Thoughts on Strategies to Minimize Outliers/Invalid Responses on Surveys
&
Research Ethics

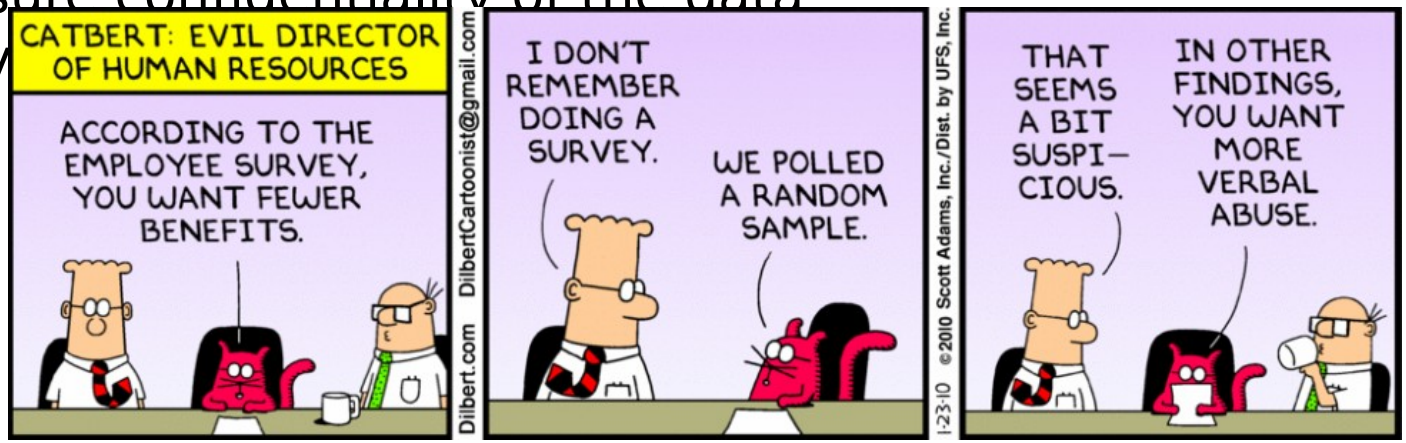
Jack Mahoney, Director of Institutional Research
Tuesday, September 8, 2015

Question Types

- Open-ended
- Nominal – often asked as multiple choice
- Ordinal – rank order items
- Interval scale – scaling types, such as Likert, Semantic-differential
- Ratio scale - # hours worked in a week

Establish and Maintain Credibility From Respondents

- Pay attention to the email subject line – short and to the point, not cute
- Spell check, spell check, spell check
- Provide useful information about the survey in the intro letter but don’t ramble on
- Make the survey appear important
- Avoid subordinating language in the intro letter
- Make the questionnaire visually appealing, interesting and easy to complete
- Make it easy and convenient to respond – don’t make them work too hard
- Ensure confidentiality of the data
- Say



Tips for Identifying Outliers Using Likert Scale Questions

- Introduce dummy questions in the questionnaire
  - Questions 1-21 flow as normal Likert scale questions
  - Question 22 “Color in Letter C for this question”
  - Questions 23-30 flow as normal Likert scale questions
  - Question 31 “Color in Letter B for this question”
  - Etc….
  - Judgement based on number of questions

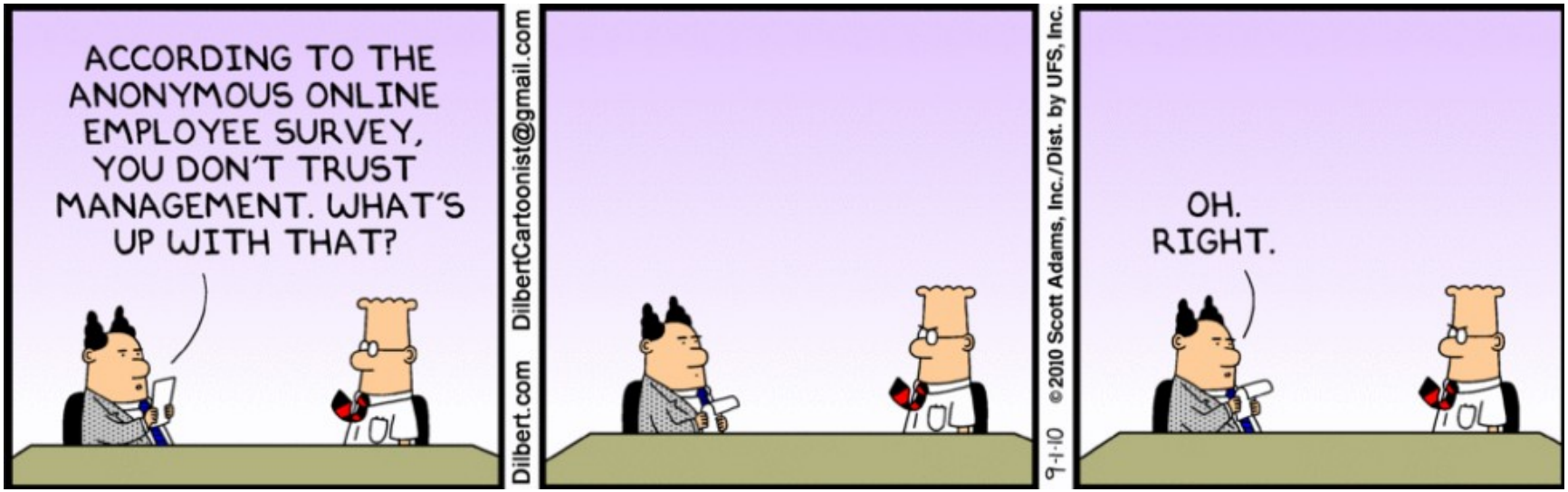
Tips for Identifying Outliers Using Likert Scale Questions

