

Keywords: Survey questions, Factual Questions, Attitudinal Questions

"Ask a silly question"

"Ask a silly question and you will get a silly answer". We all know that saying but in survey research it is a lot easier to ask a silly question than you might expect.

The following elements will often be involved in the design of a question to be included in a survey questionnaire:

- Open-ended and closed question
- Single response or multiple responses required
- Factual questions
- Attitude or opinion questions
- Filter/screener questions to control routing
- Questions that do not need to be asked
- Mode effects on questions

Throughout the process of designing a question the researcher needs to bear in mind the cognitive processes that will be involved when a respondent tries to answer it. These are often summarised as "Comprehension – Retrieval – Judgement – Reporting".

1. Firstly the respondent needs to understand the question in the same way as the researcher,
2. then s/he needs to find the relevant information in their memory,
3. and often that material will need to be processed or evaluated in some way to relate it to the question
4. before finally an answer is communicated and recorded. (*Groves et al. 2004*)

There is no perfect solution to the design problems because what works well for some respondents will probably prove to be confusing for others, but questionnaire designers should be aware of the well-known pitfalls that have been identified through specific methodological research projects. These notes are intended as a preliminary guide with illustrations from the QB's extensive range of material.

Open-ended and closed questions:

It is easier to define a closed question than an open one, and then an open-ended question can be defined as a question that is not closed. A closed question is one which restricts the acceptable answers in some way, most obviously in many cases by providing a list of responses but sometimes through an emphasis or hidden bias in the question wording. It will be found that it is much harder to design an open question than a closed one.

In many ways the decision for the designer may alternatively be seen as looking at who should code the answer for analysis, the respondent, the interviewer or the researcher. A fully closed question has to be coded by the respondent as s/he selects the response category from the offered list. In some cases an interviewer invites the respondent to give a lengthy answer and then it is the interviewer who selects the category that they see as most appropriate, given their experience with other respondents. In fully qualitative research the response is recorded verbatim and may be examined many times by the researcher and allocated to several codes simultaneously.

A closed question may have any number of acceptable responses from the two in a "Yes/No" question upwards. The only limit is the imagination of the designer. (see Example 1 below). However the set of responses provided has to cover all possibilities fairly to avoid introducing a bias to the analysis, and

this requires extensive knowledge on the part of the designer. Long lists of response categories have different difficulties in each mode of survey administration. In a telephone interview it is difficult for the respondent to remember the full list, whereas in a face to face interview showcards or shufflecards may provide a solution to that problem. Research has identified that in self-completion modes the first few response categories offered tend to be over-selected, 'primacy' effect, whereas in spoken interviews the last few categories are picked more often, 'recency' effect (Groves et al. 2004), although this view is disputed by Dillman (2000).

Example 1 - *A closed question: English Longitudinal Study of Ageing, 2002 – Individual Questionnaires – Health Module – page 31 (of 108)*

HeADLb @

SHOW CARD M

Here are a few more everyday activities. Please tell me if you have any difficulty with these because of a physical, mental, emotional or memory problem. Again exclude any difficulties you expect to last less than three months.

Because of a health or memory problem, do you have difficulty doing any of the activities on this card?

PROBE : What others? CODE ALL THAT APPLY

- 1 Dressing, including putting on shoes and socks
- 2 Walking across a room
- 3 Bathing or showering
- 4 Eating, such as cutting up your food
- 5 Getting in or out of bed
- 6 Using the toilet, including getting up or down
- 7 Using a map to figure out how to get around in a strange place
- 8 Preparing a hot meal
- 9 Shopping for groceries
- 10 Making telephone calls
- 11 Taking medications
- 12 Doing work around the house or garden
- 13 Managing money, such as paying bills and keeping track of expenses
- 96 None of these [Exclusive code]

On the other hand an open question may be a better way of approaching a sensitive or threatening topic as it gives the respondent a sense of control over the amount of detail they provide. It is necessary where the researcher does not know the full range of possible answers but it will increase the length of time the interview or survey may take to complete while the full answer is recorded or interpreted and coded (see Example 2 below).

Open questions are more easily answered by articulate respondents and so may introduce a distortion in that way and it has been found that they are often answered quite badly in self-completion questionnaires where there is no interviewer to keep the respondent to relevant matters (Dillman 2000).

