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# 'It ain't necessarily so': eliciting hidden knowledge and the role of schemata in data collection<sup>1</sup>

A problem for evaluators and researchers is that what people 'say' in an interview context is often different from what they do in the everyday world, *in vivo*. Elicitation techniques appear to be effective at revealing 'hidden' data but the theories about why they do so are inadequate. This paper examines literature from cognitive science, schema and survey research to identify ideas that may help explain why elicitation techniques work and how we can improve their use. The schema concept provides a testable mechanism for how elicitation may function and the conditions under which elicitation might work. It also raises questions for evaluators about the variability of people's responses in different contexts and the influence of the interview context on the results obtained.

## Introduction

A problem for evaluators and researchers<sup>2</sup> is that what people 'say' about phenomena in an interview context is often different from what they do in the everyday world, *in vivo* (e.g. Briggs, 1986; Bryan, Dweck, Ross, Kay, & Mislavsky, 2009; Falk, Berkman, & Lieberman, 2012; Krosnick, 1999; Kvale, 1996; Schostak, 2006).

For example, Haire (1950) reported that in response to a questionnaire about why people did not use instant coffee, respondents generally answered they did not like the flavour. Haire suspected there was more to it than that and borrowed 'projective techniques'<sup>3</sup> from clinical psychology. He provided 50 people with two shopping lists that differed only in one item (instant coffee or drip filter coffee). He asked the people to describe each of the two women who bought the groceries on the lists. The descriptions of the two imaginary women were very different. The 'instant coffee' purchaser was described as: 'lazy', 'not a good wife', 'failing to plan household purchases' and so on. The drip filter purchaser





was ascribed the opposite characteristics: ‘a good wife’, etc. There was a constellation of negative attributes associated with buying instant coffee that were not available to direct questions in a survey and those negative attributes appeared to have a major impact on purchasing decisions.<sup>4</sup>

Since Haire’s article, the use of elicitation techniques has spread in market research (Breivik & Supphellen, 2003; Donoghue, 2000; Jacques, 2005), education research (Catterall & Ibbotson, 2000), social research (Jenkins, Bloor, Fischer, Berney, & Neale, 2010; Mannay, 2010), and evaluation (Hurworth, Clark, Martin, & Thomsen, 2005; Hurworth & Sweeney, 1995; Patton, 2002; Smith, Gidlow, & Steel, 2012). Similar techniques are used in cognitive psychology to elicit implicit information or memories (Rutherford, 2005).

Unfortunately, with notable exceptions (Boddy, 2008; Breivik & Supphellen, 2003), there is very limited research into the efficacy of elicitation techniques as a research tool<sup>5</sup>. Moreover, the literature on how elicitation techniques work is sketchy and provides very little foundation for testing and improving the use of elicitation techniques. My thesis was a first step in developing a cognitive model to explain how elicitation techniques work and to identify the conditions that might allow us to improve the use of such techniques.

My premises are that:

- cognitive processes and structures below conscious awareness have a significant impact on how individuals behave (Kahneman, 2011; Schwarz & Hippler, 1987; Sudman, Bradburn, & Schwarz, 1996; Tourangeau, 1987)
- the implicit cognitive processes underlying everyday behaviour are inherently different from those that inform responses in evaluation and research interviews
- the schema<sup>6</sup> concept provides a useful explanation of the cognitive mechanisms underpinning responses to elicitation tasks (Haussman-Muela & Ribera, 2003; Huesmann, 1998; Norman & Shallice, 1986; Schütz, 1967) and offers a model to help practitioners understand and improve the use of such techniques.

Most thinking, knowledge, behaviour and decisions are automatic, quick and have the characteristics of intuition, little or no effort and no voluntary control (Kahneman, 2011). Our everyday behaviours and thinking are largely based on implicit knowledge that is not brought to conscious awareness. This implicit knowledge is ‘chunked’ into discrete schemata: mental representations about whatever we are thinking about or acting towards. Such schemas allow us to act without consciously thinking about what we will do and provide the foundation for our conscious thoughts.

In this paper I will outline some of the diverse literature that informed my thinking before describing the fieldwork for my thesis. Most of the paper will focus

on what conclusions can be drawn from the study and identifying future research questions.

## Elicitation

Elicitation techniques are characterised by the presentation of an impoverished stimuli or task to which the participant is asked to respond (Rutherford, 2005). The aim of such techniques is to elicit responses that are not normally expressed in discourse. In some uses the techniques specifically target implicit knowledge. There is a very wide range of techniques including: word association, inkblots, drawing pictures and many more.

There is substantial literature on testing elicitation techniques as a diagnostic tool in clinical psychology. However, the use of elicitation techniques as research tools has been largely heuristic and based on their apparent utility. For example, Haire’s (1950) insights proved to be an effective way of selling instant coffee but there has been very limited systematic testing of the effectiveness of elicitation techniques as research tools (with the notable exception of Breivik and Supphellen (2003) in market research).

While there is some support for the efficacy of elicitation techniques (Boddy, 2008; Breivik & Supphellen, 2003), different techniques elicit different product attribute sets (Breivik & Supphellen, 2003). Some elicitation techniques may provide some insight into the perceptual frames that influence behaviour *in vivo* (Jenkins et al., 2010) but we cannot assume that the data collected from elicitation techniques necessarily reflect behaviour or attitudes that might be expressed *in vivo*.

