Effective Written Communication: Storyboarding a Technical Report

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The goal of oral presentations and written reports is to explain a technical finding . . .

**BUT . . .** they’re not the same . . .

<table>
<thead>
<tr>
<th>Written Reports</th>
<th>Oral Presentations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random reading (re-reference text)</td>
<td>Linear (cannot “go back”)</td>
</tr>
<tr>
<td>Reader controls pace</td>
<td>Speaker controls pace</td>
</tr>
<tr>
<td>Message is archival</td>
<td>Message presented in the moment</td>
</tr>
<tr>
<td>Reader must actively read</td>
<td>Audience can be passive</td>
</tr>
<tr>
<td>Feedback not possible</td>
<td>Feedback possible (questions)</td>
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</tbody>
</table>
The form of scientific communication follows its function

- Forms of technical reports: conceptual, empirical, observational, methodological, review

convey the values of science
- Contextualizes research in the field
- Provides a repeatable methodology
- Forces writer to speak from the data
- Forces writer to separate results from opinions
The form also conveys function needed by readership

- Scientific readers maximize potential of the form when they read.
- Makes it is easy to locate data & compare experiments (methods, etc.)
- Easy to write? No
- Easy to read? Yes. Optimized for reading
- Document design and use of figures conveys ethos of scientist.

Known as the IMRaD Format
The grammar of scientific communication also follows its function

Because science readers do not read chronologically and skim, the grammar of science is:

- Prose that is not laden with jargon or vague expressions
- Simple sentence structure S – V – O
- Provides links between text and visuals e.g., “As shown in Figure 2 . . .”
- Provides time reference (e.g., Methods – past tense)
- Distances subjectivity of the researcher (e.g., passive voice)
- Unambiguous prose It = ??, This = ??

See “The Science of Scientific Writing” By Gopen and Swan
Many writers start off using the outlining approach to writing.

* Sometimes these sections are combined.
Try the storyboarding approach instead

A “movie-making” approach to writing

Each section of report is a “scene”

| Abstract | Introduction | Methods | Results | Discussion | Conclusion |
Try the storyboarding approach instead

A “movie-making” approach to writing

| Abstract | Introduction | Methods | Results | Discussion | Conclusion |

Movie design starts here
Try the storyboarding approach instead

A “movie-making” approach to writing

Lab report is built around Results data

How do you make a movie of your data?
Step 1: Organize your data

Start with figures:

- Assemble hard copies of your figures in a “storyboard”
- Figure out the major technical theme of the report
- Assess how each figure contributes to the major theme
- REVISE figures to focus on the major theme (develop figures that summarize that major theme)
Step 2: Plan the report

After you’ve got your data, consider if it’s appropriate “screenplay” for your audience and venue:

- Who is the audience?
  - technical expertise
  - level of interest
  - personal familiarity

- How much space do you have?
  - 2-3 pages? 10 pages?
  - Can Results be combined with Discussion?
  - Do I need a Theory section?
  - How much background information to motivate study?
Step 3: Write in non-linear sequence

- What was the purpose of the project? What were the Results?
- Readers read Results first, so start there.
- “plug and play” other sections.
- Make sure you have accurate lab notebook

Use storyboard as the “backbone” of your report/presentation
Step 4: Continue building the report

Add Discussion, Introduction, & Conclusion around the Methods and Results

Check for coherence between and across sections
Step 5: Add End/Front Matter

- Title
- Abstract
- Table of Contents

- Acknowledgements
- References
- Appendices
Step 6: All the Good Stuff: Edit, Peer Review, Bake, Edit, & Proofread

and . . . Submit!

1. Edit for **completeness**
   Is all relevant information included?
   Where might readers have questions?

2. Edit for **organization and document design**
   Is each section divided logically using subheadings?
   Does the information link clearly across sections?
   Do the figures support the text?

3. Edit for **prose style**
   Are there irrelevant sentences, sections, plots?
   Can you read the report aloud without verbally stumbling?

Check the figures!