Introduction to Survey Design and Analysis

Student workshop – hosted by the Institute for Public Administration

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	DESCRIPTION	EXPLANATION
Limited/no generalization	▪ Small Group/Community ▪ Indepth Interviews ▪ Key Informant Interviews ▪ Administrative Data ▪ Feasibility Studies	▪ Historical case study ▪ Focused Interviews ▪ Human lab. Experiments ▪ Quasi-experiment/ comparisons
Conducive to generalization	▪ Census ▪ Sample Surveys ▪ Single cross section ▪ Repeated cross section ▪ Panel studies	▪ Experiment/Quasi-experiment ▪ Multivariate analysis/simulation (better with longitudal data)

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Advantages/Disadvantages of (Sample) Surveys

Advantages
- Generalizability
- Reliability
- Timely/Contemporary
- Quantitative in nature (always?)

Disadvantages
- Superficial (construct/measurement/context)
- Obtrusive
- Structured – not flexible
- Based on self report
- Responses might or might not correspond with actions
- Expensive

Steps in Research Design

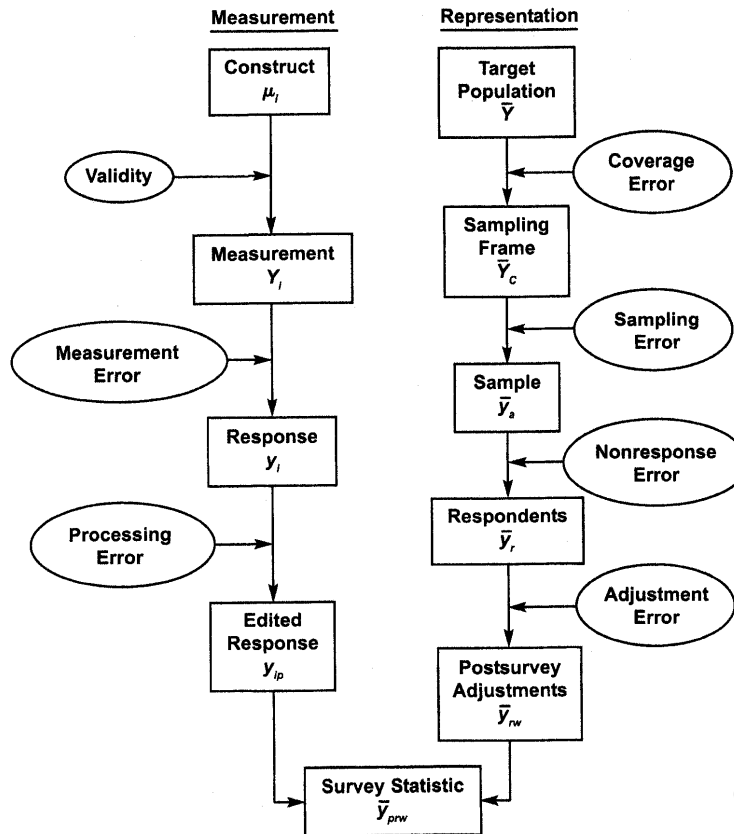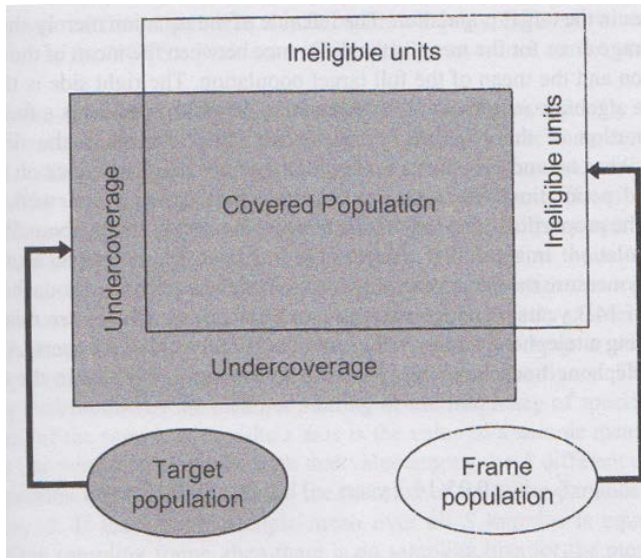Adapted by CTLT from Groves, R.M., et al. (2009) *Survey Methodology*. Wiley-Interscience.   JHSPH

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Figure 2.5 Survey life cycle from a quality perspective.

