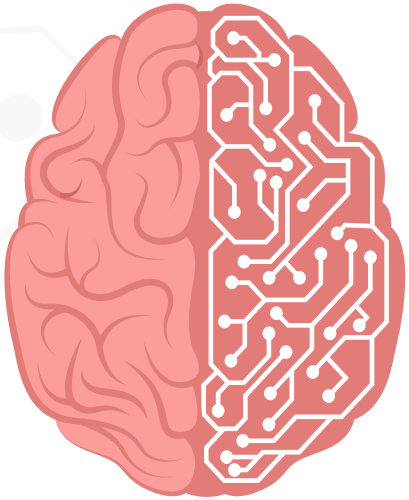


How to write a report

By Guillaume GUERARD

General process

When you organize your manuscript, the first thing to consider is that the order of sections will be very different than the order of items on you checklist.

Avoid Plagiarism !

The following steps are not linear !

An article begins with the Title, Abstract and Keywords.

The article text follows the IMRAD format, which responds to the questions below:

- **I**ntroduction: What did you/others do? Why did you do it?
- **M**ethods: How did you do it?
- **R**esults: What did you find?
- **A**nd
- **D**iscussion: What does it all mean?

The main text is followed by the Conclusion, Acknowledgements, References and Supporting Materials.

General paper organization

- Title
- Authors and Affiliations
- Abstract
- Keywords
- Introduction
- Background
- Related Works
- Problem definition
- Materials and Methods
- Methodology
- Case Study
- Experiment
- Results
- Discussion
- Conclusions
- References

Depending of many factors (journal requirements, type of research, your storytelling; research fields), you may regroups some sections or avoid others.

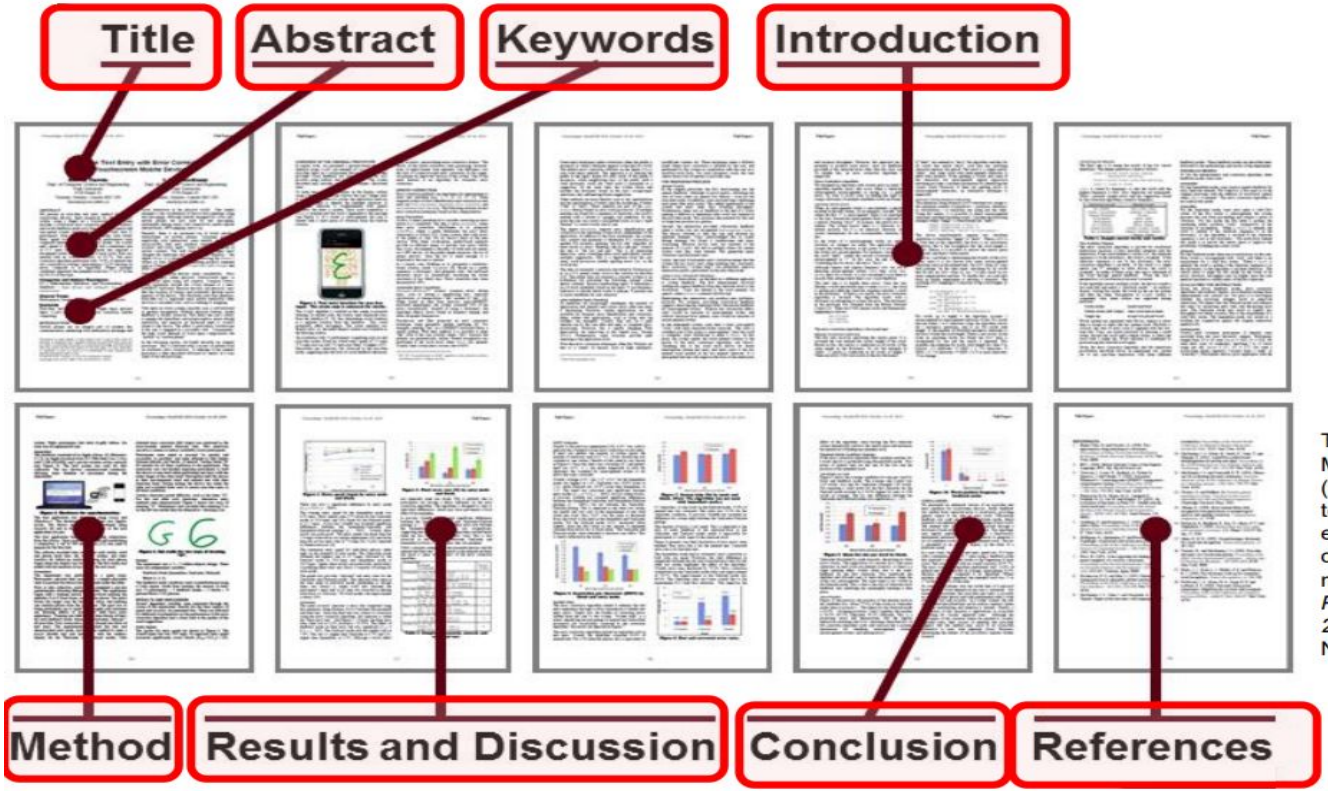
Ex:

Put background in introduction

Put experiment, results and discussion together

etc.

