Chapter 9

ABSTRACT

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.

INFORMATION CONVENTIONS

Many readers depend on the abstract to give them enough information about the study to decide if they will read the entire report or not.

For conference papers, research papers, theses and dissertations, you will almost always be asked to write an abstract. The main point to remember is that it must be short, because it should give a summary of your research. In fact, not only are abstracts short, they must almost always be a certain, specified length. Many abstracts are, so, before you begin writing, you must find out how long your abstract should be (for example, 200 words for master's theses) and you should come close to - but not go over - this limit. Abstracts that exceed the maximum word limit are often rejected because they cannot be used for databases, summaries of conferences, etc.

An abstract should briefly:

- Re-establish the topic of the research.
- Give the research problem and/or main objective of the research (this usually comes first).
- Indicate the methodology used.
- Present the main findings.
- Present the main conclusions

It is essential that your abstract includes all the keywords of your research, as it will enabled on databases which other researchers will search. Obviously if you only have two hundred words, you can only cover each of these areas briefly. The

emphasis is generally on the main findings and main conclusions since these areas are of most interest to readers.

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 = most important results of .the study
C = a statement of conclusion or recommendation

Note :

In some publications this section is titled "Summary". Check with your professor to determine the appropriate title for you to use.

COMMON PROBLEMS

Too long. If your abstract is too long, it may be rejected - abstracts are entered on databases, and those is usually a specified maximum number of words. Abstracts are often too long because people forget to count their words (remember that you can use your word processing program to do this) and make their abstracts too detailed (see below).

Too much detail. Abstracts that are too long often have unnecessary details. The abstract is not the place for detailed explanations of methodology or for details about the context of your research problem because you simply do not have the space to present anything but the main points of your research.

Too short. Shorter is not necessarily better. If your word limit is 200 but you only write 95 words, you probably have not written in sufficient detail. You should review

your abstract and see where you could usefully give more explanation - remember that in many cases readers decide whether to read the rest of your research from looking at the abstract. Many writers do not give sufficient information about their findings.

Failure to include important information. You need to be careful to cover the points listed above. Often people do not cover all of them because they spend too long explaining, for example, the methodology and then do not have enough space to present their conclusion.

ABSTRACTS AND INTRODUCIONS COMPARED

At first glance, it might seem that the introduction and the abstract are very similar because they both present the research problem and objectives as well as briefly reviewing methodology, main findings and main conclusions. However, there are important differences between the two:

Introduction

Should be short, but does not have a word limit;

Main purpose is to introduce the research by presenting its context or background. Introductions usually go from general to specific, introducing the research problem and how it will be investigated).

Abstract

Has a maximum word limit;

Is a summary of the whole research;

Main purpose is to summarize the research (particularly the objective and the main finding/conclusion), NOT to introduce the research area.

EXAMPLE

Here is an abstract from a published paper. It is 220 words long. Read it through looking for the main purpose of each sentence (for example, presenting research problem, objective, methodology, main findings, or conclusion):

Anagyrus sp. nov. nr. *sinope* Noyes and Menezes (Hymenoptera: Encyrtidae) is acandidate for biological control of the Madeira mealybug, *Phenacoccus madeirensis* Green (Hemiptera: Pseudococcidae). *P. madeirensis* is a serious pest of horticultural

crops in the southeastern United States. The first experiment studied the effect of temperature (15, 20, 25, 30, and 35°C) and feeding treatment (starved, hydrated with distilled water, and nourished and hydrated with diluted honey) on adult longevity of *Anagyrus* sp. nov. nr. *sinope*. Nourished and hydrated female parasitoids survived an average of 52.8 d at 15°C, which was 14 and 8 times longer than starved and hydrated females at the same temperature, respectively, and 8 times longer than nourished and hydrated females at 35°C. The second experiment studied the influence of feeding treatment on the reproduction of *Anagyrus* sp. nov. nr. *sinope* at 25°C. Nourished and hydrated female parasitoids lived (mean=14.2 d) and reproduced (mean=7 d) for a longer duration, parasitized more hosts (mean=16), and produced more offspring (mean=45) than starved or hydrated females. The third experiment assessed the longevity and reproduction of *Anagyrus* sp. nov. nr. *sinope* after storage for various durations (0, 1, 4, 7, 14, 21 d) at 15 and 25°C. Parasitoids stored at 15°C had increased longevity and a decreased reproductive period but similar parasitism rates and fecundity to those stored at 25°C. The results suggested that the parasitoids could be stored at 15 and 25°Cfor up to 14 d without significant reduction in fecundity after release.

KEY WORDS biological control, food supplements, storage temperature, storage duration, *Phenacoccus madeirensis*

Reducing the Abstract

Abstracts are usually written to be as brief and concise as possible. For journal articles the editor often establishes a word limit for the abstract that authors cannot exceed. In order to shorten an abstract to satisfy such limitations, you can eliminate or combine much of the information shown in the previous box. The reduced abstract typically focuses on only two or three elements with the emphasis placed on the results of the study. Information concerning the purpose and method is presented first (background information is not

included). Then the most important results are summarized. Finally, conclusions and recommendations may be included in one or two sentences.

ORDER OF INFORMATION ELEMENTS
IN REDUCED ABSTRACTS

P + M = purpose and method of the study
R = results
C = conclusions and recommendations*

*optional

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 I 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 Conclusion (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