The Care and Feeding of Survey Data

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Surveys are commonly used to assess opinions in educational research. There has been significant debate concerning the handling of data generated from the so-called Likert scales used in these instruments. The primary source of this confusion is the difference between Likert-style items (LSI) and true Likert scales. Unfortunately, these terms are used interchangeably in the literature. The goals of this poster are to clarify these differences, provide tools for researchers to properly analyze and present their data, and for practitioners to evaluate and interpret published results.

For example:

get confused when I have to analyze survey data.





What do I have here?

OR

>20 questions analyzed as a total score:

Likert Scale

- 5-7 pt. scale
- Total rating calculated
- Interval scale data
- Need to validate
 - ~ ½ worded in opposite direction
 - Laborious process

Single questions or groups of questions analyzed separately:

Likert-style Item

- 5-7 levels not necessarily numerical
- Ordinal scale data
 - Uneven spacing between responses
- Most common!

How do I analyze a Likert Scale?

- Parametric tests OK
 - Assuming data meet assumptions
 - T test
 - ANOVA
- Wilcoxin rank-sum test better in most real-world situations

How do I analyze Likert Style Items?

- Comparing two treatments
 - Mann-Whitney-Wilcoxin
 - Robust Rank Order or Kolmogorov Smirnov if unequal variance
- Multiple comparisons
 - 20 questions increases experimentwise error rate to 64% at α = 0.05!
 - Calculate experimentwise error rate *or*
 - Kruskal Wallis (analogous to ANOVA)

How can I present data from a Likert Scale?

- If normal
 - Mean ± SD
- If not
- Median and interquartile ranges
- Box plot

How can I present data from Likert Style Items?

- Mode, median, frequencies, cross-tabulations
 - Mode and median might not really give you resolution you need
 - Cross-tabulation for 2-way
 - data