General paper organization



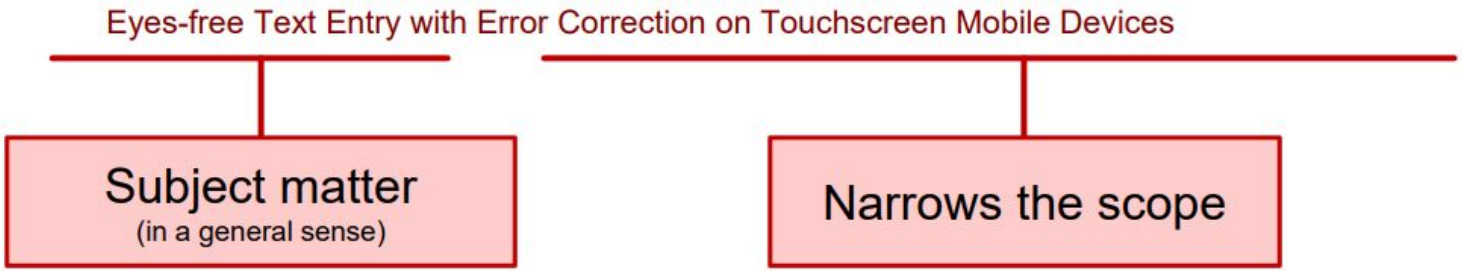
Tinwala, H., & MacKenzie, I. S. (2010). Eyes-free text entry with error correction on touchscreen mobile devices. *Proc NordiCHI 2010*, 511-520, New York: ACM.

Title

The title must :

- Identify the subject matter of the paper
- Narrow the scope of the work
- Don’t be too broad nor too narrow (stay catchy)

The title is critical as it informs the readers what is the question being examined and what benefit they will get from the paper.



Title

You can include a sub-title following a separator such as a colon.

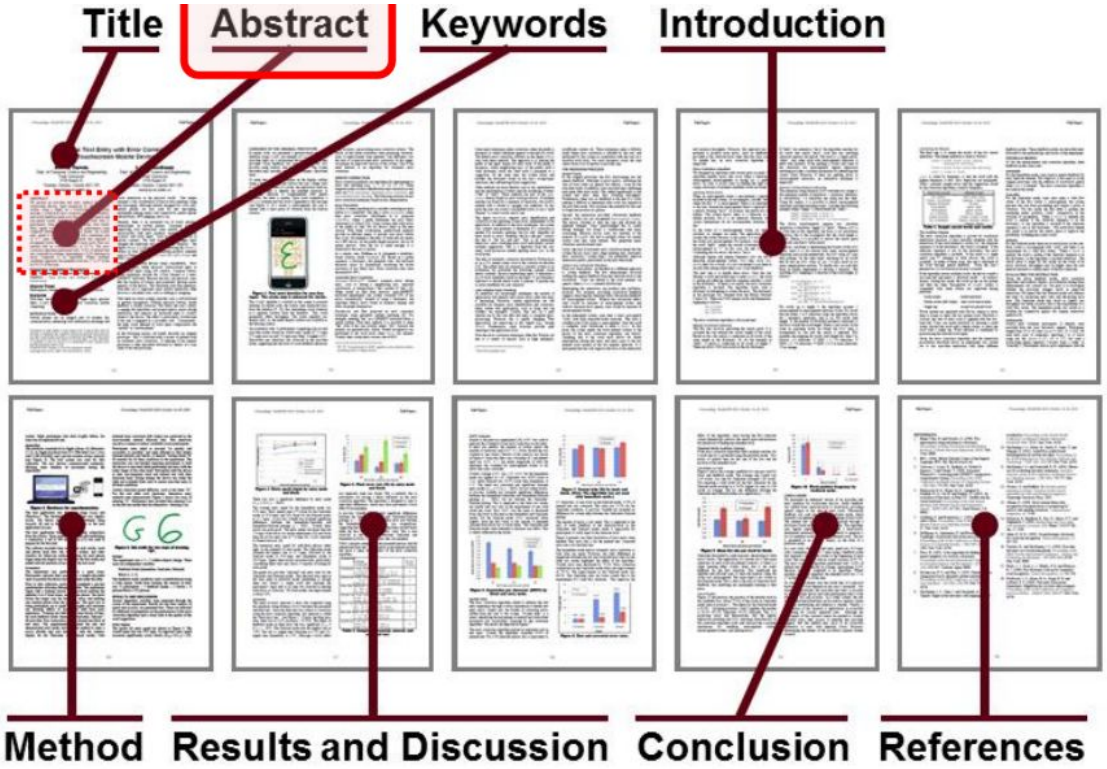
Ex:

- MEgo2Vec: Embedding Matched Ego Networks for User Alignment Across Social Networks
- SSDMV: Semi-Supervised Deep Social Spammer Detection by Multi-view Data Fusion
- Formal vs. Case-Study-Based Approaches for the Identification of Cultural Influences in Requirements Engineering
- Big data analytics in supply chain management: A state-of-the-art literature review
- Systematic Literature Reviews in Software Engineering: Preliminary Results from Interviews with Researchers

Authors and Affiliations

Follow the template instructions.

Abstract


Title
Abstract
Keywords
Introduction
Method
Results and Discussion
Conclusion
References

Abstract

Write the abstract after the content of the paper !

Abstract has a word limite (typically between 100-250 words). It is a single paragraph without citations, abbreviations. It is self content (no need to read the introduction or another paper to understand).

The abstract should tell:

- What is the purpose/problem?
- Why is this important (social/industrial/scientific, etc.)?
- How do you handle the problem?
- Your main results
- How it will contribute/benefit?

Keep in mind the abstract is a kind of summary of the paper, kind of preface.

Abstract

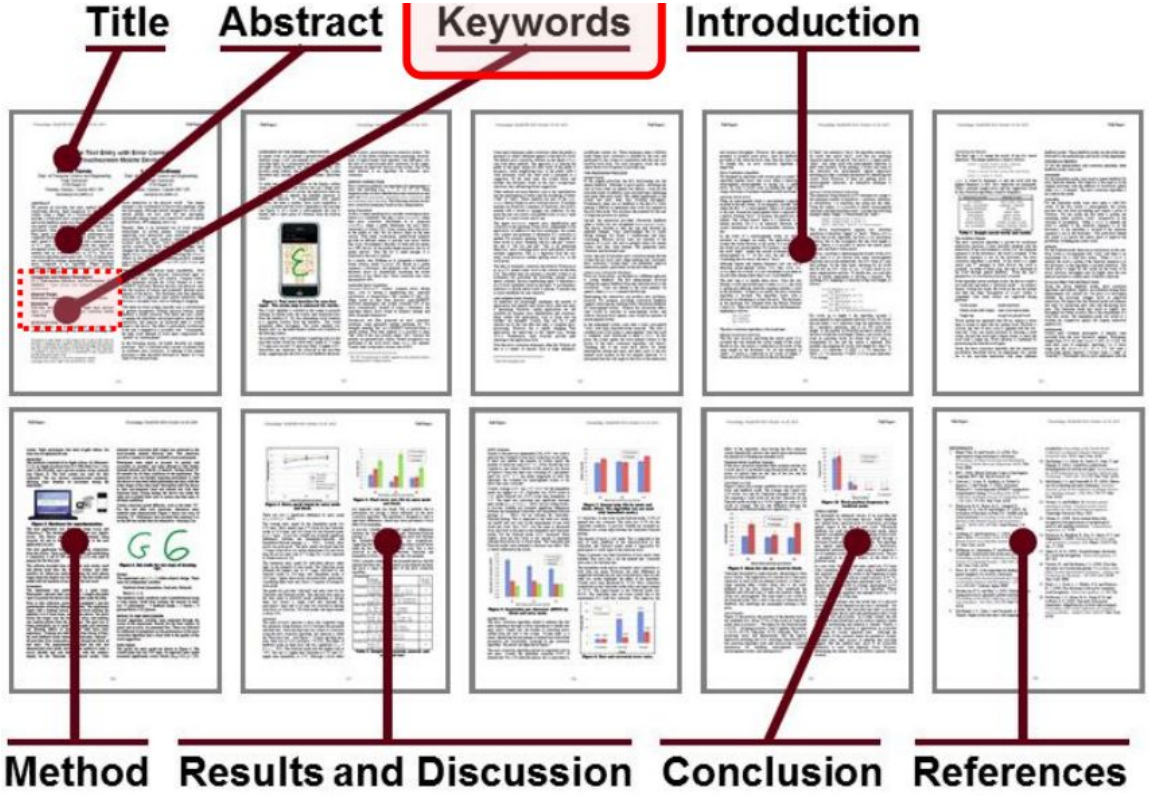
Example 1: Requirements Engineering (RE) activities require intensive communication to ensure an accurate elicitation and documentation of clients' requirements. Culture influences the way in which individuals communicate; therefore, RE activities could be strongly influenced by individuals' cultures. This paper presents a framework for examining and mapping between cultural influences and RE activities. To construct the framework, we adopted Hofstede's model and conducted 41 interviews with RE practitioners from different domains and across two cultures, complemented by 30 follow-up interviews to consolidate the collected data. The framework demonstrates mapping between the cultural index values (as per Hofstede's model) and the identified cultural influences on RE activities. The framework is intended to help RE practitioners determine the cultural influences they may encounter, and to overcome potential cultural issues by applying mitigation strategies. The evolution of the framework showed significant statistical results.

