Documenting research projects:

How to structure your ideas and make yourself understood
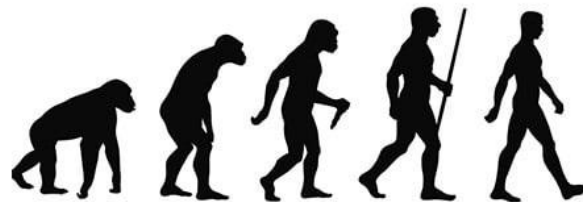
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JET BRAINS

What I am going to speak about
—

- What is clear and well structured writing?

- Understand your audience

- Do not be afraid to make mistakes

- (List main ideas)

- (Map ideas to the outline)

- (Repeat main ideas)

- (The structure of a passage)

- (Evidence in writing)

- Review. Why the heck they corrected this?

- A bonus tip on learning

- Questions and answers

What is clear and well structured writing?
—

Data is verified, supplemented, systemized, and presented in a manner that breeds trust and imposes no extra difficulty in understanding and navigating.

What does it have to do with conference papers and readmes? Everything.
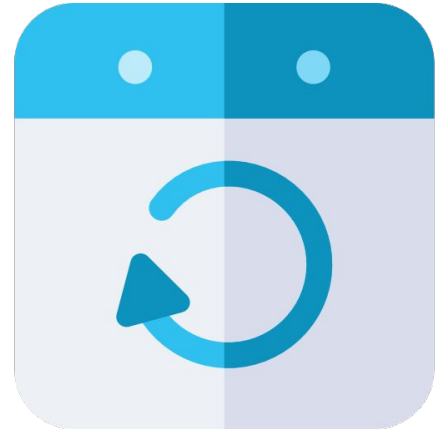
Text **Refactoring**

Improving the Design of Existing Text

Understand your audience
—

1. Who is my reader?
2. What knowledge is he or she supposed to have?
3. What does the reader need to know specifically about my project?
   Goal: show the work done/prove the purpose.
   For readmes: ensure that another person can perform certain tasks without your help.
4. What needs to be explained?
   Make sure your target audience is successful in understanding the value behind your research.
   » Explain specific terms
   » Add an intro on the subject matter
   » Explain your 'kitchen'

Try to see from the point of view of another competent, clever-enough person who needs to use your tool/research findings.
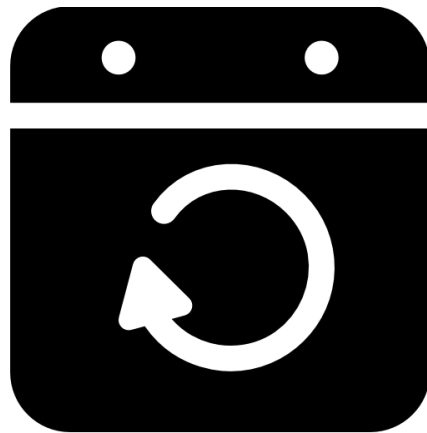
Do not be afraid to make mistakes
—

"What I write sounds stupid/is full of 'holes'/is bad English."

» Do not try to cover everything at once.
» Do not *start* with trying to sound 'scientific'.
» Imagine that you are talking to a very good friend.
  – Tell him or her what your project is about, its main goals, findings. Record your speech.
  – Write down the *natural* version first.
  – Later, you will polish every argument, supplement it with proof, examples, connect it with other arguments, regroup the arguments, merge, split, polish. *Later*.

» Being easy to follow is key.
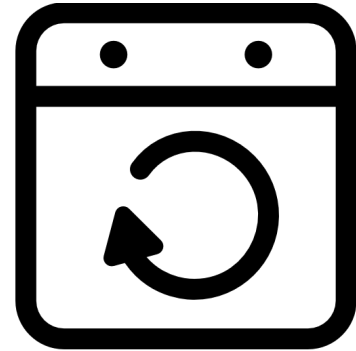» Ideal English is not the goal at this stage.

Clarity and structure over grammar and style.

