Survey Exercise

ESP178 Research Methods
Professor Susan Handy
2/11/16
## Several things to worry about

<table>
<thead>
<tr>
<th>Category</th>
<th>Type</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Errors of observation</strong></td>
<td>Measurement error</td>
<td>Survey question on level of street play doesn’t yield accurate results</td>
</tr>
<tr>
<td><strong>Errors of non-observation</strong></td>
<td>Systematic sampling error</td>
<td>Coverage of sampling frame: Phone listings leave out families with unlisted numbers or with cell phones only</td>
</tr>
<tr>
<td></td>
<td>Random sampling error</td>
<td>Random sample of families by chance is skewed toward families with lower incomes</td>
</tr>
<tr>
<td></td>
<td>Nonresponse bias</td>
<td>Families that refuse to answer survey have higher incomes than families that participate</td>
</tr>
</tbody>
</table>
Errors of non-observation

- Target Population
- Sampling frame
- Random sampling error
- How good is coverage?
- Systematic sampling error?
- Loss (non-response)
- Original sample
- Final sample (data)
# How method affects error/bias

<table>
<thead>
<tr>
<th>Section</th>
<th>Measurement Error</th>
<th>Non-response Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Writing Questions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambiguous?</td>
<td></td>
<td>Too long?</td>
</tr>
<tr>
<td>Biased?</td>
<td></td>
<td>Too sensitive?</td>
</tr>
<tr>
<td>Specific enough?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Designing the Instrument</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Order of questions logical?</td>
<td></td>
<td>Too thick?</td>
</tr>
<tr>
<td>Impact of order on answers?</td>
<td></td>
<td>Hard to read?</td>
</tr>
<tr>
<td>Hard to follow?</td>
<td></td>
<td>Not appealing enough?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Any superfluous questions?</td>
</tr>
<tr>
<td><strong>Administering the Survey</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewer influence?</td>
<td></td>
<td>Certain kinds of people less</td>
</tr>
<tr>
<td></td>
<td></td>
<td>likely to respond?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incentives to get more people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to respond?</td>
</tr>
</tbody>
</table>

The table outlines various aspects of survey design and administration and the types of errors or biases that can occur in each phase.
### Survey administration options

<table>
<thead>
<tr>
<th>Option</th>
<th>How recruited</th>
<th>How administered</th>
<th>Questionnaire Structure</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail-out, mail-back</td>
<td>Address list</td>
<td>Self</td>
<td>Mostly structured</td>
<td>Low</td>
</tr>
<tr>
<td>Phone survey</td>
<td>Phone list</td>
<td>Professional</td>
<td>Structured</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Random-digit dialing (RDD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-person interview</td>
<td>Door-to-door</td>
<td>Professional</td>
<td>Structured or unstructured</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Phone, mail, email</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online survey</td>
<td>Address list e-mail lists</td>
<td>Self</td>
<td>Mostly structured</td>
<td>Low or Very low</td>
</tr>
</tbody>
</table>

*It’s all about RESPONSE RATE*
In writing questions, try to avoid:

• **Social-desirability bias**: Tendency of respondents to avoid negative or embarrassing comments – to “spin the truth”

• **Recall bias**: Difficulty of accurately remembering past behaviors, motivations, thoughts, etc.
Question criteria from online text

- Is the question clear and understandable?
- Is the question worded in a negative manner?
- Is the question ambiguous?
- Does the question have biased or value-laden words?
- Is the question double-barreled?
- Is the question too general?
- Is the question too detailed?
- Is the question imaginary?
- Do respondents have the information needed to correctly answer the question?
Dos and Don’ts from Schutt (see lecture notes)

• avoid confusing phrasing (no double negatives, no double-barreled questions)
• minimize risk of bias (wording of question, response alternatives offered)
• avoid making disagreement or agreement disagreeable (people like to agree)
• minimize fence-sitting (neutral opinion) and floating (no real opinion but answers)
• maximize utility of response categories (exhaustive and mutually exclusive)
More tips from Dillman

- use simple words
- do not be vague
- keep it short
- be specific
- do not talk down to respondents
- avoid bias
- avoid objectionable questions
- do not be too specific
- avoid hypothetical questions
Let’s try it out...
What’s wrong with this question?

Should the city implement a program to reduce traffic in neighborhoods by installing barriers on through streets?

☐ Yes

☐ No
What’s wrong with this question?

Where did you live when you were growing up?

- Suburb
- Small town
- City
- Cul-de-sac
- Busy street
What’s wrong with this question?

Do you favor or oppose not allowing the city to implement a traffic calming program without approval of 60% of the residents?

☐ Favor
☐ Oppose
What’s wrong with this question?

What percent of days does your child play out in front of your home?

_____ percent of days
What’s wrong with this question?

How much traffic is there on your street on a typical weekend day?

_____ vehicles
What’s wrong with this question?

How satisfied are you with the parks and playgrounds in your neighborhood?

- Completely satisfied
- Mostly satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Disatisfied
What’s wrong with this question?

Which one of the following do you feel is most responsible for the increase in childhood obesity in the U.S.?

- Irresponsible parents
- Television
- School policies
What’s wrong with this question?

Don’t you think that parents should encourage their children to get more physical activity?

☐ Yes
☐ No
What’s wrong with this question?

Have you ever left your child outside in front of your house without adult supervision?

☐ Yes
☐ No
What’s wrong with this question?

Do you currently work?

☐ Yes
☐ No
What’s wrong with this question?

What is your annual household income?
______________________________
Let’s not forget survey instrument design...

Length, attractiveness, ease of reading, order of questions, etc...

Welcome to the 2015-16 Campus Travel Survey!

This annual survey is intended for anyone who regularly travels to UC Davis for school or work. This research effort provides campus planners with valuable feedback on how people get to campus and their experiences with various transportation programs. Your feedback is important to us! Participating in this research survey takes 5-10 minutes to complete. Doing so is voluntary, and we assure you that all responses are confidential and the results will only be published in the aggregate, without connection to any individual. You must be at least 18 years old to complete this survey.

We’re going to ask you questions in the following areas:

- Your role at UC Davis
- Your travel to and from campus
- Your experience with campus transportation programs and infrastructure
- Some background information about you

To reward you for your time and input, you will be entered into a drawing for twenty $50 Visa debit gift cards and one Amazon Fire Tablet grand prize! If you are unable to complete the survey but would like to be included in the drawing, please email us at travelsurvey@ucdavis.edu to be entered.

Thanks for participating!

Eric M. Gudz, Graduate Student, Institute of Transportation Studies (emgudz@ucdavis.edu)
Susan Handy, Professor, Institute of Transportation Studies (shandy@ucdavis.edu)
Cliff Contreras, Director, Transportation and Parking Services
Pre-testing!

• **Expert panel:** experts provide feedback on questions

• **Focus groups:** convenience sample, group completes and then discusses questions

• **Cognitive interviewing:** respondent "thinks aloud" while completing the survey

• **Pilot tests:** try out the survey method on a small scale
Dr. Handy’s survey question suggestions

• keep it short
• use simple words; no jargon
• do not be vague; be specific
• avoid bias, explicit and implicit
• avoid objectionable questions
• avoid hypothetical questions
• No double negatives
• No double-barreled questions

Email your questions: slhandy@ucdavis.edu; mhamilton@ucdavis.edu
To do!

• Assignment 3 due on Thursday!
• Exercises on scales on Thursday!