2.2 The Effect Size Index: d

As noted above (Section 1.4), we need a "pure" number, one free of our original measurement unit, with which to index what can be alternately called the degree of departure from the null hypothesis of the alternate hypothesis, or the ES (effect size) we wish to detect. This is accomplished by standardizing the raw effect size as expressed in the measurement unit of the dependent variable by dividing it by the (common) standard deviation of the measures in their respective populations, the latter also in the original measurement unit. For the two independent samples case, this is simply

$$\mathbf{d} = \frac{\mathbf{m}_A - \mathbf{m}_B}{\sigma} \tag{2.2.1}$$

for the directional (one-tailed) case, and

$$\mathbf{d} = \frac{|\mathbf{m}_A - \mathbf{m}_B|}{\sigma} \tag{2.2.2}$$

for the nondirectional (two-tailed) case,

where $\mathbf{d}$ = ES index for $\mathbf{t}$ tests of means in standard unit,
$\mathbf{m}_A, \mathbf{m}_B$ = population means expressed in raw (original measurement) unit, and
σ = the standard deviation of either population (since they are assumed equal).