RURAL HEALTH DATA INSTITUTE

Session 3:
Collecting Your Own Data

PART 2

Session 3 speakers

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Angie Sechler is a research analyst in the Office of Rural Health and Primary Care (ORHPC) at the Minnesota Department of Health. She analyzes the social work and nursing workforce. Having grown up in rural community in Indiana, she has a special interest in rural health care delivery and how the environment and access to health care services may influence the health of rural residents. She has a B.A. in political science from Indiana University and is currently enrolled in the University of Minnesota's School of Public Health pursuing a Master's degree in public health.

Session summary

You have a research question, but no data to answer the question.

Today we'll cover:

o Different types of study designs
o Turning a question into a research study
o Survey methods
- Survey sampling
- Survey instrument design
- Survey question design
- Free survey tools

Types of Study Designs

First things first:
What motivates your study?

- **Describing** or **documenting** general conditions?
- Gaining a deep understanding of **why** things happen?
- **Predicting** an outcome that has not yet happened?
- **Evaluating** the effect of an intervention?
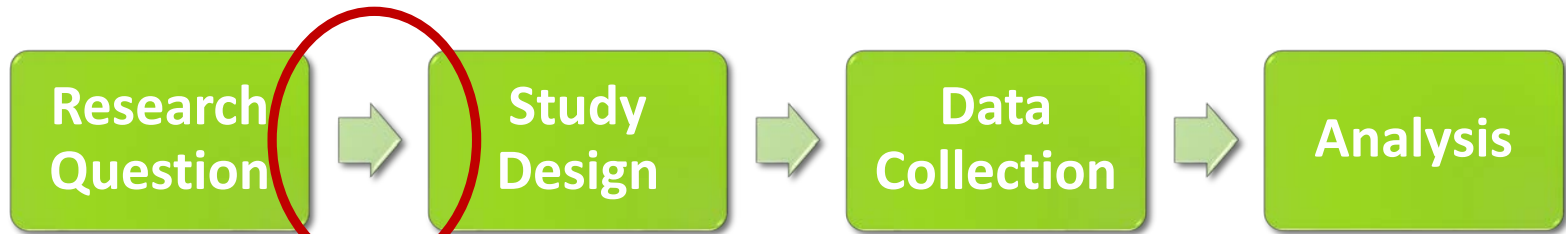
…or a combination of the above?

TIP Meaningful research requires mindfulness of your purpose. Don't let the mechanics of data collection overshadow what motivated the study in the first place.

The research process

Research Question → **Study Design** → **Data Collection** → **Analysis**

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Translating your research question into a study design is the most critical phase of research.

Your research question determines your study design (not the other way around!).

Types of Study Designs

- Quantitative methods
  - Experiment/clinical trial
  - Survey
    - Cross-sectional ("point-in-time")
    - Longitudinal

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  - Key informant interviews
  - Participant observation
  - Comparative/historical analysis
  - Document review

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TIP

In policy research, there's a tendency to jump right to doing a survey. Remember that the method you choose depends on the question you're asking.

Types of Study Designs

Research Questions:

- Predict the outcome of an election

- Determine whether an intervention worked as expected

- Gain an in-depth understanding about what keywords people would use to find information on the web

- Compare men's and women's opinions on global warming

- Determine whether content on your website is easy to find

- Understand why Canada has a single-payer healthcare system and the U.S. does not

Study Designs:

- Survey

- Comparative / Historical

- Experiment

- Interview

- Focus Group

- Observation

Types of Study Designs

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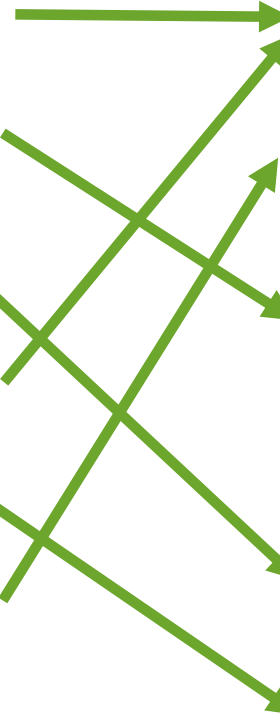
Survey

Comparative / Historical

Experiment

Interview

Focus Group

Observation

Turning a question into a research study

Step 1: State the Research Question

Do rural residents have poorer access
to mental health care than
urban residents?

