Analyzing Assessment Data
Outline

• Analyzing Data
  – Qualitative data
  – Quantitative data
  – Making sense of data

• Qualtrics

• SPSS
Learning Outcomes

At the end of the workshop you will be able to...

• Describe the process of analyzing qualitative and quantitative data.
• Explain the basic and advanced features of Qualtrics.
• Discuss SPSS basics.
Examples of Data

• Responses to a survey that asks students to rate their level of agreement (1=Strongly Disagree, 5=Strongly Agree) with the following statement: *I have confidence in my ability to develop relationships with others who are different from me.*

• Responses to a survey that asks students to define leadership in their own words.
Examples of Data

• A pile of rubrics that rate students ability to state two barriers to physical activity after a fitness consultation

<table>
<thead>
<tr>
<th></th>
<th>Does not Meet</th>
<th>Meets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student can state two barriers to physical activity</td>
<td>Cannot state two barriers to physical activity</td>
<td>Can state two barriers to physical activity</td>
</tr>
</tbody>
</table>

• Notes and recordings from a focus group in which students responded to the following question: *Based on your experience as an official, what do you consider to be the key components of effective communication?*
Approach to analysis depends on the nature of the data

• Qualitative data
  – Describes things in terms of categorizations or qualities
  – Examples:
    • Responses to a survey that asks students to define leadership in their own words.
    • Notes and recordings from a focus group in which students responded to the following questions...

• Quantitative data
  – Can be counted or expressed numerically
  – Examples:
    • Responses to a survey that asks students to rate their level of agreement (1=Strongly Disagree, 5=Strongly Agree) with the following statement...
    • A pile of rubrics that rate students on their understanding of the importance of physical activity
<table>
<thead>
<tr>
<th></th>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overarching concepts</td>
<td>Making meaning</td>
<td>Explain &amp; predict</td>
</tr>
<tr>
<td></td>
<td>Gain insights into phenomena</td>
<td>Identifying statistical relationships</td>
</tr>
<tr>
<td>Location</td>
<td>“wherever we need to be”</td>
<td>Standardization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Generalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Confirming predictions</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>Evolving, tentative</td>
<td>Specific, testable,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Committed prior to the study</td>
</tr>
<tr>
<td>Data</td>
<td>Words, pictures, documents, observations</td>
<td>Numbers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Predetermined instruments</td>
</tr>
<tr>
<td>Analysis</td>
<td>Messy</td>
<td>Precise</td>
</tr>
<tr>
<td></td>
<td>Difficult to reduce</td>
<td>Objective</td>
</tr>
<tr>
<td></td>
<td>Inductive</td>
<td>Deductive</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Quantitative</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td></td>
</tr>
</tbody>
</table>
| **Sampling** | **Purposeful**  
  Transferable  
  Numbers not important | **Drawn from the “population” so that generalizability is possible** |
| **Role of the “researcher”** | **Instrument & interpreter**  
  Personal contact is likely  
  Neutrality is the goal | **Removed from the data and the participant** |
Qualitative Data Analysis

• The process:
  – Organize the data
  – Give the data a “once-over,” noting initial impressions
  – Categorize the data
    • You can (a) determine the categories ahead of time, (b) allow the categories to emerge from the data, or (c) do both
    • You may end up with “categories of categories” (i.e. categories and subcategories)
    • This is an iterative process
Qualitative Data Analysis

• The process (continued):
  – Determine the relative significance of each category by counting the number of times it occurs
  – Note responses that do not fit into the categories
  – Find compelling quotes to include in your assessment report
  – Take a step back
    • What do the data tell you about your assessment question?
    • What are the limitations?
    • What are the implications? Does it lead you to make changes or confirm your approach (or both)?
    • What, if anything, will you change about the assessment process?
What is one thing you learned from the Excel session?

<table>
<thead>
<tr>
<th>To go to my professor's office hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just to go to class and to pay attention to do well in school.</td>
</tr>
<tr>
<td>Talking to professors</td>
</tr>
<tr>
<td>Some of the ways to do well in my classes.</td>
</tr>
<tr>
<td>I learned about asking questions, and going to office hours</td>
</tr>
<tr>
<td>Semester-hour expectations for each semester and graduation</td>
</tr>
<tr>
<td>You need to go to lecture halls!</td>
</tr>
<tr>
<td>to pay attention in lecture.</td>
</tr>
<tr>
<td>Some expectations of the college learning environment.</td>
</tr>
<tr>
<td>how to be a good student</td>
</tr>
<tr>
<td>Be where you need to be and when you need to be there</td>
</tr>
<tr>
<td>The online classes you can take</td>
</tr>
<tr>
<td>to do my best</td>
</tr>
<tr>
<td>Don't be afraid to talk to your professors.</td>
</tr>
<tr>
<td>Go to classes/office hours.</td>
</tr>
<tr>
<td>It is important to go above and beyond</td>
</tr>
<tr>
<td>Can't remember</td>
</tr>
</tbody>
</table>
What is one thing you learned from the Excel session?

