

Recreating experiences: improving the validity of data

This paper explores the dynamics of peoples' responses to questions and uses case studies to explore ways in which the validity of data can be improved. Much social research takes for granted that the process of asking questions through interview, survey or focus groups provides accurate data about behaviour, perceptions and attitudes. However, the literature suggests that many questionnaires produce inaccurate data. Cognitive psychologists report that people tend to minimise the difficult recall or imaginative tasks when answering questions. Instead, respondents use 'schemas' or 'scripts' to interpret and respond to their immediate situation. A schema provides a 'logic' or 'rationality' that informs their responses. Some practitioners have found that they get more robust results by asking respondents to recreate mentally, specific events before asking questions based on those events.

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Introduction

Much social research relies on participants reporting their own behaviour, perceptions or attitudes. Questionnaires, 'telephone surveys, structured interviews, unstructured interviews, group interviews, focus groups, meetings, workshops, oral histories and many documents are based on people reporting on their personal attributes or history.

The social research literature on survey design generally accepts the validity of self-reported evidence despite an extensive discussion on possible inaccuracies (Hyman 1954, Sudman & Bradbury 1982). There are of course exceptions such as Cicourel (1964) and Phillips (1972). Brown and Gilmartin (1969, p. 288) argued '... sociology is becoming the study of verbally expressed sentiments and feelings, rather than an analysis of human performance'.

In this article I will explore the dynamics of the questioning process and see how we can improve the rigour and validity of data derived from asking questions.

Reliability of self-reports

Any police officer will tell us that eye-witness accounts of the same event are different. The same person may be variously described as tall and thin with brown hair, and short and fat with blonde hair. Law courts too have long understood the unreliability of hearsay and self-reported testimony. The credibility of evidence is tested by cross-examination and the way that the witness presents their evidence.

There is also substantial evidence that data from surveys and interviews is problematic. People answering surveys persistently under-report socially undesirable attributes or behaviours such as their consumption of alcohol, tobacco and other drugs, and over-report socially desirable attributes such as income and employment (Phillips 1972, pp. 22–5). In a British survey of sexual attitudes and lifestyles, men reported an average of 2.5 heterosexual partners in the preceding five years but women reported an average of 1.5 partners (*New Scientist*, 30 October 1993). Logically the numbers should be the same.

The ‘social desirability bias’ (Sudman & Bradbury 1982, p. 6) outlined above extends to a desire to please the investigator, whether the investigator is present or not.

Consequently:

Several investigators have spoken of the subjects’ desire to please the investigator. Rosenberg (1965, 1969) ... Riecken (1962) ... Crowne and Marlowe (1964) (Phillips 1972, p. 32).

There are also people who persistently give positive responses and those who consistently give negative responses (Phillips 1972, pp. 32–3).

Polls of voting intentions are also unreliable. Shaun Carney (*The Age*, 4 September 2004) quoted Sol Lebovic from News Poll as saying that polls are never reliable because one quarter of voters don’t decide which way to vote until the last week of the election. As Mr Carney points out, all that really tells us is that one quarter of the population will not vote as the poll predicts. However, this error is still better than the 66% error on the number of sexual partners reported above (*New Scientist*, 30 October 1993).

The literature (e.g. Sudman & Bradbury 1982; Schwarz 1987) also identifies a number of other ‘response effects’ that raise questions about the validity of survey data. Many of the effects go beyond issues such as sample bias, or ambiguity of questions, or respondents’ interpretation of questions: they go to the validity of asking questions as a way of inferring behaviour. For example, there is a ‘forbid-allow’ asymmetry, ‘originally reported by Rugg (1941)’, in which respondents asked whether something should be allowed give different responses from those asked

if the same thing should be forbidden (Schwarz 1987, p. 105). Other effects include distortion of time in responses (Strube 1987); offering a middle alternative that encourages the middle response (Schwarz 1987, p. 109); and Tourangeau (1987, p. 152) who reports that, ‘When we are in a good mood it is easier to remember happy events than sad ones’.

