

Survey design

George Argyrous George.Argyrous@uts.edu.au

28 June 2019



Institute for
Public Policy
and Governance

Survey research

- Appropriate in situations where generalisations to a population are intended
- Usually based on 'self-report' data i.e. on what people say about themselves; not the same as what they actually do:
 - “more than 50 per cent of people surveyed in a Dutch study claim they would choose an apple over chocolates if given the choice, but only 27 per cent actually do”
Journal of Nutrition Education and Behaviour, 2008, 40:5, pp. 311-6
- Appropriate for establishing descriptive relationships among variables
- Usually associated with the collection of quantitative data
- Read the methodological literature first:
 - H Schuman and S Presser, 1996, *Questions and Answers in Attitude Surveys*, Sage , London.
 - NC Schaeffer and S Presser, 2003, The Science of Asking Questions, *Annual Review of Sociology*, vol. 29:65-88, DOI: 10.1146/annurev.soc.29.110702.110112

Technique	Advantages	Disadvantages
Self-administered	<ul style="list-style-type: none"> • can be quickest and cheapest • can be undertaken by a single researcher • can reach geographically disperse population • can be answered at respondent's convenience • offers anonymity; can provide more accurate and honest answers to personal or sensitive questions • limits possible interviewer bias • high response rate for well-educated population • can use multiple distribution methods 	<ul style="list-style-type: none"> • low response rate • no control over conditions • no probing or chance to clarify questions • incomplete answers • completed by others • no observation • limited kinds of questions • ill-suited for illiterate or near-illiterate in English
Telephone	<ul style="list-style-type: none"> • wide audience • most of strengths of face-to-face interviews for about half the cost • control sequence of questions answering • almost as high a response rate as personal interviews (around 5 per cent less) but in urban areas the response rate can be higher • Ability to supervise the interviewer • less chance of interviewer bias than with personal interviews • speed of investigation - can do a lot very quickly • ability to use office facilities during interview, such as computer, assistants to take notes 	<ul style="list-style-type: none"> • relatively high cost • limited interview length (decreasing as a problem) • rules out: people without phone, unlisted numbers • reduces anonymity • introduces potential interviewer bias • limited kinds of questions can be used • homes with more than one phone over represented • don't know exactly who is at the end of the line • can get a lot of office numbers from random dialing • can't use visual aids
Face-to-face	<ul style="list-style-type: none"> • highest response rate • permits the longest responses • ability to reach people who are not accessible by phone or mail • allows observation • non-verbal communication and visual aids can be used • unlimited types of questions • extensive probes possible 	<ul style="list-style-type: none"> • high cost • possible interviewer bias • less interviewer supervision

Some general points

- Be clear about your research aims/questions: what is interesting is not always relevant!
- Understand your population (competency, time, etc.)
- Use the language of your population; will the terms used in the questions have the same meaning for everyone?
- Use secondary sources:
 - National Health Survey, www.abs.gov.au/ausstats/abs@.nsf/mf/4364.0.55.001
 - Australian Data Archive, www.ada.edu.au
- Involve data analysts in design
- Questionnaires don't have to be just words
- Move from general to specific
- Use open ended questions: early and with prompts
- Sensitive questions toward the end
- Demographic questions last

Survey sample size

Need to be clear on what are the units of analysis (not always the same as units of study)

The required sample size depends on three key factors:

1. The degree of accuracy we require for the sample (i.e. I want to be within +/- X% of the true value)
2. The extent to which there is variation in the population with respect to the key characteristics of the study
3. The size of the population
 - For small populations (under 1,000) we need a large sampling ratio
 - With larger populations, the size of the population does not matter. For large populations, increasing the sample does has a diminishing payoff. Many survey companies limit samples to 1400
 - See <http://statpages.org/> for on-line calculation pages

What groups do you want to make a statement about?

Asking standardized questions: A checklist

- Do not categorize if not necessary e.g. age
- Frame of reference must be clear, especially for memory questions
- Don't ask for answers that involve mental calculations (e.g. 'percentage of time spent ...')
- Does a question presume necessary knowledge?
- Avoid mid-points on scales; allow for non-responses
- Avoid too many adverbs/adjectives to label points on scales e.g. 'somewhat', 'seldom', 'often'

Asking sensitive questions

Ask sensitive questions at the end where respondents feel committed to finishing. Sometimes possible to ask sensitive questions if they are 'buried' among many other similar but less sensitive questions e.g. the following is a gambling question disguised as a lifestyle question:

Please tick all the listed activities that you have undertaken in the past month

No	Yes	In the past month I have ...
<input type="checkbox"/>	<input type="checkbox"/>	Gone to the movies
<input type="checkbox"/>	<input type="checkbox"/>	Played poker machines
<input type="checkbox"/>	<input type="checkbox"/>	Dined out at a restaurant
<input type="checkbox"/>	<input type="checkbox"/>	Gone to the theatre or opera
<input type="checkbox"/>	<input type="checkbox"/>	Placed a bet on the horse races
<input type="checkbox"/>	<input type="checkbox"/>	Played an organized team sport
<input type="checkbox"/>	<input type="checkbox"/>	Gone on a holiday
<input type="checkbox"/>	<input type="checkbox"/>	Bought a lottery ticket or instant scratchy
<input type="checkbox"/>	<input type="checkbox"/>	Organized a dinner at home with friends

Forced-choice or check-all questions

Force respondents to respond to each item rather than tick only those appropriate.



Thinking about things you have done over the last month, indicate whether you have done each of the following.

No	Yes	In the past month I have ...
<input type="checkbox"/>	<input type="checkbox"/>	Gone to the movies
<input type="checkbox"/>	<input type="checkbox"/>	Played poker machines
<input type="checkbox"/>	<input type="checkbox"/>	Dined out at a restaurant
<input type="checkbox"/>	<input type="checkbox"/>	Gone to the theatre or opera
<input type="checkbox"/>	<input type="checkbox"/>	Placed a bet on the horse races
<input type="checkbox"/>	<input type="checkbox"/>	Played an organized team sport
<input type="checkbox"/>	<input type="checkbox"/>	Gone on a holiday
<input type="checkbox"/>	<input type="checkbox"/>	Bought a lottery ticket or instant scratchy
<input type="checkbox"/>	<input type="checkbox"/>	Organized a dinner at home with friends



Thinking about things you have done over the last month, tick the box next to each activity that you have done in the past month.

Tick all that you have done	In the past month I have ...
<input type="checkbox"/>	Gone to the movies
<input type="checkbox"/>	Played poker machines
<input type="checkbox"/>	Dined out at a restaurant
<input type="checkbox"/>	Gone to the theatre or opera
<input type="checkbox"/>	Placed a bet on the horse races
<input type="checkbox"/>	Played an organized team sport
<input type="checkbox"/>	Gone on a holiday
<input type="checkbox"/>	Bought a lottery ticket/instant scratchy
<input type="checkbox"/>	Organized a dinner at home with friends

Ranking and rating questions

- Very common to want respondents to both rate each item in a set of items, and also to rank across items
- Generally, ranking of items provides a better indication of how respondents feel about the relative importance of items than comparing how respondents rated the same items
- When asking respondents to rank items generally ask for ranking of only top 2-3 items, and lowest item
- More extensive rankings are unreliable and very difficult to enter and analyze

Agreement scales

Very common to ask about a series of items in terms of an agreement/satisfaction scale (e.g. 'strongly disagree' to 'strongly agree')

'Advantage' is that a lot of questions can be asked in one matrix using a common scale

This is really a disadvantage; leads to acquiescence effect

Better to use forced-choice:

	Strongly disagree	Disagree	Agree	Strongly agree	
I received excellent quality care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x
I received excellent quality care	<input type="checkbox"/>				
I received good quality care	<input type="checkbox"/>				
I received poor quality care	<input type="checkbox"/>				✓
I received terrible quality care	<input type="checkbox"/>				



Pilot-testing: A check-list

A pilot test can use various techniques for assessing the quality of the instrument:

- Experiments
- Focus groups
- Interview the interviewers
- Questions about the questions

Aspect of research tested	Issues to consider
Administration	<ul style="list-style-type: none"> • Will a large scale survey be administratively too complex to manage?
Question development	<ul style="list-style-type: none"> • Is there sufficient variation in answers, especially floor/ceiling effects? • Have 'Other/Don't know' options been filled in too often? • Are there common response types to open-ended questions that should be pre-coded? • Has the meaning of the questions been understood? • Are some questions redundant? • Are there too many non-responses? • Are there some responses that are very common; acquiescent response set?
Structure of questionnaire/interview schedule	<ul style="list-style-type: none"> • Have filters/skip patterns been correctly followed? • How long did it take? • Did the respondent maintain interest and attention?
Data analysis issues	<ul style="list-style-type: none"> • Problems of data entry? • Potential variability of responses and sample size determination • Can the questions be answered?

Thank you



Institute for
Public Policy
and Governance