Understanding through Uncertainty

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Introduction

This paper sketches initial ideas about the cognitive bases for responses in research interviews.[i] It explores an explanation for why answers to direct questions are sometimes misleading: and how the uncertainty of projective stimuli may sometimes elicit meaningful information.

Projective stimuli are techniques developed in psychology to elicit 'hidden' responses. Examples are Rorschach inkblots, word association and 'expressive' techniques such as picture drawing. These techniques have also been applied in social and market research. The use of projective techniques in research interviews is heuristic and there are no adequate explanations for how they work or how to improve their effectiveness.

The same is true more generally for research interviews. Despite the central role of interviews in social research, little attention is paid to how people develop their answers. It is often assumed that an individual will interpret a direct question as a straightforward request for data and respond by searching for and retrieving relevant memories or values (Strack & Martin 1987: 124 & 133). A second common assumption is that an individual's answer to a question will reflect a consistent perspective on events, attitudes etc.

However, the attitudes and behaviours an individual expresses in one context are often very different from those expressed in another (Tourangeau 1987:160; Phillips 1972:27). Furthermore, people rarely search their memories to develop answers to questions.

Answers to questions are not based on the details of the phenomenon being investigated but are derived from a generalised perception of both the phenomenon and the current situation of the interview (Bodenhausen & Wyer 1987: 28-29). Even when we actively try to recall events or judgments, we do so from the framework of that generalised perception: and the memories we recall are largely limited to those that support that framework. We use a cognitive framework called a 'schema' (plural 'schemata') that organises our recall of memories, judgements and our responses.

In this paper I argue that direct questions in research interviews trigger a particular type of schema; while projective techniques trigger different types of schemata. I suggest that projective schemata may sometimes reveal the drivers underlying everyday attitudes and behaviours better than the schemata that are activated to respond to direct questions.

Cognitive processes

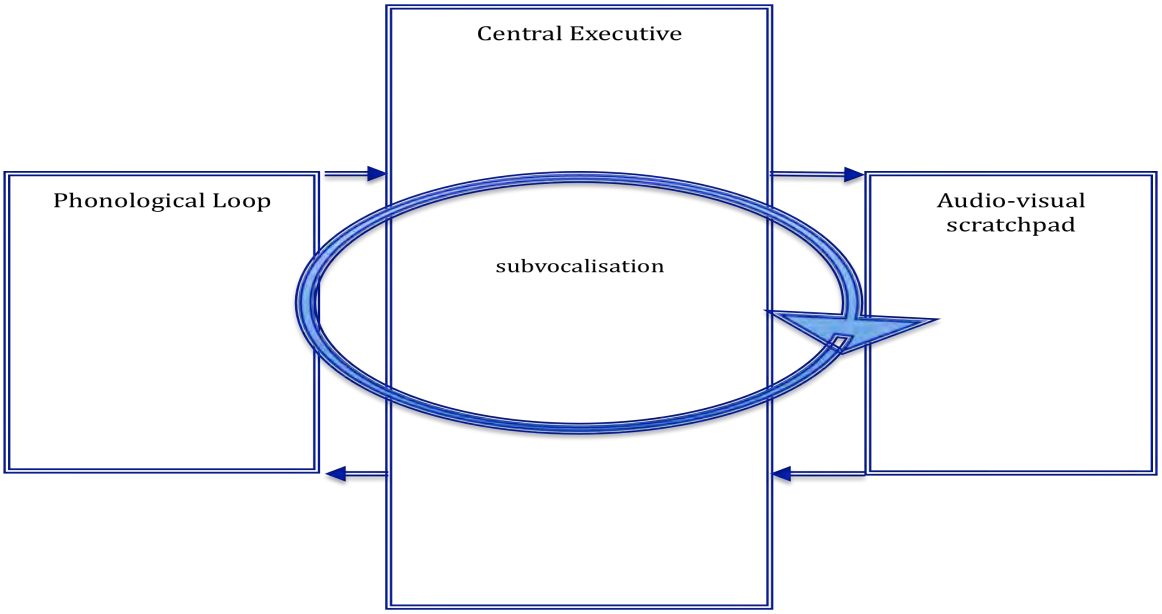
Schemata drive most of our thinking and behaviour and much of that behaviour is automatic and implicit. Two very simple examples are driving a car or going to the movies. When we drive a car we usually do not consciously think about how to corner, when to brake, how far to turn the steering wheel, etc. Nor do we think about the need to stop at a red light. Indeed, conscious thought about how to do physical things gets in the way of action. It slows us down and leads to performance errors. A different kind of schema operates when we go the movies. When we 'go the movies' there are certain things we do automatically and others that we think about. This will vary between individuals but the automatic parts might include queuing for tickets, buying popcorn, etc. while variables which need thought might include which cinema, who to go with, etc.

