# It ain't necessarily so: Eliciting hidden knowledge through schema

David Roberts
- RobertsBrown

www.robertsbrown.com
david@robertsbrown.com

# It ain't necessarily so

# The Problem

- What people SAY is different from what they DO

- Most obvious in market research - purchasing decisions do not match what people say.

- In 1949 Haire borrowed 'projective' (elicitation) techniques from psychology

- My thesis is that Cognitive science and schema are a way of understanding:
  - participant responses
  - how elicitation works

# Take Away messages

- Direct questions rely on explicit knowledge

- Elicitation techniques tap into implicit knowledge

- Most brain activity is implicit not explicit

- Responses, judgements and decisions based on implicit knowledge held in schemas

- Context determines which schema is activated and hence what responses are available

# Implications for Evaluators

- Focus on what people DO

- Useful to explore the diversity of a person's responses
  - Treat diverse responses as the unit for analysis

- Evaluators understandings derive from our own implicit knowledge NOT just the evidence

# Elicitation techniques

# Elicitation techniques

- In 1949 Haire borrowed 'projective' (elicitation) techniques from psychology

- Way of tapping into implicit knowledge

- Cognitive psychology also uses implicit tests (elicitation) to explore cognitive processes

- Present a stimuli that requires interpretation and an immediate answer

# Rorschach

# Common Elicitation techniques

- Photo-taking (Hurworth and Sweeney 1995)

- Story telling (Durgee 1988; Onyx and Small 2001)

- Sentence completion (Jacques 2005)

- Role playing (Jacques 2005 ; Jakobsen 2012)

- Association (Donoghue 2000)
  - immediate responses to a word or a picture

- Priority sorting (McGuire & Zorzi 2010)

- Photo-elicitation (Hurworth *et al* 2005)

# State of understanding

- Little understanding of how they work or how to improve their efficacy

# Cognitive Science

# Explicit behaviour and thinking

- What is 17 x 24?

    - Is it 568?

    - No its 408

- Most of us had to think about it (or use a calculator)

- Very limited ability to consciously think about or even to remember events or attitudes.

# Limitations on Explicit Thinking

- Explicit memory fades within 5-6 seconds unless it is refreshed.

- only 4 'chunks' of information can be processed at any one time.

- Some of you thought that 568 was plausible and said OK

  - Example of a heuristic response or abductive reasoning

  - Used implicit thinking to respond
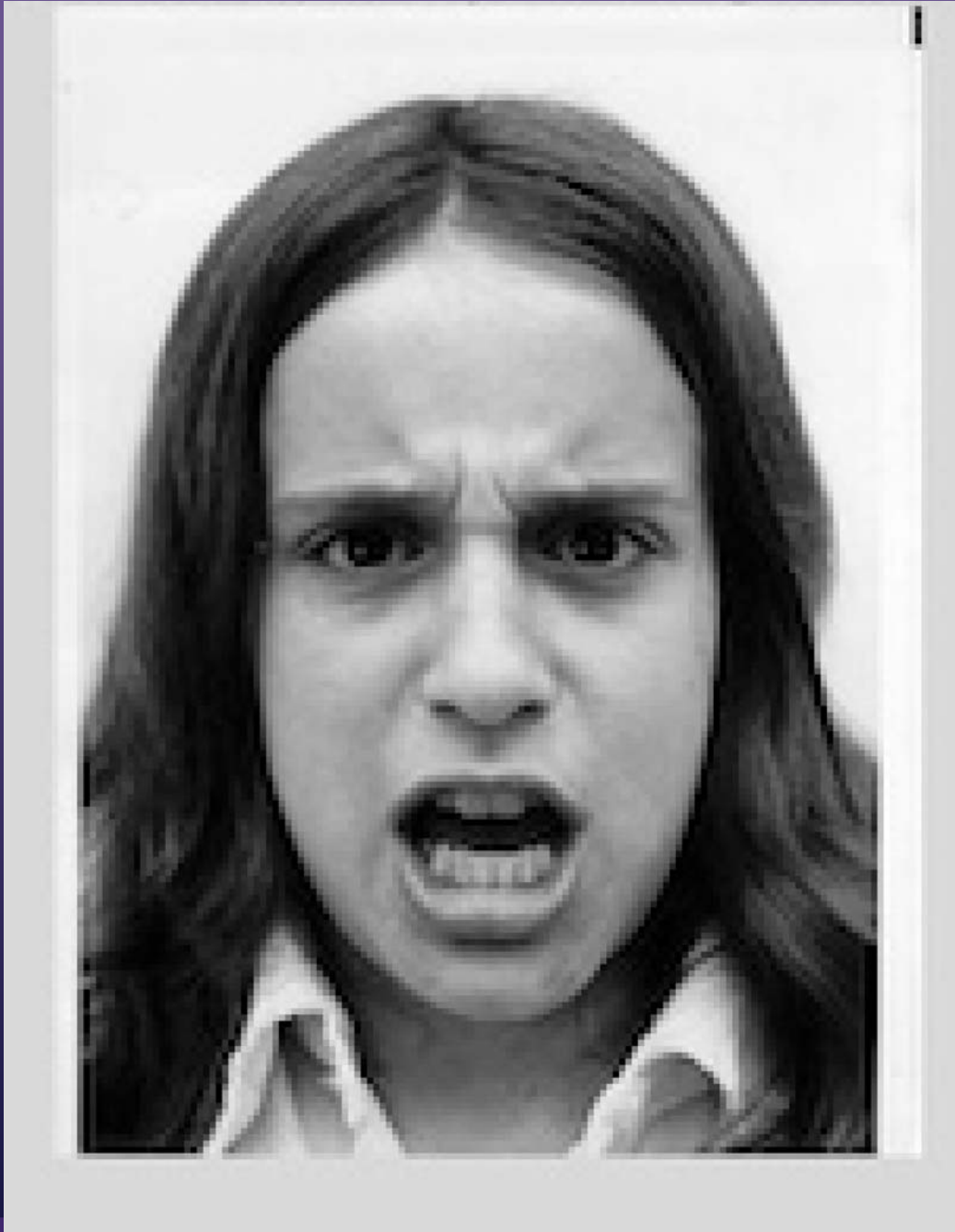
- What do you know about this person?

