Chapter 7

RESULTS

In this chapter, we examine the third major section of the experimental research report, called results, in which you present the findings of your study and briefly comment on them. Some writers call this section "Results and Discussion" thus indicating more extensive comments on the findings of the study. However, in this chapter, we follow the convention of including only brief comments focused on the statistical analysis, reserving the more general comments for a later section. Before you write this part of your report, check with your professor to find out which organizational format you should follow.

INFORMATION CONVENTIONS

The results section of the report presents the findings of the study in both *figures* and in written text. Figures (graphs, tables, and diagrams) present the complete findings in numerical terms, while the accompanying text helps the reader to focus on the most important aspects of the results and to interpret them. In this chapter, we concentrate on the text which usually consists of three main information elements. In the following selection from the field of entomology, these three elements have been identified for you.

Ordering Your Information

The example just shown is typical of results sections in research reports in many fields. As you can see, this section consists of three basic elements of information.

RESULTS:

Three Information Elements

ELEMENT 1: a statement that locates the figure(s) where the results can be found

ELEMENT 2: statements that present the most important findings

ELEMENT 3: statements that comment on the results

Alternate Short Form

Another ordering system for the results section is a *short form* of the ordering system we saw in the above box. As you can see, in this alternative the three basic elements are reduced to two kinds of statements.

ALTERNATE SHORT FORM FOR PRESENTING RESULTS

ELEMENTS: 1 and 2 (combined)	statements that present the most important results and that indicated in parentheses the figure where they can be found.
ELEMEIT 3:	statements that comment on the results
EXAMPLE:	Caffeine was somewhat more potent than theophylline in preventing leaf-eating (Figure 1). In contrast, caffeine has been reported elsewhere to be ten times weaker than theophylline as an adenosine antagonist (8).

Commenting on Results-Two Patterns

There are two possible ways to order your *comment statements* (Element 3) You may put a short comment (one or two sentences) after each significant result you mention, or you may leave your comments until all the results have been mentioned. The following box illustrates these two ways of ordering your comment

TWO PATTERNS FOR ORDERING COMMENTS

(ELEMENT 3)

ALTERNATING PATTERN: $R_1 + C_1$; $R_2 + C_2$; $R_3 + C_3$

SEQUENTIAL PATTERN: $R_1 + R_2 + R_3 + C$

R= Results (Element 2); C = Comments (Element 3)

The *alternating pattern* is best if you have many individual results with specific comments about each result. The *sequential pattern* is used when there are several individual results to which one general comment applies. (Your professor may ask you to put a!! comments in a separate section called "Discussion" See Chapter 8.)

Functions of Comments

The comments (Element 3) in results sections may serve a variety of different filiations. Some of the most common functions are listed in the following box.

FUNCTIONS OF COMMENTS (ELEMENT 3)

Comments may: 1. generalize from the results ;
2. explain possible reasons for the results;
3. compare the results with results from other studies.

Choosing Verb tenses for Results

In using the three-step format to write your results section, you should observe the following verb tense conventions. In Element 1, use the present tense to locate your data in a figure.

ELEMENT 1 : Locations the figure

Present Tense

Example: Results of the t-test are presented in Table 1.

Example: Table 4 summarizes the test results on larval instars.

Notice in the examples in the box above that locational statements can be written in either the active or passive voice, but in both cases the present tense is used.

When you report your findings (Element 2), use the past tense.

ELEMENT 2 : Presenting the findings

Past Tense

Example: As a group, divorced mothers spent over twice as much time in employment as married mothers (figure 2).

Example: The coefficient of correlation was found to be significant at the 0.00 level.

Note: In some fields such as engineering and economics, authors may present their findings in the present tense.

When commenting on the findings (Element 3), it is conventional to use the present tense or modal auxiliaries.

ELEMENT 3 : Commenting on the results

Present Tense and Modal Auxiliaries

1- When the comment compares your results with the results of other studies, use the present tense.

Example: This is consistent with earlier findings suggesting that personal characteristics are not related to attrition and teaching.

2- When the comment gives a possible explanation for the results, use modal auxiliaries.

Example: These results (can or may) be explained by considering the voltage distribution on 230 KV insulators during freezing conditions.

3- When the comment generalizes from results, use may.

Example: Hyperactive children may be generally responsive to amphetamines.

In your Element 3 comments you may also use tentative verb in the present tense instead of modal auxiliaries to generalize from results

ELEMENT 3: Commenting on the results

Tentative Verbs

EXAMPLE: It (*appears*) / (*seems*) / (*is likely*) that hyperactive children are generally responsive to amphetamines.

EXAMPLE:

These results *suggest* that children who display learning problems are depending on only one cerebral hemisphere.

ELEMENT 2: Presenting Different types of Findings

There are three different types of findings that you may need to report, depending on the kind of study you do. Specific words and expressions are used in writing about each type.

1- In some studies the findings involve *a comparison* among groups, often one or more experimental groups with a control group. In these cases, Element 2 statements are often written using *comparative* or *superlative expressions*.

ELEMENT 2 : Comparisons among groups

Group 1	Comparisons	Group 2
The professional athletes	had faster eye movements	than our other subjects
Quartz I reactors	had a higher mass flow	than Quartz II

Superlative	**Group 1**
The highest incidence of Otitis Media	was found among Australian Indians

2- In other studies the findings show the tendency of a variable to fluctuate over time. To report these kinds of results, use expressions of variation or special verbs of variation in your Element 2 statements.

ELEMENT 2: FLUCTUATION OF A VARIABLE.OVER TIME

Variable	**Verb**	**Phrase of variation**	**Time period**
Prices	showed	a tendency to increase	over the three year period.
The percentage of female students	tended	to decline	in the second half of the decade

Variable	**Verb of variation**	**Time period**
The concentration of sulfur dioxide	rose fell increased decreased dropped remained constant declined	over the period studied

3- Findings of a third type show the relationship of one variable with another or relationships among variables. When you report these kinds of results, it is common to use ***verbs of correlation*** or association in Element 2.

ELEMENT 2: RELATIONSHIP BETWEEN TWO OR MORE VARIABLES

Variable X	Verb of correlation/association	Variable Y
Choice of locations	was (correlated with) (negatively correlated with) (associated with)	marital status.
Dry weight of top growth	was not (highly) (significantly) (closely) related to	total nitrogen.