

Survey Methodology: Questions and Answers in Surveys

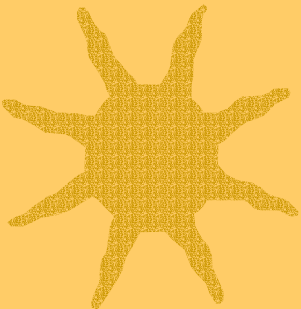
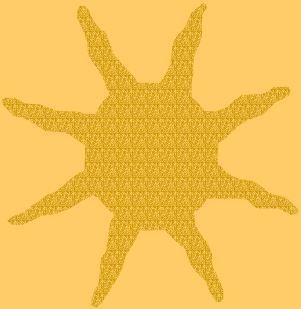
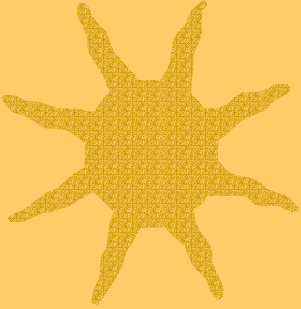
Considerations in Crafting Questions

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February 28, 2005



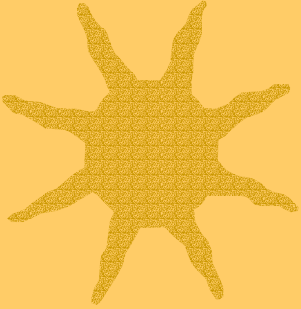
But first...



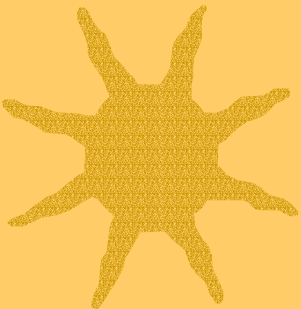
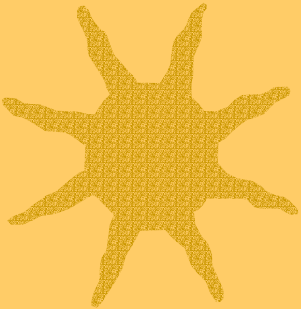
- ★ A comment on survey nonresponse
- ★ Important to be thoughtful about potential sources of nonresponse bias in your data
- ★ Response rates below 70% ...



Today's Class Outline

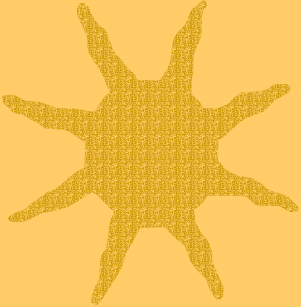


- ★ Cognitive processes
- ★ Types of problems in answering questions
- ★ Guidelines for Interviewer-administered questionnaires
- ★ Self-Administered questionnaires
- ★ Example Questions





Standardized Data Collection Instruments

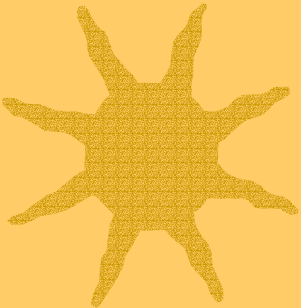


★ Questionnaire

- Self-administered v. interviewer-administered

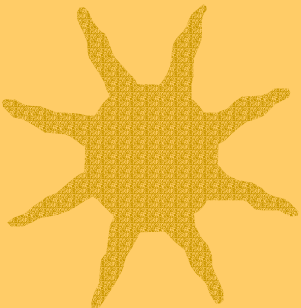
★ Data abstraction from existing sources

- Medical Records
- Business/Industry records (occupational)



★ Existing collected data

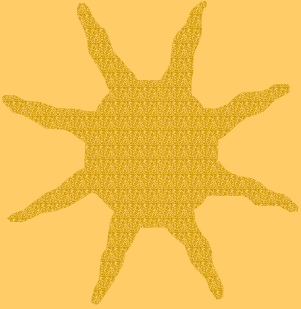
- e.g. ozone, pm10, no2 (criteria pollutant data)



★ Combination of above



Why do we care?



