

Index

- adaptation, 281–283
 - concept-driven, 282
 - cultural, 282
 - format-driven, 283
- agreement, 23
- alpha activity, 157
- American Psychological Association (APA), 110, 130
- American Sociological Association, 130
- anorexia nervosa, 276
- ANOVA, 12–13
 - factorial, 12–13
 - one-way, 12
 - repeated measures, 12
- anxiety, 107
- apocrine glands, 149
- arousal, 212–213
- Asch conformity research, 48
- Association of American Universities, 266
- Association of Internet Researchers (AoIR), 75
- Association to Advance Collegiate Schools of Business (AACSB), 244
- Attitudes Toward Research Scale (ATR), 109, 111
- augmented reality (AR), 180
- authorship, 251
- autonomic nervous system (ANS), 149
 - associated measures, 149–153
- Bayesian statistics, 289
 - Bayes' theorem, 290
 - datasets, 290
 - outline, 290
 - parameter estimation, 291–298
- prior beliefs, 290
 - informative, 298–303
 - sensitivity analysis, 303–305
- Belmont Report, 86, 252
- Bessel, Friedrich, 210
- bias. *See also* experimenter effects
 - cross-cultural measures, 278–281
 - construct, 279
 - method, 279–280
 - cross-cultural studies
 - item, 280–281
 - demand, 135–136
 - experimenter, 116–119
 - fieldwork
 - cultural, 55–56
 - meta-analysis, 350–351, 353–357
 - participant, 43
 - questionnaires
 - response, 200
 - response styles, 279–280
- Big Data, 73–74
- Bland–Altman plots, 24
- blood pressure, 152
- blood samples, 156
- breadth, 3
- bulimia nervosa, 276
- Cambridge Analytica, 254
- cardiovascular measures, 151–153
- catch-up saccades, 172
- causality, 32–33
- central tendency measures, 7
- chemical engineering, 259
- chi-square, 14
- classical test theory, 309–310
- coercion, 94
- Coercion Assessment Scale (CAS), 95–96
- Cohen's *d*, 358
- Cohen's kappa, 29
- coherence, 4
- communication, 264–266
- communication studies, 194
- comparative movement, 274
- competence, 87–88
- conceptualization, 4
- concordance correlation coefficient, 25
- confederates, 48, 137
- confidence intervals (CIs), 10
- confidence levels, 9
- confidentiality, 247
- confirmatory factor analysis (CFA), 14, 32
- conflicts of interest, 248
- consent documents, 90
- consent quizzes, 91
- constructs, 4
 - bias, 279
 - equivalence, 276–277
 - validity, 29–34
- content analysis, 202
- convergent validity, 30, 33
- co-principal investigators, 261, 263
- correlation, 11
 - concordance correlation coefficient, 25
 - intraclass, 25, 27–28
 - Pearson, 11
 - reliability and, 25–26
- cortisol, 156–157
- Council of the Academy of Social Sciences, 245
- crime-scene analysis, 185
- criminal behavior, 185–186
- criterion validity, 30
- Cronbach's alpha, 27–28
- cross-cultural research