Practitioners need a solid rationale for selecting elicitation techniques based on sound theory and testing of techniques. Unfortunately, I could find no credible theoretical basis for the use of elicitation techniques in the literature. There are some theories but they are either very sketchy or they do not hold up to close scrutiny. For example, the development of ‘projective techniques’ in clinical psychology was largely premised on the now discredited projective hypothesis. Some researchers still refer to the projective hypothesis arguing that people project aspects of their personalities on to others as a defence mechanism (Boddy, 2008; Donoghue, 2000) but the evidence for the projective hypothesis is weak at best (Lilienfeld et al., 2000).

Other researchers refer variously to elicitation techniques as:

- ‘filling the gaps with hidden knowledge’ (Catterall & Ibbotson, 2000; Mannay, 2010) but without any explanation of how that knowledge exists or how it is elicited
- ‘eliciting similar thinking patterns’ (Breivik & Supphellen, 2003; Jenkins et al., 2010).



None of the authors have explored how ‘relevant’ knowledge is activated by elicitation techniques or how different techniques might produce different responses. To do so we need to explore cognitive processes to see how such processes might apply in a research interview using elicitation techniques.

### Cognitive science

An early and influential model in cognitive science is known as cognitive information-processing. It gave rise to much of the language used today. The model was based on an analogy with computing. A key idea was that there is a distinction between ‘long-term memory’ and a ‘workspace’. The workspace included both a ‘central executive’ and a ‘short-term memory’ store (Hitch, 2005).

The model allowed the discovery of certain characteristics perhaps most importantly that our capacity for explicit thinking is severely constrained. Wen (2015) suggests there are severe limits on what can be processed at any one time (around four ‘chunks’ of information). There also appear to be limits on how long information can be retained in ‘short-term memory.’ Explicit memory fades within five to six seconds unless it is refreshed from ‘long-term memory’ (Hitch, 2005; Wen, 2015).

While the information-processing models have been useful there are problems with the approach. Perhaps the most significant is that the models emphasise explicit, serial, controlled processing. A consequence of such an emphasis is another assumption that brain processes require some form of centralised control<sup>7</sup>.

The emphasis on explicit thinking and centralised control is not supported by the data. Observations from neuroscience show that most brain activity does not reach consciousness (Dehaene, Changeux, & Naccache, 2011). Most brain activity is implicit and we are not aware of it. Indeed, explicit thinking has to be specifically triggered. Explicit thinking does not occur without particular patterns of widespread activation across the brain (Andrade, 2005; Andrés, 2003; Baars, 2005)<sup>8</sup>. The patterns start in the thalamus and spread through the cortex, including the lateral prefrontal and posterior parietal cortices.

Such findings led neuroscientists to develop models such as global workspace theory (Baars, 2005) and the global neuronal workspace model (Dehaene et al., 2011). Such models argue that activation patterns for explicit thinking do not occur in isolation, they emerge from implicit cognition. In other words, implicit cognition provides a base from which explicit thinking *may*, occasionally, arise.

Implicit thinking is also a key concept in psychology. It led to the development of a number of ‘two systems’ models, most notably Kahneman’s (2011) System 1 and System 2. Kahneman (2011) argued that much of our

behaviour and judgements are automatic and routine. We do not stop to think about things: we ‘know’ that someone is angry just by looking at them; we just turn the wheel to steer round a corner without thinking how to do it or how far to turn the wheel. There are good evolutionary reasons for us not to stop and think. At its most extreme, someone who stops to think when faced with a rhinoceros on the charge is not likely to survive. Similarly, when asked to think we use implicit knowledge first and only engage explicit thinking when there is an issue with our implicit knowledge. It is important to note that we are, by definition, unaware of our implicit thinking and are unable to describe or explain it to ourselves or to others.

### Implications for evaluation and research interviews

The implications for evaluation and research interviews generally are profound. It brings into question many of the assumptions underlying the literature on interviews. The assumptions brought into question include:

- people have memories of events/facts etc.
- people ‘hold’ attitudes
- memories and attitudes can be retrieved from memory more or less intact (memory is an archive from which data can be retrieved)
- people use organised search and retrieval process to retrieve memories.

In the survey literature some writers have made those assumptions explicit and developed various cognitive question-answering models (Sudman et al., 1996; Tourangeau, 1987; Tourangeau & Yan, 2007). Many such cognitive question-answering models assume that answering questions is a rational problem-solving process with serial, step-by-step, cognitive activity. While there is variation across the models, there is general agreement in the literature that the following steps occur:

- interpret the question
- search for and retrieve information (about previous judgements or information that would assist in making a judgement)
- form judgements
- edit the answers
- report the answer.

However, the cognitive question-answering models are very difficult to sustain when held up against the data from cognitive science and psychology. For example, it is difficult to see how the processes outlined in the cognitive question-answering models can be managed under the severe processing limitations of the workspace. Nor can the hypothesised processes be easily reconciled with the data that shows that explicit answers emerge from implicit



knowledge. Indeed, Sudman et al. (1996), contradict their own model when they argue that survey respondents take cognitive ‘shortcuts’, known as heuristics, and are ‘cognitive misers’ (Krosnick, 1999). Instead, we are generally satisfied with the first acceptable answers we can develop. Nor are the explicit processes that are integral to the cognitive question-answering models helpful in explaining how the elicitation of ‘hidden’ or ‘implicit’ knowledge might work. We need to understand more about how ‘knowledge’ is ‘recalled.’

### *Nature of memory*

Before we can understand ‘recall’, we need to understand what is ‘recalled’, what is ‘memory.’ Cognitive scientists have characterised ‘memory’ in different ways. One important distinction is a distinction between procedural memory and declarative memory (Rutherford, 2005). Procedural memory is our knowledge of how to do things. It is largely implicit and not brought to conscious awareness. Declarative memory is knowledge about things and may be either implicit knowledge or ‘remembered’ explicitly.

