



Organizing your work for 8 minute RURS presentation

Photo by Pixaby from [Pexels](#)



These slides are annotated with notes to help you prepare and present your oral presentation for RURS. There are three annotated files in this “series: that help you plan and organize the content for your presentation, prepare effective slides, and present your research remotely. Use the Google Slide Options cog to view the speaker notes in Canvas or open the PDF of notes view.

Set your strategic targets

AUDIENCE

INTENT

MESSAGE



from Guide to Presentations, Mary M. Munter and Lynn Russell, 2013

Presentations are for listeners, not speakers. Why present otherwise? Therefore, before you create a presentation, you must know your audience in order to cater to their interests. Once you identify your audience, identify your intention or goal for delivering this presentation to the audience. Most of us understand our message, but the message requires relevant context to accomplish our goals.

Approach a mixed audience skillfully

Define key terms

Support main points with examples

Use analogies and metaphors

Mention in-depth points periodically for experts

Reiterate your key points as you proceed

End with summary that can be understood by everyone

You should assume that some of the faculty and graduate students who will be judging your projects work in fields that are quite different from yours (e.g., high performance computing, international relations, theoretical physics).

In this situation, it's easy to overestimate your judges' prior knowledge and ability to grasp your project quickly. This is even more likely to occur if you have been working on your project for a long time. As we develop more expertise, we forget what it was like in the early stages of a project when we didn't know the jargon, the methods, standards of evidence or best practices for visualizing results.

Approach a mixed audience skillfully.

- Tuck in short verbal definitions of key terms or concepts to build shared understanding. *After treating the cells, we place them in a bioreactor, which is an oven-like device that maintains a stable environment for the cells.*
- Provide specific evidence to support claims. *Looking at the data, when money was*

earned, material purchases were chosen more, and when the money was given, experiential purchases were chosen more. This implies that ...” from RURS 2019 Croyle, Bradbury,& Bhardwaj OR “As a result, gene delivery level was significantly enhanced in pancreatic cancer cell.” RURS 2019 Kang

- Use metaphors or analogies to relate the unknown to something your audience is familiar with. *Data is fueling the information age in the way that oil fueled the industrial age.*

Organize your research story

1. What problem did you investigate? What's your research question?
2. Why is it important?
3. How does your work fit into the context of previous work?
4. What's your experimental approach (i.e., materials and methods)?
5. What are your results or expected results?
6. What are the implications / applications?
7. What opportunities exist for future work?

Most research presentations address all seven questions listed above. The gist is that you need to explain what problem you studied, why you did it, how you did it, with what results, and why your audience should care. At some point in the story it's important that you emphasize your project's unique contribution. What's the answer to your research question? How has your work contributed something new to our understanding of the problem?

Your research story doesn't have to follow the exact order listed above. For example, instead of starting with the problem, you might begin by providing some context or motivation.

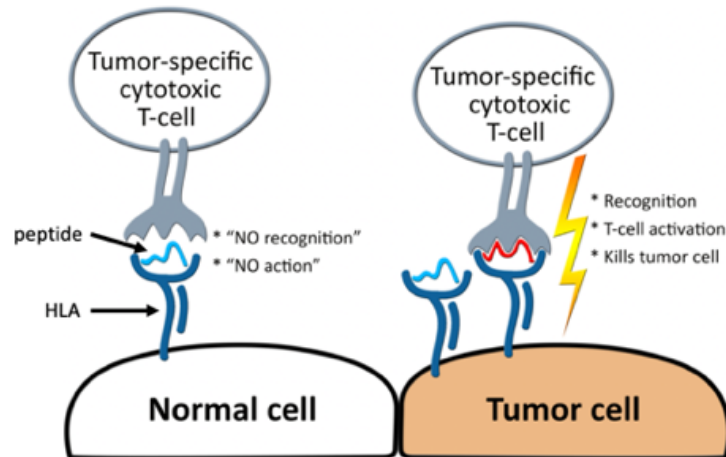
Example

A new welding technique has been developed that may increase the ability of steel alloy joints to absorb impact. Steel alloy joints are commonly used to manufacture vehicles, which means these new welds could potentially

increase the safety and comfort of the cars we drive. The welding technique exposes the joint to high localized heating and uses a filler material to weld the joints together, which may compromise the joint's stability. My project uses metallographic and mechanical testing techniques to analyze the effects of welding on the mechanical properties and microstructure of the steel alloy and gain insight into the properties of the filler material. More specifically, we have investigated the effects of heating on 1018 steel joints as well as changes in microstructure. In addition, we measured the relative strength of the filler material because a filler material with much lower strength could fail, causing the entire joint to fail.

