Surveys

ESP178 Research Methods
Professor Susan Handy
2/11/16
But first...
The missing midterm questions

- Let’s say you use available data to compare class attendance and the share of students who smoke for schools in California (i.e. schools are the unit of analysis). Your analysis shows that schools with low class attendance on average have higher smoking rates. What’s wrong with concluding from this analysis that students who skip class are more likely to smoke? What’s this error in casual reasoning called? (4 pts)

- Let’s now say you decide to do an inductive study rather than a cross-sectional study with a survey. What sampling method might you use? Explain how this would work (2 pts)
Surveys!
## Types of Data Collection

<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Explanatory</th>
<th>Exploratory</th>
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</thead>
<tbody>
<tr>
<td>Type of Research</td>
<td>Deductive</td>
<td>Inductive</td>
</tr>
<tr>
<td>Type of Data</td>
<td>Quantitative</td>
<td>Qualitative</td>
</tr>
<tr>
<td>Sampling</td>
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<tr>
<td>Probabilistic</td>
<td></td>
<td>Non-probabilistic</td>
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<tr>
<td>Random</td>
<td></td>
<td>Convenient, purposeful</td>
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<tr>
<td>Representative</td>
<td></td>
<td>Illustrative</td>
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<tr>
<td>Larger</td>
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<td>Smaller</td>
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<tr>
<td>Data Collection</td>
<td>Surveys</td>
<td>In-depth interviews</td>
</tr>
<tr>
<td>Available data</td>
<td></td>
<td>Focus groups</td>
</tr>
<tr>
<td>Observation</td>
<td></td>
<td>Observation</td>
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</tbody>
</table>
## And Types of Data Analysis

<table>
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<tr>
<td></td>
<td>Observation</td>
<td>Observation</td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
<td>Statistical analysis</td>
<td>Content analysis</td>
</tr>
</tbody>
</table>
## Surveys vs. observations

<table>
<thead>
<tr>
<th></th>
<th>Observed by researchers “objective”</th>
<th>Reported by participant “subjective” or “self-reported”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective things</strong></td>
<td>Traffic counters in the street</td>
<td>Survey question: “How much traffic do you have on your street?”</td>
</tr>
<tr>
<td>e.g. traffic level</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subjective things</strong></td>
<td>Not possible!?</td>
<td>Survey question: “How concerned are you about traffic?”</td>
</tr>
<tr>
<td>e.g. concern over traffic</td>
<td></td>
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</tbody>
</table>
Survey = standardized questionnaire to collect data about people and their preferences, thoughts, and behaviors in a systematic manner.
How do you feel about your public radio station?
We want to know what you think.

For Members
Take a quick survey
VOICE YOUR OPINION
Which Hogwarts House Do You Belong to?

- Cunning
- Pureblood
- Bad guy

- Smart
- Nerdy
- Good student

- Brave
- Good guy
- Daring

- Friendly
- Fair
- Good finder
1. Clarity of course goals or objectives.
2. Appropriate quantity and quality of course readings.
3. Fairness of examinations.
4. Contribution of discussion section/laboratory to the course.
5. Extent course improved your ability to communicate effectively, orally or written.
6. Overall evaluation of class compared to similar courses at UCD.
7. Instructor #1: Knowledge and command of subject matter.
8. Instructor #1: Clarity of organization and presentation in lecture by instructor.
9. Instructor #1: Responsiveness to student questions.
10. Instructor #1: Has helped to develop my intellectual independence, my ability to think critically and to teach myself.
11. Instructor #1: Interest in students and accessibility outside of class.
12. Instructor #1: Enthusiasm for teaching and ability to make subject interesting.
13. Overall comparison of Instructor #1 to others outside of class.
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 (sihandy@ucdavis.edu)
Cliff Contreras, Director, Transportation and Parking Services
My surveys

