

# Technical Writing and Speaking in English

## Class 8: writing abstract and title

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# ABSTRACT

## OVERVIEW

The last major section of the experimental research report we look at is the **abstract**.

As you know, the abstract is actually the *first* section of a report, coming after the title and before the introduction. The abstract provides the reader with a brief preview of your study based on information from the other sections of the report.

We have reserved our examination of the abstract for the last chapter because it is often the last part of the report to be written.

## ABSTRACT

### 1. **Function:**

An abstract summarizes, in one paragraph (usually), the major aspects of the entire paper in the following prescribed sequence:

- The ***question(s) you investigated*** (or purpose), (**from Introduction**)
  - o State the purpose very clearly in the first or second sentence.
- The ***experimental design and methods*** used, (**from Methods**)
  - o Clearly express the basic design of the study.
  - o Name or briefly describe the basic methodology used without going into excessive detail – be sure to indicate the key techniques used.
- The ***major findings*** including ***key quantitative results***, or ***trends*** (**from Results**)
  - o Report those results which answer the questions you were asking
  - o Identify trends, relative change or differences, etc.
- A brief summary of your ***interpretations*** and ***conclusions***. (**from Discussion**)
  - o Clearly state the implications of the answers your results gave you.

**Some guidelines...**

The length of your Abstract should be kept to about 200 – 300 words maximum (a typical standard length for journals.)

Limit your statements concerning each segment of the paper (i. e. purpose, methods, results, etc.) to two or three sentences, if possible.

The Abstract helps readers decide whether they want to read the rest of the paper, or it may be the only part they can obtain via electronic literature searches or in published abstracts.

Therefore, enough key information (e. g., summary results, observations, trends, etc.) must be included to make the Abstract useful.

***How do you know when you have enough information in your Abstract ?***

A simple rule-of-thumb is to imagine that you are another researcher doing a study similar to the one you are reporting. If your Abstract was the only part of the paper you could access, would you be happy with the information presented there ?

## 2. Style: The Abstract is **ONLY** text

- You may use the active voice but much of an abstract will require passive constructions.
- Write your Abstract using concise, but complete, sentences, and get to the point quickly.
- **Use present and past tenses**

The Abstract **SHOULD NOT** contain:

- lengthy background information,
- references to other literature,
- elliptical (i. e., ending with...) or incomplete sentences,
- abbreviations or terms that may be confusing to readers,
- any sort of illustration, figure, or table, or references to them.

### **3. Strategy:**

Although it is the first section of your paper, the Abstract, by definition, must be written last since it will summarize the paper. To begin composing your Abstract, take whole sentences or key phrases from each section and put them in a sequence which summarizes the paper.

### **4. Check your work:**

*Once you have the completed abstract, check to make sure that the information in the abstract completely agrees with what is written in the paper. Confirm that **all** the information appearing in the abstract actually appears in the body of the paper.*

## Ordering your information

Abstracts from almost all fields of study are written in a very similar way.

The types of information included and their order are very conventional. The box that follows shows the typical information format of an abstract.

### ORDER OF TYPICAL ELEMENTS INCLUDED IN AN ABSTRACT

**B** = some *background information*

**P** = the *principal activity* (or purpose) of the study and its *scope*

**M** = some information about the *methodology* used in the study

**R** = the most important *results* of the study

**C** = A statement of *conclusion* or *recommendation*

## Writing Up Your Own Research

In writing the abstract to your own research report, follow the procedure you have learned in this chapter. Select important information from each of the major sections of your report.

Remember that you can write a *reduced* abstract by eliminating and combining information elements. Do not copy sentences directly from the report. Synthesize the information in your major sections into clear, concise statements that will give your reader an accurate preview of the contents of your report.

Your abstract should not exceed 200 words (or 300 but in any case check your requirements!)



## Verb Tenses in the Abstract

The verb tenses used in writing sentences in the abstract are directly related to those you used in the corresponding sections earlier in your report. For example, background (B) sentences in the abstract are similar to background sentences in Stage 1 of the Introduction: they both are written in the *present tense*.

### ABSTRACT: Verb Tenses

#### **B** Background information (present tense)

EXAMPLE: One of the basic principles of communication **is** that the message should be understood by the intended audience.

#### **P** Principal activity (past tense / present perfect tense)

EXAMPLE: In this study the readability of tax booklets from nine states **was evaluated**.

EXAMPLE: Net energy analyses **have been carried out** for eight trajectories which convert energy source into heated domestic water.

#### **M** Methodology (past tense)

EXAMPLE: Children **performed** a 5-trial task.

#### **R** Results (past tense)

EXAMPLE: Older workers **surpassed** younger ones in both speed and skill jobs.

#### **C** Conclusions (present tense / tentative verbs / modal auxiliaries)

EXAMPLE: The results **suggest** that the presence of unique sets of industry factors **can be used** to explain variation in economic growth.

# CHECKLIST FOR CHAPTER 9

## Abstract

### INFORMATION

- Select an order information from previous sections of your report corresponding to element *B*, *P*, *M*, *R* and *C*
- For reduced abstracts, eliminate *B* statements and combine statements containing *P* and *M* information

### LANGUAGE

- Use appropriate verb tenses, tentative verbs, and modal auxiliaries, depending on which section of the report the information comes from

# The title

Based on the title, audiences decide whether to read the document. So think about it wisely.

Ideally, a strong title for a scientific paper or report orients readers by (information elements to add in the title):

- 1 Identifying the field of work for the document
- 2 Separating that document from all other documents in that field.

# Examples

## Example 1

Obtaining dynamic scheduling policies with simulation and machine learning

What is the field of work, and what is different from other papers?

# Examples

## Example 2

The Environmental Footprint of IC Production: Review, Analysis, and Lessons From Historical Trends

What is the field of work, and what is different from other papers?

## Example 3

From Silicon Shield to Carbon Lock-in? The Environmental Footprint of Electronic Components Manufacturing in Taiwan (2015-2020)

What is the field of work, and what is different from other papers? Can we improve it?

## Example 4

Not All GPUs Are Created Equal: Characterizing Variability in Large-Scale, Accelerator-Rich Systems

What is the field of work, and what is different from other papers? What extra information it adds?

# Examples

## Example 5

Attesting L-3 General Program Anomaly Detection Efficiency with SPADA

What is the field of work, and what is different from other papers? What is wrong with this title?



# Examples

## Example 5

Attention is all you need

What is the field of work, and what is different from other papers? What is wrong with this title?