Groves, R. M., et al. (2009). *Survey Methodology,* Second Edition. Wiley.

COVERAGE ERROR

Frame Populaion(Sampling Frame) (not yet sample)C

Groves, R. M., et al. (2009). *Survey Methodology,* Second Edition. Wiley.

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COVERAGE ERROR

**Target Populaion
(Study Population)**
(not yet sample)

**Frame Populaion
(Sampling Frame)**

COVERAGE ERROR

Target Populaion
(Study Population)
(not yet sample)

Frame Populaion
(Sampling Frame)

COVERAGE ERROR

Solution:

1. **Undercoverage – get a new (better frame) OR redefine your target population**

2. **Ineligible Units – get a new (better frame) OR ask a survey question to filter out ineligible units**
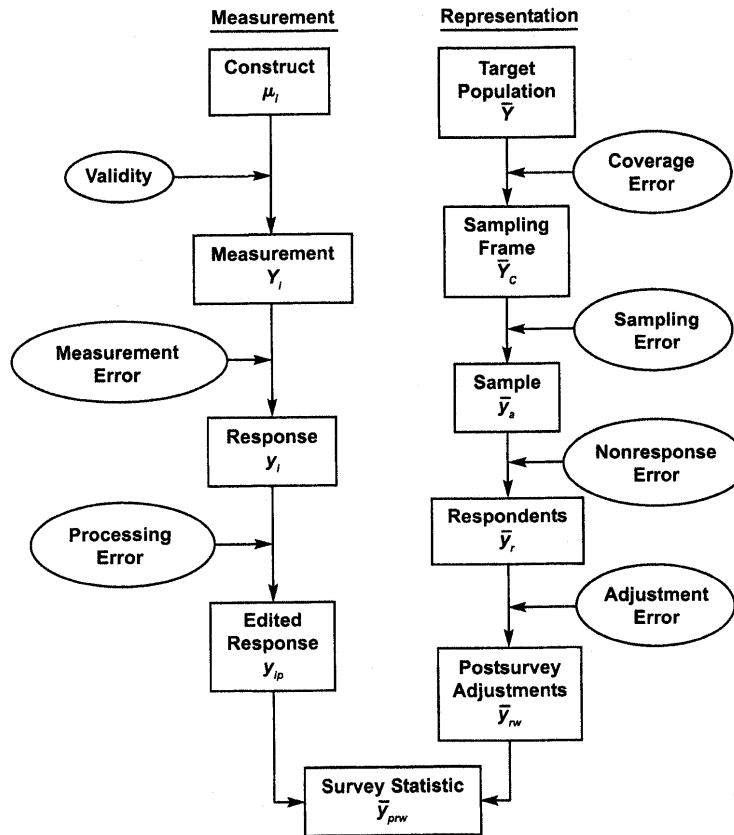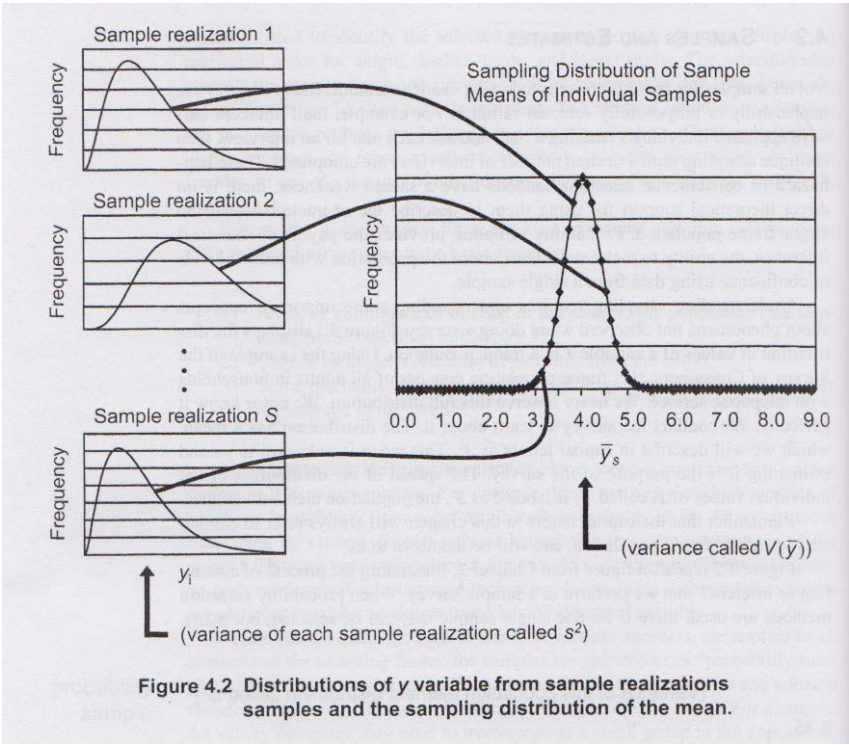
Figure 2.5 Survey life cycle from a quality perspective.

