

# Questionnaire Design for Social Surveys

## Week 6 Putting It All Together

### 6.1. Putting it All Together

*From Start to Finish: Putting Questions into a Questionnaire*

Putting Questions into a Questionnaire

- Introduction
- Screening module
- Main questionnaire
- Demographic questions
  - usually put at the end – because...
  - thank you! – don't forget to thank your respondents!

Introduction

- You don't start your survey with "Q1. Have you ever used cocaine in your life?"
  - don't forget to introduce your survey
- What is included in introduction
  - WHO: identify research organization, identify investigators/sponsors
  - what and/or why: Give general statement of purpose
  - how long: give an estimate of length
  - ensure that answers will be confidential
  - tell respondent that participation is voluntary
  - give names of local and national IRB representative
- Content varies by mode of administration
  - interviewer-administered:
    - some pieces of information will be provided as part of "doorstep introduction"
    - some will be provided/repeated to address R's concerns
    - some will be repeated when new/different R showing up
  - self-administered
    - need to spell out all pieces of information
- Content varies by nature of survey
  - panel surveys
    - only some information needed
  - cross-sectional surveys
    - more information needed

Examples of Introduction

- NHIS 2012 (interviewer-administered, cross-sectional)

"I am \_\_\_\_\_ from the U.S. Census Bureau. Here is my identification card. We are conducting the National Health Interview Survey for the Centers for Disease control and Prevention (CDC). You may remember receiving this letter a few days ago. Please take some time to read this important information."
- PSID (interviewer-administered, panel)

"We sometimes record interviews to help us maintain quality. Your interview may be recorded for quality control purposes. **Do you agree for this interview to be recorded?** Before I begin, I want you to know that this interview is completely **voluntary and confidential**. In addition, if we come to any question which you don't want to answer, just let me know and we will go on to the next question. The answers that you give will be kept confidential to the maximum extent allowable under federal and state law."

Screening Questions

- General population surveys
  - probability selection of household either through address or through telephone number
  - selection of an adult from sampled household (within-household selection)
- Targeted population surveys

- households having at least one child with special needs
- households with at least one child between the age of 19-36 months old (NIS)
- adults aged 35 – 55 years old

#### Within-household selection

- Probability methods: requiring household roster
  - Kish's method (1946)
    - can you tell me first the names and ages of the male adults currently living in this household? What about women living in this household?
    - men listed in descending order of age, women listed in descending order of age
    - using Kish's table to randomly choose 1 adult
  - weaknesses:
    - time-consuming, burdensome for both R and I
    - Perceived as intrusive by R
  - strength:
    - true random selection with known selection probability
- Quasi-random probability methods: no household roster needed
  - next/last birthday method (salmon & Nichols, 1983)
    - "In order to determine whom to interview, could you tell me, of the people who currently live in your household who are 18 years of age or older and had the last b day?"
  - strength:
    - less burdensome to R and to I
    - less intrusive to R
  - weakness:
    - assuming birth is random (which is not true): sacrificing randomness
- Non-probability methods: no HH listing necessary
  - Trolldahl-Carter Method (1964) and variations
    - How many people 18 years old or older are living in your household counting yourself?
    - how many of them are men?
    - based on answers and using one of four matrices to do the selection
  - approximating population age and gender distribution
  - sacrifices randomness
- Rizzo's method: a mix of selection methods based on HH size
  - "including yourself, how many people aged 18 or older currently live in this household?"
  - If HH size = 1, continue with R
  - If HH size = 2, randomly select one
  - If HH size  $\geq 3$ , any method can be used

#### Screening for households/people with certain characteristics

- We always found fewer people than what we expect
  - underreporting to the screening questions → undercoverage
  - national longitudinal survey of youth, 1997 cohort
  - screening household to find people who were 12-23 years of age

Age Group	Found/Expected
> 23 years of age	1
< 12 years of age	.90
12-23	.70

#### *Motivated Underreporting: Reports from Selected Research Studies*

#### Misreporting in Surveys

- Three related forms of measurement error
  - screener interviews
  - filter questions
  - repeated questions in panel surveys
- Evidence of motivated misreporting in each

