

TABLE 13.1 Sources of Variation

Within-groups source of variation. This source of error variation is not attributed to having different groups, so it is placed in the denominator of the test statistic.

Between-persons source of variation. This is calculated by computing the average score of each person (P) in each row. This error variance is not attributed to having different groups and is removed from the denominator of the test statistic.

PARTICIPANT	GROUPS			
	A	B	C	
A	2	4	6	$P = 4$
B	1	3	5	$P = 3$
C	0	2	4	$P = 2$
D	5	7	9	$P = 7$
$M = 2$ $M = 4$ $M = 6$				

Between-groups source of variation. This variance is attributed to having different groups and is placed in the numerator of the test statistic.

Three sources of variation in a within-subjects design: between groups and two sources of error variation—between persons and within groups. The between-persons source of variation is calculated and then removed from the denominator of the test statistic.