People also give different answers to the same questions depending on the order in which the questions are asked (Dillman 1978, Strack & Martin 1987). An episode of *Yes Prime Minister* (Lynn & Jay 1989, p. 106) graphically demonstrates the phenomenon. Sir Humphrey asked a colleague two series of questions: both series ending with the same question. The two responses to the final question were diametrically opposed.

Answers to questions are also affected by preceding tasks. For instance:

Sears and Lau (1983) ... found that survey respondents who had to assess their personal income [in a prior task] were subsequently more likely to evaluate the President’s overall performance on the basis of ... the economic domain ... Similarly Iyengar, Peters and Krosnick (1984) found that watching a ... news program that emphasised a particular political

domain increased the impact [of that domain] ... on their overall rating of former President Carter. (Strack & Martin 1987, p. 126)

Then Schwarz and Hippler (1987, pp. 166, 170–1) report that answers to response scales are affected by the range of the behaviours presented in scales. In one study, respondents were asked to report their television watching. One group of respondents was given a low frequency response scale (from 1 hour to 2 hours), the other group was given a high frequency response scale (from 2 to 4 hours). Those given the high frequency scale reported more television watching than those given the low scale. The range of the response scales also affected answers to other questions such as national average television watching and use of recreation time. Other studies looked at frequency of masturbation and intercourse. The group whose *questions* (not the answers) suggested high sexual contacts and low masturbation reported higher satisfaction with their sex life than the group whose *questions* suggested low sexual contacts and high frequency of masturbation. Schwarz and Hippler (1987, pp. 164, 167) argue that respondents infer that a question contains information that reflects the researcher’s knowledge about the distribution of

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behaviours and what is 'usual' and that people use that information to respond according to where they see themselves in relation to other people.

It is important to note that the sentiments expressed in answers to questions are not always reflected in behaviour. Therefore:

Beginning with LaPiere's (1934) finding that the actual willingness of hotels to serve a Chinese couple bore almost no relationship to the expressed willingness of hotel managers [to do so] ... numerous studies ... show vast discrepancies between what people say and what they do. (Phillips 1972, p. 27)

The data suggests that attitudes and values in a survey have little effect on behaviour. Galtung (1967, pp. 1–2) suggested that perhaps responses to questions may predict future verbal behaviour. However, Tourangeau (1987, p. 160) shows that responses about attitudes are not stable and people express different attitudes and values in different contexts.

Assumptions and practices in social research

Much of the literature on survey methodology assumes that 'response errors' are marginal and can be managed. Hyman (1954, p. 221), for example, suggests that 'these individual biases may cancel out to a large extent'. Strack and Martin (1987, p. 129) and Sudman and Bradbury (1982, p. 6) infer that the norms of cooperation and the desire to provide accurate information outweigh other drivers such as social desirability or norms of cooperation. This strikes me as wishful thinking.

Phillips (1972, pp. 37–8) points out that if the biases are systematic they will not cancel each other out. However, even random biases can have a non-random effect, particularly when the order of magnitude of the errors is similar to that of the responses (or larger—66% for the data on sexual partners, *New Scientist*, 30 October 1993).

However, many social researchers use various techniques to improve the reliability of surveys, or, more accurately, the ability to get similar responses in different surveys. For example, many researchers seek to avoid order bias by rotating the order of questions so that different respondents get questions in a different order (e.g. Market Facts Inc. n.d.). The fallacy is obvious.

Sudman and Bradbury (1982, p. 37), meanwhile, recommend that investigators use aided-recall procedures (either lists or asking people to remember the last month) 'since they can help respondents remember events that would otherwise be forgotten ... [However] behaviours not mentioned in the question ... will be substantially underreported'.

The literature on survey design also shows that a person's answers to the questions in a questionnaire are more consistent if the questions go from the general to the specific (Dillman 1978). For instance:

...specific questions can predispose response in the same direction as the specific question. Are you happy in your love-life, followed by are you happy with life-in-general shared a higher correlation than the reverse order (Strack & Martin 1987, pp. 129–32).

The 'inaccuracies' reported above are more than an issue of question design; they reflect the fundamental unreliability of self-reported evidence. Researchers and evaluators cannot assume that people recall events, behaviours attitudes or emotions accurately during the questioning process.

What is going on in interviews and questions?

