



Report Writing

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Lec 6: Writing a Report

Resources (Some online ready made presentations with modifications☺)

DropBox Link

https://www.dropbox.com/sh/uj901zzhw52xsfD/AAANPprGImh6rCQy053n3_vla?dl=0

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Report Writing (Abstract, Introduction, Conclusion)



Types of Reports



- **Technical** (project reports either course projects or graduation projects)
- **Business** plans
- **Research** (presenting a new technique / algorithm with supporting experiments and results)
- **Academic overview** (Presenting a scientific topic from different aspects)
- **Book report**

Formats vary slightly

Technical: project reports either course projects or graduation projects.

Business: business plans.

Research: presenting a new technique / algorithm with supporting experiments and results.

Academic Overview: Presenting a scientific topic from different aspects.

Good Writing with the 6Cs

1. **Completeness:** all information needed is provided.
2. **Correctness:** relevant information.
3. **Credibility:** support your argument.
4. **Clarity:** no vague, confusing, ambiguous content.
5. **Conciseness:** get to the point.
6. **Consideration:** anticipate the reader's reaction.



Report Sections

Sections of Report	Purpose
1. <i>Acknowledgment (optional)</i>	Who helped me out?
2. Abstract	What did I do in a nutshell?
3. Introduction	What is the problem?
4. Materials and Methods	How did I solve the problem?
5. Results	What did I find out?
6. Discussion	What does it mean?
7. Conclusion	What was done?
8. <i>Appendices (optional)</i>	Extra Information
9. References	Whose work did I refer to?

Report Sections (Example)

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Example: PhD Thesis Table of Content

Abstract

What goes in?

In short, everything goes in
the Abstract.



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What was done?

Why was it done?

How was it done?

What was found?

What is the significance of the findings?

What goes in?

- A descriptive **abstract** indicates the type of information found in the work.
- Presents the **topic** and the **need** for the work.
- States the specific **objectives** of the project.
- It should include:
 - Key words found in the text.
 - The Purpose of the report.
 - Methods utilized.
 - Scope of the research.
 - Main Results
- **But:**
 - **No Results discussion** about the work.
 - **No Long Background.**
 - **No citations/references.**
 - **No Acronyms.**

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What was done?

Why was it done?

How was it done?

What was found?

What is the significance of the findings?

Example:

This project describes a new inertial navigation system that will increase the mapping accuracy of oil wells by a factor of ten (topic/need). The new system uses three-axis navigation that protects sensors from high-spin rates (objective). The system also processes its information by Kalman filtering in an on-site computer (technique/approach). Test results show the three-dimensional location accuracy is within 0.1 meters for every 100 meters of well depth (results), with accuracy ten times greater than conventional systems (conclusion).

Why Do It?

- Attract readers to read the entire article.
- Help readers to remember the key findings on a topic.
- Provide clear overview of the main text.
- Improve articles Indexing.

Rules

- All material presented in the Abstract must appear in the report body.
- Do not present any figures or tables.
- Do not cite references.

An Effective Abstract Should

- Meet the count limit.
- Use an introduction/body/conclusion structure.
- Follow the chronology of the report.
- Adds no new information but simply summarizes the report.

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How do you know when you have enough information in your abstract?

Avoid

- Blurred results. (“some”, “small”, “very”, “significant”).
- Writing in first person using “I” and “We”.
- Future tense.
- Leaving out important data findings.
- Adding References.

“Will be discussed”

Criticize

In this paper, we will present and assess a framework for an engineering capstone design program. We explain how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. Next, we describe a way to administer and execute the capstone design experience including design workshops and lead engineers. We describe the importance in assessing the capstone design experience and report recent assessment results of our framework. We comment specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

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The abstract is written in the first person (e.g. “We explain...”, “We discuss...”, “We comment...”, etc.).

Using future tense.

No results are presented.

This poorly written abstract describes only the organization of the paper.

Criticize

In this paper, ~~we will~~ present and assess a framework for an engineering capstone design program. ~~We~~ explain how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. Next, ~~we~~ describe a way to administer and execute the capstone design experience including design workshops and lead engineers. ~~We~~ describe the importance in assessing the capstone design experience and report recent assessment results of our framework. ~~We~~ comment specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

1. The abstract is written in the **first person** (e.g. "We explain...", "We discuss...", "We comment...", etc.).
2. Using **future** tense.
3. **No results** are presented.
4. This poorly written abstract **describes only the organization of the paper.**

The abstract is written in the first person (e.g. "We explain...", "We discuss...", "We comment...", etc.).

Using future tense.

No results are presented.

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Introduction

Typical Content

1. Introduce the field/context

- What is the field/context in which you are writing?
- Why is the topic important or interesting?
- You can introduce the field by:
 - Claiming centrality.
 - Moving from general to specific.

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Centrality. Claiming that the area of research is an important one, and therefore implying that the research done is also crucial.

General to specific. Most writing starts with general information and then moves to specific information. This is true of introductions too. Think of “general” in terms of information which will help your reader understand the context of your research problem (rather than a complete history of your whole field of study!).