<table>
<thead>
<tr>
<th>Themes</th>
<th>Percentages (of 543)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic skills</td>
<td>29%</td>
</tr>
<tr>
<td>Nothing/Don’t remember</td>
<td>22%</td>
</tr>
<tr>
<td>Professors/TAs (office hours, get to know them)</td>
<td>11%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
<tr>
<td>Expectations (class, academics, professors)</td>
<td>8%</td>
</tr>
<tr>
<td>Responsibility/Balance</td>
<td>7%</td>
</tr>
<tr>
<td>Time-management</td>
<td>5%</td>
</tr>
<tr>
<td>Excel/Challenge yourself/Set goals</td>
<td>5%</td>
</tr>
<tr>
<td>College versus High School</td>
<td>2%</td>
</tr>
<tr>
<td>Credit requirements/Grading</td>
<td>2%</td>
</tr>
</tbody>
</table>
Qualitative Data Analysis

• “Data analysis is the process of bringing order, structure, and meaning to the mass of collected data. It is a messy, ambiguous, time-consuming, creative, and fascinating process. It does not proceed in linear fashion; it is not neat. Qualitative data analysis is a search for general statements about relationships among categories of data” (Marshall & Rossman, 1999; as cited in Elkins, 2009).
Quantitative Data Analysis

• The process:
  – Organize the data
  – Give the data a “once-over,” noting initial impressions
  – Four analytic strategies
    • Description (frequencies, percentages, mean, median, mode, range, standard deviation)
    • Differences (participants vs. non-participants; do certain participants do better than others?)
    • Change (pre/post)
    • Expectations (do students meet our expectations of learning/competency)
The process (continued):

– Alone, neither measures of central tendency (e.g. mean, median, mode) nor measures of variability (e.g. range, standard deviation) tell the whole story

• Consider:
  – Group 1 scores: 190, 195, 199, 200, 200, 201, 205, 210
  – Group 2 scores: 0, 10, 20, 200, 200, 380, 390, 400
  – Scores from Group 1 and Group 2 have the same central tendency but different variability

• Just reporting the mean can be misleading. For example, average salary of State of Iowa employees is $51,000. What role might Kirk Ferentz’s salary play in this figure? Consider how having the median and more might be more helpful.
Quantitative Data Analysis

The process (continued):

- Conduct other *useful* calculations (e.g. sum, percentages)
- Take a step back
  - What do the data tell you about your assessment question (What?)
  - What are its implications for policy and/or practice (So What?)
  - What, if anything, will you change about the program or process (Now What?)

- Other considerations
  - Use online survey design software (e.g. Qualtrics), Microsoft Excel, or SPSS to make calculations
  - For help with statistical analysis (e.g. statistical significance, confidence intervals, etc.) see Sarah, Teri, or another statistics helper!
How effective was the Excel lecture at:

<table>
<thead>
<tr>
<th>Item</th>
<th>% responding very ineffective or ineffective</th>
<th>% responding somewhat ineffective or somewhat effective</th>
<th>% responding effective or very effective</th>
<th>Mean response (1=very ineffective to 6=very effective)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outlining the expectations for academics?</td>
<td>16%</td>
<td>44%</td>
<td>40%</td>
<td>4.0</td>
</tr>
<tr>
<td>Giving you useful information about succeeding in classes?</td>
<td>16%</td>
<td>44%</td>
<td>40%</td>
<td>4.0</td>
</tr>
</tbody>
</table>
Qualtrics

• “Qualtrics is a secure, online data collection service provided by ITS at the University of Iowa. This service is available to The University of Iowa faculty, staff and students at no cost.”
• Website: https://uiowa.qualtrics.com
• Your account: Hawk ID and Password
  – Sign in to authenticate
• Qualtrics help:
  – Online resource: http://www.qualtrics.com/
  – Customized training sessions: training@qualtrics.com
Qualtrics

- Create a new survey
- Task icons
- Add questions
  - Choose question type (multiple choice, matrix, text, etc.)
  - Edit questions
- Blocks
- Display and skip logic
Qualtrics

• Preview Survey
• Panels
• Distribute survey
• View results
  – Responses
  – Download Data
  – View Reports
SPSS

• Statistical software program

• Virtual Desktop Service at UI
  – Sign in with Hawk ID and Password
  – Search for SPSS
SPSS

- Getting Started
- SPSS Environment
- Saving/Opening
- Descriptive Statistics
- Inferential Statistics
Resources

• Individual consultations
• Division of Student Life: Student Learning and Assessment site
• Tools for Assessment page
  – UI Assessment Handbook
  – One Page Information Sheets
  – Books and Journals
Resources

• Qualtrics Survey Software: [Handbook for Research Professionals](#)

• [Statistics Outreach Center: Short Courses](#)