Supplement

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0.1 Online version

https://pawelkulawiak.github.io/tsrsupplement/

0.2 R packages

Effect Size Computation for Meta Analysis [1]

```
library(esc)
```

0.3 Table 2: Mean differences between dyadic TSR-quality in students with and without EBPs

0.3.1 Al-Yagon (2016)

https://doi.org/10.1177/0022219415620569

```
# Teacher's availability (TD > EP) (Group C > Group B) (n.s.)
esc_mean_sd(
  grp1m = 76.98,
  grp1sd = 22.53,
  grp1n = 91,
  grp2m = 79.60,
  grp2sd = 20.24,
```

```
  grp2n = 99,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -0.1226
 Standard Error:   0.1454
       Variance:   0.0211
       Lower CI:  -0.4075
       Upper CI:   0.1623
         Weight:  47.3270
```

```
# Teacher's rejection (EP > TD) (Group B > Group C) (n.s.)
esc_mean_sd(
  grp1m = 17.10,
  grp1sd = 9.92,
  grp1n = 91,
  grp2m = 14.29,
  grp2sd = 7.94,
  grp2n = 99,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   0.3142
 Standard Error:   0.1461
       Variance:   0.0213
       Lower CI:   0.0278
       Upper CI:   0.6006
         Weight:  46.8387
```

0.3.2 Baker et al. (2009)

https://doi.org/10.1177/0143034309106945

```
# Authoritative teaching (TD > EP) (Typical group > Externalizing group) (statistical
significance not reported)
esc_mean_sd(
  grp1m = 26.83,
  grp1sd = 9.68,
  grp1n = 174,
  grp2m = 29.04,
  grp2sd = 8.18,
  grp2n = 519,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -0.2576
```

```
 Standard Error:   0.0879
       Variance:   0.0077
       Lower CI:  -0.4298
       Upper CI:  -0.0853
         Weight: 129.5039
```

0.3.3 Henricsson & Rydell (2004)

https://doi.org/10.1353/mpq.2004.0012

```
# Child report (IP > TD) (INT > PF) (n.s.)
esc_mean_se(
  grp1m = 1.51,
  grp1se = .08,
  grp1n = 21 + 23,
  grp2m =  1.52,
  grp2se = .11,
  grp2n = 8 + 17,
  es.type = "d")
```

```

Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:  -0.0189
 Standard Error:   0.2505
       Variance:   0.0627
       Lower CI:  -0.5098
       Upper CI:   0.4720
         Weight:  15.9414
```

```
# Child report (EP > TD) (EXT > PF) (* p < .05)
esc_mean_se(
  grp1m = 1.51,
  grp1se = .08,
  grp1n = 21 + 23,
  grp2m = 1.82,
  grp2se = .11,
  grp2n = 20 + 6,
  es.type = "d")
```

```

Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:  -0.5804
 Standard Error:   0.2522
       Variance:   0.0636
       Lower CI:  -1.0747
       Upper CI:  -0.0862
         Weight:  15.7244
```

```
# Conflict (IP > TD) (INT > PF) (** p < .01)
esc_mean_se(
  grp1m = 1.25,
```

```
  grp1se = .08,
  grp1n = 21 + 23,
  grp2m = 1.61,
  grp2se = .10,
  grp2n = 8 + 17,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:  -0.7025
 Standard Error:   0.2575
       Variance:   0.0663
       Lower CI:  -1.2072
       Upper CI:  -0.1978
         Weight:  15.0821
```

```
# Conflict (EP > TD) (EXT > PF) (*** p < .001)
esc_mean_se(
  grp1m = 1.25,
  grp1se = .08,
  grp1n = 21 + 23,
  grp2m = 2.29,
  grp2se = .10,
  grp2n = 20 + 6,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:  -2.0167
 Standard Error:   0.3004
       Variance:   0.0902
       Lower CI:  -2.6055
       Upper CI:  -1.4279
         Weight:  11.0816
```

```
# Closeness (TD > IP) (PF > INT) (* p < .05)
esc_mean_se(
  grp1m = 4.19,
  grp1se = .08,
  grp1n = 21 + 23,
  grp2m = 3.95,
  grp2se = .10,
  grp2n = 8 + 17,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:   0.4684
```

```
 Standard Error:   0.2536
       Variance:   0.0643
       Lower CI:  -0.0287
       Upper CI:   0.9654
         Weight:  15.5480
```

```
# Closeness (TD > EP) (EXT > PF) (n.s.)
esc_mean_se(
  grp1m = 4.19,
  grp1se = .08,
  grp1n = 21 + 23,
  grp2m = 4.12,
  grp2se = .10,
  grp2n = 20 + 6,
  es.type = "d")
```

```

Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:   0.1357
 Standard Error:   0.2476
       Variance:   0.0613
       Lower CI:  -0.3496
       Upper CI:   0.6211
         Weight:  16.3078
```

```
# Dependency (IP > TD) (INT > PF) (*** p < .001)
esc_mean_se(
  grp1m = 1.63,
  grp1se = .10,
  grp1n = 21 + 23,
  grp2m = 2.26,
  grp2se = .14,
  grp2n = 8 + 17,
  es.type = "d")
```

```

Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:  -0.9450
 Standard Error:   0.2631
       Variance:   0.0692
       Lower CI:  -1.4605
       Upper CI:  -0.4294
         Weight:  14.4513
```

```
# Dependency (EP > TD) (EXT > PF) (*** p < .001)
esc_mean_se(
  grp1m = 1.63,
  grp1se = .10,
  grp1n = 21 + 23,
  grp2m = 2.33,
```

```
  grp2se = .14,
  grp2n = 20 + 6,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and se to effect size d
    Effect Size:  -1.0411
 Standard Error:   0.2625
       Variance:   0.0689
       Lower CI:  -1.5557
       Upper CI:  -0.5265
         Weight:  14.5072
```

