

# Subject Index

## A

- ANOVA model ..... 38, 52, 194
- Apples-and-oranges problem ..... 7
- Approaches ..... 55ff., 185f., 192
  - Monte Carlo study of ..... 84ff.
  - assumed model ..... 82
  - choice of ..... 33, 82, 191
  - classification of ..... 15, 185f., 192
  - definition ..... 15
  - effect sizes used in ..... 183f.
  - emergence of ..... 14f.
  - fixed effects ..... 82, 132, 144
  - in subdisciplines of psychology 15
  - random effects ..... 83, 144, 147
  - refined ..... 70ff.
  - weighting schemes ..... 184f.
- Approximation to the sampling distribution of  $r$  ..... 22, 106ff.
  - evaluation of ..... 109ff., 187
  - Fisher ..... 107
  - Harley ..... 107f.
  - Kraemer ..... 108
- Artifact corrections . 14, 55, 63f., 66, 83, 86, 166
- Asymptotics
  - types of ..... 94, 122

## B

- Bare-bones meta-analysis ..... 64
- Bayesian models ..... 41
- Beta distribution .. 54, 100f., 104f., 185, 217
  - expected value ..... 130, 135
  - parameters ..... 101
  - PDF ..... 101
- Bias of estimators
  - and confidence intervals ... 98, 149
  - causes of ..... 185
  - for mean effect size . 65, 73, 84, 96, 118ff.
  - in comparison ..... 24f.

## C

- Change of space ..... 23, 76, 184, 193
- Cohen's  $d$  ..... 28
- Comparison of approaches ... 68, 82ff., 183
- Conditional random effects model . 42, 166, 195
- Confidence intervals . 37, 40, 58, 60, 62, 67, 72, 74, 98, 148ff., 189
  - coverage rates ..... 98, 148
  - interval widths ..... 98, 148
  - using Fisher- $z$  ..... 23
- Correction for unreliability ..... 64
- Correlation coefficient ..... 10, 20ff.
  - approximate variance of ..... 26f.
  - averaging ..... 77
  - bias of ..... 24, 68, 183
  - definition of ..... 20
  - distribution of ..... 21, 106, 187
  - in population ..... 21
  - observed variance of ..... 68
  - UMVU ..... *see* UMVU estimator
- Credibility intervals ..... 170

## D

- DerSimonian & Laird approach .. 71f., 76, 83, 85f.
- Distribution in universe .. 40, 43, 100ff.
  - beta ..... 54
  - continuous ..... 53f.
  - discrete ..... 49ff.
  - normal ..... 53f.

## E

- Effect size ..... 12
  - $d$  *see* Standardized mean difference
  - $r$  ..... *see* Correlation coefficient
- extraction from research reports 19f.
- families of ..... 20
- used in approaches ..... 83
- Efficiency of estimators ..... 134ff.

Explanatory models ... 47, 52f., 70, 82, 163, 169

**F**

File-drawer problem ..... 14

Fisher-z transformation . 22, 46, 57, 61, 71, 76, 79, 85, 193

improvements ..... 25f., 58, 128

inverse ..... 22, 57, 61, 77, 130

problems with ..... 82, 193

reasons for ..... 22f.

Fisher-z transformed correlation

approximate variance of ..... 23

bias of ..... 24, 183

Hotelling's bias correction .... 183

in population ..... 23

variance of ..... 57, 183

Fixed effects model 35ff., 50, 67, 73, 95, 100, 185

pooled estimator ..... 36

weights ..... 36

**G**

Garbage-in garbage-out problem .... 7

Generalizability theory ..... 41

**H**

Hedges & Olkin approach 56ff., 76, 83, 185

*d*-based procedures ..... 59ff., 84

*r*-based procedures ..... 57ff., 72

classification ..... 83

Heterogeneity ..... 44, 82, 194

detection of ..... 79, 169, 194f.

Heterogeneity variance .. 39, 41, 49, 68, 71, 73, 96, 98, 120, 158, 185

estimation of .. 39, 67ff., 71, 75, 99, 170ff., 190, 195

in universe of studies ..... 170

truncated estimator ..... 99, 170f.

Heterogeneous case . 43, 51f., 95ff., 99f.

Hierarchical linear models 38, 45ff., 52, 68, 76, 82, 185, 190

level 1 model ..... 46

level 2 model ..... 47

special cases ..... 46ff.

variance decomposition ..... 47

Homogeneity test ... 41, 79, 98f., 158ff., 186

Q-statistic 37, 48, 58, 60, 62, 67, 74, 98, 123, 159ff., 189, 195

75%-rule ... 69f., 83, 99, 166ff., 189, 195

90%-rule ..... 70, 99, 166ff.

Power ..... 161ff.

Type I errors ..... 159ff.

Homogeneous case . 35, 42, 49, 77, 96f., 99f.

Hotelling approach ..... 58f., 83, 185

Hunter & Schmidt approach . 59, 62ff., 83, 85

model classification ... 67f., 83, 186

refinements ..... 62

sampling variance ..... 65f.

