METHODOLOGY

Questionnaires: paradigms and pitfalls

Gill Wakley

Introduction
Questionnaires are an inexpensive way to gather data from a potentially large number of people.

Advantages of questionnaires
- **Familiarity:** As most people have previous experience of completing a questionnaire, anxiety is reduced for respondents with competent reading skills. Face-to-face interview situations are also common and, provided the interviewer is competent, people are comfortable with the technique.
- **Cost effective:** Most research or audit methods have similar set-up costs but questionnaires are a cost-effective instrument of data collection, especially for large sample sizes or large geographical areas.
- **Ease of analysis:** Data entry and tabulation can usually be done with a software package, provided you design this at the same time as the questionnaire.
- **Reduction of bias:** The questions in a postal or Internet survey are presented in a uniform manner with no influence from an interviewer or observer. Training of interviewers for one-to-one surveys reduces bias introduced by the interviewer.

- **Lack of intrusiveness:** Unlike telephone or face-to-face interviews, a respondent can complete a postal or Internet questionnaire at a time of his or her own choosing. You can invite respondents to choose a convenient interview time to increase response rates.

Disadvantages of questionnaires
- **Low response rates:** Response rates vary widely and a low response rate will not give reliable information on which to base conclusions. Response rates are reduced by poor design and a large number of questions, or if the respondents receive frequent requests for completion of questionnaires. Poor completion rates are also likely if the questionnaire takes too long to answer.
- **Loss of flexibility:** Respondents often want to qualify answers in a questionnaire. Space for comments is useful, but too much space for free comment makes the questionnaire time consuming to code and analyse. Balance easy to quantify closed questions with identifying important information from open-ended questions. Face-to-face or telephone application provides more flexibility but introduces more bias.
- **Lack of information about attitudes:** Tick boxes are a good way of obtaining data about facts but attitudes are probably better explored in face-to-face interviews (or focus groups), where non-verbal information and discussion can tease out hidden values.
- **Identity confounding:** You might assume that the questionnaire has been completed by the person to whom it was sent, but they may have moved, or someone else (e.g. a secretary or a partner) may have completed it on his or her behalf. Face-to-face and telephone interviews usually avoid this confounding issue, but postal and Internet surveys are particularly vulnerable.
- **Unsuitability for the target sample:** The subject matter may be perceived as irrelevant, or as something that cannot be altered, particularly if previous feedback has been ignored – so expressing an opinion is not worthwhile. People with poor literacy skills are unlikely to complete written questionnaires. You would not want to target unemployed homeless people with an Internet survey?

Define your objectives
This is the most important part! Your literature search may show that the area in which you are interested has masses of data already and a review article is more appropriate than further research.

If you have well defined, precise objectives then the questions flow naturally from them. If there is little literature on the subject then you may need to use other methods, such as a focus group, to determine the right questions to ask a wider group of people.

Consider how you will use the information gained. Who is the intended target for the information? You would include different questions if your aim is to persuade management to fund a new service from those used where you wish to feedback to the staff how well they are providing an existing service.