0.3.4 Little & Kobak (2003)

https://doi.org/10.1207/S15374424JCCP3201_12

```
# negative teacher events (SEBD > TD) (SED > Comparison) (*** p < .001)
esc_mean_sd(
  grp1m = 0.96,
  grp1sd = 1.15, # From Table 1 (total sample SD)
  grp1n = 40,
  grp2m = 2.06,
  grp2sd = 1.15, # From Table 1 (total sample SD)
  grp2n = 20,
  es.type = "d")

# positive teacher events (SEBD > TD) (SED > Comparison) (n.s.)
esc_mean_sd(
  grp1m = 2.76,
  grp1sd = 0.74, # From Table 1 (total sample SD)
  grp1n = 40,
  grp2m = 2.88,
  grp2sd = 0.74, # From Table 1 (total sample SD)
  grp2n = 20,
  es.type = "d")

# worst day event involving the teacher (SEBD > TD) (SED > Comparison) (** p < .01)
esc_mean_sd(
  grp1m = 0.09,
  grp1sd = .20, # From Table 1 (total sample SD)
  grp1n = 40,
  grp2m = 0.26,
  grp2sd = .20, # From Table 1 (total sample SD)
  grp2n = 20,
  es.type = "d")

# best day event involving the teacher (SEBD > TD) (SED > Comparison) (n.s.)
esc_mean_sd(
  grp1m = 0.03,
  grp1sd = 0.09, # From Table 1 (total sample SD)
  grp1n = 40,
  grp2m = 0.05,
  grp2sd = 0.09, # From Table 1 (total sample SD)
```

```
  grp2n = 20,
  es.type = "d")
```

0.3.5 Longobardi et al. (2019)

https://doi.org/10.1002/pits.22175

```
# Warmth (TD > IP) (without SM > with SM) (n.s.)
esc_mean_sd(
  grp1m = 0.83,
  grp1sd = 0.14,
  grp1n = 15,
  grp2m = 0.87,
  grp2sd = 0.11,
  grp2n = 60,
  es.type = "d")

# Autonomy support (IP > TD) (with SM > without SM) (n.s.)
esc_mean_sd(
  grp1m = .53,
  grp1sd = .25,
  grp1n = 15,
  grp2m = .52,
  grp2sd = .23,
  grp2n = 60,
  es.type = "d")

# Conflict (TD > IP) (without SM > with SM) (n.s.)
esc_mean_sd(
  grp1m = .27,
  grp1sd = .28,
  grp1n = 15,
  grp2m = .31,
  grp2sd = .27,
  grp2n = 60,
  es.type = "d")
```