Another distinction was between semantic memory and episodic memory (Brewer, 2003; Rutherford, 2005). Semantic knowledge is characterised as abstract knowledge about a class of things, such as the concept ‘cat.’ They are generalised understandings about phenomena. We just ‘know’ these things without necessarily recalling when or how we learnt them. Episodic knowledge is knowledge of a specific event or fact that has been remembered.

However, episodic knowledge does not appear to exist independently of semantic knowledge. We recall semantic knowledge before episodic knowledge and semantic memory is stronger and more robust than episodic memory (Rutherford, 2005). Indeed, episodic knowledge appears to be reconstructed from semantic knowledge. In other words, knowledge is organised semantically.<sup>9</sup>

When thinking about ‘recall’ we also need to keep in mind that ‘memory’ is the result of an organic response in the brain. It is generally thought that ‘memory’ is the reactivation of a particular pattern of neuronal firing. Each neuronal pattern reactivated can be treated as a representation, or concept; and each concept can be used to respond, act or think about a phenomenon or situation. Such reactivations occur because each time a pathway is activated, it becomes easier to re-activate with the right stimulus (Andrade, 2005; Rutherford, 2005). Other factors such as recency of activation and strength of activation probably affect re-activation as well.

Crucially, a re-activation is triggered by other brain activity. In other words, each reactivation of a pattern, each instance of recall, is stimulated from some elements of the current brain activation patterns. It is likely that a number of different patterns may stimulate the recall

of a particular concept but each concept recalled is the result of a link from the current activation state of the brain. Functionally this means that each concept recalled is recalled because it is linked to the concepts currently active in cognition (Rutherford, 2005). Brockmeier (2010) goes further and suggests that the overall pattern of neuronal activation in the brain also affects the ‘recall’ process. He argues that such overall activation patterns are extremely unlikely to be identical every time a ‘memory’ is ‘recalled’ and so the reactivation of particular pathway occurs in a different context each time. The ‘memory’ pattern is almost certainly slightly different each time it is re-activated (Brockmeier, 2010). In other words, memory does not exist waiting to be accessed; it is re-constructed in the moment (Rathbone, Moulin, Conway, & Holmes, 2005; Brockmeier, 2010). A ‘memory’ is likely to be different, possibly in very subtle ways, each time we ‘recall’ it. Our recall is strongly influenced by the current context. It is not surprising therefore that eyewitness testimony is extremely unreliable (Brewer, Weber, Wootton, & Lindsay, 2012; Geiselman, Fisher, MacKinnon, & Holland, 2003) and raises questions about the reliance of researchers and evaluators on explicit ‘memory’, knowledge and attitudes.

### *Recall*

How then is knowledge recalled and used in contexts such as a research interview? Again there appear to be two types of recall: ‘knowing’, also called ‘recognition’, which is implicit and just comes to us and ‘remembering’ or ‘identification’ in which we consciously search for ‘memories’ (Rutherford, 2005).

The first process is the most common. We recognise things without searching for the answer. At that moment, in that context, we simply ‘know’ X or Y, such as that  $2 \times 2 = 4$  implicitly without the need for conscious thought (Kahneman, 2011b). Recognition is closely related to perception. We only become aware of an object after we have identified it as a ‘cat’ or a ‘bus’ and assigned meaning to it; we have to ‘recognise’ an object before we can become aware of it (Pike & Edgar, 2005). We can, however, recognise an object as a ‘mystery’, as something that is unidentified.

The systematic retrieval processes called ‘remembering’ are much less common. Such processes are consciously directed, goal-oriented (Andrade, 2005; Rathbone et al., 2005) and the products are explicit memories (Andrade, 2005). Importantly, intentional recall is necessarily restricted by the very limited capacity of the workspace. Furthermore, ‘remembering’/ identification starts from the items currently in awareness. It uses the existing semantic connections between the currently activated concepts to activate related concepts (Rutherford, 2005).

In other words, we do not consciously recall things that are not semantically connected to the currently



activated concepts. Our ability to recall events, judgements, attitudes, etc. is constrained by the current context and the meanings we ascribe in that context. Recall is also constrained by the strength of semantic connections. I am sure we have all experienced struggling to remember something even though we are thinking of related concepts. In such cases the neuronal connections are not strong enough to generate conscious recall.

An important part of the context that affects recall is our current conception of 'self.' Rathbone et al. (2005) argue that all 'recall' is premised on current goals and notions of self. They are premised on the 'working self'. Their argument is consistent with another argument that there is implicit self-monitoring in language production (Garrod & Sanford, 2005). In other words, current self-concepts and current personal goals are an integral part of the way people construct explicit knowledge. Information that does not fit the current 'working self' simply never makes it to conscious attention. It is not 'remembered'. The effects of self-concepts occur below conscious awareness, they are implicit but they affect all of our explicit thinking and behaviour. There can of course be conscious attention to self-presentation as well (Garrod & Sanford, 2005) but the starting point for explicit thinking and behaviour is implicit 'knowledge' constructed out of the current self-concept.

What do the findings of cognitive science mean for evaluation and research interviews?

First, the answers we receive in interviews do not exist independently of the interview; they emerge from the context and are constructed in that context. Similarly responses in other contexts are constructed in those other contexts and may bear little relation to the responses we receive in interviews.

Second, elicitation techniques attempt to use 'recognition' to tap into what people 'know' in the current context, rather than consciously 'remembering.' I will come back to this point later in this paper.

Third, in order to improve our use of interview techniques, we need to understand how knowledge is organised and how it is accessed through elicitation.