An analysis of interviews I conducted as part of various evaluations (e.g. Berrevoets 1992; Roberts et al. 1994) suggests that people do not necessarily express fixed feelings, views or understandings of events, situations or issues. A few of the people interviewed did appear to have very clear and fixed views or memories. However, for most interviewees, it appeared that each question and each answer triggered a cascade of related thoughts, interpretations and memories that they felt supported earlier statements within that part of the discussion.

An initial comment by the interviewee might be elaborated by a 'string' of supporting arguments and memories. Once an interviewee took a position, most interviewees were reluctant to change their view. If challenged on details, or presented with countervailing memories, they usually reinterpreted the details or debated the validity of countervailing evidence. Tourangeau (1987, p. 153) and Bishop (1987, p. 192) report similar findings for survey interviews. Strube (1987, p. 90) argues more generally that 'people remember past events in order to be consistent with their present attitudes'.

Interviewees used logic to develop and defend their explanation of events. Sometimes the logic might seem faulty to the investigator but most often, it reflected a set of assumptions and objectives that were not always expounded in the discussion. Within a conversational 'string', an individual's discussion of the issues was a 'rational' elaboration of the positions that person had already expressed.

I am not arguing that people chose interpretations or memories as a conscious tactic to support a position, though no doubt it sometimes was (see the discussion of 'habitus' in Bourdieu 1977). It appeared more as if, the interviewees used a self-consistent way of talking and thinking about the phenomenon. The 'way of thinking' about a phenomenon (or 'rationality') varied from simple, tentative interpretations of particular aspects; to well-defined, apparently pre-existing explanations that were 'known' by the respondent.

The analysis of interviews and the 'response effects' (such as order bias and scaling bias) described above, show that respondents work on the

answers in the context of both the current question and the preceding questions and answers. They may, and often do, develop their responses during the process of questioning (see also McColl-Kennedy & Schneider 2000).

However, the responses were not necessarily stable. When the discussion moved away from an event or topic and then returned, interviewees sometimes presented inconsistent descriptions of the same issue or topic. A new cascade of thoughts (or 'string') led to the expression of a view or description that was at odds with statements in previous 'strings.' Bodenhauser & Wyer (1987, p. 13) quote reports by Higgins et al. (1985) of similar effects in experimental situations (cf. Bishop 1987, p. 192).

A cognitive perspective

There are a variety of mental tasks involved in providing a response to a research interview or questionnaire. Those tasks include 'interpreting the question, generating an opinion, formatting the response [into the response format provided] and editing' (Strack & Martin 1987, p. 124). Strube (1987, p. 86) suggests that the demands on memory are significant.

However, the research in cognitive psychology suggests that people do not, in fact, conduct a search of memory. People tend to minimise recall and imaginative tasks and use heuristic devices to

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develop a response to the question (Bodenhauser & Wyer 1987, pp. 9–10, 21, 28). 'The claims for heuristic processes in judgement and decision-making are among the most well-substantiated in social and cognitive psychology' (Bodenhauser & Wyer 1987, p. 29). The literature uses a variety of terms including 'schemas', 'schemata', 'scripts', 'frames' and 'concepts' (Tourangeau 1987, p. 154).

Schemas have the attributes of 'personal theories' (Bodenhauser & Wyer 1987, pp. 28–9, 30) used by the individual to interpret and respond to the presenting situation. A schema consists of a set of assumptions about the presenting situation that reduce the cognitive loads of interpretation, memory recall, hypothesising and thinking through logical puzzles. A schema allows the individual to assume that the chair can be sat on, and the interviewer is not hostile. A schema allows the individual to make sense of the situation and to respond (Hastie 1987, p. 49).

The other element of schemas is that a schema also contains a standard response to the presenting situation, a template for the individual's response. One consequence is that a schema may result in

routine, 'unthinking' behaviour. However, a schema also allows the individual, to choose elements of the situation to think about if they are interested (Bodenhauser & Wyer 1987, p. 29); or to modify the behavioural prescription if that does not seem quite right. A schema does this by allowing the individual to take for granted most of the elements of the situation.

