

*The most valuable commodity I know is information.*

*You need to learn how to create quality survey's to obtain information that will enable you to earn enough money to buy your own plane.*

*Quit being like the sheep on the streets.*

# An Introduction to Survey Methodology

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# Purpose



*I'm here to provide a general overview of the steps in developing a quality survey*



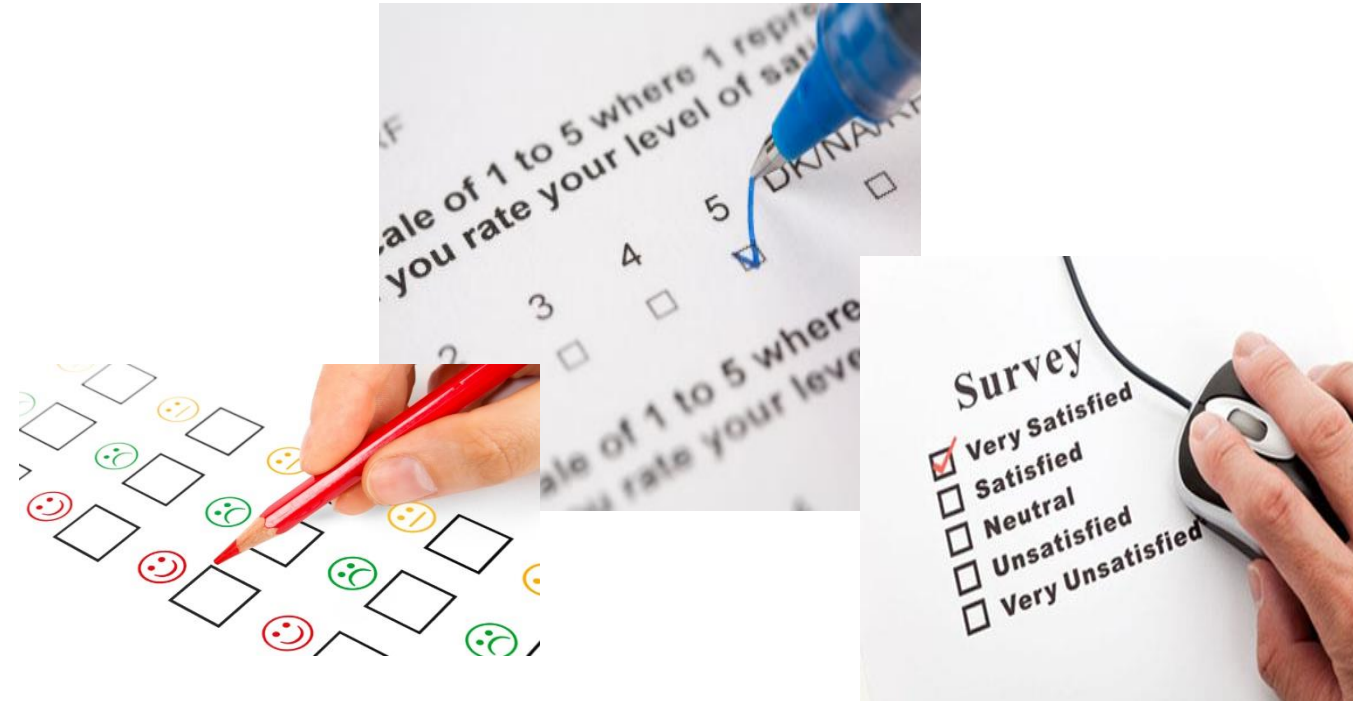
# Agenda

- Characteristics of a survey
- Steps in survey research
- Mode of data collection
- Develop / adapt survey items
- Construct survey
- Pilot testing
- Administer survey