- bias, 278–281
- challenges, 283–284
- definition, 274–275
- equivalence, 275–278
- growth in prevalence, 274–275
- test adaptations, 281–283
- theoretical background, 284
- crosstalk, 105–110
- controlling for, 110
- deception and, 130
- key, 105
- low, 105
- crowdsourcing, 70–73, 77
- Darwin, Erasmus, 168
- data. *See also* Bayesian statistics analysis
- experimenter effects, 118–119
- ethics, 62
- anonymization, 254
- categories, 5–6
- interval, 6
- management
- ethics, 252
- postexperimental inquiries, 139–140
- social network analysis, 332–333
- nominal, 5–6
- ordinal, 6
- quality, 203
- eyetracking, 182–185
- accuracy, 182–183
- precision, 183–184
- meta-analysis, 353–357
- ratio, 6
- debriefing
- recommendations, 140–141
- standard procedure, 133–134
- deception, 46–48, 129–130
- confederates, 48
- covert research, 59
- debriefing, 132–134
- definition, 129
- dehoaxing, 132
- effective use, 47–48
- generalization of purpose, 47–48
- legitimate use, 130
- participant naïveté, 131
- participant suspicion, 130–132
- questionnaire design and, 197
- suspicion probing, 134–137
- tradeoffs involved in, 46
- types, 46–47
- demographics
- questionnaires, 197
- Department of Health & Human Services, 93
- dependent variable, 5, 39
- depth, 3
- desensitizing, 132
- DETECT software package, 324
- digital dossiers, 76
- dignity, 252–253
- DIMTEST software package, 324
- DirectRT, 219
- discrepancy score, 23
- disinterestedness, 2
- divide by total model, 318
- Donders, Franciscus, 210
- Durkheim, Émile, 328
- dyads, 336–337
- Egger's test, 354
- Eigenvalue test, 14
- electrocardiogram (ECG), 152
- electrodermal activity (EDA), 149
- electromyography, 153–156
- startle eyeblink, 155–156
- empathy, 122
- E-Prime, 219–220
- equivalence, 275–278
- construct, 276–277
- metric, 277–278
- scalar, 278
- structural, 277
- ergonomics, 153
- Eriksen flanker task, 215
- ESCR Question Bank, 195
- Ethical Position Questionnaire, 277
- ethics, 244–257
- Belmont Report principles, 86
- codes and principles, 245–246
- coercion, 94
- confidentiality, 247
- context, 249–250
- covert research, 59
- data analysis, 62
- data management, 252
- deception, 46, 130
- disclosure, 247
- falsification, 248
- fieldwork, 61–62
- internet-based research, 68, 75
- network data analysis, 332
- participant treatment, 109–110, 252–253
- harm avoidance, 253
- informed consent, 253–254
- privacy, 254
- plagiarism, 248–249
- principles
- accountability, 248
- authenticity, 248–249
- compliance, 249
- honesty, 246–247
- integrity, 246
- objectivity, 247–248
- professional bodies, 245
- research team management, 251–252
- review board (ERB), 42
- undue influence, 93–94
- universities, research centers, 250–251
- European Social Survey, 276
- evaluative priming, 216
- event-related potentials (ERPs), 158–160
- experimenter effects, 115–116
- bias, 116
- gender, 117
- interactional, 120–123
- expectations and beliefs, 122–123
- gender, 120–121
- minimization, 115–123
- psychosocial, 121–122
- race, 121
- noninteractional, 116–119
- data analysis, 118–119
- measurement, 116–118
- minimization, 119–120
- physical and psychological characteristics, 116
- experiments
- laboratory, 40–41