- Non-work travel in 4 Bay Area neighborhoods
- Non-work travel in 6 Austin neighborhoods
- In-home vs. out-of-home activities in 3 cities
- Travel behavior in 6 Nor Cal neighborhoods
- Bicycling in 6 small U.S. cities
- AYSO survey on travel to soccer games
- Campus Travel Survey – annual since 2007
- Davis High bicycling survey
- Davis shopping survey – before and after Target
- Bicycling survey at 3 Nor Cal high schools
- San Francisco Cycletracks survey
- San Francisco voter survey
- Gen Y travel and attitudes survey
- City of Davis travel survey – in development
Three parts to survey method

Survey Questions and Instrument Design

Survey Administration

Mail

Phone

Online
Several things to worry about

<table>
<thead>
<tr>
<th>Category</th>
<th>Type</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errors of observation</td>
<td>Measurement error</td>
<td>Survey question on level of street play doesn’t yield accurate results</td>
</tr>
<tr>
<td>Errors of non-observation</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

How good is coverage? Systematic sampling error?

Random sampling error

Original sample  Final sample (data)

Loss (non-response)
# How method affects error/bias

<table>
<thead>
<tr>
<th>Writing Questions</th>
<th>Measurement Error</th>
<th>Non-response Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ambiguous?</td>
<td>Too long?</td>
</tr>
<tr>
<td></td>
<td>Biased?</td>
<td>Too sensitive?</td>
</tr>
<tr>
<td></td>
<td>Specific enough?</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Designing the Instrument</th>
<th>Measurement Error</th>
<th>Non-response Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Order of questions logical?</td>
<td>Too thick?</td>
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<tr>
<td></td>
<td>Impact of order on answers?</td>
<td>Hard to read?</td>
</tr>
<tr>
<td></td>
<td>Hard to follow?</td>
<td>Not appealing enough?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Any superfluous questions?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Administering the Survey</th>
<th>Measurement Error</th>
<th>Non-response Bias</th>
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<tbody>
<tr>
<td></td>
<td>Interviewer influence?</td>
<td>Certain kinds of people less likely to respond?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incentives to get more people to respond?</td>
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</table>
Survey Administration

Mail  Phone  Online
## Survey administration options

<table>
<thead>
<tr>
<th>Option</th>
<th>How recruited</th>
<th>How administered</th>
<th>Questionnaire Structure</th>
<th>Cost</th>
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<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>(Computer-aided – CATI)</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>
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- **Quality of sampling frame?**
- **Data entry Bias in responses?**
- **Data entry Analysis**

- **Ability to have lots of branching**
### Survey administration options

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<td></td>
<td>e-mail lists</td>
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It’s all about RESPONSE RATE
Dillman’s Total Design Method

- Respondent-friendly questionnaire
- **Four contacts** by first class mail, with additional “special” contact
  - Prenotice letter, a few days before questionnaire is sent
  - Questionnaire, with cover letter explaining importance
  - Thank you postcard, a few days up to a week after questionnaire
  - Replacement questionnaire, sent to nonrespondents 2-4 weeks after previous questionnaire mailing
  - Final contact, by telephone a week or so after fourth contact, or by fed-ex or express mail 2-4 weeks after previous mailing
- Return envelopes with real first-class stamps (vs. business-reply envelopes)
- Personalization of correspondence
- Token prepaid financial **incentives**
Some of my survey examples...
8 Neighborhoods Survey

- 4 matched-pairs of neighborhoods
  - By location: metro area, small city
  - By design: traditional, suburban
- Random sample in each neighborhood:
  - Recent movers
  - All residents
- Mail-out, mail-back survey
  - Two mailings of survey
  - Two post-card reminders
- 1672 respondents (24.7%)
- About $10 per completed survey
- Manual data entry – twice!
Vehicle Miles Driven per Week