Groves, R. M., et al. (2009). *Survey Methodology,* Second Edition. Wiley.

SAMPLING ERROR

Figure 4.2 Distributions of y variable from sample realizations samples and the sampling distribution of the mean.

SAMPLING ERROR

Solution:

1. Take more than one sample & aggregate (non practical since you would have to take an unlimited number of samples)
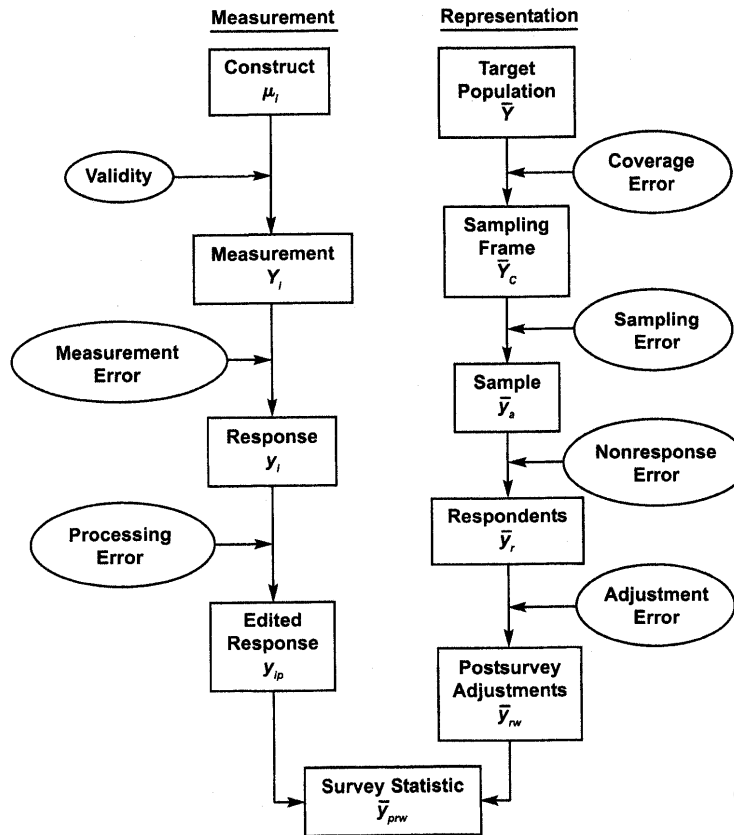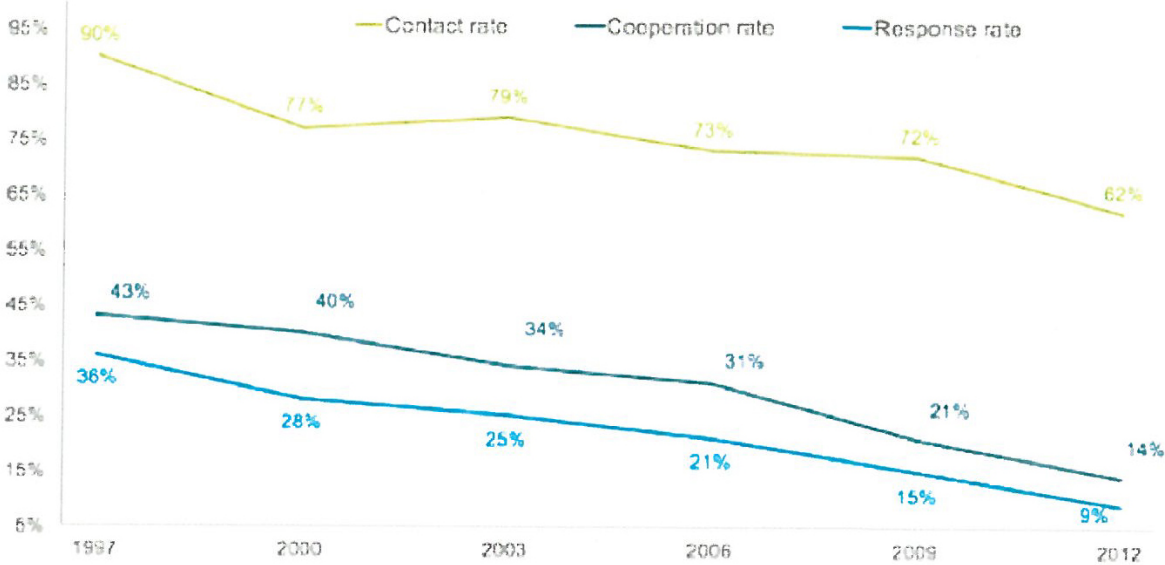
2. Increase sample size