### Schema concept

It is worthwhile 'remembering' here that at any one time we can only consciously retain small packages of information. We also have very limited abilities to process the information. We need a way to manage our recollections that minimise the use of our scarce conscious resources. It was such factors that led cognitive scientists (e.g. Hitch, 2005) to use the concept of schema to describe such information packets.

The original concept of schemata goes back to Plato. The modern usage of the schema concept developed independently from two main sources: Schutz's (1970) work on the phenomenology of the social world and

Bartlett's work on reconstructing memory (Brewer, 2003; Brewer & Treyns, 1981). In a series of experiments Bartlett presented participants with information (stories, etc.) that was unfamiliar to their cultural backgrounds and expectations. Bartlett was able to establish that individuals' existing schemata and stereotypes influence not only how they interpret 'schema foreign' new information but also how they recall the information over time. People are more likely to notice things that fit into their schema; they also 'recall' objects that they expect to see but that were not present (Brewer, 2003; Brewer & Treyns, 1981); and they ignore or just do not notice things that do not fit their schema (Chabris & Simons, 2010).

There are many different understandings of schema but a schema is commonly thought of as a pre-packaged, coherent grouping of a small number of concepts. Most of the 'knowledge' in a schema is implicit and only brought to attention when required. It is this implicit 'knowledge' that makes it possible for us to respond to situations without explicit thinking. For our purposes, we can treat a schema as a cognitive response to a presenting situation. The schema provides a framework for action and thought. It triggers implicit and explicit processes such as interpretations, emotions and behaviour. Schemata underlie our explicit thoughts, verbal behaviour and motor-sensory actions. Examples include automatic behaviour such as driving a car.

A weakness in many schema models is that understandings of how a schema is activated are generally poorly developed and often rudimentary. Notable exceptions include the work of Norman and Shallice (1986) and Huesmann (1998). These two models both assume widespread, implicit activation of multiple schemata, only one of which emerges to inform action and explicit thinking. The two models also assume that emergence is largely self-organising through the interaction of implicit processes.

The schema concept is not widely discussed in the research methods literature<sup>10</sup>. There is even less discussion linking the schema concept to elicitation techniques. I could only find two references that linked the schema concept to elicitation. Smith-Jackson and Hall (2002) used elicitation techniques to capture schemas about sign design. Jenkins et al. (2010) saw the schema concept, in passing, as a possible explanation of how elicitation techniques work. They did not, however, explore the details of how schemata might influence the data elicited, nor did they use the schema concept to consider how to improve elicitation techniques.

I suggest that the schema concept allows us to improve our understanding of behaviour, responses to direct questions in interviews and responses to elicitation tasks. It provides a vehicle for thinking about the differences between such behaviours and the impact of such differences on data collection.



## Fieldwork

I conducted a very small pilot study to test the concept validity of some of the ideas emerging from the literature review. Eight participants were each engaged in a single interview with two parts:

- an initial interview using thematic apperception testing technique (Boddy, 2008) captured on video
- a debrief interview in which the video was reviewed and verbal protocols (Sudman et al., 1996) were used to explore the cognitive processes used in the initial interview.

Each participant was interviewed separately. In the first part of each interview I laid out in random order an array of 15 photographs presenting the head and shoulders, or torso and head of different individuals. Each participant was asked to identify two photographs, one who was the ‘best’ user or commissioner of an evaluation and the other, the ‘least likely to use the evaluation intelligently’ or the ‘worst’ client user<sup>11</sup>. Once the two photographs had been selected (the selection phase), each participant was asked to describe the person depicted in the photograph (the elaboration phase).

One of the participants (‘Jack’<sup>12</sup>) did not do what I expected. He used a very explicit and logical process to select the photographs. It took him five minutes and 24 seconds to make the selections. In making those selections, he identified the photographs as depicting particular characteristics. Jack demonstrated that he used schemata around what constituted a good evaluation; what caused people to be unable to act in ways that supported a good evaluation; and understandings about gesture and posture.

All other participants made their selections within seconds, one candidate (‘Helen’) taking only five seconds to pick up each photograph. Such participants reported ‘recognising’ the different types. The participants reported that the cognitive decisions were made ‘immediately’ and appeared to be largely implicit and driven by schemata. Some photographs were dismissed immediately and others were immediately identified. They appeared to have propositions, around the characteristics of ‘best’ and ‘worst’ clients and interpretations of demeanour, clothing and posture.

In several cases, the participants reported having recognised more than one candidate so they then spent some time deciding which of two candidates they would pick up. Other participants also reported uncertainty about how to justify the choice, “I was trying to work out what to say about them” (‘Brian’); and concerns that they were ‘stereotyping’. Furthermore, the process of explicitly choosing between candidates did not entail computation or other rational decision-making processes. Instead, the explicit thinking had the characteristics of abductive reasoning (Reyes-Cabello, Aliseda-Llera, & Nepomuceno-Fernández, 2006) using heuristics (see Kahneman, Slovic, & Tversky, 1982).

In the elaboration phase, all of the participants were also able to develop relatively elaborate descriptions of the people depicted in their selected photographs and their purported behaviour. Jack provided a relatively simple description but then refused to elaborate further, saying he had no evidence for further descriptions. The other seven continued to develop the descriptions through the initial interview and even in the debrief interview. Six of those seven participants, like Jack, reported feeling uncomfortable about the ease with which they were able to develop such descriptions, several of them labelling their actions as ‘stereotyping’, but they nevertheless continued to develop the descriptions throughout the interview.