Example 2 : eLearning systems have become a very important part of teaching, both as web-based systems for online education and as auxiliary tools for face-to-face study, where they provide an additional learning support for on-campus learners. To insure the sustainability of an eLearning system on both individual and social levels, we have to cover many aspects of sustainability requirements: human, technical, economic, and environmental. This paper provides a systematic literature review of the sustainability meta-requirements for eLearning systems to identify open problems and to present the state of the art of this research area. We analysed 124 papers, so we identified 18 high-level sustainability requirements for eLearning systems.

Example 1: Alsanoosy, Tawfeeq, Maria Spichkova, and James Harland. "A Framework for Identifying Cultural Influences on Requirements Engineering Activities." *PACIS*. 2020.

Example 2 : Alharthi, Ahmed D., Maria Spichkova, and Margaret Hamilton. "Sustainability requirements for eLearning systems: a systematic literature review and analysis." *Requirements Engineering* 24.4 (2019): 523-543.

Keywords


Title
Abstract
Keywords
Introduction
Method
Results and Discussion
Conclusion
References

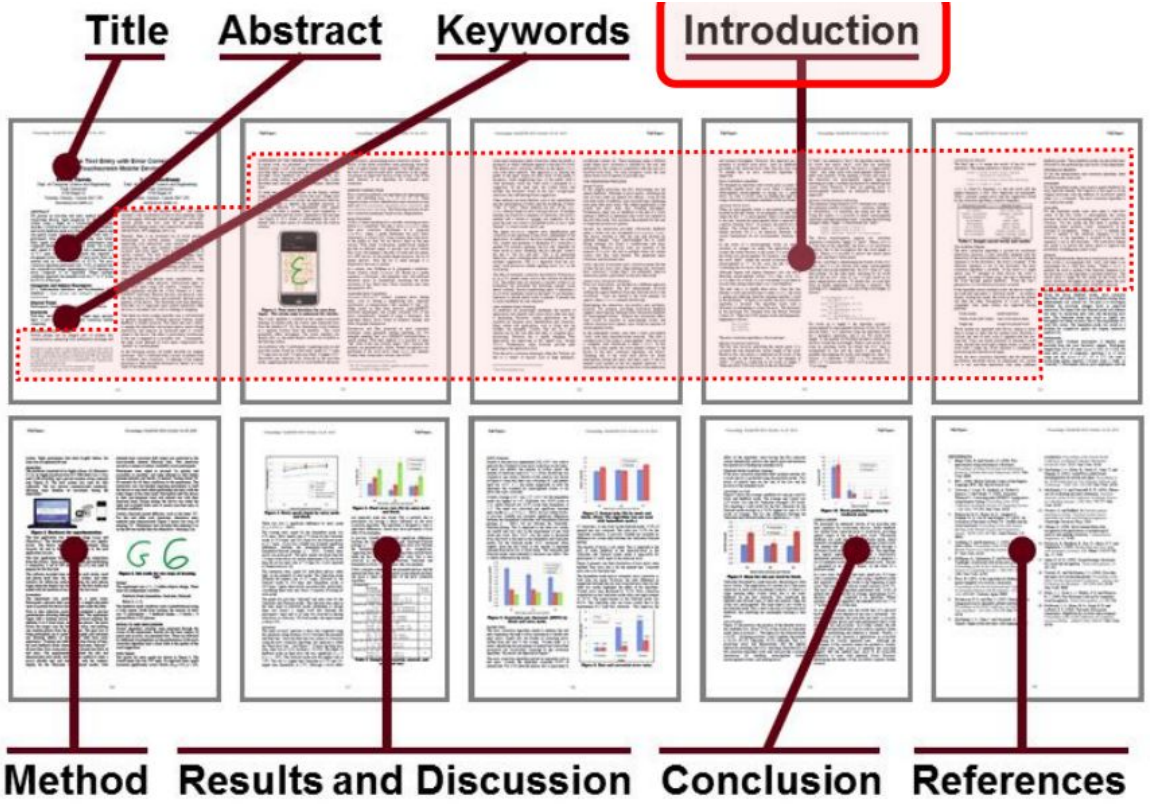
Keywords

Follow the template instructions or conference/journal lists.

Keywords are used for database indexing and searching so choose them carefully. Only use single keyword or scientific field, be broad and narrow (Social Network, Tourism, Clustering, Distance measure, Profiling).

Your paper comes high on the list of any keyword search that potential readers conduct in databases.

Introduction



Here the Introduction is too long!

If your introduction is more than two page, split the background and the related work into two different sections.

The first section: Introduction

Introduction provides:

- What is the paper about and why should the reader care
- The context for the research (the topic, the motivation, the scope)
- An overview of the current state of the art

A good introduction should answer the following questions:

- What is the problem to be solved?
- Are there any existing solutions?
- Which is the best?
- What is its main limitation?
- What do you hope to achieve?

You have to write the introduction... after Methods, Results and Discussion!

The first section: Introduction

Introduction provides the “what?” and “So what?”. Keep it clear and stay objective.

Follow the following structure (each point may be some paragraphs).

- Define the problem
- Motivation for the paper (context) – two first points can be switched –
- How the answer of your problem will contribute to the context?
- Some background to understand the issues
- Briefly link to related works (to better identify the gap in the next point)
- An account of what has not been appropriately addressed by previous researchers in this context (what is the gap?)
- How the answer of your problem will contribute to the field of study?
- The solution in brief and what is novel and interesting about the research (list of contributions)
- Some technical details of the proposed solution
- Outline of the paper

TL;DR: definition of the concept -> description of the context -> some justification -> the outline