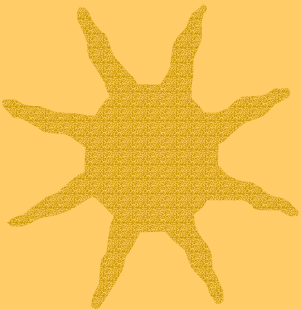
★ Item nonresponse

★ Mismeasurement error



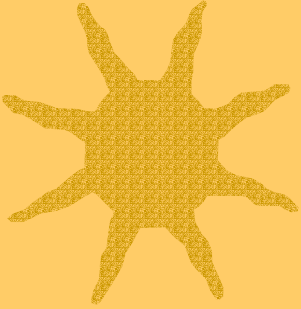
★ If follow-up survey

– wear and tear on the respondent



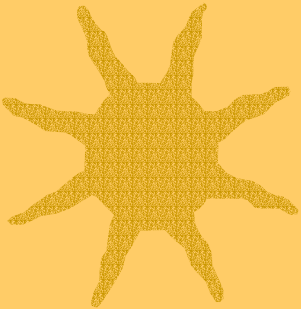


Cognitive Processes in Answering Questions



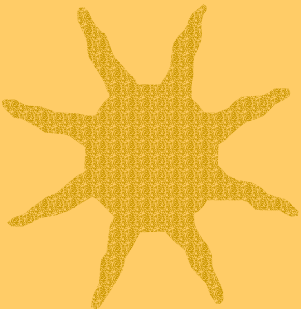
★ Comprehension

- What is being asked? why?
- (For SAQ), *format*: what is supposed to be answered?



★ Retrieving information

- recall, finding info
- encoding (e.g. “from 03/04 to 03/05 instead of “in the past year” prompts)

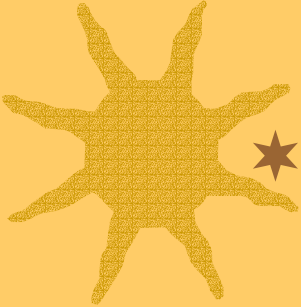


★ Judgment and estimation

★ Reporting an answer (or not)

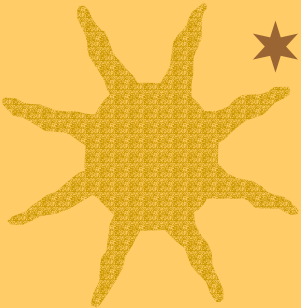


Cognitive Processes II

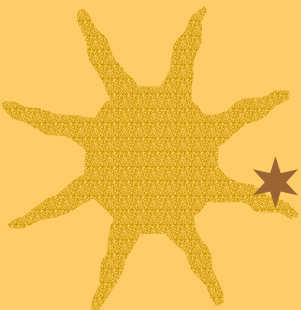


- ★ Theory that **R** may use previous diagram for answering (*work*)

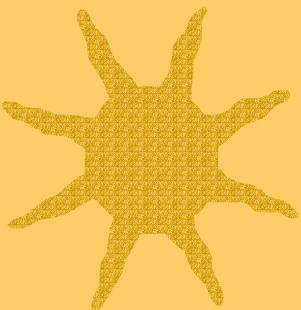
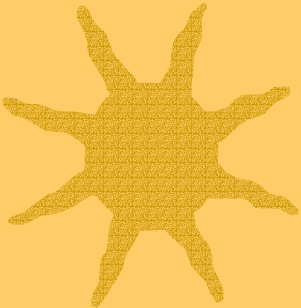
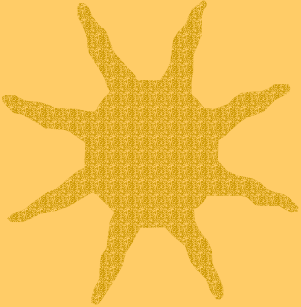
OR



- ★ May use easier process (satisficing)
 - Cues from interviewer (appearance, implied direction of the question, leading intonation)
 - acquiescence (tendency to agree)
 - Social desirability (tendency to present oneself in a favorable light)



- ★ Strategies in chapter, in part, try to promote **R** to try to give thoughtful answer rather than satisficing