Step 2: Define Key Concepts

Do **rural residents** have poorer **access** to **mental health care** than **urban residents?**

Definitions

Rural residents: People living in regions with no easy access to an urban center.

Urban residents: People living in areas with at least 50,000 residents.

Access: The extent to which residents can get an appointment

Mental health care: Care provided by a psychiatrist, a psychologist, or another licensed independent clinical mental health provider.

Step 3: Operationalize Key Concepts

Do **rural residents** have poorer **access** to **mental health care** than **urban residents?**

Definitions

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Operationalization

Rural residents: People living in "Rural" RUCA

Urban residents: People living in "Urban" RUCA

Access: How long did residents wait for an appointment?

Mental health care: Psychiatrist, Psychologist, LICSW, LPCC, LMFT

Step 4: Identify an appropriate design

Operationalized Question:

Do people living in rural RUCAs wait longer to see a mental health provider (psychiatrist, psychologist, LPCC, LICSW, or LMFT) than people living in urban RUCAs?

Is this question suitable for…

- o A survey?
- o An experiment?
- o A set of interviews?
- o A focus group?
- o Comparative/historical analysis?
- o Observations?

Step 4: Identify an appropriate design

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- Comparative/historical analysis?
- Observations?

Have an analysis plan **before** data collection begins

o Write the report chapter titles or press release bullet points even before you have the data

o This can help sharpen your research question, which in turn ensures that you are collecting information that you actually need and will actually use

TIP   Don't be an "ask-hole!"

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Review: Types of Study Designs

○ Quantitative methods

- Experiment/clinical trial

- Survey

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○ Qualitative methods

- Focus groups and other kinds facilitated group discussions

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Survey Methods

General principles of surveying

◦ Use standardized procedures so that each person is asked the same questions in the same way

◦ You're gathering a **composite profile** of a population, *not* trying to learn something about particular individuals

◦ In general, surveys are great for establishing broad patterns and relationships, *not* for uncovering intricate causal mechanisms.

Survey modes

Survey
- In-person
- Telephone
- Mail
- Online

Survey Methods

o Survey sampling
o Survey instrument design
o Survey design questions
o Free survey tools

Survey Sampling

Define the population you are studying.

- All Americans
- All Minnesotans
- All immigrants living in Minnesota
- All immigrants living in Northern Minnesota
- All Hmong immigrants living in Northern Minnesota

The population is the group of people you want to be able to apply your results to when you're finished.
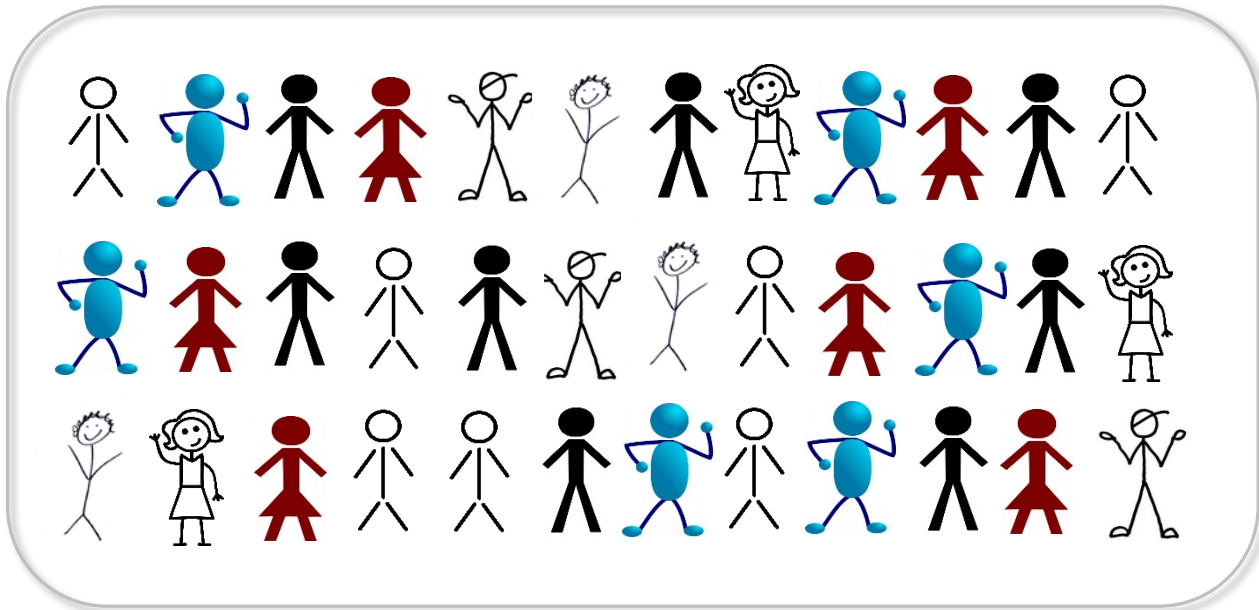
Survey Sampling (continued)

