Some Presentation Guidelines

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These guidelines are focused around presenting your own work, but they may be helpful in thinking about how to present others’ work as well.

1. How to give a research presentation about your work

1.1 Step 1: Decide on the type of story you are telling

There are 3 main kinds of stories:

- **Problem**
  - “How?”
  - Solution
    - [e.g. Algorithm]
    - processes

- **Question**
  - “What?”
  - “Where?”
  - “When?”
  - Answer
    - [e.g. Data]
    - facts

- **Mystery**
  - “Why?”
  - Reason
    - [e.g. Theorem]
    - explanations

Some examples:

- How do we build a ship that will survive an impact with an iceberg? Where did the Titanic sink?
- Why weren’t the Titanic’s bulkheads sufficient to stop it from sinking?
- How do we get the population to lose weight?
- What fraction of people are overweight?
- Why didn’t the advent of diet soda lead to a thinner population?

These questions are not necessarily independent, and sometimes a “How?” question depends on a “What?” question, etc.
Step 1 of presentation design is to decide on the main class of your presentation (problem, question, mystery; PQM), and write down that problem, question, or mystery, and any supporting PQMs that must be mentioned in order for your main point to make sense.

1.2 Step 2: Write down the “log line” for your presentation

A “log line” is a 1-sentence summary of a story that conveys what the story is about and why it is exciting. Some examples, broken down by presentation class:

**Problems**

1. We introduce a new problem X that is important because Y.
2. We have a new understanding Z of problem X that is important because Y.
3. We have a new solution Z to problem X that is better because Z.
4. We have a solution Z to problem X that is not better yet but is interesting because Y.

**Questions**

1. We found a new fact Z about the world that is important because Y.

**Mysteries**

1. We present a new explanation Y for facts X for which there was no previous explanation.
2. We provide a new reason Y for fact X that is more believable because of Z.
3. We realize “fact” Y and “fact” Z contradict each other, creating new mystery X.
4. Fact Y introduces mystery X because it contradicts some existing explanation Z.
5. Despite what everyone thought, mystery Y is not a mystery because Z.
6. We introduce a new theoretical framework Y for reasoning about mysteries of the type Z that is useful because X.

There are other types of log lines besides these, but they all follow the same pattern: 1-sentence, say what you did, and say why it is important. Step 2 is to write down the log line for the presentation you want to give.

The log line should be one sentence only (this is a hard rule). It doesn’t need to be understandable without context.

Do not think that because you did multiple things, your talk should have a hybrid log line. You must choose what your talk is primarily about. The log line is not restricting what you include, it is setting what the backbone of your story is, and determining what you want your audience to know.

In rare cases, it may make sense to have a hybrid log line that combines aspects of problems, questions, and mysteries. Examples are:

1. New solution → new fact
2. New problem → new solution
3. New question → new fact
4. Many new facts → new theory

You should use these as a last resort because it will make constructing your presentation much harder.

1.3 Step 3: Write down the “meta why”

Every presentation must answer the meta why: “Why are you studying this problem, question, or mystery?”

Example good answers are (1) to improve people’s lives; (2) to save money; (3) because a lot of people have wasted a lot of time on it, and I think if I solve it we can move on to more important things; (4) intellectual curiosity (caution: Hillary did not climb Mt. Washington; you can be “curious” about things that don’t matter, so you have to justify that this curiosity is important: e.g. this would fit into a large theoretical framework).

Example bad answers: (1) a lot of people have worked on the problem; (2) it would be interesting to know . . . ; (3) intellectual curiosity.

1.4 Step 4: Break the log line down into your organization

Each of the log lines contains three things:

- An already known (AK) — the context for your contribution
- A contribution (C) — what you did that is new
- A distinguisher (D) — what is different / important about your contribution

For example:

We provide a new reason Y for fact X that is more believable because of Z.

Despite what everyone thought, mystery Y is not a mystery because Z.

We realized Y and Z contradict each other, creating a new mystery X.

We have a new solution Z to problem X that is better because Y.

Label the parts of your log line with these three parts. They will help you in Step 5.

1.5 Step 5: Decide on a story structure

There are really only a few story structures that are good to use. They are:
Notice that the story structure is not based on “Problem”, “Solution”, “Results”, “Comparison”. Your problem might map to “already known” if it’s a well known problem or it might map to “contribution” if your contribution is the definition of a new problem, or it could be the “call to arms” (the pressing need that needs to be solved).

Decide on the structure and then write down 1 sentence for each of the structure points. If someone read these 6 sentences, they would get the point of your talk. Q: can it be 7 or 8 sentences? A: No.

1.6 Step 6: Check that your story arc has the right tension structure

The ideal story structure is a hat (or maybe it’s a snake that swallowed an elephant):

Notice that there is no place for “a mass of technical details.” These details might go into contribution support if your contribution is a novel algorithm. In general “Contribution” should be short (1–2 slides), while “contribution support” can be longer and contain technical meat.

The tension build up phase (Already Known through Call to Arms) might take up 25% of your talk, and the contribution support might be 50% of the talk.

1.7 Other considerations