List main ideas
—

» Note the major points from the previous step (your talk to a friend/duck).
» Make a numbered list.
» Add bullet points that
– Support and clarify the main idea
– Are examples that prove your point (~instances)
– Are special cases of the main idea (~subclasses)
» Regroup the list:
– Merge and split items
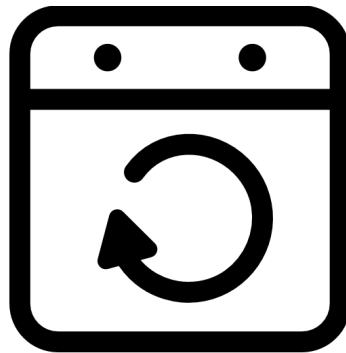– Drag items up and down the list
– Move items up and down the hierarchy

In the end, each idea will turn into a passage or subsection. Sometimes in multiple sections.
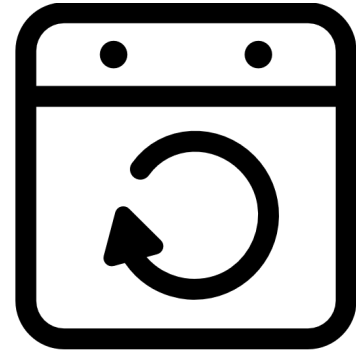
Map ideas to the outline
—

» Start with *standard* sections in readmes and academic papers:
   – Learn from good documentation examples.
   – Customize based on your content and purpose.
» Copy list items to respective sections.
   – The same idea can be mentioned or substantiated in different sections - under a different angle.
   – Create subsections for main ideas.
   – Add an intro/overview, possibly conclusion to each section.

Repeat main ideas

—

- **In the beginning,**
  so that the reader knows what to expect in the next 100 pages. Show how the main ideas are *connected* and why you want to write about it.
- **In the main part,**
  in the subsection where you support this idea with evidence, arguments, research, etc.
- **In relevant (sub)sections.**
- **In the conclusion,**
  where you summarize major outcomes of your work (so that the reader can go back to the respective subsection for details).
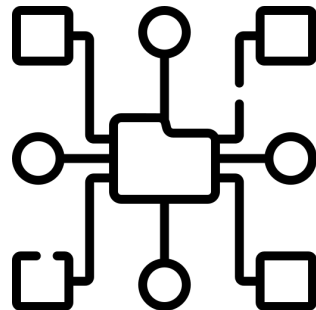
The structure of a passage
—

Activity: Expanding your thoughts

Rules*

- » Each passage is dedicated to one idea only.
- » The first sentence is an introduction:
  - – Name the main idea you are going to write about.
  - – Connect it to the previous statements/the topic of your paper/this section.
- » Next sentences support the main idea with argumentation and examples.
- » For better connectivity, use linking words**.
- » The final sentence is a summary of the passage.

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*For more, google `IELTS academic writing tips`
**For more, google `IELTS linking words`

Evidence in writing
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In a conference paper, when you communicate evaluation results or implementation details: **draw conclusions based on figures, compare figures to prove your point. Examples**

Not enough: "MyBugFinder found 18 errors in the benchmark dataset."
Better expand with:
"...which is 30% more than found by AnotherTool."
"...whereas it could find only 10 when ThisFeature was not supported."
"This shows that introducing ThisFeature improved the tool's performance by 30%." (Now you can continue with other benefits of introducing ThisFeature, if it's one of the main points in this section.)

Not enough: "AnotherTool uses ThisLibrary and detects 50 errors."
Better expand with:
"When using the same library, MyBugFinder can find 60 errors."
"MyBugFinder uses CoolLibrary and finds 60 errors. Moreover, its median run time is…, which is xx times faster than …. Another fact that may have contributed to such unprecedented performance is that we optimized ThisAlgorithm.

Review. Why the heck they corrected this?

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How do you challenge an expert?
- Make sure you are polite.
- Assume a positive intent: the person meant to do something good. Everyone thinks they know what they are doing, otherwise they double-check, don't they?
- Say, "Could you please clarify explain why you changed this?", or "Actually, the meaning here should be different."
- Verify your point: attach a link to a relevant source (style guide, grammar reference, etc.), explain the subject area.

You have the agency over the presentation of your work.

Surprise slide:
Counteradvice

—

»   Do not bother about any structure whatsoever*.
»   Do not bother to use proper terms and be consistent about it*.
»   Do not bother to explain.
»   Do not have your document reviewed.
»   Do not ask questions when you disagree or do not understand.

...Any questions?

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*Credit: https://habr.com/ru/company/ruvds/blog/586782/

Thank you
for your attention
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