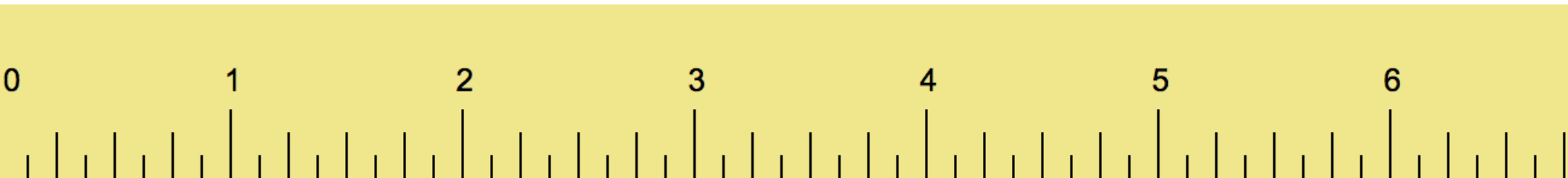


Effect Sizes

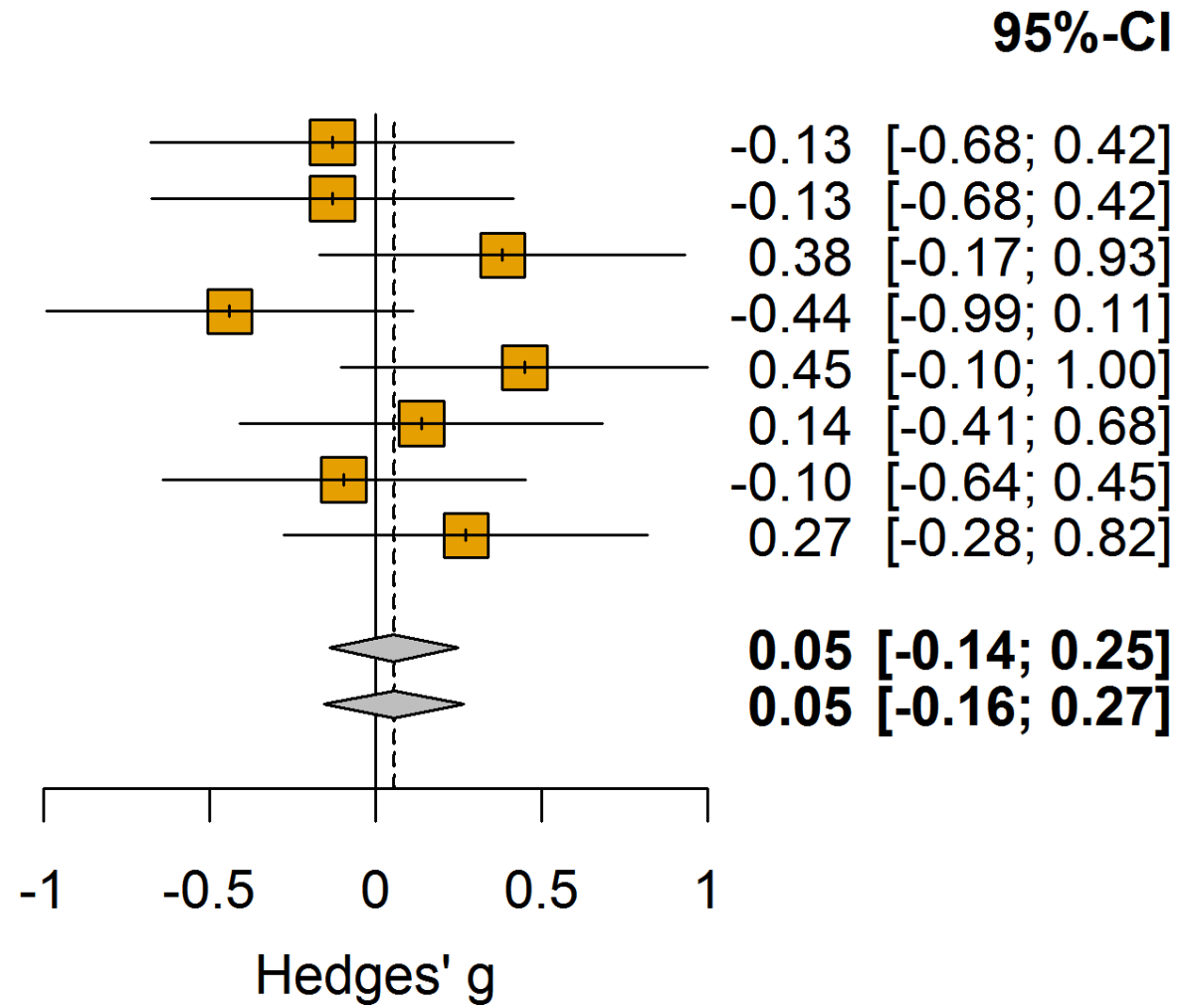


Next, I have learned and taught that the primary product of a research inquiry is one or more measures of effect size, not p values (Cohen, 1965).



