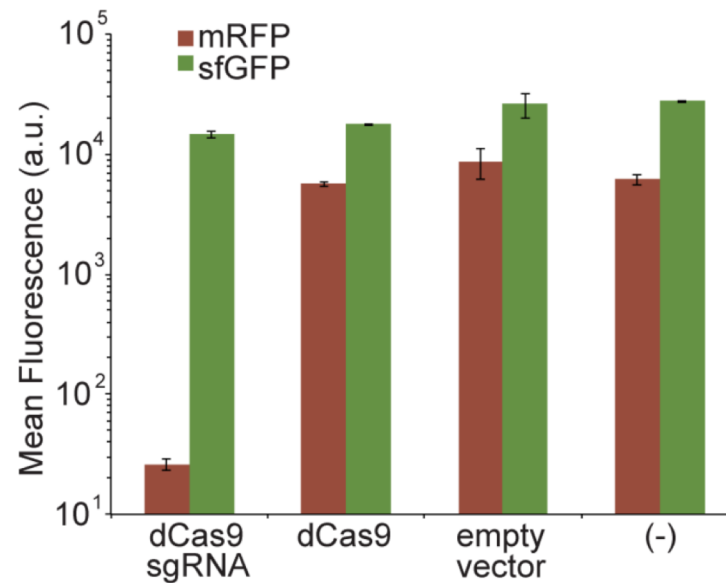
We'll ask you about **METHODS**

Think about what you'll say with each slide!

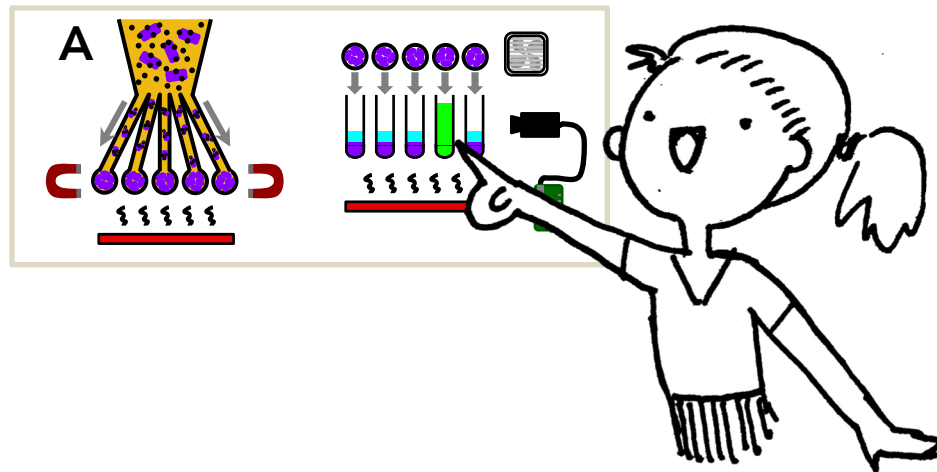


How would you present this slide?

Conjugation of the CRISPRi plasmid allows for specific suppression of mRFP



You can also use gestures to guide the audience through complicated data.



Manage nerves by accepting them

Who doesn't get nervous?



Reframe it:

*"I'm nervous because I'm **excited** to present."*

Be **kind** to yourself.

Don't fight or suppress the feeling.

Channel it to positive things

steady belly breathing & eye contact.

We have questions, you have answers

Q&A is a critical part of presentations.

Let the questioner finish.

Give yourself time to think.

Make sure you understand the question.

Do your best, use reasoning, but don't guess.

(What goes on the screen?)

Avoid common 109er pitfalls

DON'T

Start so late you don't have time to digest the paper

Be exhaustive

List experiments chronologically

Lose points for time (9.5-10.5 min)

Forget to cite the paper

Say "we did this"

Use illegible labels

DO

Give yourself time to read the paper
2-3 times

Be selective

Tell a story

Practice until you know you can hit the time limit

Include citation in your title slide

"The authors did this"

Use ≥ 20 pt font

Make your own figure labels if helpful

Use legible font colors

Getting help is a sign of strength!

Ask us if you are unsure or have a different idea

Practice your presentation with a Comm Fellow
<http://be.mit.edu/becommunicationlab>

Watch the rest of

Designing effective scientific presentations
<https://youtu.be/Hp7Id3Yb9XQ>

Susan McConnell, Stanford