Comprehension: Misinterpretation

★ *Differing interpretation of terms*

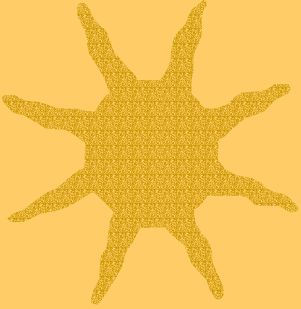
- “Do you think that children suffer any ill effects from watching programs with violence in them” (Belson)
- Cultural differences in interpretation

★ *Answering without necessary information*

- not saying don't know.
- 40% gave opinion of fictitious “Public Affairs Act”

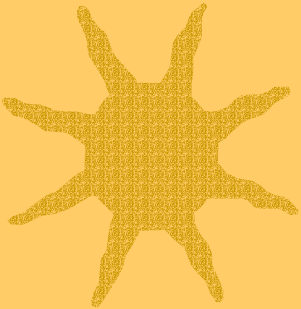


Comprehension: Grammatical issues



★ Grammatical ambiguity

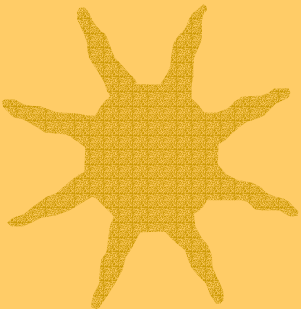
- Potential for question to be interpreted “heard” in more than one way



★ Excessive Complexity

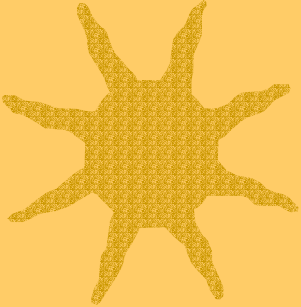
★ Faulty Presupposition

- Question assumes something that is not true to **R**
- Can happen with agree/disagree statements. Do they disagree with part of statement, or with the statement’s veracity. (double-barreled questions)



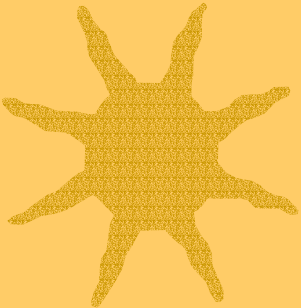


Comprehension: Unclear words or phrases



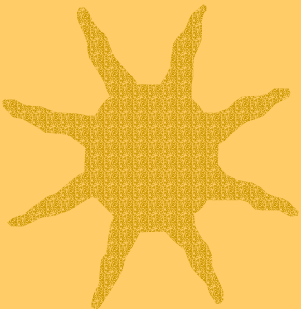
★ Vague concepts/vague quantifiers

- Could/refine question, but need to balance with need to not make questions overcomplicated



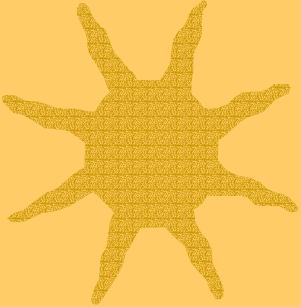
★ Unfamiliar term

- jargon, less commonly used words, education level



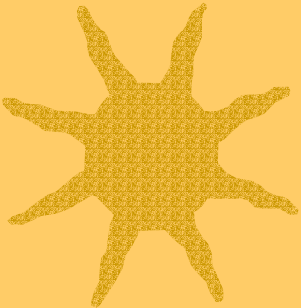


Retrieval



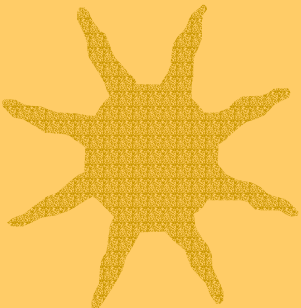
★ Retrieval

- long term memory → answer OR
- long-term memory → other memories → *judgement and/or estimation* → answer



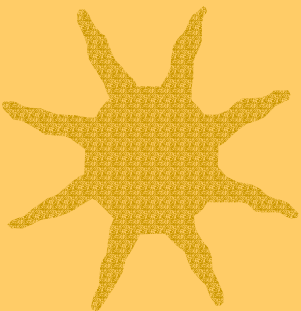
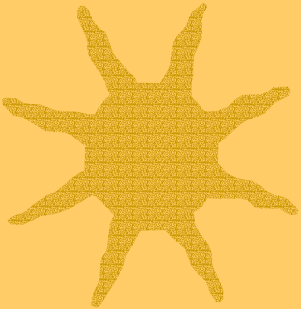
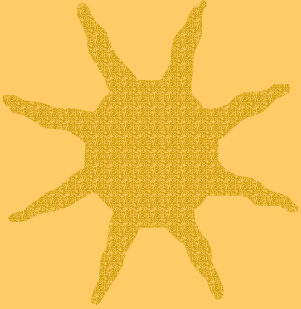
★ Affected by:

- the distinctiveness of the event, the specificity of the question, the answers given, how long ago the event took place
- Cues placed within the question (examples, dates of time frame)





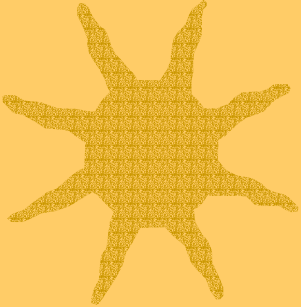
Retrieval: Encoding problems



- ★ Information not tracked by person
 - e.g. # days a week you eat butter
 - may be nature of question, or there may be way to provide cues to **R** about this.

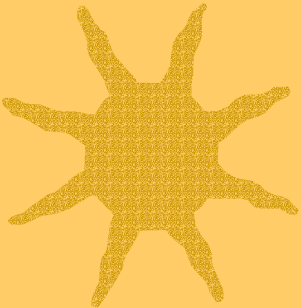


Judgement/estimation processes for behavioral questions



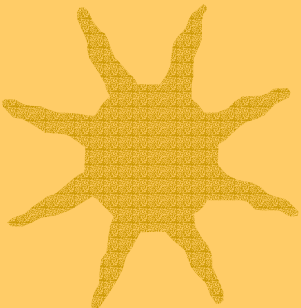
★ Recall-and-count events

- works best for easily remembered events that occurred ≤ 7 times in the interval



★ Rate-based estimation

- used when a single count is too cumbersome
- less exact, tendency to overestimate

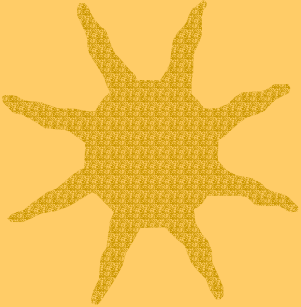


★ Impression-based estimation

- closest to satisficing; least accurate; greatest measurement error

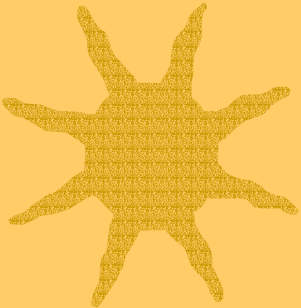


Forgetting and other memory problems



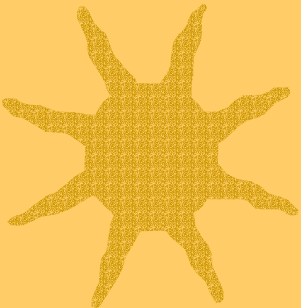
- ★ inadvertent exclusions

- wine as “alcoholic beverage”
- Hardware stores are part of shopping



- ★ Distortions in representations of events over time

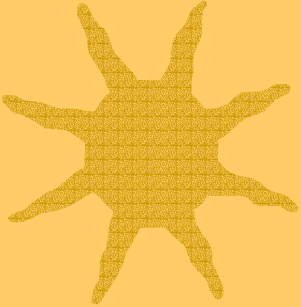
- ★ Retrieval failure



- ★ Reconstruction errors



Recalling events in specific time window



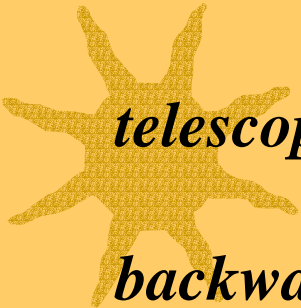
9. In the past 3 months, has[CHILD] been hospitalized due to asthma?