If you want to generalize to a population, your sampling method must ensure that each member of that population has a chance of being included in your sample.

(For example, if you want to be able to say something about all Americans, all Americans must have some probability of being sampled.)
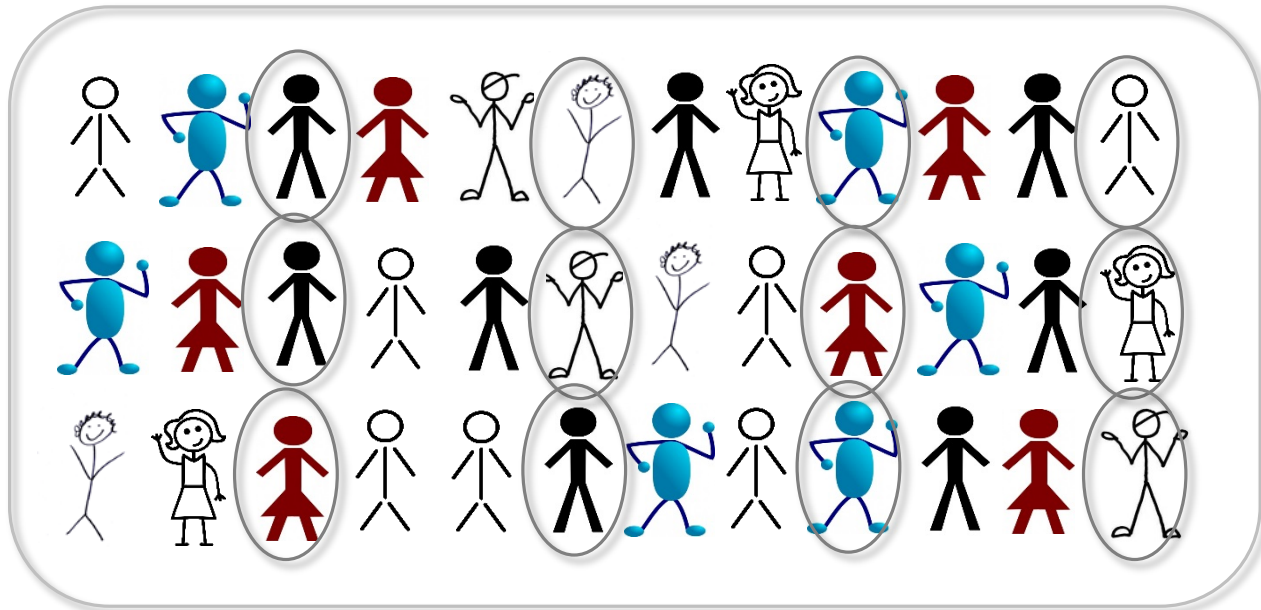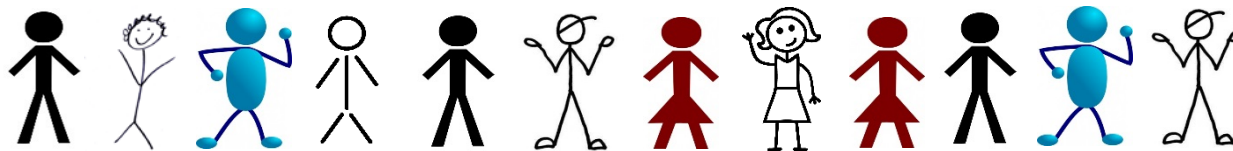
Survey Sampling (continued)

Population:

Survey Sampling (continued)