3. Conduct a census

Figure 2.5 Survey life cycle from a quality perspective.

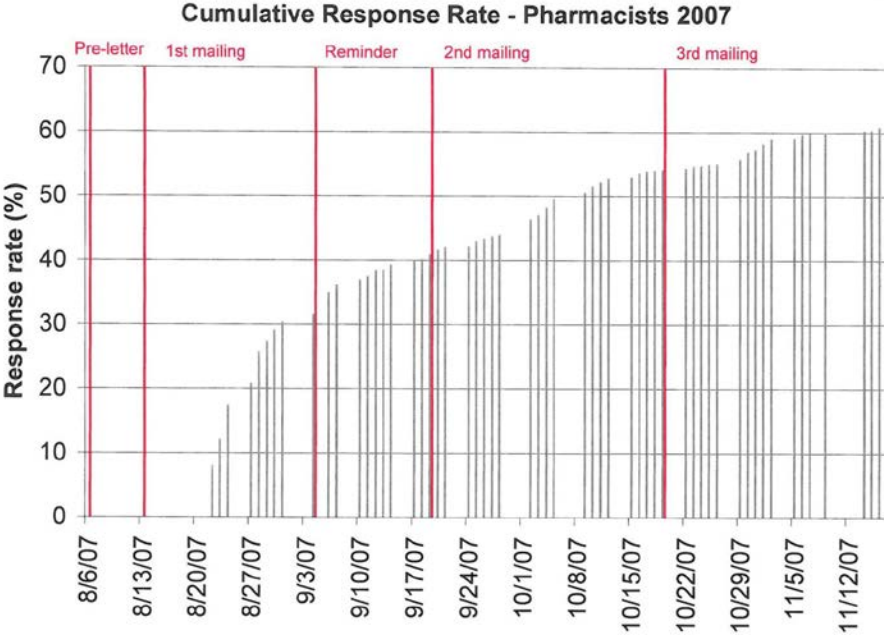Groves, R. M., et al. (2009). *Survey Methodology,* Second Edition. Wiley.
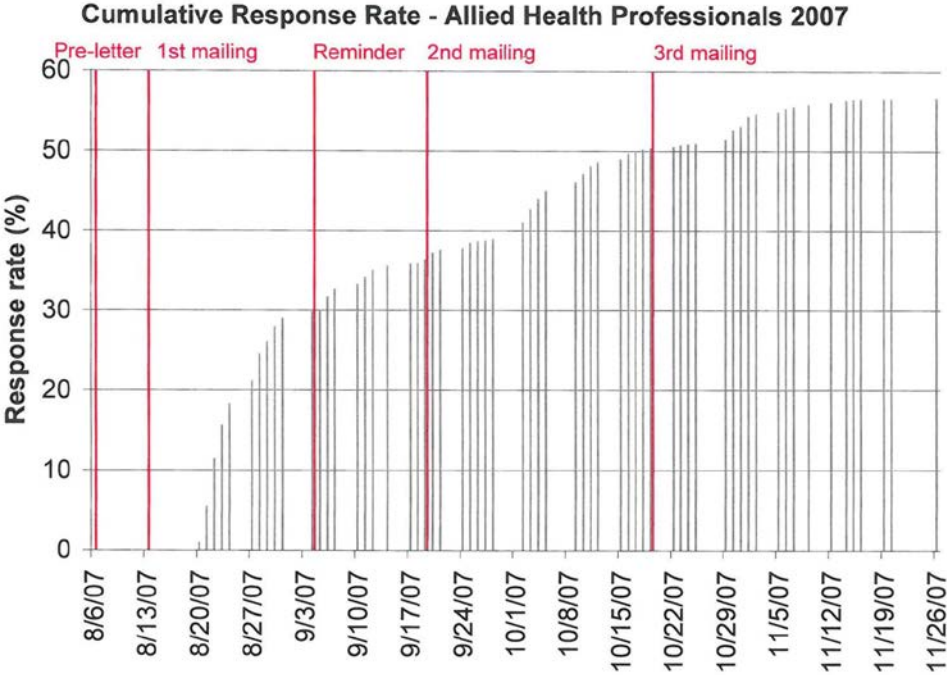
NON RESPONSE ERROR

