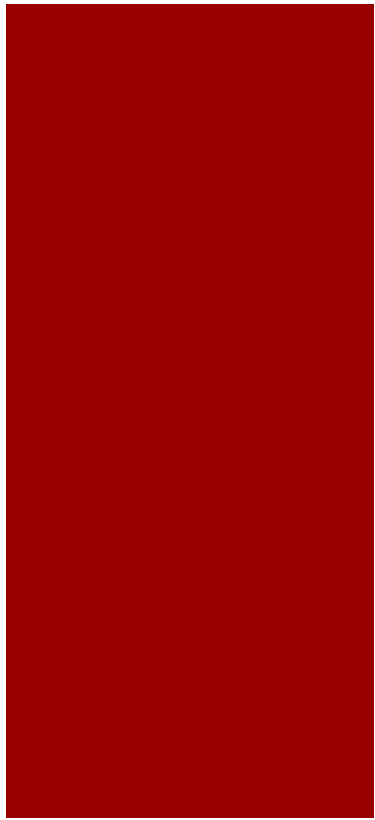




EDUC 890 Class 8

Chapter 8—Quantitative Methods and Results
Assignment 5 Overview
Chapter 9—Qualitative Research Designs



Quantitative

Chapter 8

Data Analysis & Results

- Descriptive Statistics
- Inferential Statistics

What do **Descriptive Statistics** do?

- Describe trends in data for single variables
- They do *NOT* describe how variables relate to each other
- *But...*they usually constitute the first step in correlational research, *i.e. measuring the independent, dependent and control variables before figuring out how they relate*
- See table of common descriptive stats p. 260





3 types of descriptive stats

- **Central tendency** (*mean & mode*)
- **Variability** (*range & standard deviation*)
- **Relative standing** (*percentile rank & z scores*)



1st type of descriptive stats

- **Central tendency** (*mean & mode*)...overall tendency within scores
 - Mean
 - the average score
 - Used for continuous data, e.g. *average participant age is 12.6, self-esteem level, reading level, etc.*
 - Mode
 - Most frequent score in a list of scores (most common response)
 - Used for categorical data e.g. *preferred pastime:*
a) reading (22) b) Netflix (34) c) video games (11)



2nd type of descriptive stats

- **Variability** (*range & standard deviation*)...numbers that indicate the spread of scores
 - Range
 - Distance between highest and lowest
 - E.g. spelling test scores had a range of 60 (*scores ranged from 30% to 90%*)
 - Standard deviation
 - Distance between the mean and 34% of the scores above or below the mean (see bell curve p. 261)
 - E.g. spelling test score $M = 85$, $SD = 5$ means 68% of the scores were between ??????



3rd type of descriptive stats

- **Relative standing** (*percentile rank & z scores*)...describing one score in relation to the rest
 - Percentile rank
 - Percentage of those in the distribution with scores at or below a particular score
 - E.g. Scoring at the 73rd percentile on a math test means 73% of those who took the test scored lower
 - Z score
 - Score converted into units of standard deviations
 - E.g. If height has a z score of +3 then the participant's height scores at the $\approx 99.87\%$ percentile (refer to bell curve p. 261)

Test yourself: *What's going on here?*

- **Spelling test scores:**
 - Class A, $M=60$, $SD=5$
 - Class B, $M=75$, $SD=10$
 - Class C, $M=74$, $SD=2$

Which teacher is better?



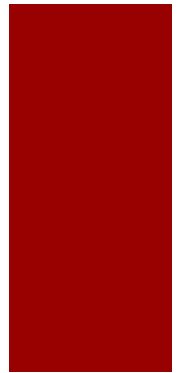
- Class A: the average of all scores is 60
 - 68% of the class scored between 55 and 65
- Class B: the average of all scores is 75
 - 68% of the class scored between 65 and 85
- Class C: the average of all scores is 74
 - 68% of the class scored between 72 and 76

What do *Inferential Statistics* do?

- Describe comparisons of groups in relation to a variable or variables
- Describe relationships between variables
- Why are they called '*inferential*' statistics?
 - ...because they allow researchers to *infer* that findings from a sample can predict what is going on in a larger population



Inferential Statistics




Describe comparisons of groups

- Do boys differ from girls in terms of self-esteem?
 - Researcher compares 2 groups on the *independent* variable **gender**...
 - ...in terms of the *dependent* variable **self-esteem**
- See table of common stats for comparing groups p. 266

Describe relationships of variables

- Does an optimistic attitude relate to satisfaction for graduate students?
 - Researcher relates the *independent* variable **optimistic attitude**...
 - ...to the *dependent* variable **satisfaction**
- See table of common stats for relating variables p. 267



5-step process (p. 264) for hypothesis testing in inferential statistics

- 1) Identify a hypothesis
- 2) Set the criteria for making a decision, i.e. for determining if the result is 'statistically significant' (the alpha level)
 - $\alpha = .05$
 - A 5% chance the results are wrong
- 3) Collect data
- 4) Select and compute the statistic
- 5) Decide if the hypothesis is supported (by comparing the p value to the alpha level)

* The **p value** is the percentage chance that the result is a fluke, i.e. does not actually represent what is going on in the population

What about 'effect size'?