## Discussion

For all the participants except Jack, the task of having to choose two photographs appears to have emphasised ‘recognition’ processes using implicit knowledge in the identification of candidate photographs. Explicit thinking occurred after the fact of recognition and, in the selection phase, was largely limited to monitoring the validity of their decisions or using heuristics to choose between candidates.

Some of the explicit thinking appeared to be based on self-presentation. The expressions of discomfort during the elaboration phase reveal that the participants were explicitly considering what they were doing during this stage of the initial interview. Their comments suggest that they were concerned that what they were doing did not fit with their perceptions of themselves as ‘rational, unbiased’ individuals. However, for most of them, such considerations did not stop them from developing and reporting their implicit interpretations of the stimuli. There was a gradual increase in expressed concerns about how they were presenting. Except for Jack, the initial identification of the candidate photographs appeared to have been made largely without reference to self-presentation. Between recognising candidates and picking up the photographs, some participants did report considerations that related to self-presentation. However, such considerations had a relatively minor impact on selection. During the elaboration phase, expressions of self increased and increased further during the debrief interview.

The nature of the elicitation task may have been significant. While the overall interview context is ‘about’ the participant, the starting point for participants is a request to ‘do’, to complete a task, selecting a photograph, for which they have only impoverished information in limited time. There also appears to be a connection between the extent of reflection possible in the task and the impact of self-regard on the presentations. It may be that notions of self are more likely to influence one’s judgements as one’s capacity for reflection and cognitive resources increase.



There may also be some connection with Csikszentmihalyi's (1975) work on the effects of absorbing tasks on cognition. It may be that when procedural schemata predominate, 'doing' becomes the principal focus of the individual and there are few resources available for reflection, or for self-concepts to influence the 'doing'.

## Conclusion

The pilot study tends to support the notion that a number of related schemas are present and used implicitly in the selection phase, the elicitation task. The same schemas appear to inform the more explicit elaboration phase. The schema knowledge was also used in the elaboration phase and strongly influenced the concepts presented to the interviewer. Such knowledge was subject to self-monitoring, particularly in the elaboration phase but participants generally did not set aside the current schemas.

The implications for practitioners are profound. The literature suggests that schemas are heavily context dependent. If so, we have to ask the question how do we know whether the schemata dominant in an interview are useful representations or predictors of the behaviours, understandings and experiences of the participants in everyday life? There are problems regardless of the type of interview.

First, the schemata in interviews cannot be perfect representations of those present in the subject of inquiry because the interview context is inherently very different from the everyday contexts; and much of the detail of everyday contexts is not present in an interview (Jenkins et al., 2010).

Second, there is too much variability in the activation of schemata. Even identical questions in different surveys may generate different answers from the same individual (Sudman et al., 1996; Tourangeau, 1987). How then can we assume that the schema present in the interview context bears any relation to the everyday context?

Moreover, I will activate different schemata in everyday situations depending on context, mood and so on. For each individual, the schemata activated in any specific 'situation of action' will vary from occasion to occasion and situation to situation (Huesmann, 1998). In some situations an individual may be aggressive while in other similar situations that same individual is not. Behaviour and expressions of thoughts are highly variable.

Nevertheless, as Jung (see Myers, 1987) pointed out, people do exhibit preferred patterns of behaviour and experience<sup>13</sup>. Each of us has patterns of behaviour or response that occur more often than alternatives. For example, while some people rarely activate aggressive schema, other people do so frequently. However, even when the situation appears to be very similar, aggressive individuals do not always activate aggressive schemas (Huesmann, 1998; Huesmann & Guerra, 1997).

The variation in an individual's responses raises a number of different challenges for practitioners. Practitioners may need to consider more carefully what sort of data will best address the research questions. Some research and evaluation questions can only be fully addressed by identifying the range of an individual's responses in different contexts. Other research or evaluation questions may require us to understand the drivers of such variation in responses. In other circumstances we may need only to understand which responses are most likely, or maybe the probability of particular responses.

We also face a challenge to design interviews that will enable us to collect such data. We need to design interviews that will trigger schemata similar to those activated in the everyday situation that we are interested in exploring. Such design issues apply even when we are interested in exploring the variation in responses; or declaratory knowledge, what people 'say' about phenomena. We therefore need to understand which designs and techniques are best able to trigger schemata similar to those active in the subject of inquiry.

The literature and my preliminary study suggest some guidelines for the use of elicitation techniques:

- task congruity with personal experiences of the participant so that the schemata are similar to those used in the situation of interest (Barter & Renold, 1999; Breivik & Supphellen, 2003; Jenkins et al., 2010)
- ensure clarity and comprehensibility of the task (Barter & Renold, 1999; Breivik & Supphellen, 2003)
- provide plausibility of the task (Barter & Renold, 1999; Ellsberg, Bradley, Egan, & Haddad, 2008; Jenkins et al., 2010)
- use impoverished stimuli that require the participants to add constructs (Barter & Renold, 1999; Rutherford, 2005)
- provide a structure for the stimulus that limits explicit processing, or alternatively tests to ensure that the responses are implicit.

## Analysing elicitation data

There are also implications for analysis of interview data regardless of the techniques used.

First, the starting point for our analysis should be that the interview context is very different from the phenomenon being studied. The schemata used in an interview will be largely instituted by that context. They will also be intrinsically less detailed about the phenomena of interest than schemata activated in the phenomena of interest. In other words, practitioners cannot assume that the participant's schemata in the evaluation or research interview match the schemata they use in the everyday 'real world.' At best the schemata may



be sufficiently similar to give us some insight into the perceptual frames active in the situation of interest.