Source: Pew Research Center

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NON RESPONSE ERROR

Cumulative Response Rate - Pharmacists 2007

NON RESPONSE ERROR

Cumulative Response Rate - Allied Health Professionals 2007

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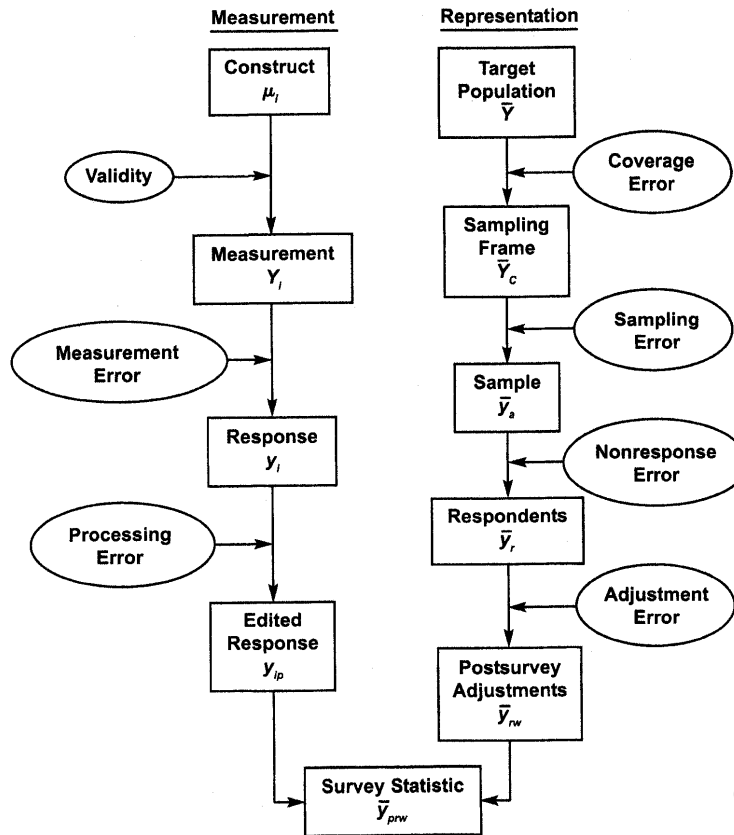**www.bidenschool.udel.edu**

Figure 2.5 Survey life cycle from a quality perspective.

Groves, R. M., et al. (2009). *Survey Methodology,* Second Edition. Wiley.

MEASUREMENT ERROR

Components:

• RELIABILITY: Reliable questions provide a consistent measure of the phenomena in compararble situations

• VALIDITY: Valid questions provide answers that correspod with what we intend to measure

MEASUREMENT ERROR

Criteria:

Designing a question for a survey instrument is designing a measure, not a conversational inquiry.

Does your survey question meet this criteria?

Test 1: Is the researcher asking this question because it would be nice to know or because they need to know?

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MEASUREMENT ERROR

Criteria:

The answer to the question is valuable to the extent it can be shown to have a predictable relationship to facts or subjective states that are of interest to the researcher. (Who did you vote for during last elections?)

Does your survey question meet this criteria?