Bicycling in 6 Small Cities Survey

• Davis and 5 comparison cities
• On-line survey, with letters to recruit and postcards as reminders
  • July – September 2006
  • 10,000 addresses (>20% not good)
  • 12.6% response rate
  • 965 responses
• A short phone survey in Davis only
Selection of Cities

<table>
<thead>
<tr>
<th></th>
<th>Infrastructure</th>
<th>Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Chico</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Woodland</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Turlock</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Boulder</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Eugene</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Davis vs. Central Valley Cities

- **Share bicycle ownership**
- **Share biking in last 7 days**

The chart shows the comparison of bicycle ownership and biking frequency among Davis, Chico, Woodland, and Turlock. The data highlights a significant difference in bicycle ownership and biking frequency among these cities.
Davis vs. Bicycling Cities

- Share bicycle ownership
- Share biking in last 7 days

Davis
- 80% share bicycle ownership
- 50% share biking in last 7 days

Eugene
- 70% share bicycle ownership
- 40% share biking in last 7 days

Boulder
- 80% share bicycle ownership
- 50% share biking in last 7 days

Xing, Handy, and Buehler, presented at the Transportation Research Board Conference, 2008.
Online versus Phone Survey

Phone survey in Davis only: Call back procedure to ensure representative sample; 400 responses = 14.7% of phone numbers where a household member was reached; about $20 per completed survey

<table>
<thead>
<tr>
<th></th>
<th>Phone survey</th>
<th>On-line survey</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>400</td>
<td>354</td>
<td></td>
</tr>
<tr>
<td>Share bicycle ownership</td>
<td>76.3%</td>
<td>78.0%</td>
<td>0.58</td>
</tr>
<tr>
<td>Share biking in last 7 days</td>
<td>47.0%</td>
<td>53.0%</td>
<td>0.10</td>
</tr>
<tr>
<td>Share biking within last year</td>
<td>72.5%</td>
<td>74.1%</td>
<td>0.63</td>
</tr>
<tr>
<td>Share biking to work</td>
<td>29.5%</td>
<td>32.3%</td>
<td>0.50</td>
</tr>
<tr>
<td>Female</td>
<td>51.5%</td>
<td>46.6%</td>
<td>0.18</td>
</tr>
<tr>
<td>Mean Household income ($)</td>
<td>64,200</td>
<td>66,600</td>
<td>0.36</td>
</tr>
<tr>
<td>Mean Age</td>
<td>52.3</td>
<td>48.5</td>
<td>0.00</td>
</tr>
<tr>
<td>Physical limit on bicycling</td>
<td>14.70%</td>
<td>9.60%</td>
<td></td>
</tr>
<tr>
<td>Vehicle ownership</td>
<td>93.5%</td>
<td>96.9%</td>
<td>0.03</td>
</tr>
</tbody>
</table>
Davis shopping survey – before and after Target

- Conducted two surveys (repeat cross-section)
- Random sample of residents with addresses
- Recruitment via letter to residents in the mail
- Online (or paper) self-administered survey

<table>
<thead>
<tr>
<th>BEFORE SURVEY</th>
<th>AFTER SURVEY</th>
</tr>
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<tbody>
<tr>
<td>September 2009</td>
<td>October 2010</td>
</tr>
<tr>
<td>4,613 residents invited</td>
<td>4,434 residents invited</td>
</tr>
<tr>
<td>1,018 responses</td>
<td>1,025 responses</td>
</tr>
<tr>
<td>22% response rate</td>
<td>23% response rate</td>
</tr>
</tbody>
</table>

(the Target opened October 2009)
Total shopping VMT per month

Vehicle-miles (per capita monthly)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
</tr>
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<tbody>
<tr>
<td>96.8</td>
<td>79.6</td>
</tr>
</tbody>
</table>

- **Downtown Davis**
- **Elsewhere in town**
- **Beyond Davis**
- **at Target (in town)**
- **Overall **

Year 1: 96.8
Year 2: 79.6
2006 AYSO Bike to Soccer Survey

- Team of 4 UCD students plus community volunteers
- 2-page survey for parents on mode to game plus other questions
- Distributed at games with help of team parents
- Administered over three Saturdays in October and November – all good weather
- 1084 surveys out of 2200 players
2006 AYSO Parents Survey – Neighborhood Fields/Bike to AYSO

We are collecting data about how families are getting to soccer games this year to help us plan for next year. Please answer all questions related to the player involved in this game. All responses will be kept completely confidential.