Index

- Exploratory Factor Analysis (EFA), 14
- Exponential Random Graph Models (ERGM), 340
- eyetracking, 172–174, 367
 applications, 185–186
 anthropology, 185
 crime-scene investigation, 185–186
 linguistic research, 186
 sociology, 186
- data quality, 182–185
- eye movement
 movements of fixation, 175
 saccades, 172
 vestibular-ocular response (VOR), 172
- eye-movement classification, 170–175
- fixations, 172
- measurement devices
 headband eyetrackers, 178
 head-mounted displays (HMD), 180–181
 remote, 175–177
 selection, 181–182
 tower eyetrackers, 177–178
 wearable eyetrackers, 179–180
- oculomotor system, 169–175
- face validity, 29
- Facebook, 68, 73, 254, 279
- Facial Action Coding System (FACS), 154
- facial expressions, 154–155
- factor analysis, 13–14
- Fahrenheit scale, 6
- fail-safe *N*, 353
- falsifiability, 1, 233, 248
 sophisticated falsificationism, 233
- fieldwork, 53–55
 analysis, 63–64
 covert, 59
 ethics, 61–62
 fieldnotes, 59–61
 other written records, 61
 practice, 60
 future prospects, 64–65
 gaining access, 58–59
- locating the self, 55–56
 research questions, 54
 researcher as outsider vs. insider, 56–58
- fitness trackers, 152
- fixations, 172
- Fleiss' kappa, 29
- focus groups, 203
- focus of attention effects, 213
- format-driven adaptation, 283
- fovea, 168
- fraud, 244
- functional MRI (fMRI), 160–162
- funnel debriefing, 134
- funnel plots, 354
- gender
 experimenter effects, 120–121
 in questionnaires, 197
- generalizability, 49–50
- globalization, 275
- Go/No-Go Association Task, 211, 217–218
- good science, 1–2
 communality, 2
 universality, 1
- Google Scholar, 347
- graded response model, 317
- Guttman scale, 201
- heart, 152
- heart rate variability (HRV), 152
- Helmholtz, Hermann von, 210
- highest posterior density (HPD), 295
- honesty, 246–247
- hormones, 156–160
- HTC Vive, 180
- Human Relations Area Files, 284
- hypothetical constructs, 22
- I^2 statistic, 349
- imaging techniques, 160–162
- impedance cardiography, 152
- Implicit Association Test, 22, 211, 216–217
- implicit attitudes, 217
 race, 217
- implicit measures, 21–22
- independent samples t-test, 11
- independent variable, 5, 39
- informed consent, 85
 consent documents, 90
 consent process, 90–91
 cultural context, 93–96
 intelligence/competence, 87–88
 surrogates and authorized representatives, 88
- knowingness, 89–93
- multimedia approaches, 92–93
- remote methods, 93
- research intermediaries, 95–96
- voluntariness, 93–96
- Inquisit, 220
- integrative data analysis (IDA), 359
- integrity, 246
- intelligence, 87–88
 tests, 282
- interdisciplinary research (IDR), 258–259
 challenges, 266–268
 conflict, 267
 communication, 264–266
 cultural differences, 266–267
 guidelines, 260, 268
 leadership, 261–262
 promotion, 268–270
 researcher recruitment, 262–263
 team management, 261
 working relationships, 263–264
- internal consistency, 26–27
- internet-based research
 Big Data, 73–74
 data collection
 crowdsourcing, 70–73
 sample populations compared to traditional samples, 69–70
 snowball sampling, 72–73
- ethics, 75
 participant compensation, 77–78
 participant honesty, 76–77
 privacy, 76
- linguistic analysis, 74–75
- methodology, 70
- motivations for, 69–70
- participant anonymity, 75–76
- topics, 70
- interval data, 6
- intraclass correlation (ICC), 25, 28