YES

NO \equiv (Skip to Question 11)



9a. How many times? _____



telescoping = the tendency to report events that occurred before the window began \rightarrow overestimation of # occurrences

backwards telescoping = errors get larger as window gets larger.

bounding = remind **R** of past reports \rightarrow corrects telescoping
(only works in longitudinal/panel studies)

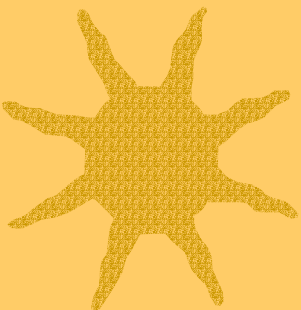
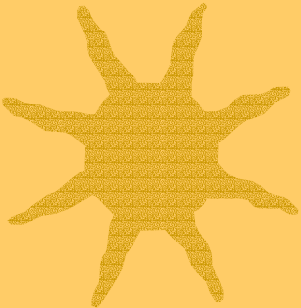
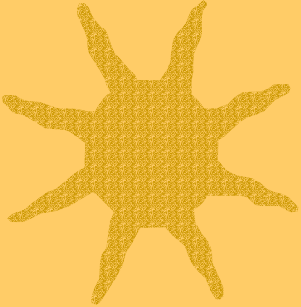


specification of dates in question:

In the past 3 months (from 12/1/04 to 3/1/03), has ...



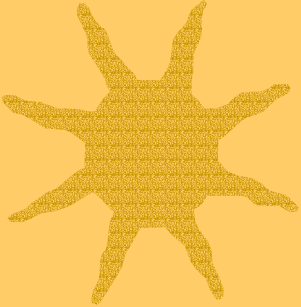
Answer Formats



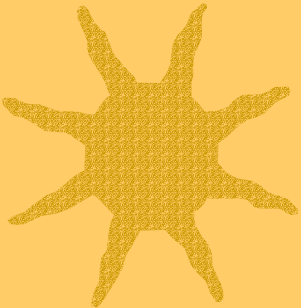
- ★ Open-ended questions that call for numerical answers (#days, birth weight)
 - can give exact answers
 - no influence of range
 - can be more difficult for **R** to determine
 - respondent may not give more exact answer



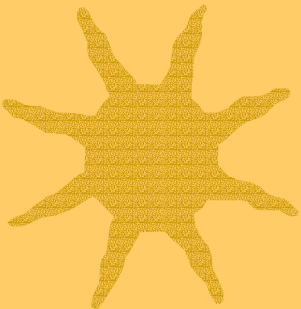
Answer Formats



★ Closed questions with ordered response scales (Would you say your health is: excellent, very good, good, fair or poor)

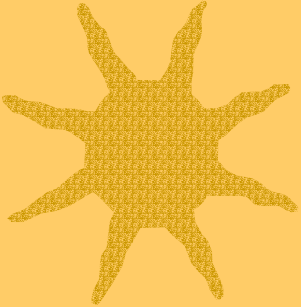


- positivity bias
- # choices in scale (3,5,7,9)
- labelling each part of the scale
- using branching
 - asking more than one question to get the final answer



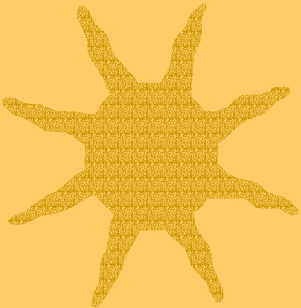


Answer Formats

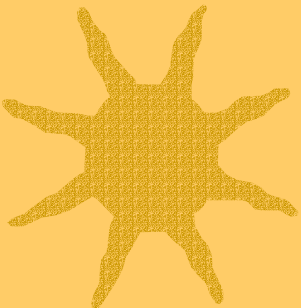


★ Closed questions with categorical response options

- EX. marital status or race/ethnicity questions
- more subject to primacy and recency effects depending on survey mode

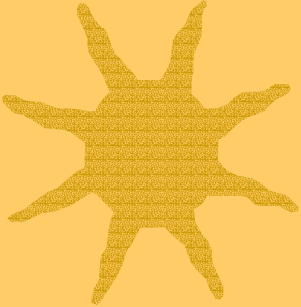


★ Open-ended questions with extended answers



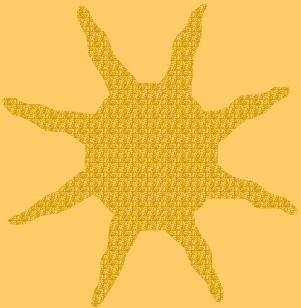


Answer choices and formats can influence responses



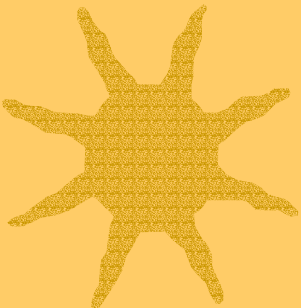
★ Range can effect answer choices

- Schwarz et al. (1985)
- Asked how many hours of TV watched.
- compared responses when answer choices capped out >2.5 hours and when minimum answer choice was <2.5 hours.