1. What is the team name for your player involved in this game? (Include the AYSO team number if you know it.)

2. How did your player get to this soccer game today? (check one)
   - biked
   - walked
   - drove or was driven

3. How did you get to this soccer game today? (check one)
   - biked
   - walked
   - drove or was driven

4. Assuming a fall season of 16 games in Davis (ignoring any games played outside of Davis), please answer these questions. 

<table>
<thead>
<tr>
<th>...biked to?</th>
<th>...walked to?</th>
<th>...drive to?</th>
</tr>
</thead>
</table>
   a. How many games out of 16 in Davis do you estimate your player will... |
   b. How many games out of 16 in Davis do you estimate you will...

5. Did your child playing in this game also play AYSO soccer last year? 
   - Yes – please answer questions below. 
   - No – please skip to question 6.

6. How many adults live in your household? ________

7. How many children (age 18 or under) live in your household? ________

8. Before today, had you heard about the Bike to AYSO program? 
   - Yes 
   - No

9. Would you like to see AYSO continue to schedule games on neighborhood fields next year? 
   - Yes 
   - No

10. What improvements, if any, would you like to see to the neighborhood fields/Bike to AYSO program next year?

11. In ten words or less, what is the biggest challenge in biking to AYSO games?

12. What area of Davis do you live in? 
   - South (south of F Street)
   - West (west of Anderson and south of Covell)
   - North (north of Covell between 113 and F Street)
   - Central (south of Covell, between Anderson and L Street)
   - East (east of L Street below Covell, east of Poleline above Covell)

13a. What is your street address? We will use this information only to calculate distance from your home to the soccer field

14. What is your gender? 
   - Male 
   - Female

15. How old are you? ________

16. Did you play organized soccer as a child? 
   - Yes 
   - No

17a. If yes, did you usually bike to your games? 
   - Yes 
   - No

THANK YOU FOR YOUR HELP!
Mode to Soccer Games in Davis

What share of kids bike or walk to their games?

Drive: 76.8%
Bike: 18.4%
Walk: 4.8%

Source: Tal and Handy, 2008
2009 Davis High School Bike Survey

• Schools:
  • Davis High School (1634 students)
  • DaVinci High (300 students)

• In-class survey:
  • 4\textsuperscript{th} period on April 15, 2009, except for P.E.
  • Distributed and collected by students in the Environmental Club
  • 1363 completed surveys, roughly 75% response rate
UC Davis Survey on Travel to High School

We are collecting data about how high school students get to and from school. This study is being directed by Professor Susan Handy, Director of the Sustainable Transportation Center at the University of California Davis.

The survey should take at most 10 minutes to complete. Your participation is completely voluntary, and you are not required to finish the survey, but we hope that you will answer each question on both pages. All of your responses will be completely confidential; no one will know which survey is yours.

There are no direct benefits or compensation for participating. By answering the survey, however, you will be providing valuable insight into the choices that high school students make about getting to school. The results of the survey can help your school and city in addressing transportation issues faced by students.

If you have any questions, feel free to contact Professor Susan Handy, shandy@ucdavis.edu or her assistant Catherine Emond, emond@ucdavis.edu. Your school will receive a copy of the survey group results, but you may also request a personal copy to be sent to you. Thank you very much for your time and assistance!