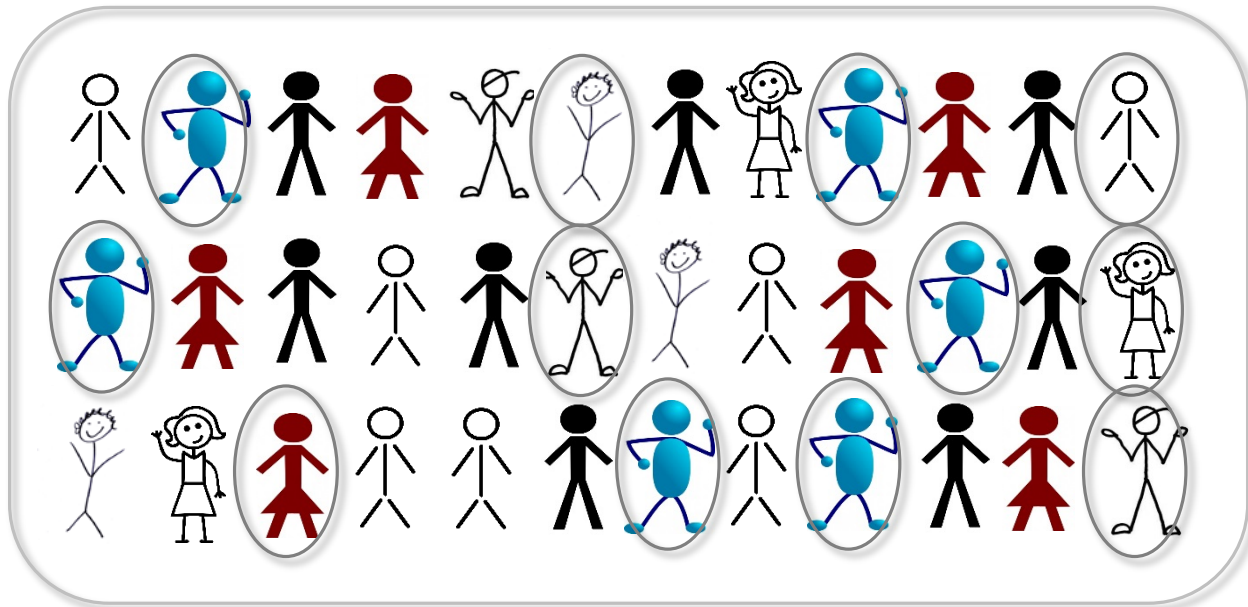Equal Probability of Selection Method (EPSEM); for example, every third person:

Population:

Sample:

Survey Sampling Bias

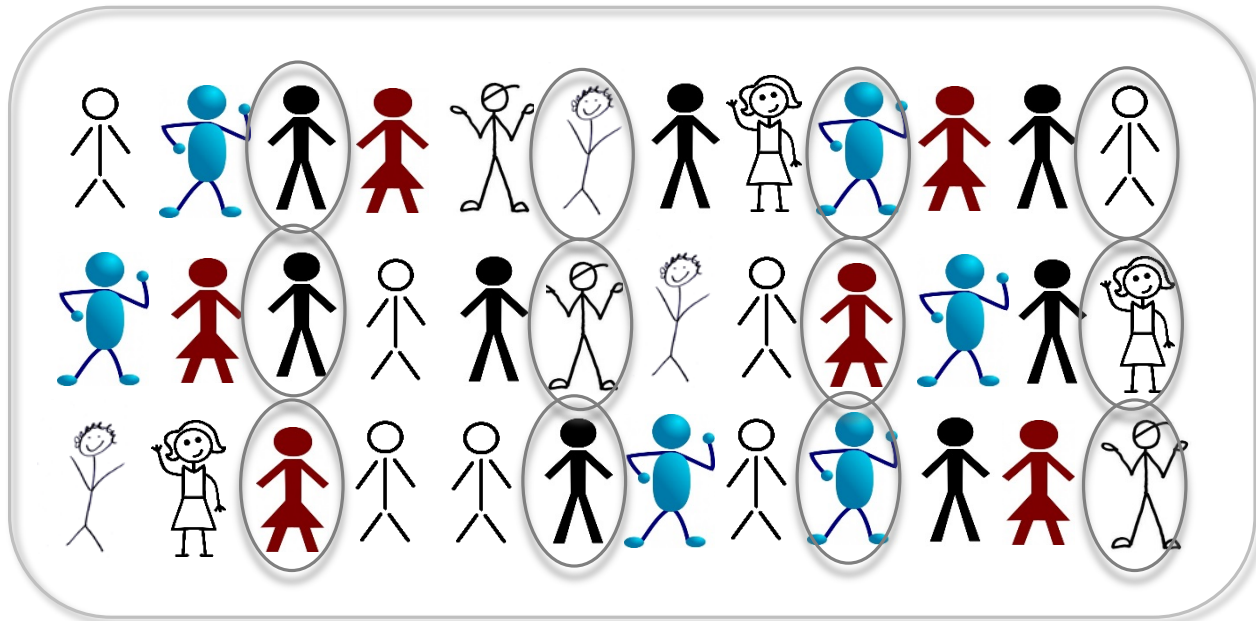This sampling method yielded a biased sample:

Population:

Sample:

Survey Response Bias
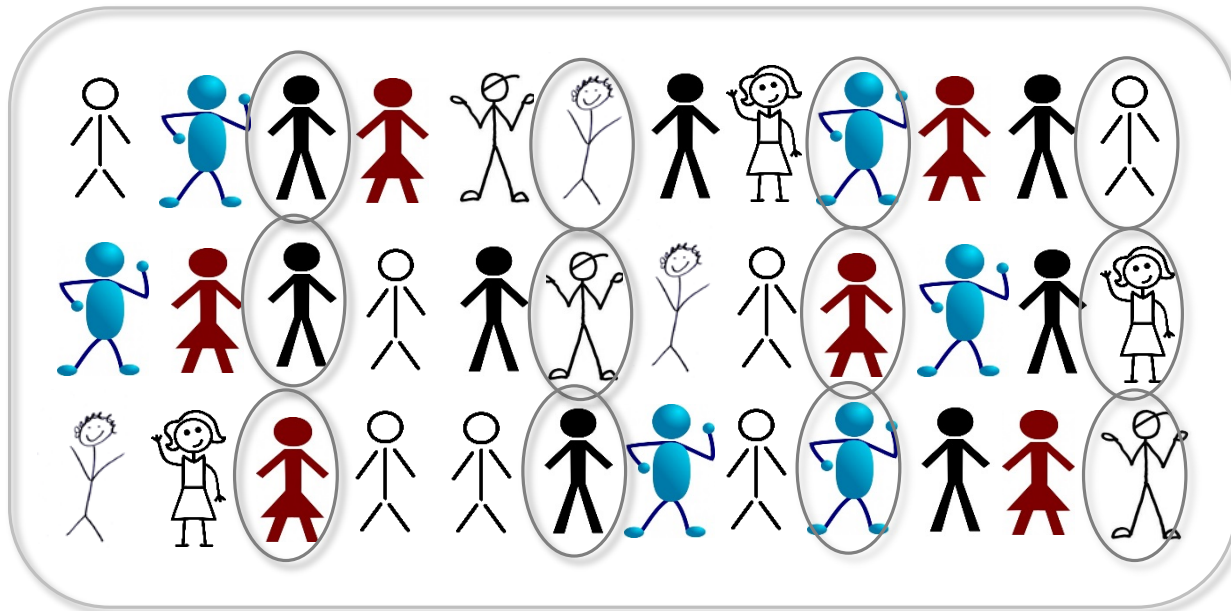
This sample was representative….

Population:

Sample:

Survey Response Bias

This sample was representative, but an unrepresentative sample responded:
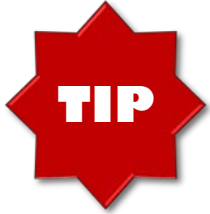
Population:

Respondents:

Survey Sampling

TIP

It's a common mistake to think that the larger the sample, the better (or more "scientific") the study.

The most important characteristic of a sample is its representativeness. How well does the sample represent the population to which you're trying to generalize? Small samples can achieve this as well as large samples.

Efforts to gain response

o Introduction/cover letter from trusted source or authority figure

o Provide multiple reminders to complete survey

o If possible, emphasize the value of the research to respondents themselves.

TIP

When you've completed your data collection, be sure to analyze non-response. Are the people who responded to your survey different in some important way from those who didn't? If so, you must correct for this in your analysis.

Survey Methods

o Survey sampling
o Survey instrument design
o Survey design questions
o Free survey tools

Well-designed surveys…

o Consider respondent burden

o Optimize survey length/number of questions

o Have a logical question order

o Are well-formatted

o Are pretested

Two Types of Survey Respondents

o **Satisficers** work just hard enough to provide a plausible answer.

o **Optimizers** work carefully and in-depth.