### Mechanisms for Misreporting

- Respondents may answer these questions in ways that reduce the burden of the interview
  - make themselves ineligible in screener interviews
  - avoid triggering filter questions in interleaved format
- Could also reflect interviewer motivations to reduce burden
  - make difficult cases ineligible to avoid nonresponse
  - guide respondents to avoid triggering filter questions

### Screener studies in the U.S.

- Research funded by NSF – NSF – Grant SES0850999 and SES0850445
- Telephone Survey in U.S.
  - target population: 35-55 years old
  - data collection nNov 2010 – Jan 2011
  - 2,593 screened HHs, 958 eligible
  - 750 completed interviews
  - 3 experimental manipulations
- Face-to-Face Survey in U.S.
  - Target population: 35-55 years old
  - data collection early 2013
  - 829 screened HHs, 530 eligible

### Experimental Manipulation

- Screener question wording
  - Direct: “Is anyone 35-55?”
  - Complement: “Are all household members less than 35? Over 55?”
  - Full HH roster: age, sex, and ethnicity of all household members
- Advance letter
  - reveal target population
  - hide target population
- Test interviewer contributions to under-coverage: judged by response rates (screener, main), not eligibility rates
- Hourly payment, plus
  - bonus for completed screener (\$2)
  - bonus for completed interview (\$5)
  - No bonus
- 12 interviewers per condition

	Scr Completion	Eligibility	Intw Completion	RR	Yield
<b>Wording</b>					
Direct	59.3%	31.8%	86.3%	32.3%	285
Complement	59.3%	34.8%	78.8%	29.4%	312
Roster	53.5%	45.1%	71.5%	23.9%	361
<b>Letter</b>					
Age	56.4%	36.1%	82.1%	29.2%	463
No Age	58.4%	37.7%	74.8%	27.3%	495
<b>Payment</b>					
Bonus Scr	59.9%	35.8%	77.4%	28.7%	318
Bonus Intw	56.1%	37.6%	79.1%	28.5%	325
No Bonus	56.1%	37.5%	78.4%	27.4%	315

### Screening Questions...

- Trade off between:
  - NR and ME and undercoverage
  - accuracy of information v.s. burden v.s. perceived threat

## *Main Questionnaire*

### Question Order

- First questions should be relevant and easy (a lot of people start with demographic questions but don't do that)
- Questions should be grouped (into modules) so as to seem logical to the respondent
- Questions are effectively ordered from most salient to least salient (with respect to survey topic)
- Potentially objectionable questions are placed near the end
- However,
  - make sure that the order of the questions does not produce bias in responses

### Number your questions!

- Always remember to number your questions
  - sequential is okay (Q1, Q2, Q100)
  - sequential within modules is okay (A1, A20, B1, B12, D40)
- Number your response options
  - use reserved codes whenever possible
    - 98, -3 for refused
    - 97, -2 for DK
  - be consistent: No is always 2 or always 5. But can't be 2 in one section and 5 in another section
  - be aware of impact of numerical label for scales
- We don't want to appear jumping from topics to topics...
- Add transition/introduction before switching topics or starting a different module
  - "Now I'd like to ask you about the good and bad habits of the major candidates for president"
  - "Please look at page 3 of the booklet. I'd like to get your feelings toward some of our political leaders and other people who are in the news these days. I'll read the name of a person and I'd like you to rate that person using something we call the feeling thermometer..."
  - "Now we would like to know something about the feelings you have toward the candidates for President. I am going to name a candidate, and I want you to tell me whether something about that person, or something he or she has done, has made you have certain feelings like anger or pride."