1. How did you get to school today? (check one)
   - [ ] I bicycled
   - [ ] A friend drove me
   - [ ] I walked
   - [ ] A family member drove me
   - [ ] Skateboarded
   - [ ] Another parent drove me
   - [ ] Other: _________

2. How do you usually get to school? (check one)
   - [ ] I bicycle
   - [ ] A friend drives me
   - [ ] I drive myself
   - [ ] I walk
   - [ ] A family member drives me
   - [ ] I take the bus
   - [ ] Skateboarded
   - [ ] Another parent drives me
   - [ ] Other: _________

3. How did you plan to get home from school today? (check one)
   - [ ] I will bicycle
   - [ ] A friend will drive me
   - [ ] I will drive myself
   - [ ] I will walk
   - [ ] A family member will drive me
   - [ ] I will take the bus
   - [ ] Skateboarded
   - [ ] Another parent will drive me
   - [ ] Other: _________

4. How do you usually get home? (check one)
   - [ ] I bicycle
   - [ ] A friend drives me
   - [ ] I drive myself
   - [ ] I walk
   - [ ] A family member drives me
   - [ ] I take the bus
   - [ ] Skateboarded
   - [ ] Another parent drives me
   - [ ] Other: _________

5. What is the most recent driver's license/permit you have obtained?
   - [ ] I do not have a driver's license or learner's permit - skip to Question 6
   - [ ] Learner's permit - skip to Question 6
   - [ ] Provisional license
     - [ ] a. When did you get your license? Month: ______ Year: ______
   - [ ] Regular driver's license

6. When do you usually arrive at school? (check one)
   - [ ] For activities before 1st period
   - [ ] For 2nd period
   - [ ] After 1st period

7. How many days in the school week do you currently participate in after-school activities at the high school? (check one)
   - [ ] 5
   - [ ] 4
   - [ ] 3
   - [ ] 2
   - [ ] 1
   - [ ] Dropped/never

8. How many days in the school week do you currently participate in after-school activities somewhere else? (check one)
   - [ ] 5
   - [ ] 4
   - [ ] 3
   - [ ] 2
   - [ ] 1
   - [ ] Dropped/never

9. Do you currently own or have regular access to a functioning bicycle? (check one)
   - [ ] No
   - [ ] Yes

10. How often do you ride your bicycle to places other than school? (check one)
    - [ ] Every day
    - [ ] Most days of the week
    - [ ] A few days a week
    - [ ] Once a week or less
    - [ ] Never

11. How did you get to middle school? (check one)
    - [ ] I bicycled
    - [ ] A family member drove me
    - [ ] I walked
    - [ ] Another parent drove me
    - [ ] I took the bus
    - [ ] Skateboarded
    - [ ] Other: _________

12. Please tell us whether you agree or disagree with the following statements on a scale from “strongly disagree” to “strongly agree.”

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Neutral</th>
<th>Strongly Agree</th>
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<td>b. I like being physically active.</td>
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<td>d. I am confident in my bicycling ability.</td>
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<td>m. I have lots of stuff to carry to school.</td>
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<td>n. I like bicycling.</td>
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<td>o. One or both of my parents/guardians bicycle frequently.</td>
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<td>p. I need a car to do the things I like to do.</td>
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<td>q. There is a safe bicycle route from my home to school.</td>
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<td>r. Protecting the environment is important to me.</td>
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<td>s. My parents/guardians allow me to go places by myself.</td>
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<td>[ ] 2</td>
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<td>t. Driving is the easiest way to get to school.</td>
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<td>[ ] 3</td>
</tr>
<tr>
<td>x. I don't like to bicycle when the weather is bad.</td>
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<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td>y. I feel comfortable being responsible for my own transportation.</td>
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<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td>z. My friends bicycle to school.</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td>a. I wear a bicycle helmet.</td>
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<td>b. My parents/guardians encourage me to bicycle.</td>
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<td>c. I live too far away from school to bicycle here.</td>
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</tr>
<tr>
<td>d. I call my parents/guardians to drive me places.</td>
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<td>[ ] 2</td>
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<td>e. There is a direct bicycle route from my home to school.</td>
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<td>[ ] 3</td>
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</tbody>
</table>