Second, practitioners also need to take into consideration the variability of schema activation in everyday life. Even if the elicitation taps into a schema very similar to the most prevalent schema in the situation of interest, it will not accurately predict the perspectives used in every situation of interest. There is a strong case for practitioners to follow Hollway and Jefferson (2003) and attempt to collect a range of inconsistent understandings from each participant so as to form a more complete understanding of the range of behavioural and cognitive responses. Consequent on that notion is that we may want to understand more about which understandings are more frequent than the others and the circumstances that contribute to variations in the understandings a person applies to similar situations.

Third, the distinction between procedural and declarative knowledge (Briggs, 1986; Rutherford, 2005) may be significant. One implication of that distinction is that we are unlikely to obtain good data about procedural knowledge, or behaviours, from direct questions alone. It seems probable that the distinction between procedural and declarative knowledge affects research interviews but it is not at all clear how it plays out. It is a subject for further research but also flags the importance of gaining an understanding of the nature of the schemata activated in both the situation of interest and in the research interview.

Fourth, our own practice as evaluation and research practitioners is necessarily affected by schema. We need to recognise that there are untested assumptions, implicit expertise (or tacit knowledge) and other schemata operating in design, data collection, analysis and communication. We can never be certain that we understand the 'value' or 'worth' or 'merit' of any intervention (Harris, 1968; Scriven, 1998). Our reports should acknowledge that uncertainty and emphasise the nature of our 'knowledge.'

The schema concept provides a testable mechanism for how elicitation may function and the conditions under which elicitation might work. It allows us to think about means for improving the use of elicitation techniques.

### Acknowledgments

A version of this paper was presented at the 2016 Australasian Evaluation Society International Conference in Perth, Western Australia. Some elements of this paper were presented orally at the Melbourne Educational Research Institute's Graduate Research Conference in Melbourne on Saturday 5 December 2015. The paper outlines key arguments from my thesis *Insight through Uncertainty: a review of the literature on the effects of cognitive processes and schema on responses to elicitation ('projective') techniques in evaluation and research interviews*.

### Endnotes

1. With apologies to Ira Gershwin for the title.
2. For convenience I will use the term 'practitioners' to refer to both evaluators and researchers.
3. For a range of reasons, detailed in my thesis, I prefer to use the term 'elicitation' rather than 'projective'.
4. Since Haire's study, advertising for instant coffee has largely presented a very positive picture of the purchaser. The change in strategy led to a significant shift in purchasing decisions and the advertising strategy is still used even today.
5. There has, however, been significant, though contested research into their effectiveness as a diagnostic tool in clinical psychology. Lilienfeld, Wood, and Garb (2000) reviewed the research into clinical use and concluded that in principle the techniques were effective at eliciting implicit information but only some of the interpretive tools provided reliable diagnoses.
6. Schema is the singular form and schemata, or schemas, are the plural forms.
7. In the early models it was assumed consciousness and awareness, i.e. explicit thinking, were centralised in the 'workspace' (Hitch, 2005). There even appeared to be a locus for the 'workspace' in the left ventrolateral pre-frontal cortex. When it became obvious (see Endnote 8 below) that consciousness was associated with widespread brain activation, proponents of the information-processing models sought a mechanism to control such variegated processing and manage access to long-term memory.
8. A recent study (Silverstein, Snodgrass, Shevrin, & Kushwaha, 2015) suggests that the neural characteristics of conscious processing are probably even more complex. Very similar widespread activation patterns have been associated with pre-liminal responses to stimuli; that is the activation occurs before the brain can become conscious of the stimulus.
9. In fact, various writers (e.g. Rathbone et al., 2005; Rutherford, 2005) have argued that while the distinction between semantic and episodic memory may be heuristically useful, it probably has no basis in fact. All knowledge is probably organised semantically. In so far as episodic memory is 'stored' in the brain, it does so as part of a generalised category of like things.
10. Exceptions in the survey literature include Bodenhausen and Wyer (1987); Hastie (1987); Sirken et al. (1999); Sudman et al. (1996); Tourangeau (1987). Even then the schema concept is not prominent in the discussion.
11. The concepts of 'best' or 'worst' user or commissioner of an evaluation is rather clumsy. For the rest of this paper I will refer to the two categories as 'best client' or 'worst client'.



12. Pseudonyms are used throughout to refer to fieldwork participants.
13. Jung (see Myers, 1987) described such behaviour patterns as 'preferences'. His description has the advantage of suggesting alternative behaviours but possibly overplays intentionality and underplays the implicit quality of the activation process.