Test 2: How do the answers to this question fit the Researcher's model outlined in Hypothesis?

MEASUREMENT ERROR

Criteria:
Good questions maximize the relationship between the answers recorded and what the researcher is trying to measure. (Do you support recycling?)

Does your survey question meet this criteria?

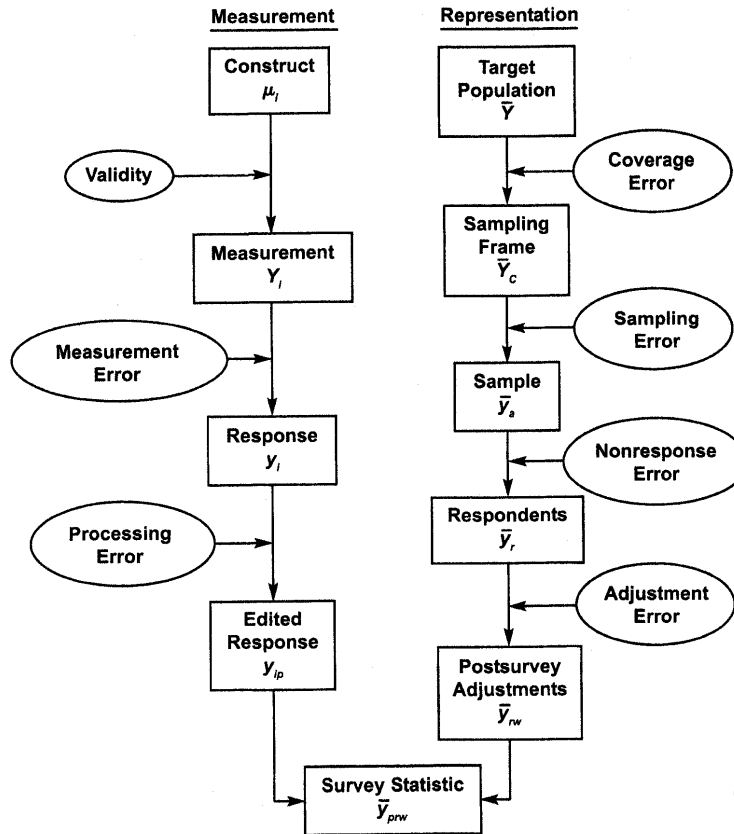Test 3: Is the Researcher going to obtain answers relevant to what they actually intend to measure?

Figure 2.5 Survey life cycle from a quality perspective.

Groves, R. M., et al. (2009). *Survey Methodology,* Second Edition. Wiley.

MEASUREMENT ERROR

Criteria:

Good questions are simple.

Does your survey question meet this criteria?

Test 4: Is the question worded so that the respondents can actually understand it?

MEASUREMENT ERROR

Criteria:

Good questions avoid acronyms and abbreviations.

Does your survey question meet this criteria?

Test 5: Is the question worded so that abbreviations and acronyms are avoided?

MEASUREMENT ERROR

Criteria:

Good questions are applicable to all respondents.

Does your survey question meet this criteria?

Test 6: Does the question apply to all?

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MEASUREMENT ERROR

Criteria:

Good questions avoid being double barreled.

Does your survey question meet this criteria?

Test 7: Is this definitely just one question or 2 questions in one?

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MEASUREMENT ERROR

Criteria:

Good questions avoid leading the respondent.

Does your survey question meet this criteria?

Test 8: Is the question leading the respondent to a certain answer – is it conditioning the respondent ?

MEASUREMENT ERROR

Criteria:

Good questions soften the impact of sensitive data being collected.

Does your survey question meet this criteria?

Test 9: Did you tell the respondent why you are collecting the sensitive data? If you collect sensitive data, are you using a closed question with a range of responses?