1) Communicate
the **practical**
significance of the
results.

2) Effect sizes allow
researchers to draw
meta-analytic
conclusions



3) Effect sizes allow researchers to perform **power analyses**.

Test family

t tests

Statistical test

Means: Difference between two dependent means (matched pairs)

Type of power analysis

A priori: Compute required sample size – given α , power, and effect size

Input Parameters

Tail(s) One

Determine =>

Effect size dz 0.5

α err prob 0.05

Power ($1 - \beta$ err prob) 0.95

Output Parameters

Noncentrality parameter δ

Critical t

Df

Total sample size

Actual power

Unstandardized effect sizes

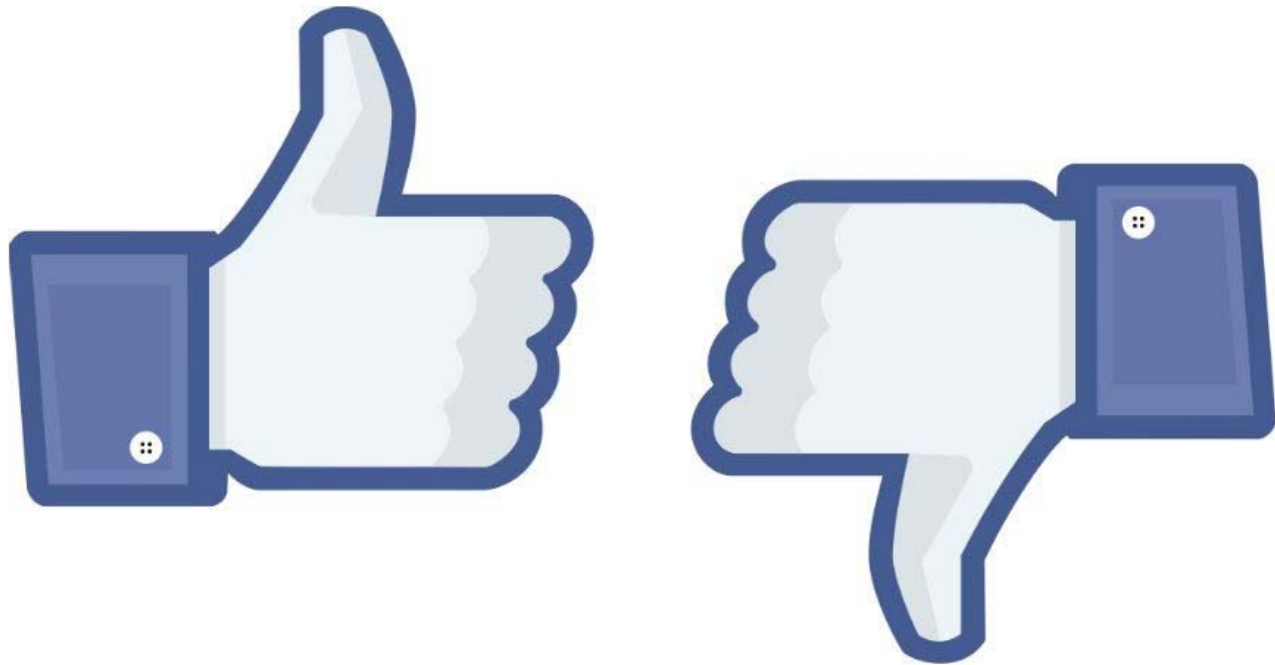


Standardized effect sizes

1 2 3 4 5 6 7

1 2 3 4 5

Facebook Study



<http://www.pnas.org/content/111/24/8788.full>

Facebook Study

When positive posts were reduced in the News Feed, the percentage of positive words in people's status updates decreased by $B = -0.1\%$ compared with control [$t(310,044) = -5.63$, $P < 0.001$, Cohen's $d = 0.02$], whereas the percentage of words that were negative increased by $B = 0.04\%$ ($t = 2.71$, $P = 0.007$, $d = 0.001$).

After 3570 words one more negative word was typed in the 'negative' condition.

Effects can be
statistically significant,
but **practically**
insignificant

**Small effects matter:
Juvenile delinquency
intervention: $d = 0.11$
Recidivism 45% vs. 50%**

Wilson, Lipsey, & Soydan, 2013

Effects can be
implausibly
large

*A correlation was found
between white suicide
rates and country
music ($r=.54$, $p<.05$).*

Stack & Gundlach, 1992

Two families:

- ***d* family** (standardized mean differences)
- ***r* family** (measures of strength of association)

You should report
and interpret
effect sizes.