### Bibliography

- Andrade, J. (2005). Consciousness. In N. Braisby & A. Gellatly (Eds.), *Cognitive psychology* (pp. 545–577). Oxford: Oxford University Press.
- Andrés, P. (2003). Frontal cortex as the central executive of working memory: Time to revise our view. *Cortex*, 39(4), pp. 871–895. doi:10.1016/S0010-9452(08)70868-2
- Baars, B. J. (2005). Global workspace theory of consciousness: Toward a cognitive neuroscience of human experience. In L. Steven (Ed.), *Progress in Brain Research: The boundaries of consciousness: Neurobiology and neuropathology* (Volume 150, pp. 45–53): Elsevier. doi:10.1016/S0079-6123(05)50004-9
- Barter, C., & Renold, E. (1999). The use of vignettes in qualitative research. *Social Research Update*, (25). Retrieved from: <http://sru.soc.surrey.ac.uk/SRU25.html>
- Boddy, C. (2008). Are projective techniques actually projective or are market researchers wasting their time? *Australian Journal of Market & Social Research*, 16(1), pp. 5–17.
- Bodenhausen, G., & Wyer, R. (1987). Social cognition and social reality: Information acquisition and use in the laboratory and the real world. In H. J. Hippler, N. Schwarz, & S. Sudman (Eds.), *Social Information Processing and Survey Methodology*. New York: Springer-Verlag. doi: 10.1007/978-1-4612-4798-2\_2
- Breivik, E., & Supphellen, M. (2003). Elicitation of product attributes in an evaluation context: A comparison of three elicitation techniques. *Journal of Economic Psychology*, 24(1), pp. 77–98. doi:10.1016/S0167-4870(02)00156-3
- Brewer, N., Weber, N., Wootton, D., & Lindsay, D. S. (2012). Identifying the bad guy in a lineup using confidence judgments under deadline pressure. *Psychological Science*, 23(10), pp. 1208–1214. doi:10.1177/0956797612441217
- Brewer, W. (2003). Schema Theory. In J. Guthrie, W. (Ed.), *Encyclopedia of Education* (2nd ed., Vol. 4, pp. 1467–1469). New York: Thomson Gale.
- Brewer, W., & Treyens, J. (1981). Role of schemata in memory for places. *Cognitive Psychology*, 13(2), pp. 207–230. doi:10.1016/0010-0285(81)90008-6
- Briggs, C. L. (1986). *Learning how to ask: A sociolinguistic appraisal of the role of the interview in social science research*. Cambridge: Cambridge University Press.
- Brockmeier, J. (2010). After the archive: Remapping memory. *Culture & Psychology*, 16(5), pp. 5–35. doi:10.1177/1354067X09353212
- Bryan, C. J., Dweck, C. S., Ross, L., Kay, A. C., & Mislavsky, N. O. (2009). Political mindset: Effects of schema priming on liberal-conservative political positions. *Journal of Experimental Social Psychology*, 45(4), pp. 890–895. doi:10.1016/j.jesp.2009.04.007
- Catterall, M., & Ibbotson, P. (2000). Using projective techniques in education research. *British Educational Research Journal*, 26(2), pp. 245–256. doi: 10.1080/01411920050000971
- Chabris, C., & Simons, D. (2010). *The invisible gorilla: How our intuitions deceive us*. New York: Crown.
- Csikszentmihalyi, M. (1975). Play and intrinsic rewards. *Journal of Humanistic Psychology*, 15(3), pp. 41–63. doi:10.1177/002216787501500306
- Dehaene, S., Changeux, J. P., & Naccache, L. (2011). The global neuronal workspace model of conscious access: From neuronal architectures to clinical applications. In S. Dehaene & Y. Christen (Eds.), *Characterizing Consciousness: From Cognition to the Clinic?* Berlin: Springer-Verlag. doi: 10.1007/978-3-642-18015-6\_4
- Donoghue, S. (2000). Projective techniques in consumer research. *Journal of Family Ecology and Consumer Sciences / Tydskrif vir Gesinsekologie en Verbruikerswetenskappe*, 28(1).
- Ellsberg, M., Bradley, C., Egan, A., & Haddad, A. (2008). *Violence against women in Melanesia and East Timor: Building on global and regional promising approaches*. Canberra: Office of Development Effectiveness, AusAID.
- Falk, E. B., Berkman, E. T., & Lieberman, M. D. (2012). From neural responses to population behavior: Neural focus group predicts population-level media effects. *Psychological Science*, 23(5), pp. 439–445. doi:10.1177/0956797611434964
- Garrod, S., & Sanford, A. J. (2005). Language in action. In N. Braisby & A. Gellatly (Eds.), *Cognitive Psychology* (pp. 231–264). Oxford: Oxford University Press.
- Geiselman, R., Fisher, P., MacKinnon, D., & Holland, H. (2003). Enhancement of eyewitness memory with cognitive interview. In N. Fielding (Ed.), *Interviewing* (Vol. 1, Part 2) pp. 3–18. London: Sage.
- Haire, M. (1950). Projective techniques in marketing research. *The Journal of Marketing*, 14(5), pp. 649–656. doi: 10.2307/1246942
- Harris, W. (1968). The nature and function of educational evaluations. *Peabody Journal of Education*, 46(2), pp. 95–99.
- Hastie, R. (1987). Information processing theory for the social researcher. In H. J. Hippler, N. Schwarz, & S. Sudman (Eds.), *Social Information Processing and Survey Methodology*. New York: Springer-Verlag.
- Hausman-Muela, S., & Ribera, J. M. (2003). Recipe knowledge: A tool for understanding some apparently irrational behaviour. *Anthropology and Medicine*, 10(1), pp. 87–103. doi:10.1080/1364847032000094522
- Hitch, G. J. (2005). Working memory. In N. Braisby & A. Gellatly (Eds.), *Cognitive Psychology*, pp. 307–342. Oxford: Oxford University Press.
- Hollway, W., & Jefferson, T. (2003). Eliciting narrative through the in-depth interview. In N. Fielding (Ed.), *Interviewing* (Vol. 1, Part 2, pp. 77–94). London: Sage.
- Huesmann, L. R. (1998). The role of social information processing and cognitive schema in the acquisition and maintenance of habitual aggressive behavior. In R. G. Geen & E. Donnerstein (Eds.), *Human Aggression: Theories, research and implications for social policy*, pp. 73–109. San Diego: Academic Press.



- Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality & Social Psychology*, 72(2), pp. 408–419.
- Hurworth, R., Clark, E., Martin, J., & Thomsen, S. (2005). The use of photo-interviewing: Three examples from health evaluation and research. *Evaluation Journal of Australasia*, 4(1), pp. 52–62.
- Hurworth, R., & Sweeney, M. (1995). The use of the visual image in a variety of Australian evaluations. *Evaluation Practice*, 16(2), pp. 153–164. doi: 10.1016/0886-1633(95)90024-1
- Jacques, D. (2005). Projective techniques: Eliciting deeper thoughts. *Customer Input Journal*. Retrieved from [http://www.customerinput.com/journal/projective\\_techniques\\_eliciting\\_deeper\\_thoughts.asp](http://www.customerinput.com/journal/projective_techniques_eliciting_deeper_thoughts.asp)
- Jenkins, N., Bloor, M., Fischer, J., Berney, L., & Neale, J. (2010). Putting it in context: The use of vignettes in qualitative interviewing. *Qualitative Research*, 10(2), pp. 175–198. doi:10.1177/1468794109356737
- Kahneman, D. (2011). *Thinking Fast and Slow*. New York: Farrar, Strauss and Giroux.
- Kahneman, D., Slovic, P., & Tversky, A. (Eds.). (1982). *Judgement under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press.
- Krosnick, J. A. (1999). Survey research. *Annual Review of Psychology*, 50(1), pp. 537–567.
- Kvale, S. (1996). *InterViews: An introduction to qualitative research interviewing*. Thousand Oaks, California: Sage.
- Lilienfeld, S. O., Wood, J. M., & Garb, H. N. (2000). The Scientific status of projective techniques. *Psychological Science in the Public Interest* 1(2), pp. 27–66.
- Mannay, D. (2010). Making the familiar strange: Can visual research methods render the familiar setting more perceptible? *Qualitative Research*, 10(1), pp. 91–111. doi: 10.1177/1468794109348684
- Myers, I. B. (1987). *Introduction to type: A description of the theory and applications of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.
- Norman, D. A., & Shallice, T. (1986). Attention to action: Willed and automatic control of behavior. In R. Davidson, J., G. E. Schwartz, & D. Shapiro (Eds.), *Consciousness and Self-Regulation: Advances in Research and Theory* (Vol. 4), pp. 1–18. New York: Plenum Press.
- Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods* (3rd ed.). Thousand Oaks: Sage.
- Pike, G., & Edgar, G. (2005). Perception. In N. Braisby & A. Gellatly (Eds.), *Cognitive Psychology*, pp. 71–111. Oxford: Oxford University Press.
- Rathbone, C. J., Moulin, C. J. A., Conway, M. A., & Holmes, E. A. (2005). Autobiographical memory and the self. In N. Braisby & A. Gellatly (Eds.), *Cognitive Psychology* (pp. 507–543). Oxford: Oxford University Press.
- Reyes-Cabello, A. L., Aliseda-Llera, A., & Nepomuceno-Fernández, Á. (2006). Towards abductive reasoning in first-order logic. *Logic Journal of the IGPL*, 14(2), pp. 287–304. doi:10.1093/jigpal/jzk019
- Rutherford, A. (2005). Long-term memory: encoding to retrieval. In N. Braisby & A. Gellatly (Eds.), *Cognitive Psychology* (pp. 269–305). Oxford: Oxford University Press.
- Schostak, J. (2006). *Interviewing and representation in qualitative research*. Maidenhead: Open University Press.
- Schutz, A. (Ed.) (1970). *Alfred Schultz on phenomenology and social relations*. London: University of Chicago Press.
- Schütz, A. (1967). *The phenomenology of the social world*. Evanston, Illinois: Northwestern University Press.
- Schwarz, N., & Hippler, H. J. (1987). What response effects may tell your respondents: informative functions of response alternatives. In H. J. Hippler, N. Schwarz, & S. Sudman (Eds.), *Social Information Processing and Survey Methodology*. New York: Springer-Verlag.
- Scriven, M. (1998). Minimalist theory: The least theory that practice requires. *American Journal of Evaluation*, 19(1), pp. 57–70. doi: 10.1016/S1098-2140(99)80180-5
- Silverstein, B. H., Snodgrass, M., Shevrin, H., & Kushwaha, R. (2015). P3b, consciousness, and complex unconscious processing. *Cortex*, 73, pp. 216–227. doi: <http://dx.doi.org/10.1016/j.cortex.2015.09.004>
- Sirken, M., Herrmann, D., Schechter, S., Schwarz, N., Tanur, J., & Tourangeau, R. (Eds.) (1999). *Cognition and Survey Research*. New York: John Wiley & Sons.
- Smith, E., Gidlow, B., & Steel, G. (2012). Engaging adolescent participants in academic research: The use of photo-elicitation interviews to evaluate school-based outdoor education programs. *Qualitative Research*, 12(4), pp. 367–387. doi:10.1177/1468794112443473
- Smith-Jackson, T. L., & Hall, T. E. (2002). Information order and sign design: A schema-based approach. *Environment and Behaviour*, 34(4), pp. 479–492. doi:10.1177/00116502034004004
- Sudman, S., Bradburn, N. M., & Schwarz, N. (1996). *Thinking about answers: The application of cognitive processes to survey methodology*. San Francisco: Jossey-Bass Publishers.
- Tourangeau, R. (1987). Attitude measurement: A cognitive perspective. In H. J. Hippler, N. Schwarz, & S. Sudman (Eds.), *Social Information Processing and Survey Methodology*. New York: Springe-Verlag.
- Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, 133(5), pp. 859–883. doi:10.1037/0033-2909.133.5.859
- Wen, Z. (2015). Working memory in second language acquisition and processing: The phonological/executive model. In Z. Wen, M. Mota, & A. McNeill (Eds.), *Working memory in second language acquisition and processing*, pp. 41–63. Bristol: Multilingual Matters.