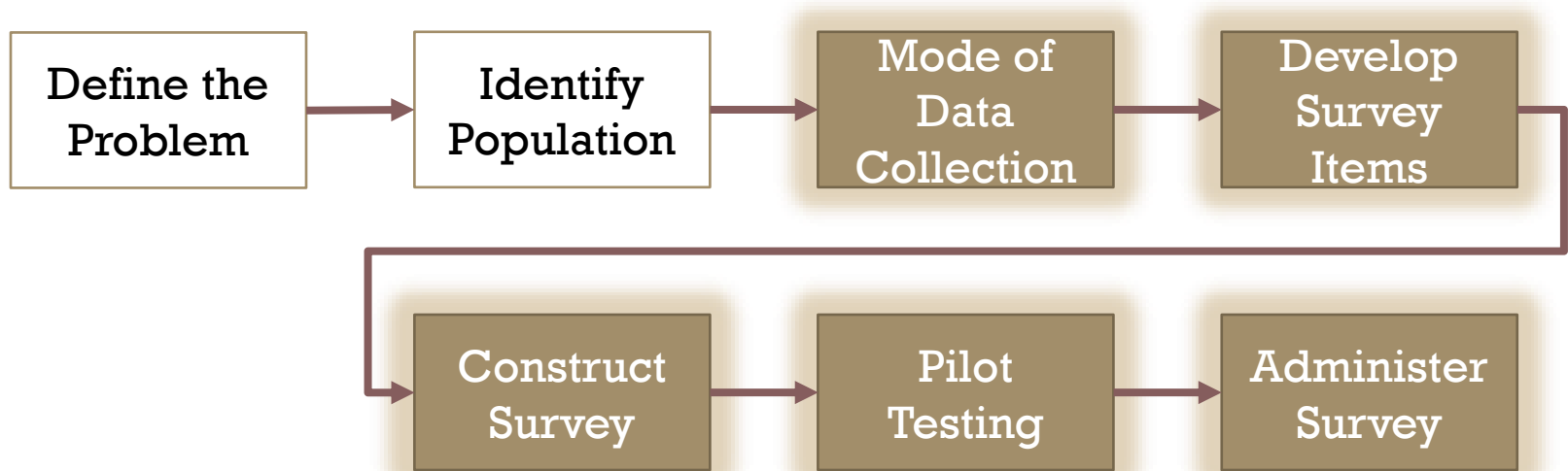


# Characteristics of a Survey

A "survey" may include anything from a short paper-and-pencil or electronic feedback, to an intensive one-on-one in-depth interview.



# Steps in Survey Research



# Mode of Data Collection

- **Direct administration to a group**
  - Physical location, data collector issues, confidentiality
- **Telephone surveys**
  - Time consuming, Interviewer fatigue
- **Internet surveys**
  - Commitment of participant, differences between desktop, laptop, iPad, smart phone
- **Personal interviews**
  - Confidentiality, interviewer bias, cost