Use visuals to illustrate ideas

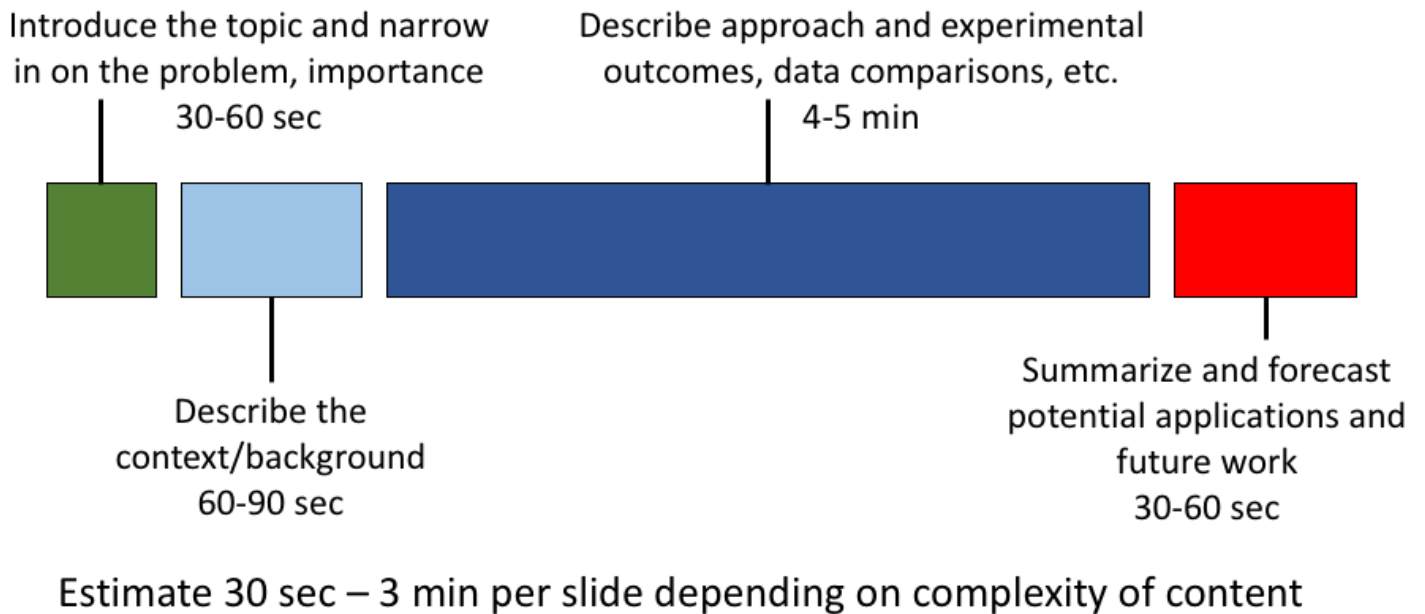
T-cell based immunotherapy targeting cancer



Courtesy of Kavraki research group, 2020

Novices benefit from the use of visuals, even if the visuals are abstract representations.

Allocating 8 minutes



Most research presentations address all seven questions listed on the previous slide, whether a presenter has two minutes or 20 minutes to speak. For your RURS presentation, you have eight minutes.

Beware of the tendency to include too much background information, which delays the articulation of your specific research question or objective.

A potential allocation is shown that quickly narrows in on the problem, provides context, uses most of the time to describe the approach and outcomes, and finishes with a summary of main conclusions and applications or future work. However, keep in mind that this allocation may be shifted depending on the stage of your project.

Start strong

Lead with a hook

Craft an engaging 1st sentence

State problem / key point early

Preview topics to be covered

Establish credibility

Memorize 1st sentence



Hans Rosling, TED conference 2006



Elizabeth Piisani, TED conference 2010

Begin with a hook: statistic, story, motivating example, or image.

Your first words are the most powerful words of your presentation. Don't lead with "Today I'm gonna talk about . . ."

Parachute right into the problem. Establish the stakes of your project in the first 10-15 seconds.

Appear confident and poised to bolster credibility

Memorize your first sentence to get off to a smooth start

Watch TED talks for examples of effective, relevant hooks.