Typical Content Cont.

2. **Summarize previous research/what is currently understood**
 - Who has written on this topic?
 - What have they found or argued?
 - What is the current understanding of the topic?

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Often the introduction will refer to work already done in the research area in order to provide background (and often also to help define the research problem).

Here you present an overview what is known about the problem. You would typically cite earlier studies conducted on the same topic and/or at this same site, and in doing so, you should reveal the shortcomings in the knowledge that your work will fill.

In the introduction, just present a brief overview of work done earlier, sufficient to establish the need for your research.

Typical Content Cont.

3. Define the problem

- Indicating a gap
- Raising a question
- Continuing a previously developed line of inquiry
- Counter-claiming (disagreeing with an existing/accepted approach)

20

Indicating a gap. A research gap is an area where no or little research has been carried out. This is shown by outlining the work already done to show where there is a gap in the research (which you will then fill with your research). Woodward claims his work acts as a “corrective” to the current research and debate.

Raising a question. The research problem is defined by asking a question to which the answer is unknown, and which you will explore in your research.

Continuing previous line of inquiry. Building on work already done, but taking it further (by using a new sample, extending the area studied, taking more factors into consideration, taking fewer factors into consideration, etc.).

Counter-claiming: A conflicting claim, theory or method is put forward. Here, for example, the Woodward argues that studies in other branches have not impacted greatly upon consumption studies, and that previous models are undeveloped.

Typical Content Cont.

4. Introduce the present work

- outlining purpose/setting objectives.
- announcing your methodology
- announcing principal findings (results)
- indicating the benefits of the current work.

5. It provides a 'road map' for the rest of report (sections organization)

21

Methodology. Important points about the methodology used are outlined, perhaps including the scope of the study. However, the methodology is not given in detail (since details are given in the methodology section).

Principal findings (results). Researchers may indicate the kind of results they obtained, or an overall summary of their findings.

Indicating benefits of current research. Indicating the benefits of the research helps to justify why it was carried out and emphasizes the value of the study.

. It provides a 'road map' for the rest of the report.

This is so that the reader knows what's coming and sees the logic of your organization. Describe (in approximately one sentence each) the contents of each of the report/thesis chapters.

Common Problems

- Too much details, and hence too long.
- Repetition of words, phrases or ideas.
- Unclear problem definition.
- Poor organization.

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Too much detail, and hence too long. Remember, this is the introduction, a kind of overview. Although you will cover important points, detailed descriptions of method, study site and results will be in later sections.

Repetition of words, phrases or ideas. You will have keywords that are crucial to your study. However, your reader doesn't want to read them over and over! A high level of repetition makes your writing look careless. To reduce it, highlight repeated words or phrases - then you can easily judge if you are overusing them and find synonyms or pronouns to replace them.

Unclear problem definition. Without a clear definition of your problem, your reader is left with no clear idea of what you were studying. This means that they cannot judge your work's relevance to their own work, or its usefulness, quality, etc.

Poor organization. Writing an introduction that effectively introduces your problem and encapsulates your study is not an easy task. Often when we write we discover gradually what we want to say and how we want to say it. Writing is often a process of discovery. Bear this in mind when you write your introduction, and be prepared to go back and make big changes to what you have written, and the order in which you have presented your ideas and information. Your introduction must have a logical sequence that your reader can follow easily.

Conclusion

Typical Content

- Re-introduce the project and the need for the work – though **more briefly than in the introduction**.
- Re-iterate the purpose and specific objectives of your project.
- Re-cap the approach.
- Summarize the major findings and recommendations of your work.
- Make recommendations for future research.
- Present perfect/Past tense may be used.

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Re-cap the approach taken – similar to the road map in the intro; however, in this case, you are re-capping the data, methodology and results as you go.

Example

Two designs for the bridge to be constructed on the Calder Freeway across Salty Creek have been presented and discussed in this report. Design 1 is a super-T beam bridge and Design 2 is a simple composite I girder bridge. Both designs incorporate round piers on piled foundations, which are used because the soil conditions are unknown and possibly unstable. Design 2 has some advantages because it is made of steel and thus has longer spans and fewer piers.

However, Design 1 is clearly the better design. This design requires minimal formwork in the construction of its concrete deck, it is relatively easy to erect and it maintains stability during transportation and construction. In addition, it is cheaper to build and more durable.

Common Problems

- **Too long.**
- **Too much details.**
- **Failure to comment on larger, more significant issues.**
 - You should put your research in context.
 - In other words, move from specific (your research) back to general (your field, how your research will affect the world).

26

Too long. The conclusion section should be short. Often the conclusion section is as little as 2.5% of an entire piece of published research.

Too much detail. Conclusions that are too long often have unnecessary detail. The conclusion section is not the place for details about your methodology or results. Although you should give a summary of what was learnt from your research, this summary should be short, since the emphasis in the conclusions section is on the implications, evaluations, etc. that you make.

