TABLE 9.1 Summary of a Simple Experiment

Population	A population of participants	
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Assignment	Randomly assign one-half of available participants to the experimental group.	Randomly assign one-half of available participants to the control group.
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Independent variable	Give Treatment A to participants in experimental group.	Withhold Treatment A from participants in control group.
	1	1
Dependent variable	Measure participants' behavior on task Q.	Measure participants' behavior on task Q.
	1	1
Descriptive statistics	Calculate mean score on task Q, \overline{X}_e .	Calculate mean score on task Q \overline{X}_c .
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Descriptive statistics	Calculate effect size index, d .	
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Inferential statistics	Compare \overline{X}_c and \overline{X}_c using a hypothesis-testing statistic. Reject or retain the null hypothesis.	
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Interpretation	Write a conclusion about the effect of Treatment A on task Q scores.	

The experimental procedure is a versatile one. Experiments have been used to decide a wide variety of issues such as how much sugar to use in a cake recipe, what kind of tea tastes the best, whether a drug is useful in treating cancer, and the effect of alcoholic parents on the personality of their children.

In many experiments, it is obvious that there are two populations of participants to begin with — for example, a population of men and a population of women. The question, however, is whether they are equal on the dependent variable.

In some experimental designs, participants are randomly assigned to treatments by the researcher; in others, the researcher uses a group of participants who have already been "treated" (for example, being males or being children of alcoholic parents). In either of these designs, the methods of inferential statistics are the same, although the interpretation of the first kind of experiment is usually less open to attack.²