Transformation r to d [2]

```
r_to_d <- function(r = NULL) { ((2*r) / sqrt(1 - (r)^2)) |> round(2) |> abs() }

# Closeness (TD > IP) (without SM > with SM) (**p < .01)
r_to_d(-0.41)

# Conflict (IP > TD) (with SM > without SM) (n.s.)
r_to_d(0.12)
```

0.3.6 Murray & Zvoch (2011)

https://doi.org/10.1177/1063426609353607

```
## Child ratings

# Communication (TD > EP) (Nonclinical > Clinical) (n.s.)
esc_mean_sd(
  grp1m = 20.53,
  grp1sd = 5.89,
  grp1n = 64,
```

```
  grp2m = 21.12,
  grp2sd = 6.58,
  grp2n = 129,
  es.type = "d")

# Trust (TD > EP) (Nonclinical > Clinical) (* p < .05)
# Univariate ANOVAs on each of the three measures comprising the multivariate composite
revealed a statistically significant mean difference between clinical groups on relationship
trust
esc_mean_sd(
  grp1m = 14.11,
  grp1sd = 3.70,
  grp1n = 64,
  grp2m = 15.70,
  grp2sd = 3.93,
  grp2n = 129,
  es.type = "d")

# Alienation (EP > TD) (Clinical > Nonclinical) (n.s.)
esc_mean_sd(
  grp1m = 11.78,
  grp1sd = 3.24,
  grp1n = 64,
  grp2m = 10.88,
  grp2sd = 2.95,
  grp2n = 129,
  es.type = "d")

## Teacher ratings

# All of the Bonferroni-corrected univariate tests for both grouping variables [male vs.
female; nonclinical vs. clinical] were statistically significant (p < .05)

# Closeness (TD > EP) (Nonclinical > Clinical) (p < .05)
esc_mean_sd(
  grp1m = 36.49,
  grp1sd = 8.92,
  grp1n = 64,
  grp2m = 42.48,
  grp2sd = 7.61,
  grp2n = 129,
  es.type = "d")

# Conflict (EP > TD) (Clinical > Nonclinical) (p < .05)
esc_mean_sd(
  grp1m = 31.13,
  grp1sd = 7.90,
  grp1n = 64,
  grp2m = 18.30,
  grp2sd = 6.05,
  grp2n = 129,
  es.type = "d")
```

0.3.7 Rogers et al. (2015)

http://dx.doi.org/10.1080/13632752.2014.972039

```
## teacher reported
```

```
# Bond (TD > EP) (Non-ADHD group > ADHD group) (** p < .01.)
esc_mean_sd(
  grp1m = 4.32,
  grp1sd = .09,
  grp1n = 35,
  grp2m = 4.74,
  grp2sd = .09,
  grp2n = 36,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -4.6667
 Standard Error:   0.4579
       Variance:   0.2097
       Lower CI:  -5.5642
       Upper CI:  -3.7691
         Weight:   4.7684
```

```
# Collaboration (TD > EP) (Non-ADHD group > ADHD group) (** p < .01.)
esc_mean_sd(
  grp1m = 4.02,
  grp1sd = .59,
  grp1n = 35,
  grp2m = 4.63,
  grp2sd = .49,
  grp2n = 36,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -1.1263
 Standard Error:   0.2555
       Variance:   0.0653
       Lower CI:  -1.6271
       Upper CI:  -0.6255
         Weight:  15.3179
```

```
## student-reported

# Bond (significant interaction effect of ADHD status by gender, * p < .05)
# Boys (EP > TD) (ADHD > Non-ADHD)
esc_mean_sd(
  grp1m = 4.08,
  grp1sd = .97,
  grp1n = 35 * 0.75,
  grp2m = 4.00,
  grp2sd = .87,
  grp2n = 36 * 0.37,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   0.0853
 Standard Error:   0.3365
       Variance:   0.1133
       Lower CI:  -0.5744
       Upper CI:   0.7449
         Weight:   8.8291
```

```
# Girls (TD > EP) (Non-ADHD > ADHD)
esc_mean_sd(
  grp1m = 3.98,
  grp1sd = .84,
  grp1n = 35 * 0.25,
  grp2m = 4.69,
  grp2sd = .41,
  grp2n = 36 * 0.63,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -1.2759
 Standard Error:   0.4293
       Variance:   0.1843
       Lower CI:  -2.1173
       Upper CI:  -0.4346
         Weight:   5.4266
```

```
# Collaboration (significant interaction effect of ADHD status by gender, ** p < .01)
# Boys (TD > EP) (Non-ADHD > ADHD)
esc_mean_sd(
  grp1m = 3.92,
  grp1sd = .56,
  grp1n = 35 * 0.75,
  grp2m =  4.07,
  grp2sd = .54,
  grp2n = 36 * 0.37,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -0.2710
 Standard Error:   0.3378
       Variance:   0.1141
       Lower CI:  -0.9330
       Upper CI:   0.3911
         Weight:   8.7644
```

```r
# Girls (TD > EP) (Non-ADHD > ADHD)
esc_mean_sd(
  grp1m = 3.59,
  grp1sd = .71,
  grp1n = 35 * 0.25,
  grp2m = 4.39,
  grp2sd = .39,
  grp2n = 36 * 0.63,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -1.6169
 Standard Error:   0.4472
       Variance:   0.2000
       Lower CI:  -2.4934
       Upper CI:  -0.7405
         Weight:   5.0008
```

