



Quantitative Data Analysis Tips and Strategies

Once the data collection ends you will have mounds of data to review, organize, interpret and present within Chapter 4 and Chapter 5 of your dissertation. While this is often the most fun that you will have, it can also be an overwhelming task. This resource provides some practical strategies to be successful during this stage of your doctoral research. There are software packages available to help you with qualitative data analysis. Refer to [Technology Resources for the Dissertation Process](#) resource document for further details on technology tools.

The first strategy for analysis is **Identify Level of Measurement**.

- Nominal data is classification data.
- Ordinal data has an order but the distance between variables is not a constant.
- Interval data is continuous, logical order and standard differences but no zero.
- Ratio data is continuous, logical order, standard differences and a natural zero.
- These levels of measurement dictate what types of analysis you'll be able to perform on each set of data.

The second strategy for analysis is **Data Preparation**.

- Inspect data and edit for completeness and consistency
- Eliminate records with more than 10% missing.
- Quantify data by converting words to numbers.
- Transform data into new formats for analysis.
- Implement software packages like SPSS to help manage the data and analysis.

The third strategy for analysis is **Variable Analysis**.

- Complete univariate analysis as appropriate to present demographic descriptions of age, gender, classifications and is considered to be descriptive analysis.
 - Use data tabulation to organize the data distributions and frequencies.
 - Depending on level of measurement use descriptive analysis to understand the data.
 - Central tendencies (mean, median, mode)
 - Dispersion (Range, variance, standard deviation)
 - Disaggregate the data by creating subgroups and display in a crosstab table.
 - Collapse ranges to present a more meaningful interpretation.
- Complete bivariate analysis as appropriate to understand relationship between two variables.
 - Use percentages to help determine changes within the relationship.
- Complete multivariate analysis as appropriate. This will help you understand simultaneous relationships.
 - Use correlation to describe the relationship between two variables.
 - Use analysis of variance to determine the level of significance between means.



- Use regression which extends correlation and creates a prediction for another variable.
- Create tables with multiple layers to show a three-dimensional analysis.

The fourth strategy is **Determining Significance**.

- Select the appropriate statistical test based on the data
 - Level of data
 - Number of groups
 - Independent samples or groups.
 - Characteristics of the data
- Common statistical tests include t-test, Pearson Correlation, ANOVA/MANOVA, Chi-square, or Wilcoxon signed-rank.

The fifth strategy is **Data Representation**.

- Summarize data and results by highlighting the most important aspects of the data.
- Create visualizations of the framework and the data to make abstract concepts concrete.
- Share details in chronological order from data collection.
- Create visuals for the data to make the abstract analysis more concrete
- Create tables to present numeric data that is structured.
- Create graphs and charts to show relationships
- Use a pie chart to show the parts of a whole
 - Present general findings and descriptive data
 - Limit under six slices or categories
 - Leave as two-dimension and whole without pulled out pieces to aid in readability
 - Add text labels and percentages
 - Sort data from largest to smallest
 - Use dark to light hues for segment variation
- Use a bar graph to compare groups within a data set.
 - Present short time with small intervals
 - Start with zero and use standard scale ranges
 - Avoid three-dimensional to improve readability
 - Add text labels and numeric values or percentages
 - Sort data by size of value
 - Use stacked bars to show groupings of smaller segments
- Use a line graph to present larger time series or larger amounts of data points.
 - Use the X axis as the time and Y axis as the frequency
 - Add keys to identify meaning of each line
- Use a table to present data for reference purposes
 - Maintain APA style for the table
 - Name and number the table appropriately and meaningfully
 - Header row has top & bottom border; bottom row of table has bottom row
 - Does not have to be double spaced



- Font size can be decreased
- Header row and first column include meaningful labels
- Include the percentage of the whole for each number
- Include the total sample size
- Make good use of white space by arranging rows and columns appropriately
- Sort the data based on value

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