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Technical Writing:
The Abstract

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What is an abstract?

Abstract

- Summarises the whole report at an abstract level
- No detail but might contain one or two key facts

- It therefore highlights not only the one or two primary results but also the problem that the work aims to address
- Therefore contains context, results and conclusion information

- Short!

What is it for

- Many people read the abstract and then decide whether to read the rest of the document.
- It therefore functions primarily as an **advert**.

What is an abstract?

http://writingcenter.unc.edu/handouts/abstracts/

There are two types of abstracts: descriptive and informative. They have different aims, so as a consequence they have different components and styles.

Descriptive abstracts

A descriptive abstract indicates the type of information found in the work. It makes no judgments about the work, nor does it provide results or conclusions of the research. It does incorporate key words found in the text and may include the purpose, methods, and scope of the research. Essentially, the descriptive abstract describes the work being abstracted. Some people consider it an outline of the work, rather than a summary. Descriptive abstracts are usually very short—100 words or less.

Informative abstracts

The majority of abstracts are informative. While they still do not critique or evaluate a work, they do more than describe it. A good informative abstract acts as a surrogate for the work itself. That is, the writer presents and explains all the main arguments and the important results and evidence in the complete article/paper/book. An informative abstract includes the information that can be found in a descriptive abstract (purpose, methods, scope) but also includes the results and conclusions of the research and the recommendations of the author. The length varies according to discipline, but an informative abstract is rarely more than 10% of the length of the entire work. In the case of a longer work, it may be much less.

How do you approach writing the abstract?

One method, is to use four sentences (or parts)

- The first states the problem
- The second states why the problem is a problem
- The third is my startling sentence/states the important contribution/findings made by in the paper/report
- The fourth states the implication of the contribution/findings

*"**Abstract:** The rejection rate for OOPSLA papers is near 90%. Most papers are rejected not because of a lack of good ideas, but because they are poorly structured. Following four simple steps in writing a paper will dramatically increase your chances of acceptance. If everyone followed these steps: the amount of communication in the object community would increase, improving the rate of progress."*

Source:
R. E. Johnson et al., "How to get a paper accepted at OOPSLA (panel)," in *Proc. Conf. Object-Oriented Programming Systems, Languages, and Applications*, Washington D.C., USA, 1993, pp. 429–436.

Or…

http://www.emeraldinsight.com/authors/guides/write/abstracts.htm

Start by writing a statement of the paper's purpose, which should be as succinct as possible. If you include background keep this to a minimum and only include such information as to provide a context. Summarize the paper, reporting its main facts. Remember the following points:

- Follow the chronology of the paper and use its headings as guidelines.
- Do not include unnecessary detail, as in the first example in "How not to write an abstract".
- You are writing for an audience "in the know" – you can use the technical language of your discipline or profession, providing you communicate your meaning clearly, and bear in mind that you are writing to an international audience.
- Make sure that what you write "flows" properly, that there are "connecting words" (e.g. consequently, moreover, for example, the benefits of this study, as a result, etc.) and/or the points you make are not disjointed but follow on from one another.
- Use the active rather than the passive voice, e.g. "The study tested" rather than "It was tested in this study".
- The style of writing should be dense, and sentences will probably be longer than usual.

You should by now have a draft, which will probably be too long. Here are some points to remember in cutting:

- cut out any unnecessary words that do not add to the meaning, **but**
- make sure that the abstract is not so "cut" as to be unreadable; use full sentences, direct and indirect articles, connecting works, etc. An abstract should use continuous prose, not notes.

Read through your draft, making sure that it covers the main points listed above, and that there are no grammatical, spelling or typographical errors, also that it "flows" properly.

Best method?

Both of these methods, while appearing slightly different, share similar approaches:

- Set the scene/outline the problem/provide context (**INTRODUCTION**)
- Describe the aim of the work/solution to the problem (**INTRODUCTION**)
- Briefly discuss the main results/findings (**CONCLUSIONS**)
- Place them in context to place value on the work (**CONCLUSIONS**)

The abstract therefore contains nothing that does not appear in either the Introduction and Conclusions sections.

The abstract should therefore be written after these two sections and by reducing these two sections to a few key sentences which highlight the absolute key aspects of the work.

This activity should also focus your attention on what these two sections are actually saying and may involve a re-write.

Example

Geoff V Merrett *et al*, "Augmenting forearm crutches with wireless sensors for lower limb rehabilitation", Meas. Sci. Technol. 21 (2010) 124008 (10pp)

Forearm crutches are frequently used in the rehabilitation of an injury to the lower limb. The recovery rate is improved if the patient correctly applies a certain fraction of their body weight (specified by a clinician) through the axis of the crutch, referred to as partial weight bearing (PWB). Incorrect weight bearing has been shown to result in an extended recovery period or even cause further damage to the limb. There is currently no minimally invasive tool for long-term monitoring of a patient's PWB in a home environment. This paper describes the research and development of an instrumented forearm crutch that has been developed to wirelessly and autonomously monitor a patient's weight bearing over the full period of their recovery, including its potential use in a home environment. A pair of standard forearm crutches are augmented with low-cost off-the-shelf wireless sensor nodes and electronic components to provide indicative measurements of the applied weight, crutch tilt and hand position on the grip. Data are wirelessly transmitted between crutches and to a remote computer (where they are processed and visualized in LabVIEW), and the patient receives biofeedback by means of an audible signal when they put too much or too little weight through the crutch. The initial results obtained highlight the capability of the instrumented crutch to support physiotherapists and patients in monitoring usage.

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CONTEXT

There is currently no minimally invasive tool for long-term monitoring of a patient's PWB in a home environment. This paper describes the research and development of an instrumented forearm crutch that has been developed to wirelessly and autonomously monitor a patient's weight bearing over the full period of their recovery, including its potential use in a home environment.

THE AIM

A pair of standard forearm crutches are augmented with low-cost off-the-shelf wireless sensor nodes and electronic components to provide indicative measurements of the applied weight, crutch tilt and hand position on the grip. Data are wirelessly transmitted between crutches and to a remote computer (where they are processed and visualized in LabVIEW), and the patient receives biofeedback by means of an audible signal when they put too much or too little weight through the crutch.

KEY OUTCOMES

The initial results obtained highlight the capability of the instrumented crutch to support physiotherapists and patients in monitoring usage.

VALUE

Summary

The content of an abstract is derived from the report or document.

It contains the context of the work, the aim of the work, the key outcomes of the work and how well the work has achieved the aim.

It contains the same material as the Introduction and Conclusions sections.

It is therefore written **LAST**.