

## SPSS t-Test Example

This second example compares satisfaction with administration at public and charter schools, but, this time, notice that the variability among teachers' ratings is much lower. In the previous example given in class, the two means were the same, 6 vs. 9, for public and charter, respectively. The variances in the first example were 10 for public and 4 for charter ( $s=3.16$  and  $s=2$ ), and the calculated t-value was not significant,  $t(8) = -1.80$ , ns.

### Second Teacher Satisfaction Example

Public	Charter
4	9
4	8
6	10
8	8
8	10

$$\bar{Y}_1 = 6 \quad \bar{Y}_2 = 9$$

$$s^2 = 4 \quad s^2 = 1$$

### SPSS Menus Steps

1. Analyze → Compare Means → Independent Samples t-test
2. Move over the test variable and grouping variable to the appropriate boxes. "Test Variable" is the dependent variable and "Grouping Variable" is the variable indicating the two groups (e.g., treatment and control groups).
3. Click "Define groups": Place the two values of the grouping variable into the boxes for Group 0 and Group 1. Click "Continue".
4. Click "Ok."

The Output will look something like this (note that this was generated in SPSS 11.5):

### SPSS Output

#### Group Statistics

	type school type	N	Mean	Std. Deviation	Std. Error Mean
satisfaction rating of public school	.00 public	5	6.0000	2.00000	.89443
	1.00 private	5	9.0000	1.00000	.44721

#### Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
satisfaction rating of public school	Equal variances assumed	3.200	.111	-3.000	8	.017	-3.00000	1.00000	-5.30600	-.69400
	Equal variances not assumed			-3.000	5.882	.025	-3.00000	1.00000	-5.45882	-.54118

### Write-up Example

A t-test was used to compare the differences in satisfaction ratings of 5 charter and 5 public school teachers. On average, charter school teachers had higher satisfaction ratings of their schools ( $M = 9.00$ ,  $SD = 2$ ) than public school teachers had of their schools ( $M = 6.00$ ,  $SD = 1$ ). This difference was statistically significant,  $t(8) = 3.00$ ,  $p < .05$ , indicating that the higher average satisfaction of charter school teachers was more than what would have been expected due to chance.