0.3.8 Vervoort et al. (2015)

https://doi.org/10.1080/17405629.2014.989984

```r
# CARTS closeness (TD > SEBD) (General education > Special education) (statistical
significance not reported)
esc_mean_sd(
  grp1m = 3.96,
  grp1sd = 1.05,
  grp1n = 82,
  grp2m = 4.19,
  grp2sd = 0.83,
  grp2n = 145,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -0.2513
 Standard Error:   0.1387
       Variance:   0.0192
       Lower CI:  -0.5231
       Upper CI:   0.0205
         Weight:  52.0000
```

```r
# CARTS conflict (SEBD > TD) (Special education > General education) (statistical significance
not reported)
esc_mean_sd(
  grp1m = 2.69,
  grp1sd = 1.07,
  grp1n = 82,
  grp2m = 1.72,
  grp2sd = 0.72,
```

```
  grp2n = 145,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   1.1246
 Standard Error:   0.1479
       Variance:   0.0219
       Lower CI:   0.8347
       Upper CI:   1.4145
         Weight:  45.7091
```

```
# CARTS dependency (TD > SEBD) (General education > Special education) (statistical
significance not reported)
esc_mean_sd(
  grp1m = 3.59,
  grp1sd = 1.03,
  grp1n = 82,
  grp2m = 3.12,
  grp2sd = 0.97,
  grp2n = 145,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   0.4738
 Standard Error:   0.1400
       Variance:   0.0196
       Lower CI:   0.1995
       Upper CI:   0.7481
         Weight:  51.0566
```

0.3.9 Zweers et al. (2021)

https://doi.org/10.1177/0165025420915527

```
# Student-teacher conflict (SEBD in SE > TD; SEBD in RE > TD) (SEBD in SE > TD: non overlapping
Bayesian 95% CI)

# M (SEBD in SE)
(2.373 + 2.818) / 2 # Bayesian 95% CI [2.373; 2.818]
```

```
[1] 2.5955
```

```
# M (SEBD in RE)
(1.544 + 2.482) / 2 # Bayesian 95% CI [1.544, 2.482]
```

```
[1] 2.013
```

```r
# M (TD)
(1.464 + 1.640) / 2 # Bayesian 95% CI [1.464, 1.640]
```

```
[1] 1.552
```

0.4 Table 3: Mean differences between dyadic TSR-quality as perceived by students with EBPs and their teachers

0.4.1 Knowles et al. (2020)

https://doi.org/10.1177/0734282919874268

```r
# Bond (SP > TP) (student > teacher) (significance not reported)
esc_mean_sd(
  grp1m = 4.34,
  grp1sd = 0.79,
  grp1n = 182,
  grp2m = 4.11,
  grp2sd = 0.61,
  grp2n = 76,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   0.3101
 Standard Error:   0.1373
       Variance:   0.0188
       Lower CI:   0.0410
       Upper CI:   0.5791
         Weight:  53.0822
```

```r
# Task/goal (SP > TP) (student > teacher) (significance not reported)
esc_mean_sd(
  grp1m = 3.91,
  grp1sd = 0.74,
  grp1n = 182,
  grp2m = 3.51,
  grp2sd = 0.63,
  grp2n = 76,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   0.5637
 Standard Error:   0.1388
       Variance:   0.0193
       Lower CI:   0.2917
       Upper CI:   0.8358
         Weight:  51.8987
```

