

## Introduction

Knowledge of the strengths and weaknesses of different survey modes can be gained from the results of 'mode comparison studies'. These are experiments in which a survey is carried out in two different modes, and sample members are randomly assigned to one or the other of them (Goyder 1985, de Leeuw and van der Zouwen, 1988). The strengths and weaknesses of the following modes will be focused on here:

- *Face-to-face interviews*
- *Telephone surveys*
- *Mail (postal) surveys*
- *Internet (web) surveys*

There are several ways in which the mode via which a survey is administered can affect the data generated from it. First, the mode chosen will determine what **sampling frame** can be used. For example, the Postcode Address File can be used for a face-to-face survey (as this generates postal addresses), and the telephone directory could be used for a telephone survey. Each of these frames would differ according to the **coverage** of the survey population. The chosen survey mode can also have implications for coverage if certain members of the population are excluded, for example those without Internet access would be unable to take part in a web survey. The degree of **nonresponse** bias would also vary according to survey mode, some having more than others. Various aspects of **measurement quality** are likely to be affected by choice of mode, in particular data completeness, social desirability and response and question order effects. Lastly, each mode has associated **cost** implications. I will now address each of these in turn.

## The effects of survey mode on sampling frame and sample design

The choice of survey mode is often influenced or determined by what sampling frame is available, for example, if it includes the postal addresses of all its units, a postal survey may be most appropriate. Conversely, the mode chosen can determine which sampling frame is used, for example, undertaking a telephone survey may lead the researcher to use the telephone directory as his or her sampling frame.

The mode choice can also impact upon the sampling *design* that is used, for example, face-to-face surveys often use cluster sampling, as this is less expensive and minimises the amount of travelling from one sample unit to another. This tends to happen despite a potential reduction in sample efficiency (as clusters may reduce sample representativeness).

When one person per household is required to participate in the survey, the degree of control that the researcher has over who in the household responds can vary according to mode. In face-to-face surveys, there is a higher degree of control, as the interviewer is able to obtain a list of household residents and randomly select one of them. However, in mail and Internet surveys, there is no interviewer present and so it is often impossible to control who responds. This could result in a response bias, as those who are more eager to respond may be qualitatively different to those who are more reluctant.

### **The effects of survey mode on coverage of the target population**

The sampling frame that is used will determine the extent of the coverage of the survey's target population. For face-to-face surveys covering the whole of the UK, an area probability frame (such as the Postcode Address File) is seen as the 'gold standard' for general population surveys, as it covers all UK postcodes (and thus, residential addresses). However, even here, some parts of the population are excluded for cost, efficiency or coverage reasons (for example, those in military personnel, prisons and hospitals, homeless people and those in northern Scotland, for cost and coverage reasons), so samples are mostly restricted to the civilian household population.

As more than 90% of the UK population have telephones, a telephone survey of the general population is likely to cover over 90% of people. However, those without telephones are likely to qualitatively differ from those with telephones, particularly socioeconomically. This could have negative implications for surveys on crime victimisation, drug use, unemployment or welfare receipt, thus for surveys on such topics, other modes (such as face-to-face) ought to be considered.

Although the number of UK households with Internet access has risen steeply in the last few years, an Internet survey's coverage may nevertheless not be very wide, as not everybody is easily contactable by email. No sufficient sampling frames have been developed that contain email addresses. Like with telephone surveys, those without Internet access are likely to be very qualitatively different to those with access ('digital divide'), so this method would not be very good for making inferences to the general population. However, this may be a better method if the target population is more specialised, like employees of a particular organisation (where email addresses are known).

### **The effects of survey mode on nonresponse (bias)**

Face-to-face surveys generally have higher response rates than mail surveys, but some of that difference reflects other factors such as the higher number of contact attempts that are required for face-to-face surveys.

Higher response rates for face-to-face interviews could also be due to the effectiveness of the interviewers' attempts at presenting the survey as genuine and credible, using physical evidence such as ID cards. Persuasion strategies can be tailored to sample members' concerns, but this is less effective in telephone surveys, and almost non-existent in postal and internet surveys.

It is easier to distinguish 'ineligible' sample units (such as non-residential addresses) from non-respondents in face-to-face surveys than in other modes. It is almost impossible to do this in mail or web surveys, and in a telephone survey, it would be difficult to tell whether a failure to answer is a non-respondent or an ineligible unit.

There is no evidence that Computer-Assisted-Interviewing affects response rates in any way.

Postal surveys generally have higher response rates than Internet surveys. This could be due to an absence of well-tested strategies for persuading respondents to complete web surveys; however, there is no evidence for this and so it is still uncertain.

Mail surveys may have greater nonresponse bias as respondents are able to see the content of the questionnaire before they decide whether or not to take part, and so may be discouraged by sensitive or 'difficult' questions. With face-to-face and telephone surveys, questions would not be seen until after agreement to take part has already occurred. Vague euphemisms can also be used in face-to-face surveys to disguise its content (for example, 'health and lifestyle' for drug or sex surveys) to avoid response decisions based on the survey topic.

The strengths of a method for one aspect of nonresponse are often counterbalanced by weaknesses in others. For

example, mail surveys have fewer problems with regard to access, and making contact with sample units is less expensive. However, it is harder to gain cooperation without the presence of an interviewer. Access to sample units over the telephone is cheaper (making repeated callbacks) than in face-to-face interviews, but often more difficult, due to more controls such as answering machines or caller ID.

### The effects of survey mode on measurement quality

Three aspects of measurement quality can be affected by choice of mode: *completeness of data*, *the effect of social desirability bias* on responses (overreporting of socially approved behaviours like voting, or underreporting disapproved behaviours such as drug use) and the *impact of other response effects* (such as question wording, question order or order of response categories) on data.