### Skip Instructions

- Never ever leave it to interviewers/respondents to decide where to go
- Two types of errors
  - Errors of **commission**
    - Rs fail to branch when instructed to
      - i.e. they answer questions that don't apply to them
    - Result – potentially frustrated / confused R
  - Errors of **omission**
    - Rs skip when they shouldn't
    - result: missing data
  - errors of commission are more common than errors of omission

### Demographic Questions

- Transition/introduction needed
  - lastly, some questions for classification purpose....
- Keep in mind
  - your weighting plan
  - your analysis plan
- Choose question wordings based on
  - weighting plan
  - analysis plan

### Thank you!

- Make sure you thank your respondents
  - "that is all. Thank you very much for your time!"
- Additional info for R

- project contact info
- local IRB info
- Additional contact info from R
  - For QC purpose
  - For incentive purpose
  - for tracking purpose
- In constructing the questionnaire, it is sad that it is better to try starting the questionnaire with some of the most salient questions, while we would better place objectionable questions near the end. But when the objectionable questions are the most salient questions of the questionnaire, how should we balance these two criteria and decide the orders?
- In general, are questionnaires made with the mode of data collection in mind (i.e. phone, web, face to face, TDE, IVR) or is that irrelevant in the actual design of the questionnaire? I know the results can vary by method, but should this change the actual design of the questionnaire?

## 6.2. Mode

### *Mode Choice: Implications for layout*

Modes of data collection: Choices

Channel of presentation	Mode of Response	Computer-assisted or paper-pencil	Interviewer-administered or self-administered	Modes of data collection
Auditory	Oral	C	I	CATI, CAPI, IVR
		P	I	PAPI
		C	S	ACASI, TDE
Visual	Written	P	S	SAQ/Mail
	Keypad	C	S	CASI, Web

Modes of Data Collection: Effects

- Mode as bundles of features
  - sampling frame, sampling methods
  - training and supervision of interviewers
  - contact and recruitment methods
  - method of administration and mode of response
- Mode (as a bundle of features) affects full spectrum of error sources
  - coverage error
  - sampling error
  - non response error
  - measurement error (our focus here)

Channel of Presentation: Pros and Cons

Channel of presentation	Modes of data collection	Pros	Cons
Auditory	CATI, CAPI, IVR	No requirement on literacy	working memory, recency effects
	PAPI		
	ACASI		
Visual	SAQ/Mail	Can access questions/ options as often as they want and whenever they want	Literacy required, primacy effects
	CASI, Web		

### Mode of Response: Pros and Cons

Mode of response	Modes of data collection	Pros	Cons
Oral	CATI, CAPI, IVR, PAPI	Everyone can do it	
Written	SAQ/Mail		Literacy required
Keypad	ACASI, CASI, Web		Literacy+ computer literacy required

### Computer Assisted v.s. Paper-Pencil

	Modes of data collection	Pros	Cons
Computer-assisted	CATI, CAPI, IVR, ACASI, CASI, Web	Built-in skip patterns, built-in data checks (on ranges, consistency), control format of responses, randomize questions/response options	No control who does the questionnaire
Paper-pencil	PAPI, SAQ/Mail	R can flip through paper questionnaires	Rely on R to navigate through quex; no control on what they respond and how they response

### Interviewer v.s. self-administration

Administration	Interviewer Present?	Modes of data collection	Pros	Cons
Interviewer	YES	CATI, CAPI, IVR, PAPI	Better data quality (motivate, probe, clarify)	Interviewer effects, SDB
Self	YES	SAQ/Mail, Web	I'er motivate, clarify	Reduced SDB and I'er effects
Self	NO	ACASI, CASI, SAQ	No Interviewer effect, no SDB	No motivation, clarification, probing

### How to choose modes

- Determined by how R is sampled/reached/contacted
  - CATI, IVR
    - Must have R's telephone number (landline or cell)
    - R must have a phone (landline or cell phone)
  - CAPI, SAQ/Mail
    - Must have R's address
  - Web
    - R must have internet access
    - You must have R's email address or mailing address
- Determined by sensitivity of topics
  - sensitive topics or easy topics
    - preferably self-administered modes in general
    - very sensitive topics, best to combine interviewer recruitment and self-administration (ACASI, CASI, SAQ)
  - general topics or difficult topics
    - preferably interviewer-administered modes
- Determined by budget and time frame

### Mixed Mode Designs

- Mixing different modes in the same survey design
  - example
    - mail first
    - followed up with telephone/ftf interview

- pros
  - maximize response rates and reduce cost
  - maximize quality and efficiency
- cons
  - mode effects
  - different people are recruited by different modes
  - different people answer different to different modes
  - differences in answers reflect: true differences / composition / response errors?