- Iowa Coercion Questionnaire (ICQ), 95
- item bias, 280–281
- item response theory
- model fit
 - item fit, 325–326
 - overall, 324–326
 - models
 - Rasch model, 310
 - three parameter logistic, 316–317
 - two parameter logistic, 314–315
 - parameter estimation
 - a posteriori, 322–323
 - assumptions, 323–324
 - marginal maximum likelihood, 322
 - maximum likelihood, 320–322
 - polytomous responses, 317–319
- joint probability of agreement, 29
- Journal of the American Medical Association (JAMA)*, 346
- Kannada, 282
- key crosstalk, 105
- knowingness, 89–93
- comprehension and recall, 89
 - improvement, 90–92
 - therapeutic misconception, 89–90
- Krippendorff's alpha, 29
- kurtosis, 7
- laboratory work
- advantages, 39–40
 - applying results to real world, 48–50
 - deception, 46–48
 - definition and essential criteria, 38–39
 - disadvantages, 40
 - lab reputation, 44
 - participants, 41–44
 - bias, 40–43
 - debriefing, 43–44
 - recruitment, 42–43
 - research assistants
 - recruitment, 44–46
 - research types
 - experiment, 40–41
 - quasi-experiments, 41
 - surveys, 41
 - lateral rectus, 169
 - likelihood function, 320
 - likelihood ratio test, 325
 - Likert scale, 201, 283
 - linear regression, 13
 - Linguistic Inquiry Word Count, 74
 - listening, 265
 - literacy, 92
 - literature reviews, 359–360
 - literature searching, 347
 - log-likelihood function, 321
 - low crosstalk, 105
 - MacArthur Competency Assessment Tool for Clinical Research, 87
 - MacArthur Perceived Coercion Scale, 94, 96
 - machine learning, 73
 - magnetic resonance imaging (MRI), 160–162
 - mail surveys, 192
 - main sequence, 172
 - malpractice, 244
 - Many Labs, 234
 - marginal probability, 322
 - Maskelyne, Nevil, 209
 - McCroskey, James C., 194
 - mean, 7
 - measurement. *See also* experimenter effects; physiological measures
 - experimenter bias, 116–118
 - hormones, 156–157
 - implicit values, 21–22
 - item response theory, 309–311
 - meta-analysis
 - consistency, 359
 - participant role, 105
 - psychometrics
 - classical test theory, 309–310
 - reaction times, 211–212, 214–218
 - history, 209–211
 - reliability, 21–23
 - evidencing, 23–29
 - parallel forms, 25
 - validity, 21
 - evidencing, 29–34
 - measures
 - hypothetical constructs, 22
 - Mechanical Turk, 71–72, 77, 105
 - advantages, 71–72
 - prevalence of use, 71
 - sample population, 71–72
 - medial rectus, 169
 - median, 7
 - meta-analysis, 346
 - alternatives, 359–360
 - artifacts
 - unreliability, 350–351
 - bias, 350–351
 - coding, 348–349
 - cumulative, 355–356
 - data quality, 353–357
 - decline effects, 356
 - outliers, 353
 - example, 356–358
 - fixed vs. random effect, 350
 - limitations, 358–359
 - published works, 346–347
 - research questions, 346–347
 - software, 352
 - structural equation modeling, 352
 - unpublished works, 347–348
 - variable count, 351–352
 - bivariate data, 351
 - multivariate, 351–352
 - univariate data, 351
 - vote-counting, 349
 - effect size heterogeneity, 349–350
 - metaphor, 352
 - metaSEM, 352
 - meter unit, 22
 - method bias, 279–280
 - metric equivalence, 277–278
 - miniature eye movements, 175
 - mode, 7
 - Monster Study, 245
 - Mplus, 352
 - mTurk. *See* Mechanical Turk
 - Müller, Johannes, 210
 - multiple determinism, 148
 - multiplex ties, 330
 - multitrait-multimethod matrix, 31
 - myograph, 210