The more burden the survey places on the respondent, the more s/he will become a satisficer.

Survey satisficers may…

◦ Over-use "no opinion" or "don't know" responses

◦ Choose "agree" to all statements

◦ Choose socially desirable responses

◦ Select the first reasonable-looking option without reading all options

◦ "Straight-line" (choose the same response for a series of questions)

◦ Skip items, rush, or not finish the survey

Survey length/number of questions

o Is the general rule "the shorter, the better"? It's not *quite* that simple

o Balance your need to ask as much as possible with respondents' willingness to participate

o Eliminate questions that you don't NEED. There is a cost to every question you include.

TIP   Online surveys – some say they should be no longer than 10 minutes. Mail surveys – some say no more than 4 pages.

Question order

Question order and context affects the way people respond to items; therefore:

o Make the order as easy to understand as possible

o Respondents will use information they provided in earlier questions when they answer subsequent questions.

TIP When ordering questions, be attentive to the respondent's cognitive roadmap. Start with simple / non-threatening / general questions and move into more specific or in-depth questions. Demographic questions usually go last, and tend to signal the end of a survey.

Question order, cont.

Provide transition information before switching to another topic within the survey

- ◦ "These next questions are about…"
- ◦ Works well with telephone/online surveys
- ◦ May use potentially precious real estate on a mail survey

Formatting

In a typical week, how much time do you spend providing direct patient or client care?

(*Different providers define "direct patient/client care" in different ways. Some include time spent on paperwork, care coordination, or appointment scheduling, while others include only face-to-face time. Please use **your own definition** of direct patient/client care when answering this question.*)

- ❑ **None—I do not hold a position that involves direct patient/client care**
- ❑ **Up to a quarter of my time**
- ❑ **Between a quarter and a half of my time**
- ❑ **Between a half and three-quarters of my time**
- ❑ **More than three-quarters of my time**

- ✓ White space
- ✓ Visual alignment
- ✓ Different fonts / bolding for questions, responses, and directions

Pretesting

- Particularly important if writing own questions

- Identify problem questions or formatting (e.g. skip patterns)

- Conduct cognitive interviews if possible

- Gauge the time that the survey takes – is it too long?

Survey Methods

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Principles of question design

- Consider respondent burden

- Question types

- Simplify questions

- Standardize questions

- Allow respondents to "find themselves" in response options

- Response problems

Consider respondent burden

Responding to a survey question involves:

o **Comprehension:** They try to understand the question

o **Retrieval:** They search their brain for the information

o **Judgment:** They try to make a judgment about their information

o **Response:** They try to fit their judgment into the categories you provide

TIP The more calculations you force someone to make, the lower the quality of the data.

Question types

Closed-ended: provide a list of acceptable answer choices

- One answer only
- Check all that apply
- Enter a number (number of times, number of days, height/weight, etc.)
- Yes/No
- Likert (balanced) scale (e.g. Strongly agree, Agree, Disagree, Strongly disagree)
- Likert-type (ordinal/directional) (e.g. Always, Most of the time, Sometimes, Seldom, Never)
- Can include "Other (Specify)_____" if an exhaustive list of possible answers cannot be created or if one would be too long

Open-ended: allows respondents to answer in their own words.

TIP   Use existing (pre-tested) questions from other surveys when available!

Likert and Likert-type question response examples

Strongly agree
Agree
Disagree
Strongly disagree

Serious problem
Moderate problem
Minor problem
No problem

Strongly favor
Favor
Oppose
Strongly oppose

Not at all concerned
Slightly concerned
Somewhat concerned
Moderately concerned
Extremely concerned

TIP Use "don't know" or "no opinion" sparingly and locate as the last of the response options. Don't use it as the central point in an opinion scale—respondents tend to use it as a dumping ground rather than thinking hard.

Focus response options on what you want to measure

AGREE-DISAGREE

"To what extent do you agree or disagree that the workshop provided useful information?"

- Strongly agree
- Agree
- Disagree
- Strongly disagree

USEFULNESS

"How useful do you think the information is that the workshop provided?"