#### **Data Completeness (unanswered questions)**

More questions are generally unanswered in postal (self completion) questionnaires. There are three reasons for this: firstly, there is no interviewer present to explain more difficult questions to respondents (and so they are left blank); secondly, respondents may fail to follow questionnaire instructions; and lastly, respondents may be unwilling to answer some questions, and no interviewer would be present to probe.

It has been found that questions are more likely to be unanswered in telephone surveys than in face-to-face interviews. This may be because telephone surveys are more impersonal, and interviewers may be less able to reassure respondents about the confidentiality and legitimacy of the survey.

Surveys administered via Computer-Assisted Interviewing tend to produce less missing data, as it is harder for items to be accidentally skipped.

#### **Data Completeness (length of responses to open-ended questions)**

Longer, more codable responses tend to be given more in face-to-face surveys than in telephone surveys. This could be due to the faster pace of telephone interviews and the absence of visual cues that are able to elicit more information.

Mail (and web) surveys may elicit longer responses to open-ended questions, as there is less of a time limit in which respondents can answer; however, interviewers in face-to-face surveys can probe for longer responses.

#### **Social desirability bias**

Social desirability bias is concerned with the way in which survey respondents may over-report 'desirable' behaviour (such as voting) or under-report 'undesirable' behaviour (such as smoking).

Face-to-face interviews are more likely than any other mode to be affected by social desirability bias, due to the presence of an interviewer. Thus, postal and internet surveys (which are both self-completion) are likely to be affected the least.

#### **Response effects**

Response order effects refers to the effect that the ordering of the answer categories has on the responses given. These can be 'primacy effects' (where respondents are more likely to select responses at or close to the beginning of a list of responses) or 'recency effects' (where respondents are more likely to select responses at or close to the end of a list of responses). These effects may be less likely to occur in self-completion (postal or internet) than in telephone or face-to-face surveys. This is because respondents can see all the categories at once before deciding on an answer.

When questions presented aurally (that is, via telephone or face-to-face), respondents are more likely to select one of the last options presented (recency effects). When questions are presented visually, respondents are more likely to select one of the first.

The question shown below (Fig.1) is taken from the British Social Attitudes Survey (2005) and was administered as part of a face-to-face questionnaire. A showcard has been used, so respondents are better able to cope with the larger number of response categories:

Fig.1: A question from a face-to-face questionnaire, taken from the British Social Attitudes Survey 2005.

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VERSIONS A, C AND D: ASK ALL
Q565- [WDisFW] $ 1
Q575  CARD E1
      People have different ideas about what it means to be disabled.
      Which of the people on this card would you think of as a disabled
      person?
      PROBE: Which others?
      CODE ALL THAT APPLY
      Multicoded (Maximum of 11 codes)
0      (None of these) [WDisNone]
1      A person with severe arthritis [WDisArth]
2      A person who has HIV/AIDS [WDisAIDS]
3      A person who has a diagnosis of schizophrenia [WDisSchi]
4      A person who has a diagnosis of severe depression [WDisDepr]
5      A person who has Down's Syndrome [WDisDown]
6      A person who has cancer [WDisCanc]
7      An older person who cannot hear without a hearing aid [WDisOldH]
8      A blind person [WDisBlin]
9      A person who uses a wheelchair most of the time [WDisWhlc]
10     A person with a broken leg, using crutches while it heals [WDisBrok]
11     A person with a severe facial disfigurement [WDisFacD]
97     (All of these)

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Fig.2 shows a question on a similar topic that was administered in the self-completion module of the British Social Attitudes Survey in 2005. This is a four-part question, where each only has four response categories, thus making the task of answering the question simpler in a survey where there is no interviewer present:

Fig.2: A question from a self-completion questionnaire, taken from the British Social Attitudes Survey 2005.

57. And do you personally tend to think of disabled people in general in the following ways:

*PLEASE TICK ONE BOX ON EACH LINE*

	<b>Most of the time</b>	<b>Some of the time</b>	<b>Hardly ever</b>	<b>Never</b>
a. ... as getting in the way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. ... with discomfort and awkwardness?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. ... as needing to be cared for?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. ... as the same as everyone else?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(1)	(2)	(3)	(4)

## The effects of survey mode on cost

There are two types of survey cost: *fixed* and *variable*.

Fixed costs are incurred regardless of sample size, for example, development, testing and programming of questionnaires.

Variable costs increase with the size of the sample, for example, contacting and interviewing respondents, follow-up of nonrespondents and so on.

Surveys that require a personal visit have higher costs than telephone surveys, particularly because it takes time for interviewers to travel to sampled addresses. Each successive callback would then increase costs further. Face-to-face interviewers are also required to be more highly trained than telephone interviewers (as more skills are needed such as the use of Computer-Assisted-Interviewing, and there is more of a lack of supervision in field than in call centres). This extra training, along with equipment and set-up costs for CAPI equipment also contributes to the higher costs of face-to-face interviewing.

Web surveys generally have larger fixed costs than mail surveys (due to the expensive web interface, development and testing of questionnaire). However, if a web survey is fully automated (where automated invitations and reminders are sent to respondents), the variable costs can be extremely small. Variable costs of mail surveys are often larger than that of the web, due to printing and postage costs and so on.

Other costs can be incurred by attempting to increase survey quality or raise response rates, for example, making a face-to-face survey Audio-CASI (this would increase quality), or including a mailout in a telephone survey to deliver incentives or to increase legitimacy, (this would increase response rates).

## Further reading

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