More complex schemata manage the way we think. For example, Kuhn's (1970) notion of scientific paradigms can also be seen as overarching schemata applying to particular ways of thinking. Similarly we use schema to help us develop our answers in a research interview (Bodenhausen & Wyer 1987: 28-29).

Workspace

So how do schema work and what are the implications for research interviews? In order to understand schema we need to understand a little bit about how the brain works. Cognitive scientists have developed the notion of a workspace, which manages our thinking and our interactions with the world; and our interactions with long-term memory (Hitch 2005). The workspace consists of two parts: a central executive which acts as a central processor to manage information; and short term-memory.

Figure 1 - Workspace



Source: Adapted from Hick (2005)

Short-term memory

Short-term memory holds information transmitted from our physical interactions with the world. It also holds information recalled from long-term memory. It only holds the information for a few minutes at most.

There are separate short-term memories for each of our senses. For example, the "phonological loop" contains memories of sounds; while the "audio-visual scratchpad" has memories of pictures and text. However, there are links between the senses. For example, written words can be translated into sounds by 'sub-vocalisation.'

Central Executive

The central executive is like the central processor in a computer. It manages the interactions with the various short-term memories and also the interaction with long-term memory.

A key aspect of the central executive is that it has very limited processing capacity. Information only stays in the central executive for a few seconds before being placed in short-term memory or released. More importantly, demands on the workspace make it difficult to spend processing power on conscious thought and conscious thought may be as little as 5% of cognitive activity (Zaltman 2003:50).

Schema

The workspace simplifies the demands on itself by pulling a schema out of long-term memory. A schema is activated very rapidly (in milliseconds) and from very few situational cues (Bodenhausen & Wyer 1987; Graesser *et al* 1997). It is a set of instructions telling the workspace how to manipulate

ideas and information (Hitch 2005). Each schema also brings specific memories into short-term memory (Bodenhausen & Wyer 1987:12).

Importantly a schema minimizes complexity by simplifying how the presenting situation is perceived and by making assumptions about how things are related. The generalized perception of the context, the short-term memory and the underlying assumptions provides a coherent 'explanation', or 'working knowledge', that allows us to act and think (Graesser *et al* 1997). It provides us with an alternative to conscious thought and contains procedural knowledge, knowledge of how to do things and facilitates automatic behaviour.

The automatic elements of behaviour and thought are only possible if we don't reflect on the underlying assumptions. Indeed, we are not usually aware of those assumptions and prejudices. It is possible to reflect on our assumptions and prejudices. However, doing so is difficult, cumbersome and tiring (Fischer *et al* 2008). It also reveals inconsistencies hidden by the schema.

Inconsistencies may also arise in the development of a situation. Instead of ruminating on such inconsistencies, the workspace typically uses the current schema to construct new inferences that fill the gaps and inconsistencies in the working knowledge (Graesser et al 1997).

The drive for consistency is graphically, if fictionally, illustrated by the extract in Box 1.