### *Self-Administered Questionnaires: Additional Requirement*

- Key: “Respondent-Friendly”
  - reduces unit nonresponse (Dillman, Sinclair and Clark 1993)
  - reduces item non response and improves data quality
- If it looks like researchers care ... respondents will feel that it is worthwhile to spend their time on it
- If the questionnaire makes it look as though researchers don’t care...why should the respondent?
- But don’t go overboard: ..... glossy paper ....

### SAQ/Mail: Additional Requirements

- Cover Page needed
  - Name of survey
  - Sample ID
  - data of data collection
  - instructions for R
  - FAQs
  - Mail-back information
  - picture/images ..... don’t go overboard
- Formats to avoid! (Dillman 2000)
  - printing on both sides of sheets of paper
  - with only a staple to hold pages together
  - printing of pages in landscape (horizontal)
  - unusual folds, for example, a large single-sheet
- Formats to consider (Dillman 2000)
  - legal paper folded to create 8.5 x 7 booklet stapled along the spine with a single column of questions of each page
  - If tight budget: 8.5 x 11 sheet copied on one side with staple in upper left hand corner
- If we want something **not to be noticed**, such as an “office use only box”, code numbers or project numbers etc. we can:
  - decrease the size of written statements
  - remove brightness or color (shading) of visual elements
  - place it in lower right hand corner
- If we want Rs to **consider elements as part of a group**
  - Use close spacing (proximity) or shading
    - for example, we want less blank space between the subcomponents of question and more between separate questions (principle 3.12 dillman, 2000)
  - use similarity (e.g. consistent use of answer spaces so it is clear they belong together)
- Questions
  - vertically align questions (and question sub-component)
  - use of narrow columns encourages more complete reading of words and
  - gives respondents feeling of making continuous progress by quickly moving down each page
  - don’t split questions (or answer categories between pages)
  - ask one question at a time

### Interviewer-administered: additional requirements

- Following traditions to make clear
  - what NOT to read
  - what to emphasize

- what to replace
  - things in parentheses (you/your/household)
- Reserved codes
- Hotkeys

## **COURSE SUMMARY**

### Unit 1

- 3 sources of measurement error:
  - interviewer, respondent, and questionnaire
- Measurement error can manifest itself in
  - bias and variance (validity and reliability)
- Comparability
  - standardized interviewing holds question stimulus constant
  - conversational interviewing promotes uniform interpretation
- Good concept specification and analysis plans ensure that you have all items you need

### Unit 2

- Answering a survey questions requires at least the following mental process
  - comprehension
  - recall/retrieval
  - judgment and estimation
  - response selection

### Unit 3

- Not everything that looks like a fact is easy to report
- Greater accuracy with shorter reference period
- Better recall with cues
- Reduce social pressure for sensitive questions
  - self administration
  - question wording (forgiving, context)
  - anonymity
  - privacy

### Unit 4

- Attitude question can be very context sensitive
  - question order, external context, answer categories
- If you give people a Don't know option they will use it
  - decision depends on goal of project
- Agree-disagree scales promote acquiescence
- Survey respondents want to minimize their effort
  - good to keep tasks simple to reduce satisficing

### Unit 5

- Always try at least for some pretesting
  - you got some expert reviews through this course
  - keep the network
- don't forget to budget for it
- Designing a questionnaire is an iterative process
  - pretest each cycle if possible

### Unit 6

- Start with a topical question
- make the questionnaire appealing
- A flow helps
- keep the questionnaire as short as possible



- check back with your analysis plan
- Take advantage of design features for different modes
  - computer assisted interviewing helps with flow and filters
- keep in mind respondent are doing us a favor