Cognitive psychologists suggest, 'an enculturated member of any society will have a large stock of schemata' (Hastie 1987, p. 49) which will be activated in different situations. These 'schemas' are distinct packages of 'knowledge' but they are not based on memory (Bodenhauser & Wyer 1987, p. 29; Strube 1987, p. 89). Importantly, it takes only a few cues to trigger one of these packages of knowledge (Bodenhauser & Wyer 1987, pp. 9–10): there is no need for an extensive search of memory to identify the appropriate stock of knowledge. Indeed, Bodenhauser and Wyer (1987, p. 29) provide evidence that memory is only searched *after* a schema has been used. In other words, memories are used to justify the schema rather than to develop the schema. They also show that schema may be developed in response to a new situation or new information provided to the individual: but once a schema is developed, individuals use the schema rather than the original evidence to make subsequent decisions.

The conversations 'strings' in the interviews described above can now be seen as the result of

different schemas.

Individuals use a schema as a way to manage the presenting situation, the interview or the questionnaire: they use the logic of that schema to consider issues for which they

do not have existing responses. They do not *need* to recall facts, or think about all the issues, in order to provide a response: and they are more likely to use a schema to provide a top-of-the head response when they are under time pressure (Schwarz 1987, p. 117), or have limited interest in the issue (Bodenhauser & Wyer 1987, p. 29).

In the context of a research interview or questionnaire, the primary task for the respondent is, 'How do I answer this question?' The respondent does NOT need to ask, 'What happened?' or 'How often?' or, 'What would I do if ...?' Those cognitive tasks are secondary to the primary task and represent a cost to the respondent. The focus of the respondent is on providing an answer to the question that will meet the respondent's needs to manage the current situation—that is, of being asked these silly questions by some stranger.

An individual's response to a research or evaluation question will, therefore, depend in part on the schema activated by that individual in that situation. It seems likely that the chosen schema includes 'knowledge' about the behaviour the

respondent is currently engaged in, the interview or questionnaire.

Responding to questions as a form of behaviour

There are remarkable similarities between the analysis of behaviours in interview tasks and that of the more 'interpretive' sociological research. There is a substantial literature showing that people's behaviour is usually consistent within a context but is often quite different in other contexts. An individual can and does operate in a number of distinct and different ways depending on context: 'interpretive schema' and 'stocks of knowledge' (Schutz 1972), 'spheres of experience' (Berger et al. 1973); separate roles and 'frames of meaning' (Goffman 1974); and 'paradigms' (Kuhn 1962). Each person's interpretations and actions alters with changes in the context they perceive themselves to be within. Schutz and Kuhn in particular, use concepts that are closely related to the schemas outlined by cognitive psychologists though they have very different perspectives on when those concepts operate. Schutz treated the interpretive schema as driving behaviour, particularly routine or stereotypical activities, and not thought; whereas Kuhn described scientific endeavour (which has a very large thinking and analytical component) as following paradigms.

People appear then to possess a very large number of schemas for a very wide range of situations, calling for different types of behaviours and with varying amounts of cognition. All of the schemas allow people to avoid thinking about some aspects of the situation even when that situation is a 'thinking situation'. In a 'thinking situation' people may use schemas as short-cuts to thinking. And there is a continuum of 'ways of thinking' from simple and tentative interpretations that are applied only to discrete aspects of a phenomenon through to highly developed paradigms for scientific theory and practice that 'explain' a wide range of related phenomena.

Research interviews and questionnaires establish a 'thinking' context in which respondents may use schemas to respond without significant cognition. The danger is that the schema for the 'thinking' process may be quite different from the schema activated in the behavioural context that is being studied.

One might expect that where the behaviour being studied is similar to answering a questionnaire (such as voting), there may be a more direct link between the response to the questionnaire and the actual behaviour. Both voting and answering a question about voting intentions are 'thinking' behaviours and share some fundamental characteristics. However, there are many other contextual differences ('How to Vote' cards, going into a polling booth, new information, etc.) that might give rise to some difference between stated voting intentions and

voting behaviour: and Mr Lebovic's data above suggest there is a 25% response error even in voting polls.

Improving validity in survey research

It is crucial then that practitioners look for ways to increase the accuracy, rigour or validity of self-reported data.