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Designing the questionnaire
Use a validated questionnaire that has already been well
tested if possible. It saves time and you will be able to
compare your results with others. You might want to use a
previously published questionnaire with just a few
supplementary questions for your own specific purposes.
Using a previously published validated questionnaire
increases the reliability and the validity of your survey
(Box 2).
If you have to design your own questionnaire, consult
the extensive literature on questionnaire design.2–7
Important facets to consider are:
• Length: Keep it short. Go through it again and again,
eliminating questions. Long questionnaires reduce the
response rate and a low response rate means you have
wasted your time. Use only the questions that will affect
a decision or provoke change.
• Include the analysis at the planning stage: If you
cannot specify how you will analyse the question, do
you need that question?
• Make it noticeable: If the envelope and questionnaire of a
postal survey stand out from all the rest of the paper
people receive it is more likely to be completed.8 An
Internet survey may be notified with a pop-up box,
attached to an e-mail, or trailed on a frequently visited
page.
• Make it easy to return: Include a stamped addressed
envelope and also a return address on a postal questionnaire so that it can still be returned if the
envelope is lost. A single click at the end of an Internet
survey should send it off.
• Include a convincing cover explanation: This is your
chance to persuade someone to complete the
questionnaire. Response rates are increased by personal
contact from someone the respondent knows or
respects.
• Give clear instructions: Use short sentences and simple
words. Ask other people for early feedback: what you
meant may not be what is understood by others. Your
pilot study will help to establish if you have made the
instructions clear.
• Include interesting but non-threatening questions at the
beginning: Opinion is divided about whether
demographic data such as name and address, date of
birth, and so on, should be at the beginning or the end.
If the questions are sensitive or embarrassing, you may
need anonymous completion; but if they are not, people
may prefer to complete the questionnaire first before
revealing who they are.9
• Provide incentives: If the results will be of interest to
the respondent, offer them a copy of the results. Think
about monetary incentives, or shop or book tokens, all of
which increase the response rate.10–12
• Professional production: Take advice on setting out a
written questionnaire so that it is easy to read and looks
attractive. The font size of the print should be easy to
read with plenty of space around the questions to avoid
collision. Progression from one section to another
should be easy to follow and execute.
• Unambiguous wording of the questions: Box 3 includes
some of the common pitfalls, but expert advice and your
pilot study (or repeated pilot studies if you get it right)
will help you to avoid confusion.
• Open or closed questions: If you use open-ended
questions, plan for how they will be coded and
analysed. Giving examples of how you would prefer the
answer to be worded can make this easier, but restricts
the freedom of response. You may need to ask for help
from a researcher trained in qualitative methods if you
have little experience in this field.13 Closed questions
can cause frustration, particularly if the researcher has
not thought of all the possible responses, so adding
space for comments increases completion rates and
provides new insights for the researcher.

Comparison of application methods
Face-to-face administration of the questionnaire in the
presence of the respondents gives an opportunity to explain
the questions, the response rate is usually higher (especially
for full completion of all the questions), and probing on
answers can obtain further information to augment the
replies. Pressure on the participants to give an answer may
lead to biased or false information being given. The
interviewers may be inconsistent in applying the
questionnaire, perhaps altering the questions to fit
the respondent’s perceived understanding or likely response, or
omitting questions because of pressure of time or
perceptions of irrelevance to that respondent. Training, and
preferably role-play rehearsal, in the application of
the questionnaire helps to avoid these confounding issues.

Telephone interviews have much the same advantages
and disadvantages as face-to-face interviewing. It may be
easier to obtain a wider spread of respondents, but guard
against selection bias. A convenience sample may exclude
people who are working or from disadvantaged groups.

Postal surveys are inexpensive and can cover large
geographical areas or sociological groups. The respondents
can reply in their own time but it is difficult to be sure that
the questions have been understood or answered correctly.
Low return rates often cause problems with the
interpretation.

Internet surveys have relatively little research material
for comparison.14 Data can be collected by electronic one-
METHODOLOGY

Avoidance of bias
Consult the literature on the nature of bias and confounding in research and audit studies. Incorrect selection of the sample so that it is not representative (e.g. only asking people who attended a clinic if it was conveniently situated). If your sample is not representative, you will not be able to generalise the findings to other populations. This will not matter if you only want to audit your local users, but is important if you want to convince administrators of your case for new services for non-users of your services.

Having a large proportion of non-responders runs the danger that their responses may have been different from those who did respond, or that they differ in their characteristics from those that responded. Avoid asking about matters that rely on memory or your study will suffer from recall bias. Particularly good or dreadfully bad experiences are preferentially remembered.

Avoid asking about your study is it due to that, or following an article in a popular women’s magazine?)?

Summary
Always use a questionnaire for a carefully thought out purpose, not just to collect data and then think what to do with it. Plan your analysis as part of the design process. Keep in mind the target audience for the information you collect and how the conclusions will be presented. Use an already validated questionnaire if you can. If none exists, you will need to seek expert advice, pilot the instrument (sometimes several times), and ensure that sources of bias and confounding are avoided as far as possible. Make your invitation to participate in completing the questionnaire stand out and make the process as short and easy to complete as possible. Good luck with your response rates!

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References
5 http://www.accesscable.net/~infopoll/tips.htm.