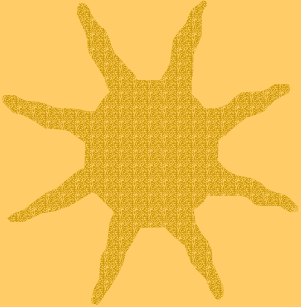
★ Primacy effect (mail questionnaires)

★ Recency effect (telephone questionnaires)





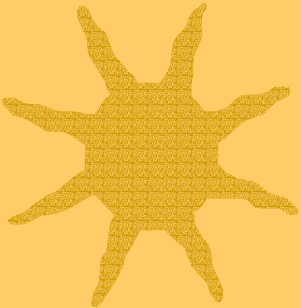
Sensitive Questions



★ Conundrum of **R**

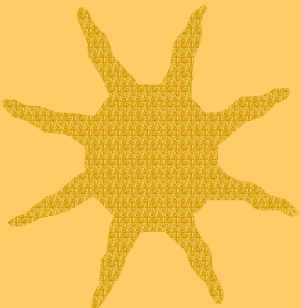
★ Use of “forgiving” statements

– No empirical evidence that this helps

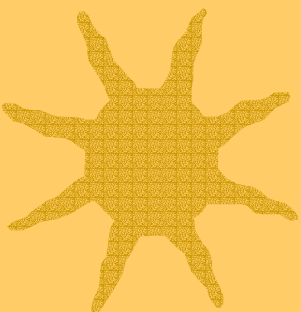
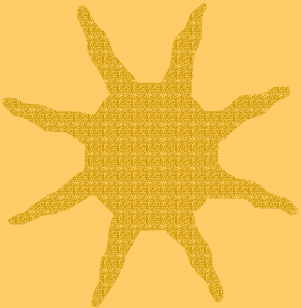
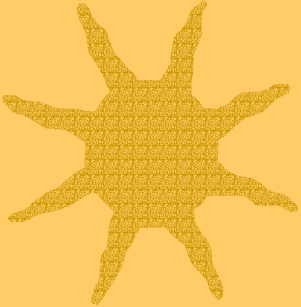


★ Randomized response technique

– alleviates problem but does not fully resolve it



★ Removal of the interviewer

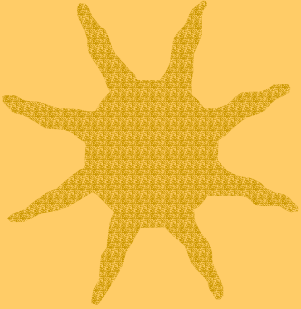


Guidelines: nonsensitive questions about behavior

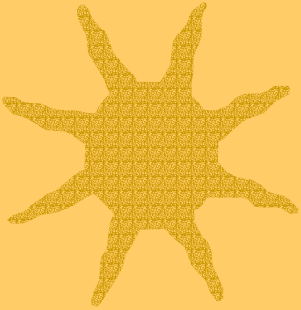
- ★ Include all reasonable possibilities as responses
 - e.g. Do not leave gaps in answer choices
 - never, 1 day a week, about ½ the time, everyday
- ★ Make questions as specific as possible while not making them overly complex
- ★ Be aware of literacy level of respondent; avoid jargon.