13. What grade are you in? [ ] 10th [ ] 11th [ ] 12th

14. What is your birth date? Month: ______ Year: ______

15. What is your gender? [ ] Male [ ] Female

16. What is the highest level of education completed by whichever parent/guardian has the most education?
   - [ ] Some High School
   - [ ] Some College
   - [ ] Bachelor Degree
   - [ ] Other
   - [ ] High School
   - [ ] Associate Degree
   - [ ] Advanced Degree
   - [ ] Don't know

17. What is the nearest intersection to your home? (For example: 5th and Green St.)

18. If there were a new bicycle parking area behind the IPAB between the N building and the tennis courts, would you park your bike there?
   - [ ] No
   - [ ] Yes
   - [ ] I don't bike to school

THANK YOU FOR PARTICIPATING IN OUR STUDY! If you have questions, please contact Dr. Susan Handy, shandy@ucdavis.edu or Catherine Emond, emond@ucdavis.edu.
Usual mode of travel to school

- I get here by car: 55.1%
- I bicycle: 34.2%
- I walk: 5.2%
- I take the bus: 4.2%
- I skateboard: 0.8%
- Other: 0.4%
San Francisco Voter Survey

- Survey administered by EMC Research
- Random sample of likely SF voters with email addresses
- Questionnaires, invitations, reminders translated into Chinese
- Minimum of 400 responses promised, 411 responses collected
- $15.80 per completed survey
Survey Questions and Instrument Design

USC Stakeholder Satisfaction Parent Survey

ACADEMIC PROGRAM

I feel that my child’s school....

   [ ] Strongly Agree [ ] Agree [ ] Disagree [ ] Strongly Disagree [ ] Don’t Know/Not Applicable

7. Provides me with information about grade-level standards that my child is responsible for mastering.
   [ ] Strongly Agree [ ] Agree [ ] Disagree [ ] Strongly Disagree [ ] Don’t Know/Not Applicable

8. Meets the individual academic needs of my child.
   [ ] Strongly Agree [ ] Agree [ ] Disagree [ ] Strongly Disagree [ ] Don’t Know/Not Applicable

9. Prepares my child academically for his/her next phase of schooling.
   [ ] Strongly Agree [ ] Agree [ ] Disagree [ ] Strongly Disagree [ ] Don’t Know/Not Applicable

10. Updates its academic programs based on student achievement data.
    [ ] Strongly Agree [ ] Agree [ ] Disagree [ ] Strongly Disagree [ ] Don’t Know/Not Applicable

11. Is stocked with adequate resources like instructional materials and school supplies.
    [ ] Strongly Agree [ ] Agree [ ] Disagree [ ] Strongly Disagree [ ] Don’t Know/Not Applicable

12. Overall, I would rate the academic program at my child’s school as very effective.
    [ ] Strongly Agree [ ] Agree [ ] Disagree [ ] Strongly Disagree [ ] Don’t Know/Not Applicable
Survey questions = measures of variables

1 or more survey questions for each variable in conceptual model
Question types

Structured
i.e. closed-ended,
i.e. response options given

Unstructured
i.e. open-ended,
i.e. write-in answers

Section 2: Your daily travel

2. In five words or fewer, what do you think is the biggest transportation problem we face?

3. Do you own, or have regular access to a car?
   1. Yes
   2. No

4. Do you own, or have regular access to a bicycle (in working condition)?
   1. Yes
   2. No

5. Is there bus or train service within a 5 minute walk of your home?
   1. Yes
   2. No

6. During the last seven days, on how many days did you:
   - Drive or ride in a car?
   - Ride a bicycle?
   - Ride a bus or train?
   - Walk outdoors for more than 10 minutes at a time?

