**Mansoura University**
**Faculty of Agriculture**
**Economic Entomology Dept.**
**Mansoura 35516, EGYPT**

# ENGLISH
# (FIFTH LEVEL)

**Prepared by**

***Prof. Dr.***
***Adel Hassan Abdel-Salam***

**2007**

# Chapter 1

## The Experimental Research Report

An experimental research report is a paper written by an investigator to describe a research study that he or she has completed. The purpose of the report is to explain to others in field what the objectives, methods, and findings of the study were. The report may be published in a professional journal, it may appear as a monograph distributed by a research institution or publishing company, or it may be written in the form of a thesis or dissertation as a part of the requirements for a university degree.

I use the term "experimental research" here in a very board sense, referring to various kinds of studies. One typical kind is the controlled scientific experiment, where the researchers conduct empirical tests while identifying and controlling as many factors as possible that may affect the outcome kind of the study. Another common kind of research is *correlational*, in which the investigators compare two or more different variables to determine if any predictable relationships exist among them. Other kinds of studies may deal with information obtained from survey *questionnaires* or from *case studies*. Still other studies use computer–generated models that attempt to explain or predict phenomena observed in the laboratory or in nature.

All these kinds of studies share some common characteristics. First, they are designed around a *research question*. As a possible answer to the research question, the researcher formulates a *hypothesis* and then designs the study in such away as to reject or support the hypothesis. Also, such studies are usually quantitative that is, they deal with numerical data obtained in carrying out the study. These data are usually treated with one or more *statistical tests* to determine how seriously the results should be taken.

The reports written to describe these different kinds of studies also have much in common. Normally, a report includes descriptions of the purpose, method, and

results of the study. Complete results are usually presented in tables and graphs. Such a report contains references to other published works in the same area of study. A bibliography (a list of references) listing these works, along with all the information needed to find them in a library, is always included at the end of the report. Finally, a brief summary or an abstract covering the most important information in the report is usually attached.

The organizational format for all experimental research reports is basically the same regardless of the field of study in which the author is working. Some of the research fields treated in this book are listed here.

| | | | |
|---|---|---|---|
| Education | Management | Biology | Sociology |
| Economics | Chemistry | Psychology | Engineering |
| Agronomy | Animal Science | Language | Business |

The purpose of this chapter is to show you the basic format writers in these fields use to report the findings of their studies and to give you practice in recognizing the components that make up the format.

## Information Conventions

The following diagram illustrates the major sections of a typical experimental research report in the order in which they are usually presented. The diagram also shows the chapters in this book that deal with each the sections.

### The Experimental Research Report (an Example)

To help you understand the basic format of the experimental research report, I present here a report originally published in a professional journal. The report describes a study carried out in the field of entomology.

## Formulating a Research Question

Although it rarely appears in the final report, the research question is the basis on which the study is planned and carried out. After researchers have focused on a specific topic of investigation, they formulate a question that addresses a specific aspect of the topic in which they are interested. For example, if a researcher is interested in studying the effect of industrial pollution on plant life in a particular area, he or she might formulate a question like the following:

**Research Question**:

What are the effect of increased concentrations of sulfuric acid in the atmosphere on pollution of grain sorghum?

Asked another way, the same topic could be addressed through a different question:

**Research Question**:

Do increased concentrations of sulfuric acid in the atmosphere lead to significant decreased in the production of grain sorghum?

## Formulating a Hypothesis

In formal research work, it is necessary to formulate a statement of expected results. This is called the hypothesis. The hypothesis is a possible response to the research question. For example, a hypothesis based on the research question in the previously section might look this:

**Hypothesis:**

Abnormally high concentrations of sulfuric acid in the atmosphere have no effect on the production of grain sorghum.

When the hypothesis is stated in this negative way, it is called the null hypothesis ($H_0$). The purpose of the experiment is to determine whether the hypothesis can be rejected or not. We take a closer look at how the research question (and the hypothesis) is presented in the research in Chapter 4.

Table 1. Typical sections of the experimental research report.

| | |
|---|---|
| ABSTRACT | CHAPTER 9 |
| INTRODUCTION | CHAPTERS 2, 3, and 4 |
| METHOD | CHAPTERS 5 and 6 |
| RESULTS | CHAPTER 7 |
| DISCUSSION | CHAPTER 8 |