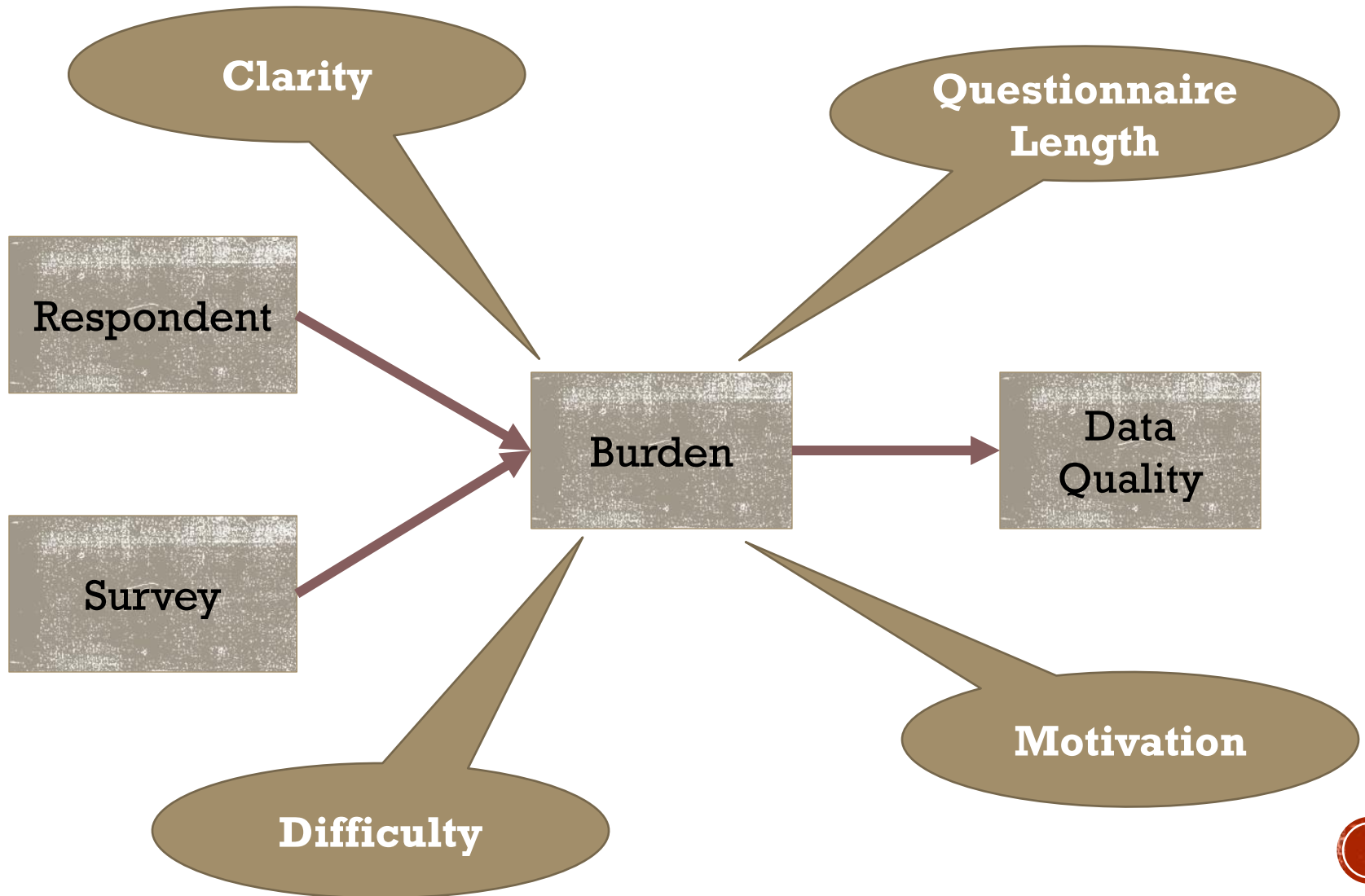


# Develop / Adapt Survey Items

- Define the data /constructs to be gathered or measured
  - Focus groups of potential participants, or convene expert panel
  - Delphi technique – Potential items are nominated and rated by experts until consensus is reached
  - Content Validity Index (CVI) – Index of relevance or other factors (e.g., severity)
    - Not relevant - Somewhat relevant - Quite relevant - Highly relevant
    - See Longo & DeDonno (2018). Development of vignettes to explore workplace bullying



# Respondent Burden



# Respondent Burden

- **Questionnaire length**  
(Subar et al., 2001)
  - **Clarity**
  - **Ease of administration**
  - **Cognitive load**
  - **Motivation**



# Components of an Item

- Each item composed of a “stem” & “response format”
  - **Stem** – Question or statement to which participant provides a response.
    - Short, simple sentence or statement (less than 20 words)
  - **Response Format** – Framework for participant’s answers



# Alternating Stated Stems

- Much debate
- Advantages to Alternating
  - Reducing acquiescent bias and extreme response bias
- Disadvantages to Alternating
  - Misinterpret by participant, Miscode by researcher
- Sauro and Lewis (2011), found no difference in acquiescent bias or extreme response bias when comparing positively stated questionnaire with an alternating questionnaire.



# Stem Example - Modifiers

## Use of Modifiers

- In the opinion of most people, the consumption of alcoholic beverages may be in some cases detrimental to the overall emotional and physical well-being of the consumer.

## Revised

- Drinking alcohol is harmful to my health



# Stem Example – One Variable

## Multiple Variables

- How many articles and book chapters did you read last month?

## Revised

- How many articles did you read last month?
- How many book chapters did you read last month?



# Be Careful Using Words Such as *Always & Never*

- People who sell cannabis should *always* be prosecuted. SD – D – A – SA
  - Participant response = SD (Strongly disagree)
  - What does SD response mean?
    - Disagree to prosecuting all dealers
    - or
    - Thinks dealers should never be prosecuted



# Response Formats

## Closed-Ended

## Open-Ended

### Advantages

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Enhance consistency of response across respondents</li><li>• Easier and faster to tabulate</li><li>• More popular with respondents</li></ul> | <ul style="list-style-type: none"><li>• Allow more freedom of response</li><li>• Easier to construct</li><li>• Permit follow-up by interviewer</li></ul> |
|--|--|

### Disadvantages

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• May limit breadth of responses</li><li>• Take more time to construct</li><li>• Require more questions to cover the research topic</li></ul> | <ul style="list-style-type: none"><li>• Tend to produce responses that are inconsistent in length and content across respondents</li><li>• Both questions and responses subject to misinterpretation</li><li>• Harder to tabulate and synthesize</li></ul> |
|---|--|



# Closed Response Formats

*Also founded  
participative  
management*

- **Likert Scales** (*lick-ert*)
  - Responses are scored along a range
    - (SD) Strongly disagree
    - (D) Disagree
    - (U) Undecided
    - (A) Agree
    - (SA) Strongly agree



RENSIS  
LIKERT

1903 - 1981



# Closed Response Formats

- Middle category (neutral option) in odd-number response options
  - Kulas and Stachowski, 2009
    - High response latency, an “it depends” connotation
    - Strong negative relationship with item clarity and understanding
  - May depend on the research question
    - How do you feel about Tom Brady playing for Tampa Bay?