- How do you know that?

Source: Kahneman 2011, p.19

# Implicit knowledge

- What is 2+2?
- Recognised without having to think

- Examples of implicit thinking

- Behaviour and thinking is
  - based on recognition and
  - predominantly automatic

- Most behaviour and 'thinking' is based on implicit knowledge and 'abductive reasoning' or heuristics

- Cognitive psychology relies on exploring and revealing implicit thinking

# Two systems

- Kahneman (2011) Two systems theory - Thinking Fast and Slow (one of several)

  - Explicit thinking (System 2) is Slow

  - Implicit thinking (System 1) is Fast

# System 1 thinking

- Kahneman's *System 1* thinking

- 'Know' rather than 'remember' or calculate

- Recall based on 'recognition' rather than explicit search

- Multiple, parallel activation of concepts (Kahneman's 'shotgun')

# Procedural and Declarative Knowledge

- Cognitive Psychology differentiates knowledge

    - Procedural knowledge (how to do things)

    - Declarative knowledge (what we know about things)

- Often unaware of procedural knowledge – automatic behaviour

    - Driving a car

    - Touch typing

- Implicit knowledge based on schema

# Schema

- Remember the Angry face?

- Recognised her emotion

- Suite of other information inferred or available for inference

- A package of information relating to that one recognition

- Such packages are called schemas

# Schema are automatic

- Schemas are triggered automatically

- Schemas allow us to act without consciously thinking about what we will do
  - Allow automatic behaviours (procedural knowledge)

- Provide structure for emotion (including attitudes) and action

- Provide the structure for our explicit thinking.
  - Kuhn's scientific paradigms

# Context activates schema

- Huesmann gives an example

- Imagine a young woman walking down a street late at night.  She sees a group of young men

- First, imagine that she had been to a party
  - She is with a friend
  - She is happy
  - some of the men at the party had left to get a pizza
  - A group of men are chatting quietly and holding what looks like pizza boxes

- What is she likely to do?

# Second scenario

- Same young woman; Same dark street; same group of men
    - She has just had been told she failed an assignment
    - She is on her own
    - Some of the men look at her and there is laughter

- What is she likely to do?

# Different schema

- Do not think, feel or DO the same thing even in very similar occasions

- Active schema vary from occasion to occasion

- Each individual exhibits repeated patterns of behaviour

- Some schemas are activated more often than others

# Triggering schema

- Schema are triggered automatically by context (internal and external)

- Sophisticated models (Norman and Shallice 1986; Huesmann 1998) suggest
    - stimuli trigger multiple schemas at the implicit level
    - interaction of activated schemas leads to a few schemas becoming dominant
    - Some of those schemas may them reach conscious awareness

# Constraints on Knowledge

# Monkey Business

- https://www.youtube.com/watch?v=IGQmdoK_ZfY

# Awareness

- We are often unaware of and inaccurate about what has happened

- Other research shows we are unaware of implicit knowledge such as
  - Our own responses in other contexts (Nisbett & Wilson 1977)
  - The factors that influence judgement (Nisbett & Bellows 1977)

- Survey researchers show people express contradictory positions and attitudes on the same issue depending on context

- Our ability to recall events, judgements attitudes etc. is constrained by the current context.

# Preliminary study

# Method

- Initial interview (TAT) videoed
  - Select from 16 photographs of 'Managers'
  - Describe the person in the picture
  - How would they behave?