- Compute the standard deviation or variance for each respondent
  - If zero, respondent answered the same to every question
  - However, this may correct so look at their survey in entirety

Tips for Identifying Outliers Using Likert Scale Questions

- Ask the same question twice in the survey in a different manner
  - Indicate your agreement – 1 Strongly Agree to 5 Strongly Disagree:
  - Bookstore prices at Rensselaer are fair and reasonable
  - Many questions later…
  - Prices at the RPI Bookstore are excessive and unjust

Research Ethics



Cornerstones of Research Ethics

- 1939-45 – German scientists conduct harmful research on concentration camp prisoners
- 1947 – The Nuremberg Code for research on human subjects is adopted
  - Voluntary and informed consent
  - Scientifically necessary; qualified personnel
  - Risk should not exceed benefit
  - Right to withdraw without penalty

1964 – The Declaration of Helsinki is adopted

Cornerstones of Research Ethics

- 1932-1972 – Tuskegee Syphilis Study
  - 399 African American men with syphilis
  - The US Public Health service funded studies on the natural history of untreated syphilis
  - Subjects never informed they had syphilis
  - Were told they were receiving free medical care
  - Even when penicillin became available in the 1940's it was purposefully withheld

Cornerstones of Research Ethics

- 1974 – Federal protections for human subjects
- 1979 – The Belmont Report is adopted
  - **Beneficence** – "Do no harm“; maximize benefits and minimize risks
  - **Justice –** reasonable, non-exploitative, and well-considered procedures administered fairly with equal distribution of costs and benefits
  - **Respect for persons –** protect autonomy of all people and treat them with courtesy and respect and allow for informed consent

Consequences

- Greater risk of harm to a subject
  - The researcher is liable
  - Public and scientific communities may lose respect for Rensselaer
  - Potential research subjects may lose trust in Rensselaer and/or research
- If research is performed without proper IRB approval (even without harm)
  - Data may be destroyed or confiscated
  - Journals may refuse to publish
  - Rensselaer may have all federal funds frozen

What is “Research” as Defined Here?

- A systematic investigation (*i.e.*, the gathering and analysis of information) designed to develop or contribute to generalizable knowledge or scholarship
- Planned and organized generation of data
- May be quantitative or qualitative

What are “Human Subjects”?

- Any living individual or group about whom an investigator obtains physiologic or behavioral characteristics or responses
- Data may be acquired through:
  - Intervention or interaction with one or more human subjects
  - Accessing identifiable private information about one or more human subjects (e.g., medical records, academic records, etc.)
  - Studies involving human tissue or biological specimens (e.g., blood)

What Needs IRB Review?

- All human subjects research
  - Unless it is Exempt from IRB review
  - Exemptions must be certified by the IRB
- Researchers are not authorized to decide if their human subjects research requires IRB review
- What does NOT require IRB review
  - Classroom-only activities
  - Quality assurance surveys
- If in doubt, ask!

Protect Your Data

- Keep your data secure
- Be cognizant of sensitive information you may have
- Resist placing individually identifiable data on flash drives that are easily lost or misplaced
- Consider password protecting your files
- Don’t share your data with people not affiliated with your research – provide only aggregate data
- Use caution presenting small cell sizes if individuals may be identified
- Consider using a key to link individual cases in your main file thereby stripping identifiers from your main file – then keep your conversion file safe
- Destroy your raw data after your project is complete