0.4.2 Van Loan & Garwood (2020)

https://doi.org/10.1177/1534508418786779

```
# conflict in the relationship (SP > TP) (student > teacher) (p ** < .01 | independent
sample t test)
esc_mean_sd(
  grp1m = 2.53,
  grp1sd = 0.83,
  grp1n = 92,
  grp2m = 2.95,
  grp2sd = 0.97,
  grp2n = 92,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -0.4653
 Standard Error:   0.1494
       Variance:   0.0223
       Lower CI:  -0.7581
       Upper CI:  -0.1724
         Weight:  44.7881
```

```
# closeness in the relationship (SP > TP) (student > teacher) (not significant | independent
sample t test)
esc_mean_sd(
  grp1m = 3.17,
  grp1sd = 0.59,
  grp1n = 92,
  grp2m = 3.37,
  grp2sd = 0.97,
  grp2n = 92,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:  -0.2491
 Standard Error:   0.1480
       Variance:   0.0219
       Lower CI:  -0.5392
       Upper CI:   0.0410
         Weight:  45.6459
```

0.4.3 Vervoort et al. (2015)

https://doi.org/10.1080/17405629.2014.989984

```
# CARTS closeness (SP > TP) (student > teacher) (significance not reported)
esc_mean_sd(
  grp1m = 3.96,
  grp1sd = 1.05,
  grp1n = 82,
```

```
  grp2m = 3.65,
  grp2sd = 0.65,
  grp2n = 82,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   0.3550
 Standard Error:   0.1574
       Variance:   0.0248
       Lower CI:   0.0465
       Upper CI:   0.6635
         Weight:  40.3641
```

```
# CARTS conflict (SP > TP) (student > teacher) (significance not reported)
esc_mean_sd(
  grp1m = 2.69,
  grp1sd = 1.07,
  grp1n = 82,
  grp2m = 2.29,
  grp2sd = 0.83,
  grp2n = 82,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   0.4177
 Standard Error:   0.1579
       Variance:   0.0249
       Lower CI:   0.1083
       Upper CI:   0.7271
         Weight:  40.1248
```

```
# STRS dependency (SP > TP) (student > teacher) (significance not reported)
esc_mean_sd(
  grp1m = 3.59,
  grp1sd = 1.03,
  grp1n = 82,
  grp2m = 2.60,
  grp2sd = 0.78,
  grp2n = 82,
  es.type = "d")
```

```
Effect Size Calculation for Meta Analysis

     Conversion: mean and sd to effect size d
    Effect Size:   1.0836
 Standard Error:   0.1672
       Variance:   0.0280
```

```
      Lower CI:   0.7558
      Upper CI:   1.4114
        Weight:  35.7522
```

0.5 R session

```
sessionInfo()
```

```
R version 4.4.1 (2024-06-14 ucrt)
Platform: x86_64-w64-mingw32/x64
Running under: Windows 11 x64 (build 22631)

Matrix products: default


locale:
[1] LC_COLLATE=German_Germany.utf8  LC_CTYPE=German_Germany.utf8
[3] LC_MONETARY=German_Germany.utf8 LC_NUMERIC=C
[5] LC_TIME=German_Germany.utf8

time zone: Europe/Berlin
tzcode source: internal

attached base packages:
[1] stats     graphics  grDevices utils     datasets  methods   base

other attached packages:
[1] esc_0.5.1

loaded via a namespace (and not attached):
 [1] compiler_4.4.1    fastmap_1.2.0     cli_3.6.3         tools_4.4.1
 [5] htmltools_0.5.8.1 rstudioapi_0.16.0 yaml_2.3.9        rmarkdown_2.27
 [9] knitr_1.47        jsonlite_1.8.8    xfun_0.45         digest_0.6.36
[13] rlang_1.1.4       evaluate_0.24.0
```

Bibliography

[1] D. Lüdecke, "esc: Effect Size Computation for Meta Analysis (Version 0.5.1)," 2019, doi: 10.5281/zenodo.1249218.

[2] J. Ruscio, "A probability-based measure of effect size: Robustness to base rates and other factors.," *Psychological Methods*, vol. 13, no. 1, pp. 19–30, 2008, doi: 10.1037/1082-989x.13.1.19.