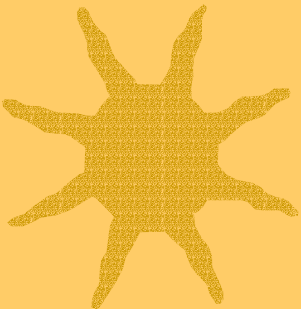
Guidelines: Sensitive Questions



- ★ Open rather than closed questions
- ★ Elongate questions to give **R** time to think



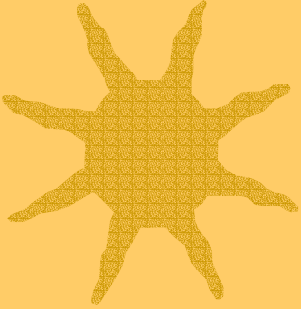
- ★ “Load” the question
 - Everybody does it
 - Assume the behavior
 - Reasons for doing it



- ★ Self-administer the question
- ★ Get validation data from elsewhere
 - urinalysis for question about alcohol consumption

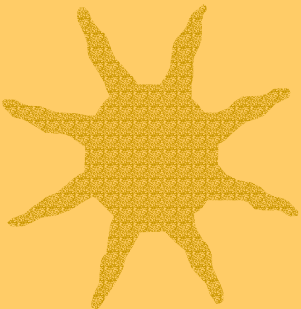
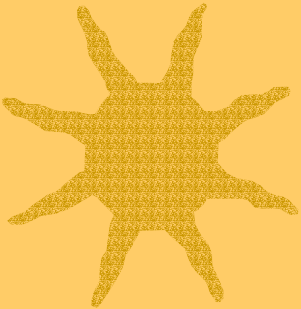


Guidelines: Attitude Questions



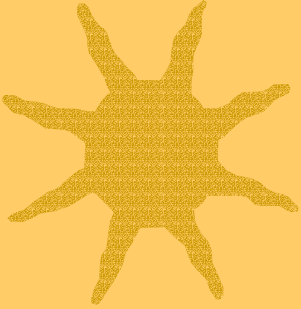
★ Double-barreled Items

- Do you favor legalized abortion because it gives women the right to choose?
- If someone says NO, it isn't clear which statement they disagree with.

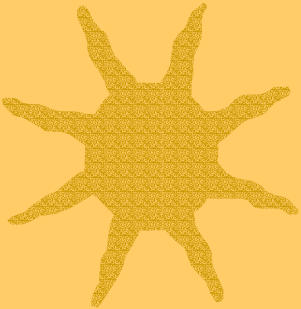




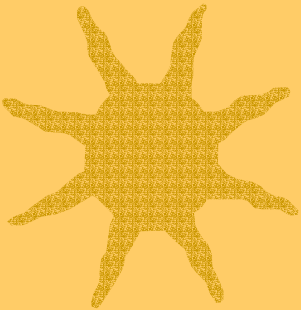
Some other thoughts



- ★ Make sure answer choices match question
- ★ The “two questions in one” problem



- ★ Pretests will not find all problems
 - Consider planning for a revised version while being aware of the consequences of changing questions or answers





Detecting satisficing

9. As the interviewer, how would you rate the respondent's understanding of the questions? Respondent seemed to understand . . .

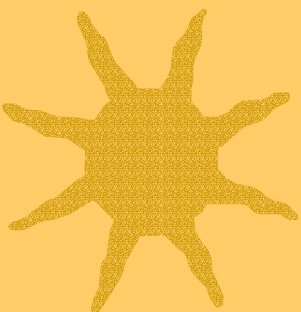
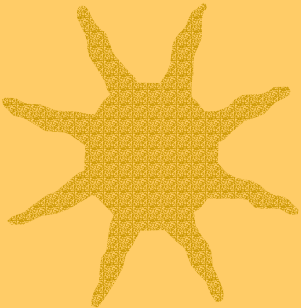
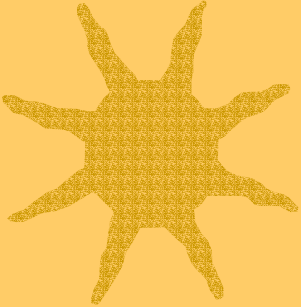
ALL QUESTIONS (1)	MOST OF THE QUESTIONS (2)	<u>DID NOT</u> UNDERSTAND MAJORITY OF THE QUESTIONS (3)
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10. As the interviewer, how would you rate the respondent's attention to your questioning? Respondent paid attention . .

