

Multivariate Design & Analysis

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Multivariate Analyses

☞ Multiple dependent measures

☞ Options for data analysis

- ◆ *Separate ANOVAs or ANCOVAs for each dependent measure*
- ◆ *MANOVA or MANCOVA*
- ◆ *SPSS will automatically conduct a MANOVA as part of a repeated measures analysis*
 - *Repeated measures appear as multiple dependent measures*

Multiple Dependent Variables in a Factorial Design

☞ MANOVA or separate ANOVAs for data analysis?

☞ Are you interested in hybrid variables created by combining dependent measures?

Correlational Designs

☞ Multiple regression

- ◆ Several predictor variables
- ◆ Identify linear model that best predicts the target (criterion) variable
- ◆ Each additional predictor variable should produce a significant increase in variance accounted for (R^2)

☞ Discriminant analysis

- ◆ Target variable is categorical

☞ Canonical correlation

- ◆ Correlations between a set of predictor variables and a set of criterion variables

Factor Analysis

- ☞ Patterns of correlations among test items examined
- ☞ Identify clusters of items that correspond to a common element or dimension within the test
- ☞ Construct measured by the test may be found to be composed of several components (factors)
- ☞ Factor Loadings
 - ◆ Correlation between items and a factor
- ☞ Exploratory Factor Analysis
- ☞ Confirmatory Factor Analysis

Path Analysis

- ☞ Use of patterns of correlations to model potential causal relations
- ☞ Models to be tested are generally developed independently of the correlational data used to test them with path analysis