38. Do you provide charity care (no fee expected) inside your office?

1 ☐ Yes
2 ☐ No

- TYPE: Dichotonomous question – (**close ended**)

- USE: Often used for validation, mutually exclusive choices

- ANALYSIS: Frequency, %, comparison of groups

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50. What is your race?
1 ☐ Caucasian or White
2 ☐ African American or Black
3 ☐ Native American or Alaskan
4 ☐ Asian or Pacific Islander
5 ☐ Multi-Racial

6 ☐ Other (*specify*): _____

51. Are you of Hispanic origin?
1 ☐ Yes
2 ☐ No

- TYPE: Multiple choice question – single select

- USE: Often used for validation, mutually exclusive choices

- ANALYSIS: Frequency, %, comparison of groups

2. Were you active in clinical medicine 12 months ago:

1. ☐ No
2. ☐ Yes, at the same location as now
3. ☐ Yes, but at a different location
   (*specify location below*):

   City   State   ZIP code

- TYPE: Multiple choice question – single select

- USE: Often used for validation, mutually exclusive choices

- ANALYSIS: Frequency, %, comparison of groups

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4. Setting of main employment is (*check all that apply*):

1 ☐ **Clinical Care Settings:**
  1 ☐ Practitioner's Office (solo, partner of group practice)
  2 ☐ Hospital (except federal)
  3 ☐ Nursing Home
  4 ☐ Freestanding Clinic (administratively distinct from a hospital, nursing home, etc.)
  5 ☐ Federally Qualified Health Center
  6 ☐ Treatment Facility for the Handicapped or Disabled

  7 ☐ Other (*specify*): _____

2 ☐ **Federal Health Facility:**
  1 ☐ Veterans' Administration (VA hospital)

  2 ☐ Other (*specify*): _____

3 ☐ **School:**
  1 ☐ School-Based Health Clinic
  2 ☐ Primary or Secondary School Site; School District
  3 ☐ School of Medicine
  4 ☐ Other University or College

  5 ☐ Other (*specify*): _____

- TYPE: Multiple choice question – multi select – see check all that apply

- USE: Overlapping categories (not mutually exclusive)

- ANALYSIS: Frequency at which a particular option is selected among survey respondents.

53. What is your year of birth?

Year (YYYY)

- TYPE: Numeric question – numeric only (forced)

- USE: Collection of quantitative data, consider precision.

- ANALYSIS: Building regression models, both dependent and independent variables

18. On average, what percentage of your time is spent delivering primary care to migrant farm workers? (*chose one number below*):

- 1 ☐ 0%
- 2 ☐ 10%
- 3 ☐ 20%
- 4 ☐ 30%
- 5 ☐ 40%
- 6 ☐ 50%
- 7 ☐ 60%
- 8 ☐ 70%
- 9 ☐ 80%
- 10 ☐ 90%
- 11 ☐ 100%

- TYPE: Numeric/Multiple choice question – single select – see select one number

- USE: Collecting quantitative data, bit less obtrusive, when exact number is not as important.

- ANALYSIS: Building regression models, both dependent and independent variables

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33. Are you <u>currently treating</u> MEDICARE patients at this site?

1 ☐ Yes
2 ☐ No

If YES, about what percentage of your total hours is spent delivering care to MEDICARE patients at this site? (*please chose one number, below*)

1 ☐ 0%   4 ☐ 30%   7 ☐ 60%   10 ☐ 90%
2 ☐ 10% 5 ☐ 40%   8 ☐ 70%   11 ☐ 100%
3 ☐ 20% 6 ☐ 50%   9 ☐ 80%

35. Do you treat patients who have difficulty understanding English?

1 ☐ Yes
2 ☐ No

If YES, about what percentage of your time is spent delivering care to these patients?

[   ]
Percent

- TYPE: Dichotomous questions (Multiple choice - single select with Numeric question embeded)

- USE: Collecting quantitative data, bit less obtrusive, when exact number is not as important.

- ANALYSIS: Building regression models, both dependent and independent variables

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3. On average, how many hours per week do you spend on each of the following activities:

_____ Hours - Direct patient care or services and related paperwork

_____ Hours - Administration and related paperwork

_____ Hours - Teaching medical courses

_____ Hours - Research

_____ Hours - Other (specify):
_____

- TYPE: Constant sum question – if adds up to 40hrs above

- USE: Measuring time, percentage allocation, can be effectively deployed in online datat collection (force the sum)

- ANALYSIS: Building regression models, both dependent and independent variables

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45. Considering your work over the past 12 months, indicate your level of agreement or disagreement with the following statements:

	Strongly Agree	Agree	Disagree	Strongly Disagree
It is hard adjusting my therapeutic strategies with ethnic minority clients	☐	☐	☐	☐
I am effective in my verbal communication with clients whose culture is different from mine	☐	☐	☐	☐
I feel confident that I can learn about my clients' cultural background	☐	☐	☐	☐
I am effective in my nonverbal communication with clients whose culture is different from mine	☐	☐	☐	☐
I feel that I have limited experience working with ethnic minority clients	☐	☐	☐	☐
It is difficult to practice skills related to cultural competence	☐	☐	☐	☐
I do not feel that I have the skills to provide services to ethnic minority clients	☐	☐	☐	☐
I would find it easy to work competently with ethnic minority clients	☐	☐	☐	☐

- TYPE: Likert scale

- USE: measuring a respondent's opinion or belief towards a given subject; four, five, seven, or nine-point agreement scale used. Sometimes has a Non Applicable option

- ANALYSIS: Complicated;

- READINGS: McIver, J. P. & Carmines, E. G. (1981). Likert scaling. In Unidimensional scaling (pp. 23-40). SAGE Publications, Inc., https://www-doi-org.udel.idm.oclc.org/10.4135/

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7. What are the practice name, facility name, address and zip code for your *main* location <u>in Delaware</u> where you practice medicine? (Main location defined as the location where you spend most time delivering care)

Practice Name (example: Bear-Glasgow Dental)

Facility Name (People's Plaza)

Street Address

City | State | ZIP code

- TYPE: Text entry - Contact information question

- USE: Validation of responses, calculation of weights, administrative records matching

- ANALYSIS: GEOCODIG/GIS

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54. If you have any comments, please feel free to include them in the space provided below.

- TYPE: Text question

- USE: General feedback

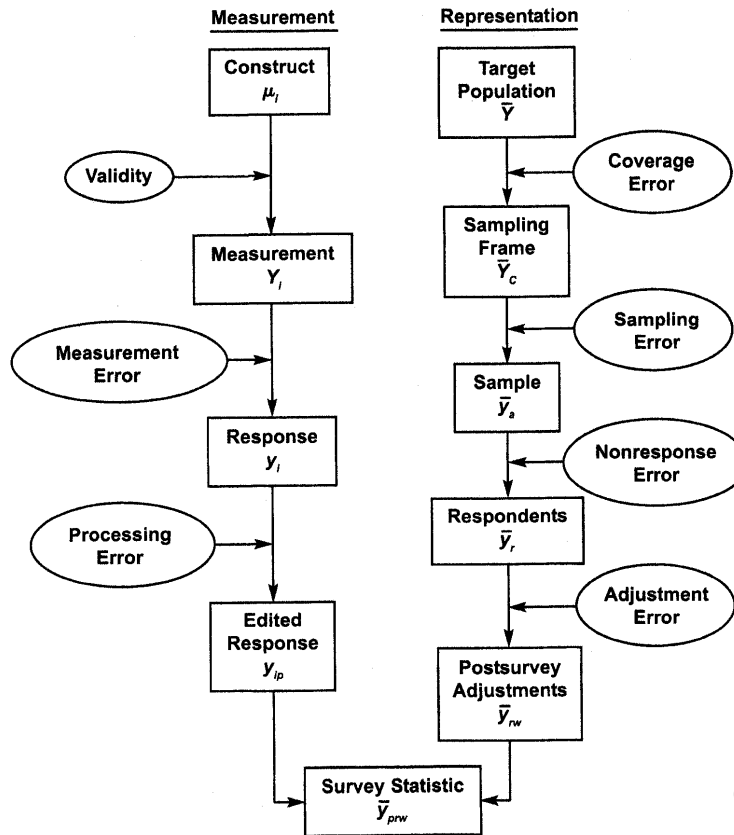- ANALYSIS: Data mining, keywords, getting the feel for respondent mood

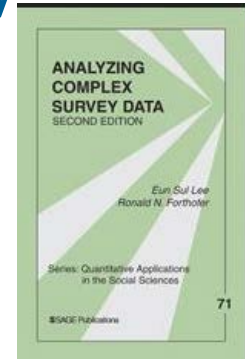UNIVERSITY OF DELAWARE.

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Resources fort your Survey

SAGE Research Methods:

https://library.udel.edu/databases/srm/

Survey Questions/Examples:

ACS: https://www.census.gov/programs-surveys/acs

ICPSR:https://www.icpsr.umich.edu/web/pages/ICPSR/index.html

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