TO THE ENTIRE QUESTIONNAIRE AND ANSWERED ALL QUESTIONS THOUGHTFULLY (1)	MOST OF THE TIME, BUT SEEMED TO ANSWER A FEW OF THE QUESTIONS WITHOUT REALLY PAYING ATTENTION (2)	<u>NOT FOCUSED</u> ON THE QUESTIONS, AND MANY ANSWERS SEEMED RANDOM (3)
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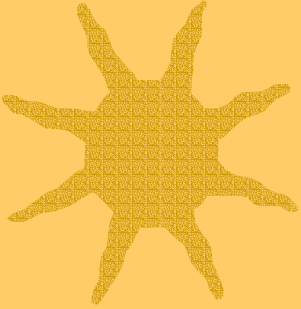
Self-administered Questionnaires: Format



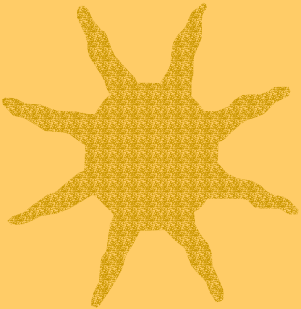
- ★ Navigational Errors
 - Need to have clear directions/formats to indicate skips
 - Skips need to be uncomplicated
- ★ Certain question formats may not translate well to SAQ
 - Table formats are often too complicated
- ★ Consistent formatting is especially important
 - Instructions (e.g. “check one only”) need to be clearly designated



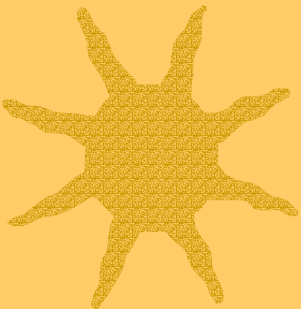
Self-Administered Questionnaires: Format



★ Temptation to combine two questions into one

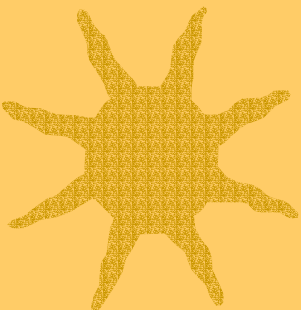
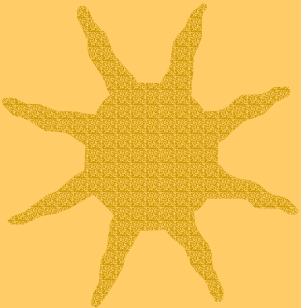
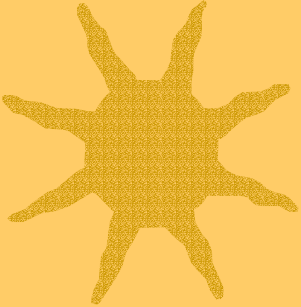


★ Temptation to crowd





Self-Administered Questionnaires: DK answer choices



- ★ “Don’t Know” answer choice needs to be carefully considered
 - On IAQ, this choice doesn’t need to be vocalized and interviewer can prompt.
 - On SAQ, if this choice is there, its more likely to be used.
 - If it isn’t there and **R** truly does not know, increases frustration OR increases measurement error.



What is wrong with these questions?

From FACES follow-up questionnaire

e. Has [CHILD] ever had wheezing or shortness of breath while throwing a tantrum or fighting with siblings or other children

From FACES daily diary

Q2. Did you go to school today?

YES (*Go to Q3*) No, I was sick No, there was no school today



Q2a. *If you were sick*, did your mother or father or other adult miss work to take care of you?

YES NO Not sick



Two other “real-life” examples

From the FACES diary

Q7. In your home today:

- | | | | |
|---|-------|------|---|
| Were the windows open more than 30 minutes? | YES ⑧ | NO ⑧ | Don't know ⑧ |
| Were the windows open overnight? | YES ⑧ | NO ⑧ | Don't know ⑧ |
| Were the stove burners on for 10 minutes or more? | YES ⑧ | NO ⑧ | Don't know ⑧ |
| Was the gas oven on for 10 minutes or more? | YES ⑧ | NO ⑧ | Don't have a gas oven in the house ⑧ Don't know ⑧ |

From the baseline IAQ

4a. Which of the following methods has [CHILD] used? (List and Circle All That Apply.)

CUPUNCTURE HERBAL MEDICINES CAFFEINE CHIROPRACTOR OTHER

“Other” choices are difficult conundrum at data analysis phase
If there is “popular” other item, would others have chosen it if it was presented as a specific answer choice?