DO NOT: provide too much/unnecessary information

The first section: Introduction

It's essential to draw the reader in with a strong beginning. Set the stage for your research with a clear focus, purpose and direction. The introduction should include:

- **Topic and context**: what does the reader need to know to understand the dissertation?
- **Focus and scope**: what specific aspect of the topic will you address?
- **Relevance and importance**: how does the research fit into existing work on this topic?
- **Questions and objectives**: what does the research aim to find out and how?
- **Overview of the structure**: what does each chapter of the dissertation contribute to the overall aim?

The first section: Introduction

Although the introduction comes at the beginning of your dissertation, it doesn't have to be the first thing you write — in fact, it's often the very last part to be completed (along with the abstract).

It's a good idea to write a rough draft of your introduction near the beginning of the research to help guide you. If you wrote a research proposal, you can use this as a template, as it contains many of the same elements. But you should revise your introduction throughout the writing process, making sure it matches the content of your chapters.

The first section: Introduction

Begin by introducing your topic and giving any necessary background information. It's important to contextualize your research and generate interest — aim to show why the topic is timely or important (for example, by mentioning a relevant news item, academic debate, or practical problem).

The first section: Introduction

After a brief introduction to your general area of interest, narrow your focus and define the scope of your research. For example:

- What geographical area are you investigating?
- What time period does your research cover?
- What demographics or communities are you researching?
- What specific themes or aspects of the topic does your dissertation address?

You can also provide your hypothesis at this point.

The first section: Introduction

It's essential to show your motivation for doing this research, how it relates to existing work on the topic, and what new insights it will contribute.

Give a brief overview of the current state of research, citing the most relevant literature and indicating how your research will address a problem or gap in the field. You will conduct a more in-depth survey of relevant sources in the literature review section or chapter.

Depending on your field, the importance of your research might focus on its practical application (e.g. in policy or management) or on advancing scholarly understanding of the topic (e.g. by developing theories or adding new empirical data). In many cases it will do both.

Explain how your dissertation:

- Helps solve a practical or theoretical problem
- Addresses a gap in the literature
- Builds on existing research
- Proposes a new understanding of the topic

The first section: Introduction

This is perhaps the most important part of your introduction — it sets up the expectations of the rest of your dissertation. How you formulate your research questions and objectives will depend on your discipline, topic and focus, but you should always clearly state the central aim of your research.

