CHAPTER 12

FILL-IN-THE-BLANK ITEMS

Introduction

In Chapter 11, we used the (1) _____ _____ to analyze the results of an experiment in which two or more levels of an independent variable were manipulated. The (2) _____ _____ is used when another independent variable is added. When more than one independent variable is used, the variables are called (3) _____. An experiment studying the effects of task difficulty and anxiety in which there are three levels of task difficulty and three levels of anxiety is an example of a (4) _____ factorial design.

Main Effects and Effects of Interaction

The effect of each independent variable in a two-factor experiment is called a (5) _____ _____. Also, there is the possibility of the joint effect of the two independent variables on behavior; this effect is called the (6) _____. If an interaction exists, the effect of one factor (7) _____ on the levels of the second factor. If there is no interaction between factors, the graph of the data will show essentially (8) _____ lines or lines that are approximately equidistant at each data point. Thus, interaction is usually revealed by (9) _____ lines or (10) _____ lines. When levels of factor B are plotted as lines above levels of factor A, data can be interpreted from a two-factor experiment with the help of the following “rules”:

1. If the averages of the points above each level of factor A are unequal, a significant main effect for factor (11) _____ is suggested.

2. If the averages of the points used to plot the (12) _____ are unequal, there may be a significant main effect for factor B.

3. If the lines aren't parallel, there may be a significant (13) _____.

Advantages of the Two-Factor Design

The main advantage of the two-factor design over two one-factor experiments is the test for (14) _____. A second advantage is economy. The two-factor design allows a reduction in the number of (15) _____ required. Statistical tests on the main effects are usually more (16) _____ with the two-factor design than with two one-factor designs. Finally, the two-factor design tells about more conditions; that is, it allows for greater (17) _____.

Logic of the Two-Way ANOVA

The two-factor ANOVA results in (18) _____ *F* ratios. There are tests of the (19) _____ _____ of factors A and B and a test of the (20) _____ of factors A and B. The same error term, symbolized by (21) _____ is used for each *F* ratio.

Interpretation of Results

Interpretation of the two-way ANOVA depends mainly on whether the (22) _____ is significant. If it is not significant, a significant main effect can be analyzed with the (23) _____ _____ tests covered in Chapter 11. Plotting the group means is often the first step in interpreting a significant (24) _____.