# Closed Response Formats

- So how many response items are appropriate? – *It Depends!*
  - Leung (2011). Six and 11 (0 to 10) point scales seemed to reduce skewness, with smallest kurtosis and closest to normal distribution.
  - Polit et al., (2007). Nurse researchers provide evidence of content validity for instruments by computing a CVI using a 4 point scale
    - Not relevant - Somewhat relevant - Quite relevant - Highly relevant



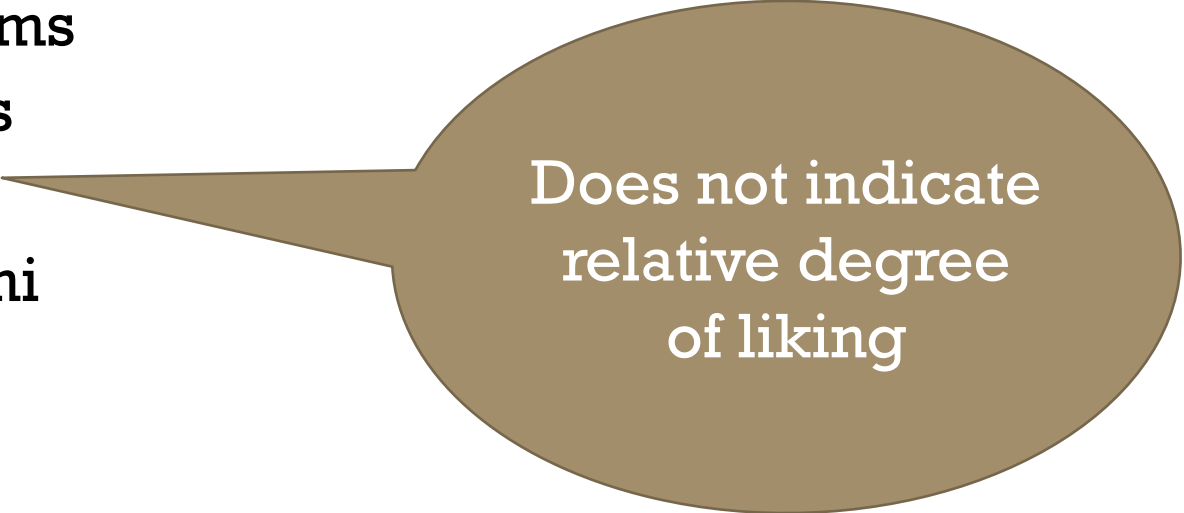
# Closed Response Formats

- All that apply - Please check the computer applications you use at least twice a week
  - \_\_\_\_\_ Excel
  - \_\_\_\_\_ Word
  - \_\_\_\_\_ Access
  - \_\_\_\_\_ Other
- “Other” allows unanticipated responses (e.g., SPSS). Pilot testing can aid in identifying options



# Closed Response Formats

- Rank Lists – Please indicate your preferred pizza toppings by ranking the following items 1 (most liked) to 5 (least liked)
  - \_\_\_\_\_ Mushrooms
  - \_\_\_\_\_ Tomatoes
  - \_\_\_\_\_ Cheese
  - \_\_\_\_\_ Pepperoni
  - \_\_\_\_\_ Sausage
  - \_\_\_\_\_ Other



Does not indicate  
relative degree  
of liking



# Closed Response Formats

- Semantic Differential Scales – When I think about taking a statistics test, I feel:

- Sad           \_\_\_\_\_ Happy
- Anxious \_\_\_\_\_ Serene
- Calm           \_\_\_\_\_ Excited
- Bad           \_\_\_\_\_ Good

Be sure to find the correct opposites (antonyms)



# Constructing the Instrument

- Visually inviting
- Clear instructions (include correctly completed sample item)
- Items may be grouped into subject areas to aid respondents thought processes and memory
- Ask demographic questions first (kind of a warm up)
- Items concerning sensitive topics towards end of document (feeling comfortable)



# Cognitive Testing

## *Cognitive Interviewing*

- Collection of verbal information regarding survey responses
- Used to evaluate if item is measuring desired construct
- Data collected can be used to adjust problematic items
- Two basic methods
  - Think-aloud – Participants verbalize thoughts while responding to survey items
  - Probing – e.g., “In your own words, what is the question asking?”