You can briefly mention the research methods you used to answer your questions, but if you are including a separate methodology chapter, don't go into too much detail here.

If your research aims to test hypotheses you can formulate them here, along with a conceptual framework that posits relationships between variables. Sometimes the hypotheses will come later in the dissertation, after your literature review.

The first section: Introduction

Do you have checked all this list?

- I have introduced my topic in an engaging way.
- I have provided necessary context to help the reader understand my topic.
- I have clearly specified the focus of my research.
- I have shown the relevance and importance of the research topic.
- I have clearly stated the problem or question that my research addresses.
- I have outlined the specific objectives of the research.
- I have provided an overview of the paper’s structure.

The first section: Introduction

Let's see some examples with some papers!

Determine the context, purpose/hypothesis, gaps & outcomes of the proposed method

Draw the mind map of the literature review

See some journal papers:

https://www.nature.com/articles/s41586-021-03854-z

https://www.sciencedirect.com/science/article/pii/S0360544219304967

See some conference papers:

https://u.cs.biu.ac.il/~kaminkg/publications/papers/aamas11jason.pdf

https://dl.acm.org/doi/pdf/10.1145/3161602

Second section: literature review

First, write a paragraph with the most important related works (survey, books) concerning your research field/context.

Organize the paragraphs thanks to your literature survey's mindmap! Use \subsection* or \paragraph with subtitle in a different font/form to keep it clear!

Talk about related works in a specific field (a node/leaf of your mindmap) with reference. Avoid plagiarism. Discuss related word, how it works in your context and what is the gap in your context.

At the end, summarize the gaps and explain how you avoid it/find a solution.

Thirds section: Materials & Methods

When writing a lab report, it is often a good idea to begin by writing the Materials and Methods section. This section is usually very straightforward, and writing it first helps many people establish the proper thought process and understanding of the work that will allow the rest of the report to flow more smoothly.

This section gives a detailed account of the procedure that was followed in completing the experiment(s) discussed in the report. Such an account is very important, not only so that the reader has a clear understanding of the experiment, but a well written Materials and Methods section also serves as a set of instructions for anyone desiring to replicate the study in the future. Considering the importance of "reproducible results" in science, it is quite obvious why this second application is so vital.

Ex:
Materials presents the data, its context and its peculiarities
Methods presents a detailed flowchart of the Research Methodology with paragraphs briefly describing the overall process.