- Very useful
- Somewhat useful
- Not very useful
- Not at all useful

From Taylor-Powell, E. 2009. *Wording for Rating Scales* accessed at http://www.uwex.edu/ces/4h/evaluation/documents/Wordingforratingscales.pdf

Simplify questions

Use plain language, the way people actually speak:

Example:

"How long have you lived in your community?"
vs
"*For* how long have you lived in your community?"

TIP Determine the reading level of your instrument you're using

Avoid "double-barreled" questions

Double barreled: asks more than one thing per question

Example:

"How satisfied are you with your pay and benefits?"

How should the respondent answer if she is satisfied with her pay but unsatisfied with benefits?

Instead:
◦ Avoid the use of "and"
◦ Make into two questions if both concepts need to be asked about

Standardize questions

o   Always ask the **time frame** at the beginning of the question

o   If possible, use the same time frame (e.g. last 30 days) throughout the instrument

o   Be consistent with wording – always use "last" or always use "past"; always use "30 days" or always use "month"

o   Emphasize important features (e.g. with underlining or voice inflection), such as the time frame, or if using a battery of similar items, emphasize the part that is different

o   Don't begin questions with the response options – in fact, try not to include them in the question at all.

Standardize questions (cont.)

Example:

"Did you often, sometimes, rarely or never worry that your food would run out before you had money to buy more in the past 12 months?"

vs

"During the past 12 months, how often did you worry that your food would run out before you had money to buy more?"
  Often
  Sometimes
  Rarely
  Never

Make closed-ended responses inclusive and mutually exclusive

Inclusive/exhaustive:

"What was your household's total income from all earners and all sources in 2012?"

$10,000 - $19,999	$50,000-$74,999
$20,000 - $34,999	$75,000-$99,999
$35,000- $49,999	$100,000 or more

Missing category: <$10,000

Mutually exclusive:

"How much time do you spend watching TV on a typical day?"

❑ 1 hour or less

❑ 1 - 3 hours

❑ 3 or more hours

Second response option overlaps the other two

Allow respondents to "find themselves" in response options

"What is the highest level of education you have completed?"

- ❑ Less than high school
- ❑ High school graduate or GED
- ❑ Some college
- ❑ College graduate (4-year degree)
- ❑ Graduate school or beyond

- ❑ Less than high school
- ❑ High school graduate or GED
- ❑ Some college
- ❑ Trade, technical or vocational school
- ❑ Associate's degree (2-year degree)
- ❑ College graduate (4-year degree)
- ❑ Graduate school or beyond

Use "Other (specify)_____"

Avoid biased/loaded questions

Example:

"Given the failure of welfare in the United States, do you feel welfare programs should be eliminated?"

vs

"Do you feel welfare programs should be eliminated?"

Response option order effects

Response option order can make a difference:

- Primacy effect: Response options offered first or early are more likely to be selected (more common in visual survey modes – mail or online)
  - Corollary: left-side bias (response option on the far left is slightly more likely to be selected than the same response on the far right if response options are reversed)
- Recency effect: Response options offered later or last are more likely to be selected (more common in auditory survey modes – telephone or in-person)

What to do?

- Randomize response options or flip the order – this is only practical with CATI phone or online surveys, not mail
- Be sure NOT to change the order of responses for surveys administered more than once

Sensitive questions

May lead to socially desirable responses (answers that respondent thinks will be favorably viewed by others)

May be answered more truthfully on self-administered surveys (such as mail or online) than surveys with an interviewer (telephone)

What to do?
◦ Only include them if you really need them
◦ Place toward the end of the survey – respondents have already invested time in the survey so are more likely to finish it
◦ For an undesirable behavior, offer the negative response options first – subtle, but may suggest that the researcher assumes the respondent does not do this
◦ Can work to ask about "you or someone you know" - depends on the purpose for asking the question

Other survey issues

Data entry
- Plan ahead for how it will be accomplished
- Online: automatically collected in an electronic file (e.g. Excel)
- Telephone: automatic (CATI) or hand-entry (possibility of scanning)
- In-person or mail: scanned or hand entry
- Transcription of open-ended responses

Statistical weighting of data for probability (random) samples
- Must weight for the sample design; should weight for differential response

Measures of data quality
- Response rate: was once considered the primary indicator of survey data quality
- Sample size and the associated sampling error
- How complete the data are (i.e. how much item non-response)

Free survey tools

References

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Lavrakas, P.J., ed. 2008. *Encyclopedia of survey research methods.* Sage, Los Angeles.