Hans Rosling's "Best Stats You've Ever Seen" uses several strategies to engage audience (personal anecdote, test questions, surprising statistics, myth busting)

https://www.ted.com/talks/hans_rosling_the_best_stats_you_ve_ever_seen?referrer=playlist-the_best_hans_rosling_talks_yo

Elizabeth Pisani's "Sex, Drugs and HIV – let's get rational" begins with a startling quote followed by a question.

https://www.ted.com/talks/elizabeth_pisani_sex_drugs_and_hiv_let_s_get_rational

Plan transitions to keep audience with you

- Weak verbal cues
 - "And another thing"
 - "So"
 - "Next"
- Strong verbal cues
 - Sequence
 - "First"
 - Contrast
 - "However"
 - "On the other hand"
 - Causality
 - "Therefore"
 - "Consequently"

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Many presenters don't take time to plan transitions from slide to slide. As a result, they fall into the habit of using weak cues, like those shown above on the left. Weak transitions make it hard for listeners to track an argument.

Smooth transitions, on the other hand, create flow and coherence. They are the glue that holds the argument together.

After you have organized your research story and created a deck of slides, write out the transitions you will say as you advance from one slide to the next.

Make the implicit logic that drove the sequence of slides explicit for your audience.

In this process, you may discover you need to adjust the order of information or rearrange the slides in your deck to forge the appropriate connections between your ideas.

Use meta-discourse to signal relationships

Forecasting or recalling	as I'll explain in detail; to sum up
Directions to audience	note that; as you'll remember
Structure of the argument logic	therefore; the second point
Explicit references to images	as you can see in this figure; table 3 shows
Explicit references to others' work	according to; as previously reported
Explicit explanations	for the purposes of this discussion; X means

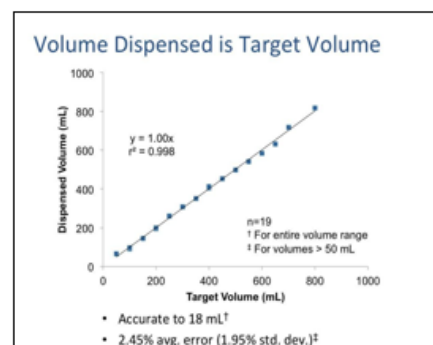
In addition to planning transitions between sections of your talk and between slides, you will also want to use meta discourse. These phrases operate like signposts or instructions for your listeners.

[For more examples of Hyland's discourse markers, see:
https://textinspector.com/help/metadiscourse/](https://textinspector.com/help/metadiscourse/)

Explain your data

Select results that support key points

1. State question or problem
2. Describe method used to collect data
3. Orient audience to figure
4. Report result
5. Interpret result



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Support key points with data

Credibility of the speaker during a research talk often hinges on the ability to support key points with relevant well-explained data.

If you find yourself in a position where you have more results and than time to present them, include the experimental results that are most directly related to answering your research question. Choose the results that will be most convincing to your audience

Steps to follow

- For each figure or table that you include state the question or problem you were trying to address and what method was used. Some techniques produce blots, graphs, or records that look similar. The audience may not be able to tell which technique you used unless you tell them.
- Describe the image, figure, or table. What are the axis labels for graphs, headings

- for tables, scales for images? If you use colors, what do they represent?
- Finally report and interpret the result. Many presenters report the actual finding but fail to interpret the data for the audience. Leaving it up to the audience to draw their own conclusions is risky as they might come to conclusions different than your own.

End strong



Memorize

Send cue

Restate & summarize

Spell out implications

No “That’s it.”

No ?s slide

Many presentations end with a summary quickly followed by an uninspiring “That’s it” or “That’s all I have for you.” You can do better!

Know where you want to land to end strong

- Identify the key points you want to reinforce and emphasize during the conclusion of your talk.
- Be sure to highlight your research contribution and its value. This is often done by linking the significance to the original motivation for doing the work.
- Decide what slide to display as you transition from the conclusion to the Q&A. It’s common to display the Conclusion slide during the Q&A. Other options include a compelling photo, an image of the device or process you developed, or a memorable quote.
- You may want to acknowledge research mentors or sources of funding at the end of your talk, in which case, use a sequence like [Conclusion / Acknowledgements / copy of Conclusions].

- We generally don't recommend memorization as a strategy, but you may want to memorize your conclusion. This will enable you to focus more attention on your audience.

Stick the landing

- Pause
- Connect with eye contact
- Send a cue to get the audience's attention: "To wrap up, . . ." or "In conclusion, . . ."
" or "In sum, . . ."
- Keep your remarks brief. Remember the audience has already heard your key points.
- Don't rush through the conclusion. Use pauses to control the rate.
- Make sure your final sentence sounds final.



Tracy Volz, Elizabeth Eich, Mary
Purugganan, Dereth Phillips

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