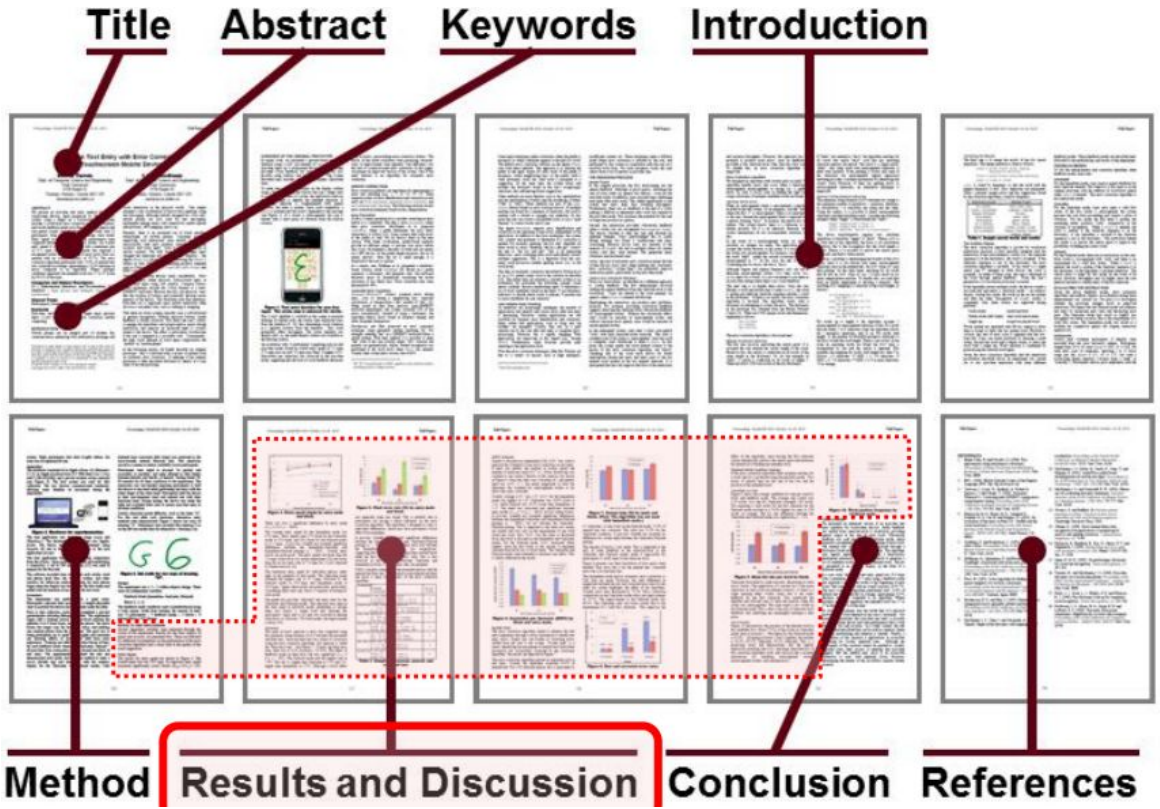
Thirds section: Materials & Methods

The goal of the Method is to describe how your study was conducted to prove the hypotheses or answer the research question.

Described the experiments in details (with short examples and figures).
You should justify the experimental design as well.
You should criticize your arguments as reviewers pay close attention to the methods. It must be replicable, need sometimes a Git to prove your points.
Add references to previous works from your teams or others.

The explanation greatly depends of the research field and the kind of research – please refer to the parent link at the top of the page.

Fourth section: Results and Discussion



Results and Discussion can be combined or speared.

Organized this section corresponding to the methods described. Use \subsection and \paragraph.

Fourth section: Results and Discussion

Take into account the following tips:

1. **Avoid statements that go beyond what the results can support.**
2. **Avoid sudden introduction of new terms or ideas;** you must present everything in the introduction, to be confronted with your results here.
3. **Speculations on possible interpretations are allowed, but these should be rooted in fact, rather than imagination**

- How do these results relate to the original question or objectives outlined in the Introduction section?
- Do the data support your hypothesis?
- Are your results consistent with what other investigators have reported?
- Discuss weaknesses and discrepancies. If your results were unexpected, try to explain why
- Is there another way to interpret your results?
- What further research would be necessary to answer the questions raised by your results?
- Explain what is new without exaggerating

Revision of Results and Discussion is not just paperwork. You may do further experiments, derivations, or simulations. Sometimes you cannot clarify your idea in words because some critical items have not been studied substantially.

Fourth section: Results and Discussion

Acknowledge and address the mitigation of your work.
It can be in a separate section, a subsection or use as introduction to validate the results.

Example 1: We were concerned that cultural bias might affect our data analysis. To mitigate cultural bias, we conducted 41 interviews with practitioners working in 41 different organisations, targeting a large variety of samples with different experiences. We also applied thematic analysis to report only the dominant themes, validated by follow-up interviews.

Example 1: Alsanoosy, Tawfeeq, Maria Spichkova, and James Harland. "A Framework for Identifying Cultural Influences on Requirements Engineering Activities." *PACIS*. 2020.

Example 2: Alsanoosy, Tawfeeq, Maria Spichkova, and James Harland. "Cultural influence on requirements engineering activities: a systematic literature review and analysis." Requirements Engineering (2019): 1-24.

Example 2: The basic threat to any SLR is the likelihood of not discovering all relevant studies. To minimise this possibility, we developed our research strategy to include four phases. We manually inspected four publication avenues to develop the search string to elicit sets of keywords that were used in previous studies. Then, we evaluated the search string and found that it identified the papers selected originally. In addition, we conducted forward and backward snowballing to ensure the comprehensiveness of our investigation. We believe that the number of unidentified papers (if there are any) is too small to influence the findings of our review

Last section: Conclusion

Conclusion is generally short.

It summarize what you did (attention! This is not an Abstract).
It restates contribution and significant findings.

Reader might read the Title, quickly see the Abstract, the Structure of the paper, then the Indroduction and Conclusion. So provide the key information in the conclusion.

You can add further works but avoid developing new ideas.

Do not introduce new arguments. Do not plagiat your Results and Discussion.