In summary, most questions fall somewhere between the two extremes of open and closed, and most questionnaires include questions at a variety of positions on the spectrum between the extremes. The designer will need to balance the advantages and disadvantages separately for each question.

Example 2 - An open question: British Crime Survey, 2005 – Main Questionnaire – Victim Form – page 42 (of 115)

V1.3 DESCRIPTION OF INCIDENT

DescrInc [ASK ALL]
SL

Before I ask you a number of detailed questions to enable us to classify exactly what happened can you tell me, very briefly, about the incident?
IF PART OF A SERIES RECORD THE MOST RECENT OCCASION.
PROBE FOR DETAILS OF NATURE AND CIRCUMSTANCES OF INCIDENT. (E.G. WHO WAS THE VICTIM, WHO WAS THE OFFENDER, WHERE DID IT HAPPEN, WHAT DID THEY DO?)

Text: Maximum 220 characters

Single response or multiple responses required

Where a set of response categories has been identified for a closed question that are comprehensive and mutually exclusive, that is they cover all possible situations admitted by the question and there is no possibility of any respondent finding more than one category appropriate, then a single response only will be required (see Example 3 below). In all other circumstances it may be safer to permit multiple responses, “tick all that apply”.

Example 3 - A single response only question: Family Resources Survey – 2003/4 – Household Schedule (Instructions Version) – Household Grid – Page 7 (of 107)

MS

**Is [name]... READ OUT...
CODE FIRST TO APPLY...**

- 1: ... single, that is, never married,
- 2: ... married and living with husband/wife,
- 3: ... married and separated from husband/wife,
- 4: ... divorced,
- 5: ... or widowed?

The aim is to obtain the legal marital status, irrespective of any *de facto* arrangement. The only qualification to this aim is that you should not probe the answer “separated”. Should a respondent query the term, explain that it covers any person whose spouse is living elsewhere because of estrangement (whether the separation is legal or not). Ignore temporary absences, e.g. on oil rig.

Single responses are easily enforced in any computer administered survey and this can be seen in many web-based questionnaires where clicking on a second response button wipes the mark from any previously selected answer. However it is remarkably difficult to obtain paper self-completion questionnaires without some duplicate answers to single response questions. It may be advisable, when designing a PAPI self-completion questionnaire, to include instructions on how to change an incorrect response so that some people can change their mind without invalidating their contribution to your data (see Example 4 below).

Example 4 - *Instructions in a self-completion questionnaire: Census – 2001 – England Questionnaire – Page 3 (of 8)*

How to complete the remaining questions

Remember to use black or blue ink.

Put a tick in the appropriate box, like this . If you mark the wrong box, fill in the box and put a tick in the right one, like this



Where you are required to write in an answer please use CAPITAL LETTERS and leave one space between each word. Start a new line if a word will not fit.

7 What is your country of birth?

Elsewhere, please write in the present name of the country

S O U T H
A F R I C A

Multiple responses may become difficult and stressful for the respondent when a large number of categories are offered. Then, rather than asking respondents to tick all that apply, it may be better to ask them to tick the three categories that are most important, relevant, or applicable to them (see Example 5 below). Great care is probably needed if respondents are asked to rank a long list of items in order of priority, especially in a self-completion survey, as this requires a lot of mental processing in the 'judgement' phase. In an interview situation this may be better achieved by using shufflecard techniques.

Example 5 - *Free selection from multiple choices question: Survey of Public Attitudes to Quality of Life and the Environment – 2001 – Detailed CAPI Questionnaire – Quality Of Life – Page 16 (of 62)*