Index

- narrative literature reviews, 359–360
National Academy of Sciences, 244, 266
National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 86, 252
National Communication Association, 130
National Network for Collaboration (NNC), 263
network data analysis
 ethical considerations, 332
networking, 262–263
New York Times, 254
nominal data, 5–6
nomological network, 30
nonadditive determinism, 148
normal distribution, 6
null hypothesis testing, 9
- objectivity, 247–248
oblique muscles, 170
Observer, 254
oculomotor system, 169
Oculus Rift, 180
Open Science Framework, 119, 290
open-ended questions, 202
open-source software, 220–221
operationalization, 4
optokinetic reflex (OKR), 175
orangutans, 185
ordinal data, 6
ordinary least squares (OLS)
 regression, 292
organized skepticism, 2
oxytocin, 156
- paired samples t-test, 11
Paleolithic era artifacts, 185
participants, 41–44, *See also*
 deception
 bias, 43
 debriefing, 43–44
 recommendations, 140–141
 deception
 debriefing, 132–134
 suspicion, 130–132
 suspicion probing, 134–137
- ethical treatment, 252–253
 harm avoidance, 253
 informed consent, 253–254
 privacy, 254
pre-existing attitudes to research, 111
preknowledge, 105–107
 controlling for, 108–110
 pre-existing attitudes to research, 107–108
 research anxiety, 107–108
 suspicion, 130–132
Pearson Correlation Coefficient (r), 11, 27
peer review, 2, 251–252
Perceived Awareness of the Research Hypothesis Scale (PARH), 136
PET-PEESE, 354
Pfungst, Oskar, 123
p-hacking, 239
phonocardiography, 152
photoplethysmography, 152
physiological measures, 147–149
 autonomic, 149–153
 cardiovascular, 151–153
 electrodermal activity (EDA), 149
 electroencephalogram (EEG), 158–163
 event-related potentials (ERPs), 158–160
 hormones, 156–160
 imaging techniques, 160–162
 principles, 148
 somatic
 electromyography, 153–156
Popper, Karl, 1
positron emission tomography (PET), 160
postexperimental inquiries (PEI), 134–139
 data management, 139–140
 improvement, 138–139
predictive validity, 30
pre-registration, 238–239
principal investigator (PI), 261, 263
Principal Components Analysis (PCA), 14
- prior beliefs
 diffuse, 290
 informative, 298–303
Project Implicit, 220
psychiatric conditions, 92
psychology, 283
psychometrics, 309
psychosocial effects, 121–122
PsycINFO, 347
publication bias, 353–357
- Q* statistic, 349
QRS complex, 152
qualitative literature reviews, 359–360
qualitative research
 definition, 3
quantitative research
 definition, 2–3
quasi-experiments
 laboratory, 41
questionnaires
 data quality
 social desirability response, 203
 design, 191
 exhaustive options, 199–200
 instructions, 196–197
 length, 193–194, 202–203
 limitations, 202–205
 mutually exclusive options, 198–199
 open-ended questions, 202
 question formulation, 197–198
 question ordering, 203–204
 question wording, 194, 204
 reverse coding, 200
 scale types, 200–202
 standardized questions, 194–195
 distribution method, 191–194
 face-to-face, 193
 investigator-administered, 193
 online, 192–193
 refusal rate, 202–203
 self-administered, 192–193
 self-reporting, 196
 telephone, 193, 195
 testing, 195–196
 validity and reliability, 204–205