Failure to comment on larger, more significant issues. Whereas in the introduction your task was to move from general (your field) to specific (your research), in the concluding section your task is to move from specific (your research) back to general (your field, how your research will affect the world). In other words, in the conclusion you should put your research in context.

Avoid

- **Beginning with an unnecessary, overused phrase** such as "in conclusion," "in summary," or "in closing".
- **Stating the theory and problem statement for the first time in conclusion.**
- **Introducing a new idea or subtopic** in your conclusion.
- **Making sentimental, emotional appeals.**

27

Conclusion should never contain “**surprises**”

Criticize

I have done my best to show in this essay that the mass media, and particularly television, strengthens the various stereotypes in society, although at times in very subtle, implicit ways. Several examples have been analyzed, although one or two of these were somewhat out of date. The essay also suggested ways of overcoming this problem, although it is not clear if it is the media which creates these stereotypes, or if it is merely reflecting the way society already sees itself. The media is of course a part of society as a whole. The question of positive discrimination was discussed and it was decided that in the long run this has a negative effect. Things will change, but only slowly.

28

This conclusion is too short.

The use of English is questionable, particularly with the opening phrase "I have done my best" which does not meet the requirements for formal academic writing.

The writer is clearly not confident about the analysis they have presented and the tutor will wonder why, if they have admitted their evidence is not current enough, the writer has not addressed this by seeking more up-to-date research.

Whilst the writer does re-iterate a number of points from their discussion, they also include recommendations which was not a requirement for the essay question.

Criticize

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Abstract vs. Conclusion

Abstract	Conclusion
not part of the report body	part of the report body
brief summary of the report contents	summarize the central points made in the Discussion section containing future work and recommendation
no figures/tables	may include figures/tables
Attract reader and gives overview	reinforce the value and implications of work

30

The ABSTRACT is not a part of the body of the report itself. Rather, the abstract is a brief summary of the report contents that is often separately circulated so potential readers can decide whether to read the report. The abstract should very concisely summarize the whole report: why it was written, what was discovered or developed, and what is claimed to be the significance of the effort. The abstract does not include figures or tables, and only the most significant numerical values or results should be given.

The CONCLUSIONS should summarize the central points made in the Discussion section, reinforcing for the reader the value and implications of the work. If the results were not definitive, specific future work that may be needed can be (briefly) described. The conclusions should never contain "surprises". Therefore, any conclusions should be based on observations and data already discussed. It is considered extremely bad form to introduce new data in the conclusions.

Exercises

Label the Statement

- This paper describes the ICPF system, as well as a tool (AIE) we developed to help users annotate their sessions, and a study we performed to collect these annotated sessions.
- In the future, we may learn to ask questions based on hybrid information of varying degree of granularity (e.g., genre, subgenre, director, actor, user age).

Label the Statement

- This paper describes the ICPF system, as well as a tool (AIE) we developed to help users annotate their sessions, and a study we performed to collect these annotated sessions.

(Abstract)

- In the future, we may learn to ask questions based on hybrid information of varying degree of granularity (e.g., genre, subgenre, director, actor, user age).

(Conclusion)

Label the Statement

- However, Car B is recommended as it was found to be more economical in terms of both manufacturing and running costs.
- The core of the method is an efficient decision-tree-based recommender algorithm, suitable for an adaptive bootstrap process.

Label the Statement

- However, Car B is recommended as it was found to be more economical in terms of both manufacturing and running costs. (Conclusion)
- The core of the method is an efficient decision-tree-based recommender algorithm, suitable for an adaptive bootstrap process. (Introduction)

Label the Statement

- The organization of rest of the paper is as follows: our methodology is presented in Section 2, in Section 3 the Experimental Setup is described, Section 4 shows the Experimental Results, Section 5 has the concluding remarks. There is a list of references included at the end of this document.
- Our process is composed of four steps: patternizing queries, predicting candidate operations, computing candidate recommendations and ranking these recommendations.

Label the Statement

- The organization of rest of the paper is as follows: our methodology is presented in Section 2, in Section 3 the Experimental Setup is described, Section 4 shows the Experimental Results, Section 5 has the concluding remarks. There is a list of references included at the end of this document.
(Introduction)
- Our process is composed of four steps: patternizing queries, predicting candidate operations, computing candidate recommendations and ranking these recommendations.
(Abstract/Introduction)

Label the Statement

- This lack of previous studies on the applicability of RS for Health Education was the main rationale of this paper, where we provided an overview of the two different fields: RS and CTHES, and discussed the promises of RS for health education.
- Data mining provides a number of algorithms to obtain profiles of users based on historical data, which are used to predict the preferences of new users.

Label the Statement

- This lack of previous studies on the applicability of RS for Health Education was the main rationale of this paper, where we provided an overview of the two different fields: RS and CTHES, and discussed the promises of RS for health education.
(Conclusion)
- Data mining provides a number of algorithms to obtain profiles of users based on historical data, which are used to predict the preferences of new users.

(Introduction)

THANK YOU 😊