

Developing Design Reports

Techniques for Phase I Reports

Three Phases of Development

- Developing the Content
 - Segmenting material as sections
 - Determining the paragraph units
 - Supplying technical support
- Developing the Style
 - Paragraphs
 - Sentences
- Reviewing with StoryBoards

Developing the Content

Segmenting the material

- Review specific report sections required by Latex format
- Distribute data to appropriate sections
 - Findings
 - Research
 - Conceptual models
 - Graphics & visuals
- Sequence material approximately

Determining the paragraph units

- Identify the information presented
 - What kind?
 - How much?
- Assign evidence
 - Does it describe?
 - Does it explain?
 - Does it illustrate?
- Review for coverage
 - Does it relate to the main claim of the section?
 - Does it support the conclusions offered?

Technical support

- Theoretical data
- Empirical data
 - Findings
 - Modeling
- Analysis of data
- Visual representation

Developing the Style

Paragraphs

- Overview
 - Claim made
 - Conclusion (or part) reached
- Evidence
 - Positive support
 - Answers to potential objections
- Significance
 - How it fills the need
 - Why it fills the need

Sentences

- **Concept sentences**

- Used to designate “what” is being talked about
- Concerns idea (concept), not a person or event

Ex.- “Increasing the size of the membrane provided increased flow of” instead of
“The next step was to increase the size of the membrane to provide”

- **Expansion sentences**

- Add “how” and “why” to the original “what”
- Relate to the featured concept—reinforce/modify/
extend/contrast

Ex.-”The timing alteration resulting from the increase allowed
..., and reduced the overall length of processing from”

Sentence qualities

- **Comprehensibility**

- correctness of structure (what is understood by people who read the language)
- Idiomatic phrasing (familiar but not casual usage))

- **Readability**

- Clarity of phrasing (avoiding overuse of description and other modifiers)
- Efficiency in number of words used (conciseness)

Writing: General

- Technical writing involves communicating information and ideas, not feelings.
- When editing, put yourself in the reader's place.
 - “Play dumb” and read literally to uncover grammar problems or ideas that need better explanation.
 - Ask: “would this make sense to someone who didn’t work on the project?”
- Writing should be succinct. Be precise, concise, and to the point

Writing: Numbers

- General rules for numbers in reports:
 - Use correct number of significant figures.
 - Include commas in long numbers
 - Use scientific notation or unit prefixes to improve legibility
 - Always include units on measurements
- Example
 - Wrong: “The pressure was 101425.”
 - Not as bad: “The pressure was 101,000 Pa.”
 - Better: “The pressure was 1.01×10^5 Pa.”
 - Best: “The pressure was 101 kPa.”

Writing: Abbreviations

- Abbreviating long, frequently-used words can improve readability if done well.
 - “The mean absolute error (MAE) of the wind forecasts was too high to be useful for the Independent System Operator (ISO). It is believed MAE can be reduced using neural networks. The ISO will implement forecasting if MAE is reduced below 10%.”
- Abbreviate carefully: readers cannot remember too many abbreviations at once.
 - “The DOE/NREL study of OSL WECF found that anemometer RMSE and ME exceeded MEASNET and IEA standards.”

Reviewing with StoryBoards

Organizing the paper

- **Module Header:**
- **Key Claim**
- **Reason**
- **Evidence**
- **Visual Support**
- **References**

Scan the sections

- Do they begin with a clear focus?
- Do they provide solid information?
- Does the information seem to relate to the focus?
- Is there sufficient coverage to ensure reliability?
- Is there a clear reason why the section is included?

Read the paragraphs

- Do they begin with a clear focus?
- Is there a logical arrangement of sentences?
- Is there enough evidence to accept the validity of the argument presented
- Does the end explain the significance of the unit?

Review the visuals

- Does the type convey the information intended?
- Are they accurately drawn?
- Are they informatively labeled?
- Are they clearly captioned?