Hypergeometric function ..... 21

**I**

Intended inference ..... 33f., 52, 195

Interval scales ..... 21

**J**

Judgmental factors in meta-analysis 20, 191

**L**

Levels of analysis ..... 10, 13, 38, 45

**M**

Maximum likelihood estimator ... 184

Mean effect size

estimation of 36, 57, 60f., 64f., 71ff., 96f., 117ff., 188

in *d*-space ..... 79ff.

in *z*-space ..... 57, 61, 76ff.

in heterogeneous situations . 39, 77

interpretation of ... 37f., 40f., 52f., 76f., 79, 82, 129, 193f.

significance of 37, 58, 60f., 65ff., 72, 74, 97f., 137ff., 188

Mean squared error ..... 97, 134

Meta-analysis

and legal issues ..... 63

and methodological issues ..... 6f.

conceptual questions ..... 33

definition ..... 4, 10

growth of ..... 4

history of ..... 3f., 14

recommendations for ..... 187ff.

tasks of ..... 94

Meta-regression ..... *see* Explanatory models

Mixture models ..... 42ff., 82, 185, 195

- components in .....42  
 conditional density ..... 43, 49  
 mixing distribution ..... 43, 49, 79  
 mixture distribution ..... 43  
 unconditional density .....52  
 weights .....43  
 Models in meta-analysis ... 12, 33, 185  
   choice of ..... 42, 194  
 Moderator analysis ... *see* Explanatory models  
 Monte Carlo study ..... 93  
   design variables .. 93, 100, 102, 187  
   effect sizes used in ..... 94  
   expectations and predictions . 95ff.  
   general aims .....94f.  
   generating the database ..... 105ff.  
   overview ..... 187ff.  
   programming .....114  
   results ..... 187ff.  
   simulation procedure ..... 187
- N**  
 Narrative reviews ..... 5, 12  
   compared to meta-analysis .....12
- O**  
 Observed effect sizes .....35  
 Olkin & Pratt approach .. 72ff., 83, 190  
 Optimal weights ...36, 65, 83, 184, 186, 193
- P**  
 Parameters in the universe .....186f.  
   of approaches .....186  
 Personnel selection . 4f., 14, 53, 62f., 69, 193  
 Pooled estimator ..... 36, 193  
   variance of .....37  
 Pooled standard deviation ..... 28  
 Power .....97f., 140ff., 146  
 Predictive validity .....9, 14, 53  
 Primary analysis ..... 9f., 45  
   compared to meta-analysis ... 13f.  
 Publication bias .....102
- Q**  
 Q-statistic ..... *see* Homogeneity test  
 Quality criteria as weights ..... 12
- R**  
 Random effects model .... 39ff., 67, 73, 170, 185  
   conceptualization .....41  
   pooled estimator .....39  
   variance decomposition .....39  
   weights ..... 39  
 Refined approaches ... *see* Approaches  
 Rosenthal & Rubin approach ..61f., 76, 83, 186, 192
- S**  
 Sampling error variance ..... 68  
 Sampling of studies ..... 41  
 Second-order sampling error ..... 41  
 Secondary analysis .....9  
 75%-rule ..... *see* Homogeneity test  
 Situational specificity ..... 63, 67, 69  
 Situations ..... 185  
   classes of ..... 48ff.  
   heterogeneous ..... 185  
   homogeneous ..... 185  
   used in Monte Carlo study . 100ff., 187  
 Standardized mean difference 28ff., 56, 59  
   asymptotic variance ..... 29  
   distribution of ..... 29  
   generic form of estimators ..... 28  
   Glass's estimator .....29  
   in population .....28  
 Steps of meta-analysis .....9ff.  
   data analysis ..... 12, 191  
   data collection ..... 12  
   data evaluation ..... 12  
   problem formulation ..... 11f., 34  
 Strict replications ..... 35, 50  
 Subgroup analysis .....38, 161
- T**  
*t*distribution ..... 108  
   noncentral ..... 29, 107f.  
 Traditional reviews ..... *see* Narrative reviews  
 Transformation of effect sizes 30ff., 56, 61, 196  
   *d* to *r* ..... 31, 79  
   *r* to *d* 31, 57, 59, 79, 84, 122, 184, 193  
   reasons for ..... 30  
 Type I errors .....97, 144  
 Type II errors ..... *see* Power

**U**

- UMVU estimator 26, 29, 73, 84, 96, 126, 183, 193f.
  - variance of ..... 73, 183
- Universe of studies ..... 13, 38
  - effect size ..... 35
  - expected value in .. 49, 76, 79, 118, 123, 185
  - variance decomposition ..... 39

**V**

- Validity generalization ..... 25, 63, 66
  - defined ..... 63
- Variance of estimators ..... 36
  - dependency on universe parameter 184
  - plug-in estimates ..... 184

**W**

- Weighting scheme
  - used in approaches .. 83f., 120, 186
- Weights in aggregation 61, 73, 80f., 184
  - optimal ..... *see* Optimal weights
  - plug-in principle ..... 84, 193
  - problems with ... 73, 80f., 120, 126, 184, 194
  - sample size ..... 184
  - suboptimal ..... 84