# Expert Panel

*Don't even think about distributing the instrument before I review it!*

- Regardless of process, colleagues should critique items to lend some face validity to the instrument prior to pilot testing.



# Pilot Testing

Always pilot  
test a new  
survey!

- Helps verify poorly worded or redundant questions
- Helps verify transferability of data to a statistical analysis package (e.g., SPSS, SAS, Excel, etc.)
- Consider at least two pretests
  - Test Instrument → Revise → Test Revised Instrument
- Calculate coefficient alpha for all scales & subscales



# Administering the Survey

- Use rigorous and aggressive administration procedures.
  - Response rate of at least 50% is considered adequate for analysis and reporting. 60% is good, 70% is very good (Rubin & Babbie, 1997)
- Difference in variables of interest between volunteers & non-volunteers.
  - If studying depression in a sample of clinically depressed individuals, severely depressed individuals may not respond to the survey thereby resulting in bias results
- Consider outcome of respondents
  - Positive responses to surveys that explore factors such as delirium or suicide, may require researcher to report individual to appropriate entity resulting in removal from study.



# Administering the Survey

You have 15 minutes to complete the survey

- Environment
- Characteristics of data collector
- Inappropriate pressure
- Time of day



# Maximizing Response Rate

- Cover letter /Introduction
  - Describe purpose
  - Highlights benefits to participant
    - Prizes, payment (payment prior to completion)
  - Highlight benefits to society
  - Assurance of anonymity / confidentiality
  - State a desired timeline (longer is not always better)
  - Estimated time to complete



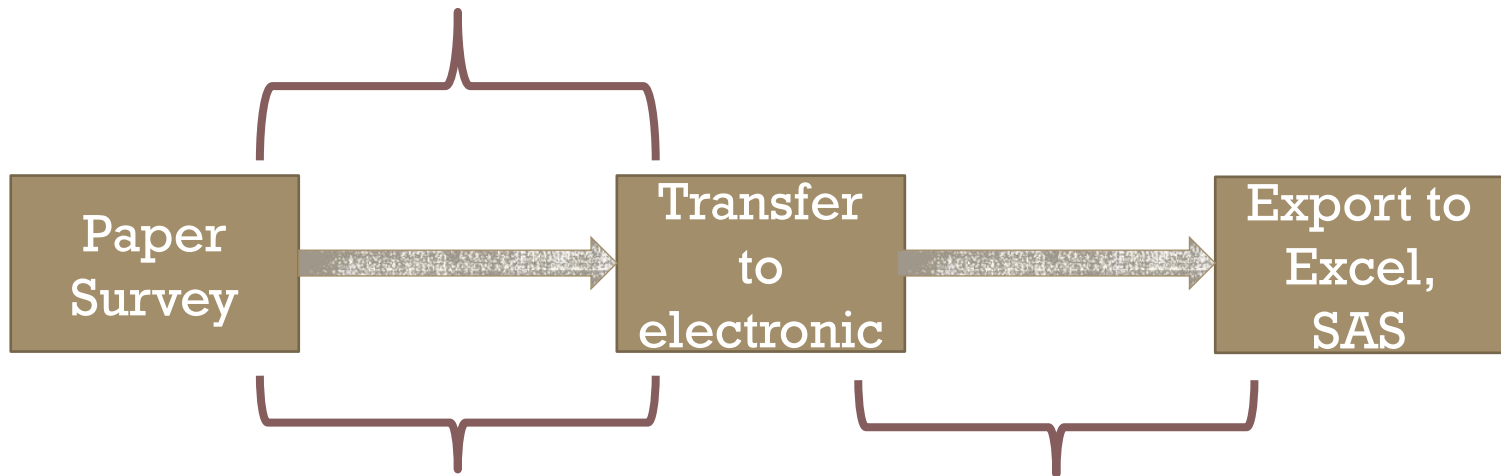
# Data Management

- Know in advance the data you will be collecting
  - Survey Results
  - Paradata – Processes by which the survey data were collected
    - Time of day
    - Data collection conditions - group, individual, PC, cell phone
    - Item response time, survey response time
    - Survey breakoff time and rate



# Data Management

Transfer increases error



Consider SDV. 20%-100%

Pilot test data transfer

Always  
perform this  
step!



# Summary

- Mode of data collection
  - Direct administration, Telephone surveys, Internet surveys, Personal interviews
- Be mindful of response burden
- Careful development of question (stem)
- Response options
  - Likert type scale –Neutral option?
- Always pilot test before distribution
- Consider the format of the data



Now it's your turn. Contact my team to optimize your research!

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