Box 1 Opinion Polling

'Mr 'Mr Woolley, are you worried about the rise in crime amongst teenagers?'
'Yes," I said.
'Do you think there is a lack of discipline and vigorous training in our Comprehensive Schools?'
'Yes.'
'Do you think young people welcome some structure and leadership in their lives?'
'Yes.'
'Do they respond to a challenge?"
'Yes.'
Might you be in favour of reintroducing National Service/"
'Yes.'
…
'Mr Woolley, are you worried about the danger of war?'
'Yes," I said quite honestly.
'Are you unhappy about the growth of armaments?'
'Yes.'
'Do you think there's a danger in giving young people guns and teaching them how to kill?'
'Yes.'
'Do you think it wrong to force people to take up arms against their will?'
'Yes.'
'Would you oppose the reintroduction of National Service?'
I'd said 'Yes' before I'd even realised it. …"
(Lynn & Jay 1989)

The example in Box 1 also demonstrates a different phenomenon. It shows that small changes in context even within a situation can trigger different schema and lead to the expression of different views. It is quite common for people to express different perspectives on the same issue depending on which schema is activated (Tourangeau 1987:157).

For research interviews it is also important to understand that each schema constrains the memories available to the individual. A small amount of memory is activated in short-term memory. There is also 'automatic' access to elements in long-term memory that are associated with the active schema (Rutherford 2005). However, access to memories that are not associated with the active schema is more difficult and less likely to be complete or accurate. Furthermore, explicit searches of long-term memory tend not to retrieve details of specific events. Instead they retrieve a generalized understanding of similar events (Strube 1987: 89).

It is not surprising then that there can be significant differences between I what people say about their behaviour in interviews and their actual behaviour.

Projection

For market researchers the difference between survey data and actual purchases was problematic. The difference was taken as an indication that direct questions were not able to reveal some attitudes and motivations that affected purchasing behaviour.

In response, Haire (1950) used projective stimuli to elicit information about the 'hidden' attitudes towards instant coffee. Direct questioning in surveys suggested that while instant coffee was convenient and cheap many people didn't buy it because they didn't like the taste. Haire wasn't satisfied with that explanation and asked people to look at two shopping lists and then to describe the two different shoppers. The two lists are shown in Box 2 below. They are identical except that one has instant coffee and the other has ground coffee.

Box 2. Haire's Shopping Lists

—Pound and a half of hamburger	*—Pound and a half of hamburger*
—2 loaves Wonder bread	*—2 loaves Wonder bread*
—bunch of carrots	*—bunch of carrots*
—1 can Rumford's Baking Powder	*—1 can Rumford's Baking Powder*
—Nescafe instant coffee	*—1 lb. Maxwell House Coffee (Drip Ground)*
—2 cans Del Monte peaches	*—2 cans Del Monte peaches*
—5 lbs. potatoes	*—5 lbs. potatoes*

The responses were very revealing. The instant coffee shopper was largely characterized as a poor housekeeper, sloppy, lazy, a poor planner,

spendthrift and either single or as ‘not a good wife.’ The person who shopped for ground coffee was the opposite.

The use of a projective stimulus revealed the emotional connotations people applied to the use of instant coffee. It allowed the researchers to understand some of the ‘hidden’ assumptions and prejudices that influenced purchasing behaviour.

Defining projective stimuli

Catterall & Ibbotson (2000) define projective techniques as ones that present participants with ambiguous stimuli that the participants “need to make sense of, by drawing on their own experiences, thoughts, feelings and imagination.”

There is a wide range of projective stimuli. The earliest stimuli used in psychology were the Rorschach inkblots (developed in 1923) and word association. Thematic Apperception Testing (TAT) is used widely in both psychology and for research interviews. TAT uses pictures or photographs as a stimulus and asks the respondent to tell a story about or describe characteristics of the person or figure represented in the picture. Other techniques are more “expressive” in which the stimulus is a task to create a story or a picture (Donoghue 2000).

The use of projection in market and social research has been largely heuristic without a sound theoretical base. The few explanations proffered for how projection works are based on psychiatric notions of defence mechanisms (Donoghue 2000). Such explanations provide no guidance for how we might improve interview techniques.

The schema concept offers a more powerful explanation that may be developed to help us refine our techniques and improve the accuracy of data collection and research.

Schema in Projection

If we go back to Haire’s (1950) shopping lists we can see a number of important characteristics. First, the data being collected are not what people say about themselves. Instead, the data are the underlying assumptions and prejudices revealed through the process.

Second, the task he was asking people to perform was quite different from the task of providing an answer to a question. He was consulting with people about their interpretations of the stimulus. He was asking his ‘consultants’ to identify implicit connections rather than facts of judgements.