- Debrief
  - Played the video – stopping to discuss events

# Selection

- First instant of selection asked to respond to an array of 16 photos enormous detail
  - Could not be consciously aware of all details
  - Different and sometimes opposing selections

  - All but one, identified 'types' very quickly (seconds)

    - Some reported that delayed picking up because reviewing selection

# Descriptions

- Described the 'person' represented in detail

- Looked at the photos to find details that support their descriptions

- In other words, they constructed explicit description  in the interview (Brockmeier 2010 ; Knoblauch & Schnettler 2012)

- Judgements were intuitive

    - based on personal, implicit knowledge

- Some minor discussion of their responses - mostly that they were 'stereotyping'

# Debrief

- Started to talk about themselves more and reasons for their descriptions

- Surprised at what they had said
  - Did not remember saying

- The task was to explore thinking but it was interesting to see conflicts between implicit responses and notions of self

# Self-image & description

- Resistance to 'stereotyping' based on such poor evidence

- Self-image as rational professionals and rigorous evaluators who make judgements based on evidence

- Nevertheless developed detailed descriptions

- Used schema to develop description

# Findings

- Selections made in photo-elicitation uses implicit knowledge (schemas) even against wishes of participants
    - Different degrees of implicit thinking

- Elaboration – explicit knowledge - occurs after the selection and starts from that implicit knowledge

- Explicit thinking modified implicit answers but only within broad parameters established by the implicit knowledge

# Conclusions

# Direct Questions and Elicitation

- Direct questions rely on explicit knowledge

- Direct questions unlikely to provide good data about procedural knowledge, or behaviours

- Elicitation
    - constrains conscious thinking and emphasises 'recognition'
    - Reduces self-presentation
    - May in some circumstances reflect situation of interest

# Schema

- Responses, judgements and decisions based on implicit knowledge held in schemas
  - Most of the knowledge within a schema remains implicit and is NOT brought to conscious awareness (driving, sitting, kicking goals, Kuhn)
  - Different types of knowledge, procedural and declarative
    - What is said is derived from activated schema
    - Declarative knowledge engages the self as an object (Mead's 'Me')
      - Self-presentation is inherent in declaratory knoweldge
  - Unaware of knowledge outside the activated schema (Nisbett & Wilson)
    - Can hold contrary positions (Nisbett & Wilson, Tourangeau)

# Implications

# Schema in interviews

- Multiple schemas

- Different response to very similar contexts – not just one response

- Schema in interviews NOT same as those in everyday life
  - MAY be similar

- Benefit in understanding what triggers different schemas

# Guidelines for elicitation

- Limited reflection and research into elicitation techniques in the literature

- Literature  and my work suggests:

  - use impoverished stimuli that require the participants to add knowledge
  - task congruity with personal experiences of the participant
  - clarity and comprehensibility of the task
  - plausibility of the task
  - Stimulus structure that
    - limits explicit processing, or
    - tests to ensure that the responses are implicit.

# Implications for Evaluators

- Focus on what people DO

- Argument for observation (including documents)

- Useful to explore the diversity of a person's responses
  - Treat diverse responses as the unit for analysis

- Triangulation must not rely on unitary self-reports

- Evaluators understandings derive from our own implicit knowledge
  - NOT just the evidence
  - NOT explicit assumptoins

# Evaluation approaches

- Interpretation of evidence is largely implicit and schema based

- Not enough to describe explicit criteria

- Assumptions should be explored and stated as far as possible
  - Notions of value and merit are always ours - NOT objective
    - Issues for definition of evaluation
    - Recognise that our findings are opinions and should be contingent and open to testing

# Schema concept in evaluation

- Schema concept provides a testable mechanism for how elicitation may work and how

- Allows us to think about means for improving the use of elicitation techniques

- Practitioners face challenge to design interviews that are best able to trigger schemas similar to those active in the everyday life.

# The End

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# Supplementary slides

# Haire's experiment

- 1949 market research why Americans were not buying instant coffee

- Direct questions -
  - people said they did not like the taste

- Struck Haire as disingenuous

# Testing

- 50 people given two shopping lists

- Only one item different

- Asked to describe the women who bought the items on the each list

# Haire's Shopping Lists

- *Pound and a half of hamburger*

- *2 loaves Wonder bread*

- *bunch of carrots*

- *1 can Rumford's Baking Powder*

- *Nescafe instant coffee*

- *2 cans Del Monte peaches*

- *5 lbs. potatoes*

- *Pound and a half of hamburger*

- *2 loaves Wonder bread*

- *bunch of carrots*

- *1 can Rumford's Baking Powder*

- *1 lb. Maxwell House Coffee (Drip Ground)*

- *2 cans Del Monte peaches*

- *5 lbs. potatoes*

# Results

- Instant coffee purchaser
  - 'lazy'
  - 'single' or 'not a good wife'
  - 'failed to plan household purchases'

- Drip filter coffee purchaser
  - 'good wife'
  - 'meal on the table when husband gets home'
  - etc.