



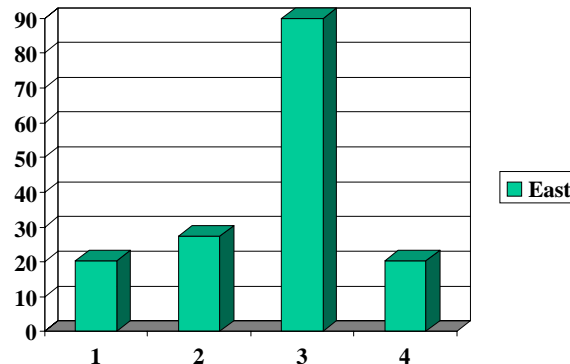
VRS 410 Urban Empirical Research¹₂ Σ ₃

- Central Tendency & Dispersion
 - mean, median, & mode
 - deviation, std. Deviation, and variance
- Literature: Part I
 - Journal Articles
 - what's in an article



Central Tendency & Dispersion

- To get a general ‘feel’ of central tendency and dispersion, data can be visualized using a histogram
- A histogram is a chart of observed value frequencies





Central Tendency

- Measures the dominant tendency
- Identifies a ‘middle’
- Measures include:
 - Mean (\bar{X}) - the calculated average
 - Mode - the most frequently occurring value
 - Sometimes a distribution can be bi-modal (or even multi-modal) having several values with the same frequency
 - Median - literally the middle value
 - if a data set is even, median values are ‘halved’ (4 & 5=4.5)



Mean

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n} = \frac{10}{5} = 2$$

The mean is a key component of all statistics



Dispersion

- Measures the degree to which observations are (or are not) clustered around a middle
- The general equation for dispersion (a simple deviation) is present in ALL parametric statistics
- Measures include:
 - deviation
 - standard deviation
 - variance



Deviation

- How far an observation deviates from calculated mean

$$(X_i - \bar{X})$$



Variance

- How much all observation vary from the observed mean

$$S^2 = \frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n} = \frac{10}{5} = 2$$



Standard Deviation

$$S = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n}} = \sqrt{\frac{10}{5}} = \sqrt{2} = 1.41$$



Coefficient of Variation

Determines the character of data sets

-relative 'values' of data sets could be vastly different, but Std. Deviation & Variance the same

$$\text{C.V.} = \frac{S}{\bar{X}}$$



Academic Literature

- Represents the current state of a discipline, area of specialization, subject, and/or technique
- A collection of works held to the highest standards of scholarship
 - peer reviewed
 - published by recognized academic presses



Academic Literature

Why Read It?

- Forces you read (or engage) research differently
- To illustrate and understand what's considered solid research in an area
 - standards vary depending on discipline & subject
- Prevents 're-inventing the wheel'



Academic Literature: Journal Articles

Journal Articles:

- Are small, least publishable subsets, of larger research projects
- Represent the best science on a specific subject by specialists
- Are an extension of previous works which fill in a conceptual or substantive gap within the literature



How are Articles Organized?

Introduction

- Provide case specific background and generically reference a subject area
 - present ‘problem’, if there is one
- Provide the reader with a road map for the rest of the paper
 - how is it organized
 - does the ‘lit’ come before the more in depth ‘case’ background



How are Articles Organized?

Literature Review: Conceptual

- Orients the reader to the researcher's intellectual landscape
 - who do they cite? Do they or do they not cite THE EXPERTS and their STANDARD works?



How are Articles Organized?

Literature: Methods

- Usually located in the first two or so paragraphs of the methods section
- How have previous researchers answered similar questions or collected data?
 - Surveys, secondary data, statistical analysis, case studies



How are Articles Organized?

Data

- sources & how was it collected

Methods

- description & synthesis
- inferential statistics?
 - All proposed models must be presented



How are Articles Organized?

Results & Findings

- tables
- equations
- observation & interpretation



How are Articles Organized?

Conclusion

- Summary of work and its contribution
- Suggests possibilities for future research