Third, the task was focused on what the consultant sees right now. The broader context of the investigation is not forgotten but it is secondary. His consultants are not being asked to recall facts or voice judgements about events that occurred, or may occur, outside of the research context.

Fourth, logical consistency is secondary to coherence of the response. In this context, coherence relates to their understandings of what makes a good housekeeper or a bad one. Coherence relates to what the consultant 'knows' (gut feeling, intuition) about which things go together; patterns of behaviour; personality structures and so on.

Interestingly, cognitive science suggests that asking people to complete an unfinished stimulus presents a perceptual task (Rutherford 2005: 286-288, 291). The perceptual task triggers implicit memories of which the individual is not aware. The process is very quick because it uses well-established links between memories; links based on familiarity and lived experience of the person.

Perceptual tasks are differentiated from conceptual tasks in which individuals are asked to provide a response to a coherent stimulus, such as word association. Conceptual tasks rely more on explicit memory and focuses on concepts that are not part of the immediate context. They are inherently slower, more conscious and less likely to reflect everyday responses based on experience.

More research is needed to understand how schema work in research interviews but the distinction between perceptual and conceptual tasks may be important. Social and market researchers have tended towards TAT or the more expressive techniques because, heuristically, they seem to be more effective. It is possible that those projective techniques that use unfinished stimuli are drawing on people's experiences to interpret the stimulus. The very uncertainty of the stimulus drives the consultant to activate a schema that is common in their experience; that is to rely on an everyday schema (Tourangeau 1987:157).

Schema in Interviews

A different type of schema is activated in standardised interviews. The 'Yes Prime Minister' excerpt above is not a good example of research interviews, but it does reveal some common dynamics.

In the research interview schema coherence is about consistency of the argument (using one's head). Interviewees will use the information in previous answers to construct later responses. They will also use very recent experiences to construct answers (Strube 1987:96). However, the corollary is that contradictory memories or judgments are generally not accessed.

The way the schemata develop to give logical consistency of answers is typical of the dynamics of survey interviews (Tourangeau 1987:153). There has been little similar research into qualitative interviewing but my own experience suggests it happens in qualitative research as well.

Answering a direct question is a conceptual task even more demanding than word association discussed above (Rutherford 2005:291). The task has more conscious elements and so is slower, less automatic and also

less like everyday situations. Crucially, the more explicit the task, the more it is influenced by the presenting context.

Indeed, Schwarz and Hippler (1987:166-171) show that interviewees use the range of response alternatives presented in a question to inform their answers. Responses showed a normal bell curve centred on the middle of the range regardless of the range. They suggest that asking a question tends to raise other issues for interviewees: “Why are you asking that?” “Where do I fit compared to other people?” “How do others respond?” When the interviewees frame their answers they use the information in the question to develop their response. They infer information about the broader social context from the question and preceding questions (Schwarz and Hippler 1987:170).

I am not suggesting that direct questions always produce inaccurate data. I am arguing that we need to be aware of the schema activated in an interview and consider both when it is appropriate to use direct questions and how to structure our questions to collect the best data. I suspect that direct questions may be more accurate when the behavioural context being investigated has similar characteristics to the interview context. One obvious example is election polling. However, I think one needs to be very careful about only using direct questions where the behavioural context is antithetical to the interview situation. For example, where the interviewee in everyday life may face pressures that are not present in the interview.

Conclusion

This paper is a preliminary exploration of ideas about how schemata affect interview responses. Individuals need to be able to act without pondering every issue. Our brains have limited processing resources. We do not consciously search for relevant memories or consider all aspects of a situation. Instead we use schemata to provide a short cut for action and thought.

The schema activated with projective stimuli trigger implicit memories. Those memories and attitudes are based on everyday experiences and are likely to reflect the individual’s typical behaviours and attitudes.

However, implicit memories are not readily available for conscious consideration and are unlikely to be provided in response to direct questions. Direct questions tend to trigger schema that emphasise the logical consistency of answers. The emphasis on logical consistency means they are less likely to reflect typical behaviour or attitudes.

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[i] This version of the paper is slightly different from the conference presentation. The conference presentation was partly interactive and included a short video excerpt.