The steps for a good paper

Follow the following step when you write your paper :

- Prepare figures and tables
- Prepare the section with bullet points keeping essential information/structure
- Write the Results
- Write the Discussion
- Write the Conclusion
- Write the Introduction
- Compose the Title
- Add Acknowledgement and Founding if necessary
- Proofreading: Stay clear, Get rid of clutter, Express in simple language, Leave no room for doubt, Stay in scope, Check the formatting → Use Grammarly and Scribens

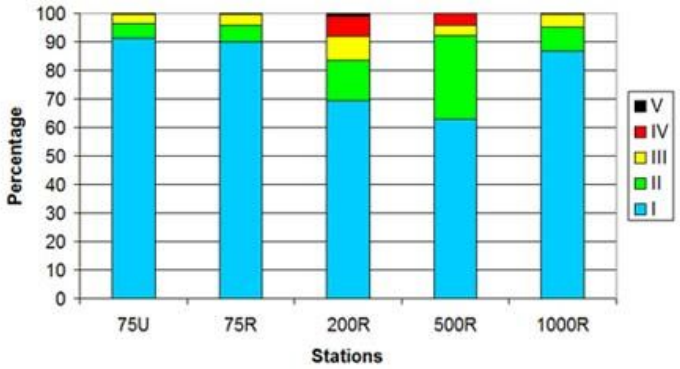
Tips: prepare the figures and tables

Remember that "a figure is worth a thousand words." Hence, illustrations, including figures and tables, are the most efficient way to present your results. Refer and discuss the figures and tables with a paragraph.

Whatever your choice is, no illustrations should duplicate the information described elsewhere in the manuscript.

Should you use a table or chart?

	ECOLOGICAL GROUP				
Station	**I**	**II**	**III**	**IV**	**V**
75U	91.3	5.3	3.2	0.2	0.0
75R	89.8	6.1	3.6	0.5	0.0
200R	69.3	14.2	8.6	6.8	1.1
500R	63.0	29.5	3.4	4.2	0.0
1000R	86.7	8.5	4.5	0.2	0.0



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Figures must be self-explanatory

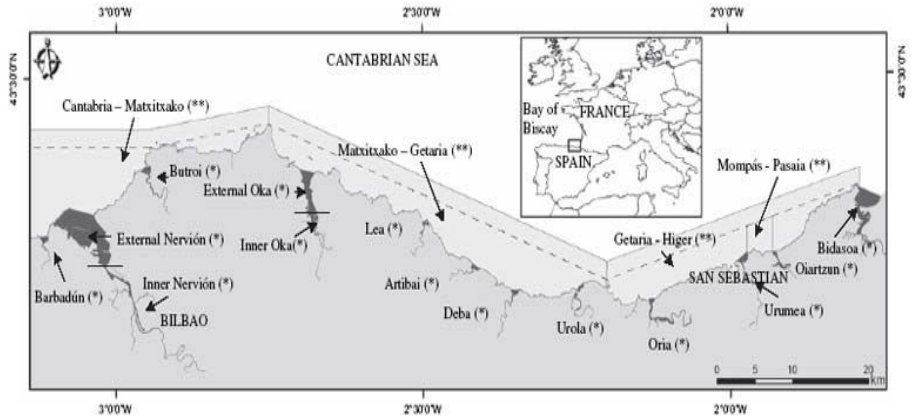

Fig. 1. Location of each of estuarine (*, black colour) and coastal (**, grey colour) water bodies, within the Basque Country. Note: dotted line shows the Basque coastal baseline. Inner and external parts of the Nervión and Oka estuaries are separated by a straight line.

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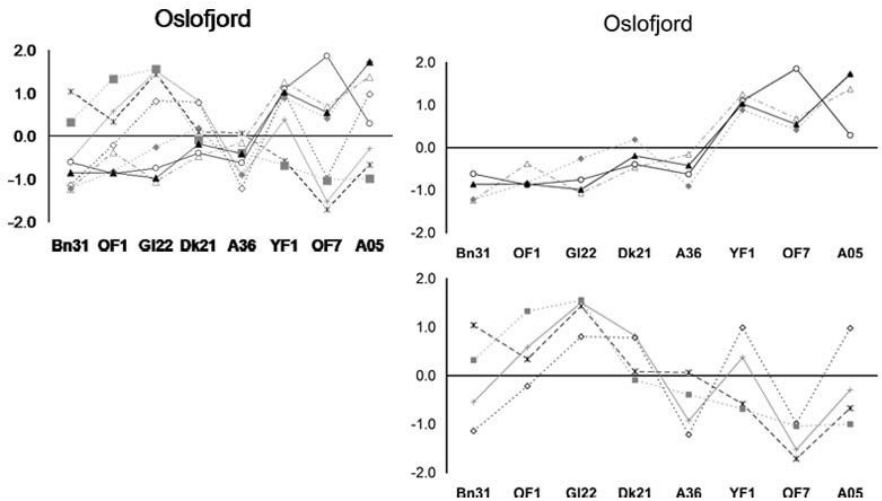
Don't clutter your charts with too much data



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