External validation

All social research methods have potentially significant sources of error, even Census data is subject to error. However, one's confidence in the data can be much greater, if two different methodologies produce similar data. One option is to use research interviews or questionnaires in combination with other methods to cross-validate data. For instance, administrative data and direct research methods can be used to complement self-reported data.

Direct research methods are those in which the researcher directly observes the attribute under study. Such methods include experiments, unobtrusive observation, participant observation, competency tests and some document analyses.

Testing self-reports within the research context

Interviews, particularly unstructured interviews, offer the opportunity to probe and explore apparent inconsistencies. In focus groups (as opposed to a group interview), members of the group discuss issues and the group itself tests statements made by members (Morgan 1997).

Using experience within interviews and questionnaires

I have noticed that some experienced researchers ask respondents to recall their experiences before discussing the issues or asking them to answer questions (Morgan 1997, Marsden Jacob Associates et al. 1999). Strube (1987, p. 96) supports this approach and quotes research by Beyth-Marom and Fischhoff which showed that asking 'subjects' to recall specific examples significantly improved the accuracy of their responses. I suspect that the reason is that the recall task is likely to both improve memory; and the memory is used to cue a schema that is closer to that used in the phenomenon being studied.

I recommend recording people's reports of their experiences. One of the problems with questionnaires is that it is very difficult for a person to present the richness and complexity of social reality. Even in an interview, most respondents probably present a simplified gloss of the reality. However, records of specific examples provide the evaluator or researcher with a very rich source of data which can help 'explain' responses and flesh out our understanding of the phenomenon being studied.

Other methods

Participatory research usually starts with a substantial amount of time spent on creative ways of exploring the participants' experiences or situation (Chambers 1992, Davis-Case 1989; Boyle 1993, Roberts 1994, Sinclair 1990). Techniques used, include asking people to act out events or draw pictures or the use of cues to stimulate recall and cognition. The cues might be such things as maps, photographs, transect walks (systematically walking through an area with informants, observing, asking questions) and graphs, diagrams and chronologies can be used to explore situations (Chambers 1992).

Picture-story analysis

An example of one technique for grounding research in experiences is to ask participants to think about their experiences and then draw a picture that summarises their experience (see Figure 1, Lord, Redway & Roberts 1994; Food Regulation Review Committee 1998, and Roberts 1994). Here the participant explained:

That's just me sort of before the course, it was like being boxed, just all gloomy and lots of good old queues ... occasionally thinking about what I'd really like to be doing but thinking that I'd never get there. And then the telephone ... that I actually ... got into the course and everything, which I was pretty rapt about ... I just love being outdoors and I love the travelling and the friendships ... And that's like to represent the study part of it because I also love the study.

Conclusion

The literature shows that self-reported behaviours, views and attitudes are often unreliable, particularly in survey questions or interviews.

People use schemas to reduce cognitive load and allow quick responses (including verbal responses) to the presenting situation. Schemas consist of a set of assumptions that facilitate interpretation of the presenting situation and a template for action.

FIGURE 1: A LEAP PARTICIPANT'S DRAWING AND COMMENTS



The use of schemas can result in routine responses, but schemas also allow the user to think about some elements in a situation, not least because the user does not have to consider the situation in its entirety. People have access to a large number of schemas and the use of different schemas result in different and sometimes contradictory responses.

When a person is responding to a question, the behavioural response required is an answer to the question. Accessing memory, or imagining a situation are secondary behaviours that impose a cognitive load on the respondent. Active cognition is only used to assist in the primary behavioural response: and only if it is necessary or of particular interest to the respondent. Furthermore, cognition is likely to focus only on a limited number of the elements of the situation being queried.

Social researchers should therefore validate self-reported behaviour, attitudes and so on. It is possible to cross-validate self-reported data using external sources or methodologies. It is also possible to improve the validity of self-reported data by asking people to recall specific experiences before asking questions about those experiences. A concrete recall task such as making notes, telling a story or drawing a picture help to ensure that participants actually engage in the recall process, and they flesh out the recall for the respondents. The use of cues (such as photographs) and asking the respondents to use non-verbal recall techniques increases the richness of the recall. If the products of the recall are also recorded, the researcher has direct access to a rich source of data that may help explain and illuminate participants' responses.

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