Professional Basic English
Lecture 14

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Typical sections in a scientific article/thesis

- Abstract
- Introduction
- Background / Related Work / Literature Review
- Description of the work / study (Body):
  - Survey / tutorial paper: Thematic division in sections
  - Experimental paper: Methodology, Results
  - Theoretical paper: Phenomenon, Theoretical contributions
- Discussion, Conclusions

Discussion / Conclusions

- Some papers have separate sections for discussion and conclusions, some papers only have conclusions
  - Conclusions is a brief summary of the main findings
    - Typically, the last section (before references)
    - Short, much shorter than introduction and literature review
  - Discussion could be longer (if the page limit allows)
    - Focus in the limitations and significance of the results
    - Could be also integrated in the body (e.g. subsection of the results section)

Writing the conclusions

- Just as introduction is the opportunity to make a good first impression, conclusion is the opportunity to leave the reader with a positive final impression
  - Your last chance to show the reader that your work is coherent, complete and competent
- Opportunity to highlight your essential findings
  - An important criterion for thesis etc. is the coverage: the topic has been treated comprehensively from different aspects
  - In scientific publications, novelty is another, often even more important criterion

What to include in conclusion of essay

- Advice from an Edinburgh University MSc course handbook:
  - Conclusion has two requirements: 1) summarize your argument, and 2) reflect on the implications
  - Do not introduce new substantive material in a conclusion
- Summarize your argument
  - Do not just tell that you studied topic X: Draw together the threads of your argument and make conclusions
- Reflect on the implications
  - What practical or theoretical advancements or reconsiderations the work implies or suggests?
  - Point to areas of practical applications and potential future research

What to include in conclusion of project

- Weissberg & Buker (1990) suggest six elements:
  - **A.** Restatement of purpose (or hypothesis)
  - **B.** Summary of main points / findings; whether they support the hypothesis and are in line with other research
  - **C.** Possible explanations or speculations for the findings (remember to use cautious expressions when speculating!)
  - **D.** Limitations of the study
  - **E.** Implications, i.e. generalizations from the findings
  - **F.** Recommendations for future research and practical applications

Classroom task 1

- Read the abstracts A, B, C, and conclusions X, Y, Z in the attached material. Which abstracts and conclusions belong together? Are conclusions consistent with the respective abstracts?

Typical expressions in conclusions (1)

- From “Writing Postgraduate Assignments”, University of Edinburgh
- Restatement of purpose
  - *The aim / purpose / objective of this study was to …*
  - *In this study, we developed / proposed a method / algorithm X*
  - *Our research investigated / examined / explored X / whether …*
- Summary of the findings
  - *The results showed / implied / suggested that …*
  - *The findings do / do not support the hypothesis that …*
  - *We found that X increased / decreased significantly when …*
  - *The findings are (in)consistent with the prior studies / conventional view …*

Typical expressions in conclusions (2)

- Possible explanations and speculation
  - *X may be due to …*
  - *It could be that the findings were affected / influenced by …*
  - *If the results are confirmed by other studies, we may have to …*
- Limitations
  - *We need to be cautious about these findings, because …*
    - *… there was no control group*
    - *… the study is based on a limited number of samples / test cases etc.*
    - *… the method was not tested with real data, but only a simulation*
  - *More research is needed to confirm the results in different use cases*

Tips for writing conclusions

- Adapted from https://writingcenter.unc.edu/tips-and-tools/conclusions/
- Play the “So What” game
  - What would you answer when someone asks “So what? Why should I care?”
- Return to the themes in the introduction
  - Your work goes a circle: now you can state that your work is relevant for those aspects pointed out in the introduction
- Synthesize, do not summarize
  - Pull things together, don’t just repeat what you have said in the other sections
- Point to broader implications
  - Give an example how you work relates to the bigger picture

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Abstract

- Abstract is a concise summary of the paper or thesis, typically located first before other parts of the paper
  - Abstract is supposed to give a realistic idea about the paper content in the compact format
  - Abstract is supposed to be a stand-alone summary: no citations or references to the paper structure
  - Often published separately from the paper in databases or paper indexing platforms
  - Should be appealing enough to attract the reader to read the full paper

Contents of an abstract

- Abstract basically has all the elements the paper itself has
  - Introduction: short summary of the topic, background and the problem formulation
  - Body: explains briefly what has been done, what are the methods and what was the output of the work
  - Conclusion: what kind of results were obtained, what is their significance, are they in line with the expectations / hypothesis
  - Exact length of different parts depend on the length requirements for the abstract (often word limit applies, for example maximum of 150 or 250 words); short abstracts contain only one paragraph

Some tips how to write an abstract

- Adopted from https://www.wikihow.com/Write-an-Abstract
- Write the abstract last
  - Contents of the abstract must be in line with the contents of the paper
  - It is easier to summarize the paper when it is already written
- Follow the given requirements and guidelines (length etc.)
- Consider the audience (professional / layman)
  - Typically abstract should be easy enough to read for a person who has the general knowledge of the field, not necessarily an expert
- Determine the type of abstract
  - Usually descriptive or informative, rarely also critical

Tips for writing abstract (cont'd)

- Identify your purpose: why is your paper important?
  - Helpful questions: Why did you choose the topic? How did you do your study? What did you find out?
- Explain the problem at hand
  - What is the problem you are studying? What is the scope of your study? What is your main claim or argument?
- Explain your methods
- Describe your results (not necessary in all types of abstracts)
- Give your conclusion
  - What are the implications of the work? Are your results generic or specific?

Tips for formatting your abstract

- Keep it in order (introduction, body, conclusion)
- Provide helpful information
  - Do not use (not commonly known) abbreviations without definition, do not include tables, figures or citations in the abstract
- Write from scratch (do not copy sentences from other parts)
- Use real information introduced in the paper
- Don’t be too specific
  - Applies also to jargon that is difficult to understand by general readers
- Be especially careful with language and grammar
  - Ask for feedback, if possible

Classroom task 2: find intro, body, conclusion

- Read the shared abstract and find the main parts

Summary

- Writing the conclusions
  - Brief summary of the main observations, maybe with some reflections concerning the future research
- Writing the abstract
  - Brief summary of the contents, the paper in “nutshell”
  - Supposed to stand alone from the other parts of the paper