QoL_Aff	quality of life (unprompted)																	
Routing: All																		
Notes:																		
<p>[*] What are the 2 or 3 things which you would say most affect your (you and your household's) quality of life?</p> <p>UNPROMPTED</p> <p>CODE ALL THAT APPLY</p> <table border="1"> <tr> <td>0 NO ANSWER GIVEN</td> <td>8 Housing (including heating)</td> </tr> <tr> <td>1 Crime / fear of crime</td> <td>9 Job (having one / satisfaction / hours / stress)</td> </tr> <tr> <td>2 Driving (driving experience, e.g. traffic jams)</td> <td>10 Leisure (including entertainments & nightlife)</td> </tr> <tr> <td>3 other Travel / Commuting (except driving)</td> <td>11 Money (being able to afford things e.g. holidays)</td> </tr> <tr> <td>4 Education (quality of / opportunities for)</td> <td>12 Neighbours / Neighbourhood</td> </tr> <tr> <td>5 Friendships / family</td> <td>13 Pollution / Litter / other environmental problems</td> </tr> <tr> <td>6 Green Spaces / Countryside / Nature (access to)</td> <td>14 Religion / Spiritual</td> </tr> <tr> <td>7 Health – physical / mental</td> <td>19 other</td> </tr> </table> <p>Enter at most 15 values</p>			0 NO ANSWER GIVEN	8 Housing (including heating)	1 Crime / fear of crime	9 Job (having one / satisfaction / hours / stress)	2 Driving (driving experience, e.g. traffic jams)	10 Leisure (including entertainments & nightlife)	3 other Travel / Commuting (except driving)	11 Money (being able to afford things e.g. holidays)	4 Education (quality of / opportunities for)	12 Neighbours / Neighbourhood	5 Friendships / family	13 Pollution / Litter / other environmental problems	6 Green Spaces / Countryside / Nature (access to)	14 Religion / Spiritual	7 Health – physical / mental	19 other
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TrvMth	1																	

Factual questions

Different problems are likely to arise depending on whether you are asking for factual information about the respondent's life or for their opinion about something more abstract. Of the two, one might expect that it is easier to draft a factual question but it is not necessarily simple to make it a good one.

For factual questions the designer needs to consider the retrieval phase of the cognitive process. Can the respondent remember the correct data? In some cases the problem may not even be one of memory so much as whether the respondent was aware of the fact at the time when it arose? To remember something you have to notice it in the first place. It seems obvious that few people will remember how many cigarettes they smoked on 5th April in the previous year, but not many more people will be able to tell you exactly how many they smoked last Friday. This is not a simple problem of memory because the 'facts' are probably seen as too trivial to try to remember in the first place.





Questionnaire designers may need to build-in some memory retrieval aids where the facts they wish to record arose a long time ago or were not perceived as significant, at the time they arose, by the respondents. Some surveys use a 'life events calendar' to create a time framework within which to locate memories (Example 6 below).

Example 6 – A Life Events Calendar: British Crime Survey – 2004 – Showcards – Page 46 (of 47)

Life Events Calendar

This calendar is designed to make it easier for you to remember when particular crimes happened and whether they occurred in the past 12 months. Please mark on any crimes that have occurred within this period, or any other events that make it easier for you to remember when particular events occurred (such as birthdays, holidays, starting a new job etc.).

2004

	 New Year		 Easter					 August Bank Holiday			 Bonfire Night	
Months	January 2004	February	March	April	May	June	July	August	September	October	November	December
Important Events												

While others use current diary records kept by respondents specifically for the purpose of the survey for a limited period of time to create the trivial data (Example 7 below).

Example 7 – A diary record: National Diet and Nutrition Survey – 2000 – Diaries and Recording Aids – Page 11 (of 31)

Today isday		Today's date is		serial number label				
Recording day (ring one):		1	2	3	4	5	6	7

<p>1 What time did you go to bed last night? <input type="text"/> <input type="text"/> am / pm <small>Hours Minutes</small></p> <p>2 What time did you get up today? <input type="text"/> <input type="text"/> am / pm <small>Hours Minutes</small></p> <p>3 Did you go to work today? (including unpaid work) (ring one) Yes → Go to question 3a No → Go to question 4</p> <p>3a How long did you work today (including unpaid work), in your main job? (Please exclude any lunch break) <input type="text"/> <input type="text"/> <small>Hours Minutes</small></p> <p>3b If you have a second job (including unpaid work), how long did you work today in your second job? (Please exclude any lunch break) <input type="text"/> <input type="text"/> <small>Hours Minutes</small></p>	<p>4 Did you go to college today? (excluding evening classes) (ring one) Yes → Go to question 4a No → Go to question 5</p> <p>4a How long were you at college today? <input type="text"/> <input type="text"/> <small>Hours Minutes</small></p> <p>5 Did you spend any other time sleeping during today? If so, how long? <input type="text"/> <input type="text"/> <small>Hours Minutes</small></p> <p>6 Thinking about the activities you have done today, would you say that today you have been... (tick one box) more active than usual <input type="checkbox"/> about as active as usual <input type="checkbox"/> or less active than usual? <input type="checkbox"/></p>
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There is also a problem with some range-of-values questions.

