Modes of Measurement

PSY 395 – Oswald

Outline

Modes of Measurement

• Typical Modes
  – Direct questioning
  – Paper-and-pencil
  – Face-to-face
  – Telephone Interviews

• Newer Modes
  – Internet
  – Experience Sampling

• Other Modes
  – Implicit measures
  – Third-party reports
  – Observation
  – Physiological monitoring

Modes of Measurement

• Huge variety of methods that are used to collect data (measurement) for psychological inference
• Each has strengths and weakness
• No perfect system
• Some are better than others for a particular inference
Direct Questioning

- If you want to know something, ask the person directly!
- Most simple and common method of measurement
- Examples
  - Paper-and-pencil questionnaires
  - Face-to-face interview
  - Telephone interview
  - Internet questioning
  - Experience sampling

Paper-and-Pencil measures

- Could be a test or a survey
  - Tests typically assess knowledge, skills, or ability (e.g., SAT, GRE)
  - Surveys typically assess attitudes or beliefs (e.g., personality, values)
- Advantages
  - Low cost!
  - Limited potential for interviewer bias
  - Flexible -- Can be completed as time allows
  - Perception of anonymity

Paper-and-Pencil measures

- Disadvantages
  - Poor response rates (commonly only 30%)
    - How do responders and non-responders differ?
      - 84% not satisfied with their marriage
      - 87% closer to friends than husbands
      - 70% of women married 5 or more years have extramarital sex
    - Based on 4500 responses from 100,000 questionnaires
    - Representative of the population?
  - Generally, responses are highly constrained
    - Example: Select one of 4 possible responses (when you go to a party, what do you do?)
Disadvantages (cont.)
- Accuracy and completeness of responses
  - How motivated are the respondents
- Lack control over item response order
  - Often the order of items is important
- Often can’t control context in which the survey is taken
  - Do other people contribute to the responses?
- Can’t correct misunderstandings of the question

Face-to-face interviews
- Used when the issues are complex or when the motivation of the respondents is questionable.
- Advantages
  - Can correct misunderstandings
  - Control over the order of questions
  - Allows rich, complex responses
  - Very useful for special populations (juvenile delinquents, individuals with reading limitations)
  - Can maintain attention and motivation of respondents longer than with paper-and-pencil measures

Disadvantages
- Cost!
- Interviewer bias effects (can be huge)
  - Sex abuse
  - Eyewitness testimony
  - Recovered Memories
  - Schacter (1999) Seven sins of memory
  - Wells & Bradfield (1998) – suspect lineups
Telephone Interviews

Advantages
- Higher response rate than paper-and-pencil
- All of the advantages of face-to-face except the use of visual aids
- Face-to-face and telephone methods yield very similar results
- Highly scripted so less impact of interviewer bias
- Software available to support this method

Disadvantages
- Sampling!
  - Unlisted numbers...so use random digit dialing
  - Not everyone has phones (8%)!
- Can’t use visual cues to know when the person isn’t understanding the question
- Interview bias effects, but less than Face-to-face

Internet Surveys

Huge increase in the use of internet measurement and surveying

Advantages
- Results clearly suggest that these surveys yield comparable results to paper-and-pencil methods
- Can be very cheap!
- Flexible...the respondent gets to choose the time and place
- Sense of anonymity...good for sensitive materials.
Internet Surveys

- Disadvantages
  - Technology! Different browsers and different versions
  - Response rate...how do you calculate? How many could have responded?
  - Are you getting responses from the actual person and only the person?
  - Sampling...

Experience Sampling

- Daily diary keeping
  - What are you doing, thinking, or feeling right now?
  - Prompted by a random buzzer (watch), pager, or a PDA alarm.
  - Then write down your answer
- Increasingly popular!
- Job Satisfaction example
- Positive and Negative affectivity example

Experience Sampling

- Advantages
  - Provides very rich, longitudinal data
  - Not susceptible to the many problems with memory. Doesn't require retrospective reports (what have you felt for the last 2 weeks?)
  - Requires fewer subjects due to the rich data collected
Experience Sampling

- Disadvantages
  - People may skip the alarm at the most important times (when upset or busy) – need at least a 90% response rate to the alarm
  - The technology is fragile and doesn’t always function correctly

Implicit Measures

- Many responses are subject to social desirability effects
  - Stereotyping, prejudice, sexual preference
- Other constructs aren’t easily to verbalize so the individuals can’t report on them
  - Affect, mood, emotion
  - Self-Image…must make it through layers of defense mechanisms

Implicit Measures

- Implicit measures are based on associations and reaction times
  - Make similarity judgments between concepts
    - How similar are the terms woman and manager?
  - Speed of reactions to various mood statements
Third-party Reports

Gathered in addition to self-reports
Peers, parents, teachers, coworkers

Advantages
– Helps identify biased self-responses (e.g., disruptive or illegal behaviors)
– Identifies areas of disagreement...useful for counseling
– Helps provide a more complete picture of the individual

Disadvantages
– What do you do when the reports don't agree? Who do you believe?
– The various sources see different slices of the individual's behavior (e.g., school, home, parties).
  No reason why they should agree
– More costly to get multiple sources for each person
– More missing data

Observations

Advantages
– Objective? Not susceptible to bias?
– Can use the natural setting to collect data so the results should be more generalizable to actual behavior
  e.g., marital interactions
Observations

- Disadvantages
  - Observers must be highly trained
  - Invasion of privacy
  - Hawthorne effect
  - Many constructs can’t be observed (e.g., mood).

Other Modes

Physiological Measures

- EEG, fMRI, PET scans, GSR

Advantages
  - Continuous, real-time assessment
  - Huge amounts of data
  - Not as susceptible to bias

Disadvantages
  - Construct validity is questionable – are you measuring what you think you’re measuring
  - Can be faked
    - Lie detectors can be easily faked.
    - Not admissible evidence in most courts
  - Expensive