

## SPRING 2017

## EXPERIMENTAL PSYCHOLOGY—PSYC 204: 906-910

## Research Methods Concepts

[01/08/17]

- 1. hypothesis vs. theory
- 2. independent and dependent variables
- 3. conceptual vs. operational definitions
- 4. quantitative vs. qualitative variables
- 5. continuous vs. discrete (categorical) variables
  
- 6. categorical vs categorical-ordered variables
- 7. binary categorical variables
- 8. levels of measurement (labels, nominal, ordinal, interval, ratio)
- 9. measurement error
- 10. reliability of test scores (internal consistency, split-half, test-retest, equivalent/alternate form, interrater, intrarater)
  
- 11. validity (of inferences from test scores; construct-related, content-related, criterion-related)
- 12. discriminant and convergent validity
- 13. face validity
- 14. systematic vs. random error
- 15. role demands
  
- 16. experimenter bias
- 17. research validity
- 18. threats to internal validity → history, maturation, testing, regression to the mean, selection, attrition/mortality
- 19. threats to external validity → other participants (population validity), other times (temporal validity), other settings (ecological validity)
- 20. threats to construct validity → loose connection between theory and method; changes resulting from participation in study (e.g., good subject response, evaluation apprehension, etc.)
  
- 21. threats to statistical conclusion validity → low power, violations of statistical assumptions, low reliability
- 22. double- and single-blind procedures
- 23. deception
- 24. debriefing
- 25. multi-treatment interference
  
- 26. random sampling
- 27. random assignment
- 28. probability vs. nonprobability sampling
- 29. convenient samples/samples of convenience
- 30. within- and between-subjects designs

- 31. pretest and posttest
- 32. baseline
- 33. pilot study
- 34. statistical vs. practical significance
- 35. effect sizes
  
- 36. clinical significance
- 37. research setting
- 38. lab vs. field studies
- 39. replication
- 40. extraneous variables
  
- 41. nuisance variables
- 42. confounded variables
- 43. methods of acquiring knowledge
- 44. assumptions of science
- 45. characteristics of the scientific approach
  
- 46. experimenter expectancies
- 47. experimenter effects
- 48. power analysis
- 49. regressions
- 50. *t*-tests
  
- 51. analysis of variance (ANOVA)
- 52. chi-square
- 53. correlations
- 54.  $r_{xx}$
- 55.  $r_{xy}$
  
- 56. median split
- 57. instrumentation of response
- 58. statistical control
- 59. ANCOVA [ANOVA]
- 60. partial correlation [correlation]
  
- 61. observational research
- 62. nonexperimental research
- 63. Solomon four group design
- 64. experimental group
- 65. control group
  
- 66. dependability of treatment effects → order and sequencing [carry over] effects
- 67. irreversibility of treatment effects
- 68. counterbalancing, reverse counterbalancing, block randomization
- 69. ceiling and floor effects
- 70. single-participant experiments

- 71. changing-criterion designs
- 72. repeated treatment designs (ABAB)
- 73. withdrawal of treatment designs (ABA)
- 74. conditions for causality → temporal precedence, contiguity, and constant conjunction
- 75. archival research
  
- 76. case study
- 77. survey research and designs
- 78. response rates
- 79. response styles vs. sets
- 80. sampling → uncontrolled, haphazard, purposive, convenience, probability, systematic, simple, stratified, cluster, multi-stage sampling, oversampling
  
- 81. quasi-experimental design
- 82. delayed control group design
- 83. interrupted time-series design
- 84. multiple time-series design
- 85. non-equivalent control group design
  
- 86. cross-sectional vs. longitudinal
- 87. meta-analysis
- 88. animal rights vs. animal welfare
- 89. informed consent
- 90. ethics in research → truth in reporting; treatment of research participants; internal vs. external controls and checks
  
- 91. experimental control
- 92. control experiment
- 93. manipulation
- 94. manipulation check
- 95. factorial designs
  
- 96. main effects and interactions
- 97. correlational designs
- 98. moderators
- 99. mediators
- 100. mixed factorial designs – experimental
  
- 101. mixed factorial designs – nonexperimental [q-design]
- 102. extreme groups analysis
- 103. IRB
- 104. test and measurement validity
- 105. predictive, concurrent, and postdictive designs
  
- 106. primary and secondary research designs
- 107. observational designs
- 108. levels of observation
- 109. margin of error
- 110. simple factorial designs

- 111. condition – experimental and control
- 112.  $n \times n$  factorial
- 113.  $n$  of conditions
- 114. balanced vs. unbalanced designs
- 115.  $n$ -way interactions
  
- 116. highest order interaction term
- 117. lowest order interaction term
- 118.
- 119.
- 120.