7. Thinking of the longest portion of your trip in a typical week with good weather, how do you usually get to...

8. Approximately how many miles do you drive in a typical week (including weekends)? _______ miles

Continue to Section 3
Baises we are trying 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?

How often does your child play out in front of your house?

- Never
- Rarely
- Occasionally
- Regularly
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
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?

____________________
### Likert-scale questions

11. Do you agree or disagree with the following statements about people that drive cars in your city?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most drivers seem oblivious to bicyclists.</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Most drivers yield to bicyclists.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Most drivers watch for bicyclists at intersections.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>Most people drive faster than the speed limit.</td>
<td>1</td>
<td>2</td>
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12. Do you agree or disagree with these statements about bicyclists in your city?

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<td>Most bicyclists look like they spend a lot of money on their bikes.</td>
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<td>2</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>It is rare for people to shop for groceries on a bike.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Bicycling is a normal mode of transportation for adults in this community.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>Most bicyclists look like they are too poor to own a car.</td>
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<td>4</td>
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<td>Kids often ride their bikes around my neighborhood for fun.</td>
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<tr>
<td>Many bicyclists appear to have little regard for their personal safety.</td>
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<td>y</td>
<td>I feel comfortable getting places on my own.</td>
<td>☐ 1</td>
<td>☐ 2</td>
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<td>My friends bicycle to school.</td>
<td>☐ 1</td>
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<tr>
<td>aa</td>
<td>I hate wearing a bicycle helmet.</td>
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<tr>
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<td>cc</td>
<td>I live too far away from school to bicycle here.</td>
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</tr>
<tr>
<td>dd</td>
<td>I can rely on my parents/guardians to drive me places.</td>
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<td>☐ 2</td>
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<td>ee</td>
<td>There is a direct bicycle route from my home to school.</td>
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</table>
(2 of 3) Your opinions about work, shopping and the environment

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<tr>
<th>Statement</th>
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<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer to minimize the material goods I possess.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I am generally satisfied with my life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I am too busy to do many things I’d like to do.</td>
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<td></td>
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</tr>
<tr>
<td>I enjoy the social aspects of shopping in stores.</td>
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</tr>
<tr>
<td>Any climate change that may be occurring is part of a natural cycle.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I would/do enjoy having a lot of luxury things.</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>It is more important for men than for women to have a high-paying career.</td>
<td></td>
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<tr>
<td>I enjoy shopping online.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>I’m already well-established in my field of work.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>For me, a lot of the fun of having something nice is showing it off.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>It is pointless for me to try too hard to be more environmentally friendly because I am just one person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For quality assurance purposes please select “Strongly disagree”.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m still trying to figure out my career (e.g. what I want to do, where I’ll end up).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At work, it’s perfectly fine for women to have authority over men.</td>
<td></td>
<td></td>
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<tr>
<td>Greenhouse gases from human activities are creating major problems.</td>
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<tr>
<td>I prefer to shop in a store rather than online.</td>
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</table>
Let’s not forget survey instrument design...

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

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**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
Research Proposal
Assignment 3!
# Assignment 3: Research design

<table>
<thead>
<tr>
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<th>When to use them…</th>
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</thead>
<tbody>
<tr>
<td><strong>Cross-sectional</strong></td>
<td>To test conceptual model; if variables of interest don’t offer possibility of treatment (e.g. gender, age); as a basis for future intervention studies</td>
</tr>
<tr>
<td><strong>Longitudinal</strong></td>
<td>To look for changes; if you expect the independent variable to be changing enough over some period of time that you will see a change in the dependent variable</td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td>To test the effect of a treatment, either something you control (“intervention study”) or something someone else controls (“natural experiment”)</td>
</tr>
</tbody>
</table>

See “Research Design Review” handout on website!
To do!

- READ CHAPTER 16 FOR SECTION TOMORROW!
- Start Assignment 3
- Read on-line text on surveys!
- Read articles on surveys!
- Exercises on surveys and scales next week