

From the independent means t test tutorial:

4) Your stats professor asks you to measure the happiness of 98 proud and 31 infamous brothers and obtain for proud brothers a mean happiness of 33.24 and a standard deviation of 5.4555, and for infamous brothers a mean of 34.76 and a standard deviation of 6.0071.

Make a bar graph of the means with error bars representing the standard error of the means

Using an alpha value of 0.01, is the mean happiness of proud brothers significantly different than for the infamous brothers?

What is the effect size?

What is the observed power of this test?

X proud brothers $n_x = 98$ $\bar{x} = 33.24$ $s_x = 5.4555$
Y infamous brothers $n_y = 31$ $\bar{y} = 34.76$ $s_y = 6.0071$
 $\alpha = .01$ two-tailed

$$s_p = \sqrt{\frac{(98-1)(5.4555)^2 + (31-1)(6.0071)^2}{98+31-2}} = 5.5907$$

$$d = \frac{|33.24 - 34.76|}{5.5907} =$$