- R (software package), 352–353
- Rasch, Georg, 310
- ratio data, 6
- reaction times, 6
- challenges, 221
 - contemporary state of field, 211–214
 - measures, 214–218
 - Eriksen flanker task, 215
 - evaluative priming, 216–220
 - Go/No-Go Association Task, 217–218
 - Implicit Association Test, 217–220
 - Stroop test, 215
 - moderators
 - arousal, 212–213
 - focus of attention effects, 213
 - practice effects, 213–214
 - stimulus intensity and complexity, 212
 - practice effects, 213–214
 - software, 218–219
 - DirectRT, 219
 - E-Prime, 220
 - open-source, 220–221
 - SuperLab, 220
- recruitment
- incentivization, 42
 - laboratory research, 42–43
 - laboratory work
 - advertising, 42–43
 - snowball technique, 42
 - management systems, 42
 - research assistants, 44–46
- regression analysis, 13
- ANOVA, 12–13
 - linear, 13
 - ordinary least squares (OLS), 292
- reliability, 22–23
- between researchers, 28–29
 - correlation measure, 25–26
 - definition, 5
 - evidencing, 23–29
 - internal consistency, 26–27
 - parallel forms, 25
 - reasons for reporting, 29
 - test-retest method, 23
 - triangulation, 24
- replication, 33
- conceptual, 232–233
 - contacting original authors, 236–237
 - direct, 231–232
 - knowledge building, 231–233
 - pre-registration, 238–239
 - protocol design, 236
 - purpose, 235–236
 - reporting, 239
 - results interpretation, 239–240
 - sample size, 237–238
 - using existing data, 233–234
 - using new data, 234
- research anxiety, 107–108
- research assistants
- recruitment, 44–46
 - training, 45–46
- research question, 49
- researcher degrees of freedom (RDF), 239
- retinal slip, 172
- reverse coding, 200
- Rosenberg's Stability of Self Scale, 357
- saccades, 172
- safeguard power, 237
- saliva samples, 156
- sample-to-sample root-mean-square distance (RMS-S2S), 184
- scalar equivalence, 278
- science, nature of, 1
- scientific method, 229
- self-administration, 192–193
- self-presentation bias, 32
- self-report scales, 21
- semantic differential scale, 201–202
- sensitivity analysis, 303–305
- sex, 5
- skew, 7
- Skree test, 14
- smooth pursuit eye movements, 172
- snowball sampling, 72–73
- social desirability bias, 32
- social loafing, 266
- social media, 103, 279
- social network analysis
- complete network design, 331
- data
- collection, 330–332
 - continuous, 341
 - cross-sectional data, 340–341
 - ego network design, 331–339
 - longitudinal data, 340–341
 - sources, 330
 - terminology, 329–330
 - types, 330
- data management, 332–333
- description
- dyad/tie level, 336–337
 - node level, 336
 - subgroup and full network, 338–339
 - triad level, 337–338
- key ideas, 328–329
- models
- Exponential Random Graph Models, 340
 - Stochastic Actor Oriented Models, 341
 - Temporal ERGMs, 341
- network boundaries, 331
- network visualization, 333
- structure
- dependence control, 339
 - observation dependence, 339
 - ties, 329
- software
- meta-analysis, 352
- somatic measures, 153–156
- specific objectivity, 310
- standard deviation, 7, 184
- Stanford prison experiment, 3, 58, 245
- startle eyeblink, 155–156
- statistics, 6–9, *See also* Bayesian statistics
- assumptions underlying, 9–11
 - central tendency measures, 7
 - chi-square measure, 14
 - correlation measures, 11–14
 - distribution measures, 7–9
 - factor analysis, 13–14
 - frequentist, 292
 - regression, 13
 - ANOVA, 12–13
 - t-test, 11

Index

- structural equation modeling (SEM), 352
- students, 111
engagement in research process, 104
- subvocal reading, 154
- superior oblique, 169–170
- superior rectus, 169
- SuperLab, 220
- surrogates and authorized representatives, 88
- SurveyMonkey, 197
- surveys, 41
- Suwankhong, 57
- sweat glands, 149
- Target, 73
- Teaching and Learning International Survey, 277
- team management
interdisciplinary research, 261
- teamwork, 251
- telephone interviews, 193, 195
- Temporal ERGMs, 341
- test adaptations, 281–283
- test information curve, 313
- testosterone, 156
- test-retest method, 23
- text analysis, 74
- thematic analysis, 202
- theory, 3
characteristics of good simplicity, 3
- therapeutic misconception, 89–90
- thick description, 59
- ties, 329, 337
- tower eyetrackers, 177–178
- translation, 281
- triangulation, 24, 33
- trim and fill, 354
- t-test, 11
paired samples, 11
reliability thresholds, 24
- Tuskegee syphilis experiment, 245
- Twitter, 279
- undue influence, 93–94
- universities, 250–251
- University of California Brief Assessment of Capacity to Consent, 87
- validity, 21–22, 29–34
as nomological network, 30
- definition, 5
- discriminant, 30
- variables, 5, 39
correlation, 11
dependent, 5
independent, 5
- vasopressin, 156
- vestibular-ocular response (VOR), 172
- virtual reality (VR), 180
- visual system, 168
- voluntariness
improvement, 94–96
- vote-counting, 349
- wearable devices, 153
- webscraping, 73
- Wechsler scales, 282
- WEIRD societies, 50
- White, Harrison, 328
- Willingness to Communicate about Health Scale, 200
- Wundt, Wilhelm, 210
- Yerkes–Dodson Law, 212
- Zimbardo, Philip, 58