It is customary to create bands of values and ask people to indicate the band containing the value they estimate is applicable to themselves, but compromises may have to be made in setting the bands. If the bands are not all of equal range then it may be more difficult to analyze the resulting data, but where a population has a 'normal distribution' (a bell-shaped frequency curve) you will either need a very large number of bands to include accurate data for both extremes occurring in the population, whereas using a smaller number of wider bands may fail to discriminate sufficiently amongst the majority of the population with values falling close to the mode.

Attitude or opinion questions

For attitudinal questions it is probably the comprehension phase of the cognitive process that is the most difficult. The designer needs to make sure that each respondent is considering the same topic and understanding it in the same way as all the other respondents. The temptation is to put in more words of explanation in order to make the meaning more clear (see Example 8 below). However, longer question wording means more work is necessary to understand it, especially in a telephone interview.

Example 8 – *A complex attitudinal question: British Social Attitudes Survey – 2003 – Main Questionnaire, Interview Mode – Genomics – Page 84 (of 135)*

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Q791 [GenTest]
CARD H6
Genetic tests can be used to tell people whether they are likely to
develop a serious genetic condition in the future. If such a test were
easily available, would you want to find out your risk of developing
such a condition if it could not be treated?
1 Definitely would
2 Probably would
3 Probably would not
4 Definitely would not
    
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The other problem is that the respondent may not have a ready-made opinion on the topic, so that the judgement phase of the process becomes laborious. This is where the difficulty of the 'don't know' or 'no opinion' response category arises. It is now quite common for interview modes not to offer a non-response category in the spoken question, but to allow the interviewer to record 'don't know' if the respondent insists that that is their answer. However this is not possible for self-completion modes of survey and so these generally do offer the possible answer of 'don't know'.

There is also the similar, but different, problem of the neutral opinion, particularly if the scale of attitudes ranges between positive and negative. We must all have encountered the feedback form at the end of a short course or seminar where some of the questions concern aspects of the session that have simply not entered our consciousness, then if we are not offered a neutral choice ('neither good nor bad') we are being forced to record a false opinion. Thus the best advice at present is to include a neutral opinion, where it is relevant, as well as a 'no opinion' option to separate the 'don't knows' from those who were just about satisfied (Dillman 2000), (see Example 9 below).

In these cases it is useful to help the respondent build a model for processing their answers by using a regular table presentation (in self-completion modes) or repeating a regular phrasing pattern in verbal interviews. However, as there is a danger of respondents getting lazy and always ticking the same box in the pattern without thinking enough about the question, it may be advisable to vary the sense of some individual questions so that genuinely consistent answers do not fit a simple pattern in the table.

Example 9 - *Using 'neutral' and 'no opinion' options in a self-completion question: British Social Attitudes Survey – 2003 – Self-Completion Questionnaire – Page 7 (of 58)*

13. Please tick one box for each statement to show how much you agree or disagree with it.

PLEASE TICK ONE BOX ON EACH LINE	Agree strongly	Agree	Neither agree nor disagree	Disagree	Disagree strongly	Can't choose
a. I would worry if housing were provided near my home for people with mental health problems leaving hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Serious mental health problems are just as likely to affect my family as anyone else's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Finally on attitude scales, care should be taken not to include too many scale points which increase the stress on the respondent, and to label all the scale points meaningfully (not just the two extremes).

Filter/screener questions to control routing

This type of question is now much more common in computer programmed than in paper self-completion questionnaires. Their purpose is to identify which respondents should be asked a detailed set of questions on some aspect of the topic and to route other respondents past this set and avoid wasting time with irrelevant matters (see Example 10 below). Filter questions are still used in paper questionnaires for the same reason but much more sparingly.