- A statistic that identifies the 'practical strength' of the relationship among variables
- A means of measuring whether the result is not only statistically significant, but also **practically significant**
- Researchers state whether the effect size is small, medium, or large
- E.g. a statistically significant difference between smokers and non-smokers in terms of depression has a **large effect size**, i.e. a **strong practical significance**
 - *So...practitioners working with smokers should monitor depression as well as help them quit*





Test yourself: *What's going on here?*

- **Females reported greater use of avoidant coping strategies than males $t(1337) = -2.51, p < .05$**
 - Comparing genders in terms of variable: *use of avoidant coping strategies*
 - Researchers used the t statistic and found $p < .05$
 - Because $p < .05$ there IS a statistically significant difference, i.e. females in this population DO make greater use of avoidant coping strategies



* See bottom p. 276 for a diagram explaining what everything means in a statistical report

* More test-yourself examples p. 269

Assignment #5

Thesis/ Dissertation/ Project Presentation

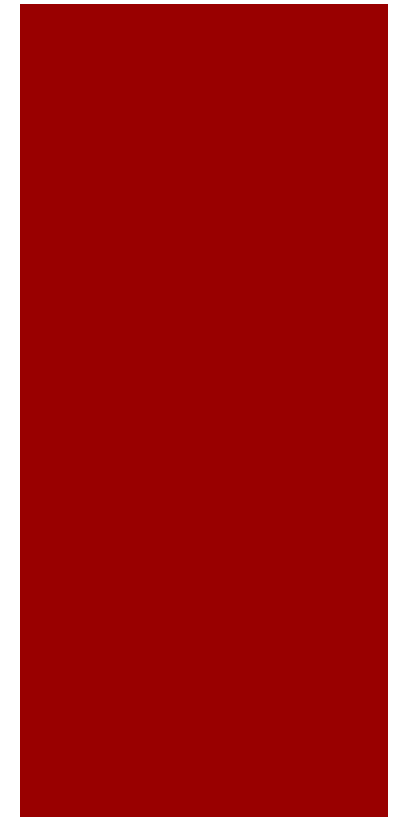
Find, read and report to the class on a thesis, project or dissertation of interest to you, addressing the following:

<i>Thesis/ Dissertation</i>	<i>Project</i>
Topic and research problem	Topic
Purpose, research questions, hypotheses	Purpose
Summary of literature review	
Research design	Overview of project format
Participants, data collection & analysis	Summary of project content
Major results/findings	Other aspects of interest
Comments (e.g. strengths, weaknesses, implications for practice)	

Assignment #5

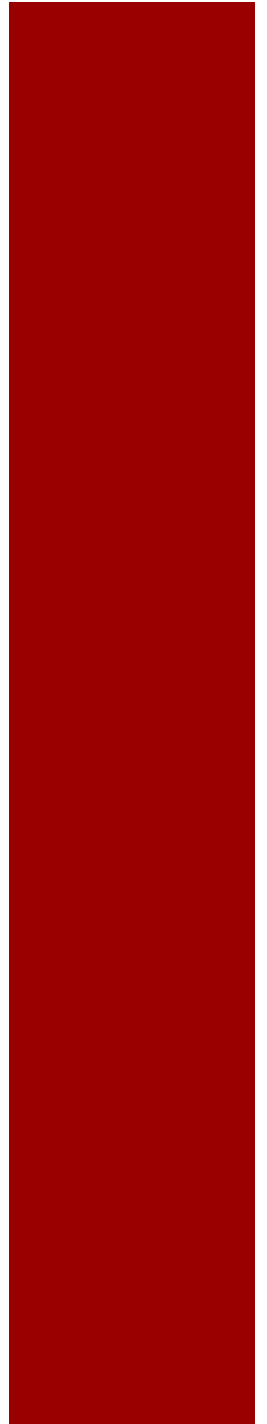
Presentation

- If the work follows a format that does not include these elements, please check in with me to discuss BEFORE you work on the presentation.
- **N. B.** The presentation is a maximum of **10 minutes**
- Assessment criteria:
 - *Respecting time parameters*
 - *Oral communication*
 - *Visual communication*
 - *Content*



Qualitative

Chapter 9
**Qualitative Research
Designs**





research designs differ in terms of...

- Central phenomenon of interest
 - (e.g. group's culture or individual's story)
- Intent
 - (e.g. to describe and interpret, or to develop a theory)
- Procedures
 - how data are collected, analyzed, interpreted,
 - how results are reported

Exploring Qualitative Designs

- In pairs...
 - Check out the different designs on p. 289
 - Choose a design that looks interesting to you
 - Imagine a study you might conduct that uses that design, and write a purpose statement
 - Describe what your study might involve re: data collection and reporting findings.
 - Report briefly your idea to the class





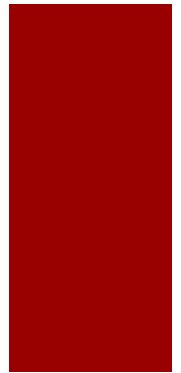
Exploring 4 Common Qualitative Designs

- In groups of 4-5, create a 7-minute presentation (*describe characteristics and sample research studies*) to illuminate one of the following designs:



- 1. Narrative**
- 2. Case study**
- 3. Ethnography**
- 4. Grounded Theory**

Homework



- Read Ch. 10
- Bring questions re: Ass. 5 and track down a project, thesis or dissertation
- In reference to ch. 9, prepare to hand in, in pairs or alone, the following:
 - *Imagine a study you might conduct that uses a qualitative design of your choice from p. 289*
 - *Identify the design, write a purpose statement, and describe in a sentence or two how you would collect data and report findings.*