Example 10 – A “filter” question: *Labour Force Survey – 2005 – Main Questionnaire Chunk B – Benefit Entitlement – Page 1 (of 69)*

299. BENFTS		EQ	UK
In the week ending Sunday the [date], were you claiming any State Benefits or Tax Credits (including State Pension, Allowances, Child Benefit or National Insurance Credits)			EUROSTAT
1	yes		
2	no		
APPLIES IF RESPONDENT DID PAID OR UNPAID WORK OR IS AGED BETWEEN 16 AND 69			

On paper, the problem is that the respondent not only has to comprehend the questions, thinking about the topic that is the substance of the survey, but they also have to apply quite different logic and skills to interpret the routing instructions, and so will often make mistakes. In many cases when a self-completion questionnaire has been completed incorrectly, so that there are contradictory answers, the whole case may have to be deleted from the data set because of uncertainty over which data elements in it are valid, and this represents a significant waste of time and resources.

There are still paper-based interview questionnaires with complex routing (see the International Passenger Survey), but these depend on thorough interviewer training and practice so that the various routing jumps can be followed consistently and accurately.

The less obvious problem with complex filtering and routing in programmed questionnaires is that it may be more difficult for the analyst to identify which subsets of the sample population were asked certain combinations of questions. When there are many filter questions then very few respondents will have experienced the same interview process. At one extreme one respondent may have been asked a particularly complex question just 10 minutes into their interview, while another may only have reached that same question after more than an hour of questions – and that might have an influence on how they each answer that question.

Another observation that has been made is that if each screener question is immediately followed by a detailed set of follow-up questions then some respondents will begin to recognise that they could save themselves a lot of hassle by giving false information at these key points. So it is sometimes necessary to ask all of the screener questions in a batch before going back to the follow-up questions for each appropriate route.

Questions that do not need to be asked

In order to reduce the burden on respondents and interviewers it is helpful if care is taken to identify the points where data can be calculated from answers already given and either to get the computer program to make the calculation during the interview (see Example 11 below) or wait for it to be done during the analysis phase. It is not a good idea to ask the respondent to carry out a calculation that may seem unnecessary to him/her.

Example 11 – *An automatic calculation confirmed with a question: Families and Children Study – 2004 – Main Questionnaire – Child Maintenance – Page 40 (of 174)*

CTMot
COMPUTED VARIABLE: Total maintenance per week

Range = 0..9997

CMchk
From the information you have given me this means you are supposed to receive about [CTMot: total maintenance received] per week.
Is that correct?
INTERVIEWER: This is to check that the calculation is right.

1 Yes
2 No

It is also reasonable to allow interviewers to record data that is clearly apparent to them without having to ask respondents to provide it. Discretion may be allowed for the interviewer to seek confirmation where there could be some uncertainty but not have to ask the question when the answer appears to be obvious (see Example 12 below).

Example 12 – *A question answered by the interviewer: English House Condition Survey – 2001 – Main Questionnaire Part A – Page 5 (of 47)*

INTERVIEWER CODE ACCOMMODATION TYPE

P9 **Which of the following best describes this accommodation unit?**

Single household/family accommodation
(including extended families) 1
Household with lodger(s) who are part of household 2
Household with lodger(s) not living as part of household... 3
Household of tenants sharing..... 4
Bedsits/flatlets with shared/communal kitchen/bathroom... 5

IS ACCOMMODATION TYPE HOUSE/BUNGALOW OR FLAT/MAISONETTE?

a house or bungalow
 a flat/maisonette
 other

Mode effects on questions

When considering whether to use all or part of a question that has been used in another survey for your own purpose, some care may be needed to allow for the effects of different modes of survey. A question that worked well in a face to face interview may not be so reliable when it is used in a paper self-completion survey and vice versa.

The discussion above about 'no opinion' response categories for attitudinal questions is an example of this problem. Another case might arise where an interview question specifically allowed for an interviewer prompt where a respondent is having difficulty, but such flexibility is not available in the self-completion situation. Again a question might have relied upon the showcards available to a face to face interviewer and so would not simply transfer to a telephone administered interview.

More information on mode effects is given in the factsheet with that title.

REFERENCES AND FURTHER READING:

Dilman, Don A. (2000) Mail and Internet Surveys – Wiley, New York.

Groves RM., Fowler FJ., Couper MP., Lepkowski JM., Singer E., Tourangeau R. (2004) Survey Methodology – Wiley, New York.

Oppenheim AN. (1992) Questionnaire Design, Interviewing and Attitude Measurement – Continuum, London.