

# ANCHORING QUALITATIVE METHODOLOGIES IN BUSINESS INTELLIGENCE USING SMARTPHONE APPS

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*The use of smartphone apps in market research enables genuine 'in the moment' insight to help us really understand behaviour. Combining this with qualitative methods gives us a deeper insight into behaviours that affect healthcare-related decisions and judgments.*

*In the second of his white papers on the topic, **Paul Mannu**, director at **Cello Health Insight**, outlines how using mobile apps alongside various qualitative processes can provide a much deeper understanding of patient and/or HCP behaviour.*

'Connected moments' is a useful phrase, because it gets across the fact that when we are 'in the moment' we are not only influenced by what goes on in our heads, but what's going on around us as well.

Because of this, gaining a richer picture that encapsulates both the experiencing and remembering self requires the use of hybrid methodologies. Increasingly these integrated methodologies will draw on a number of disciplines, including cognitive interviewing, phenomenological enquiry, Gestalt techniques, and behavioural economics.

Within the growing field of behavioural economics, considerable emphasis is placed on terms such as the 'base reference' when making decisions or problem solving. Furthermore, words that explain the short cuts we use to make economically 'irrational' decisions are now becoming mainstream: phrases such as 'availability' or 'recency' bias.

For example, are there more words starting with the letter K than have it elsewhere in the word? Familiarity would suggest the right answer would be words starting with K; we could refer to this as the 'availability heuristic'. In fact, there are twice as many words with the third letter containing K than at the start<sup>1</sup>.

Now consider the following:

*'Sarah loves to listen to New Age music and faithfully reads her horoscope each day. In her spare time, she enjoys aromatherapy and attending a local spirituality group.'  
Is Sara a schoolteacher or holistic healer?*

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<sup>1</sup> Harvey, N. (2007). Use of heuristics: Insights from forecasting research. *Thinking & Reasoning*, 13(1), 5-24.

Again, we may take a mental short cut and argue that she is a holistic healer. However, by mere probability she is more likely to be a teacher, simply because there are more teachers than holistic healers. These mental short cuts are referred to as representative heuristics<sup>2</sup>.

We make errors: these errors in our thinking have important implications. For example, eye-witness reports are influenced by 'affirmation' and 'confirmation' bias that impact on our recall of events; we retell stories about the events of the past based on what we expected to see, rather than what we actually saw.

The Guardian ran an effective commercial featuring a skinhead running at a man in a suit. What happens challenges the expectation - as he actually protected the man from harm.<sup>3</sup>

In market research our stock in trade is 'the question' and respondents are clearly not immune to using these kind of short cuts. This influences their understanding of the 'true' past as well as the interpretation of the researcher. In fact what we remember about our pasts may be very different to what actually happens. This is well illustrated by case study 1, explored in our recent white paper in more detail.<sup>4</sup>

## TIPS FOR MIXED METHODS USING SMARTPHONE APPS

- Clarify the nature of the behaviour you wish to examine using a smartphone app, and pilot the approach
- Ensure informed consent and knowledge of the use of data for co-discovery (this also improves compliance)
- Keep it simple if respondents are pushed on a daily basis
- Initiate the smartphone app soon after recruitment and screening
- Use a short time frame and dedicate a member of the team to monitor activity
- During co-discovery ensure presentation of behaviours is easily understood
- Allow enough time for methods in one to one interviews. Each approach can take up to 10-15 minutes

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<sup>2</sup> Kahneman, D (1972). Judgment under uncertainty: Heuristics and biases. Cambridge: Cambridge University Press

<sup>3</sup> <https://www.youtube.com/watch?v=E3h-T3KQNxU>

<sup>4</sup> Connected data and the use of smartphone enabled apps in market research:  
<http://www.pharmaphorum.com/white-papers/connected-data-and-the-use-of-smartphone-enabled-apps-in-market-research>

## CASE STUDY 1 – CROHN'S DISEASE AND THE BURDEN OF ILLNESS

Cello Health Insight, the market research arm of Cello Health conducted a pilot study to examine whether patients with Crohns disease would report differences in their perception of illness burden between what they remembered of their illness over two weeks and their experience moment to moment.

To achieve this they installed the Cello Health app on their smartphones and were asked on three occasions per day over that same two week period to assess their illness burden via a quick two minute series of five questions. They were also asked the same questions - but about what they remembered over the past two weeks - at the end of the study.

### Outcome

Across factors of abdominal pain and fatigue such as concentration, energy, and tiredness, there were statistically meaningful differences between the 'experiencing' and 'remembering' self. Patients often remembered being in greater distress on average than they reported when monitored moment to moment during the same period of assessment. This has an important bearing on issues relating to adherence to therapy, and assessing disease burden

The implication from this study is that we can't rely solely on the remembering self to tell us about how we really felt or were doing in the recent past. The remembering self is a story or script of what has happened that can change over time.

The experiencing self is arguably more hidden and automatic, and less available to conscious awareness; it forms our habitual behaviours. We seldom think about these processes, and yet they often represent key triggers and drivers in healthcare behaviours.

This may lead to the argument that the remembering self is of lesser value. Far from it: 'perception is all' and what we remember about our pasts, with all its inaccuracies, forms a major part of our perceptions. The rationales and reasons we give based on

our perceptions of our own past strengthen a brand's essence - how it meets with our own values (who I am now) and goals (what I want to achieve).

In the example from case study 1, what patients say about their disease burden, and how they reason, inform 'the doctor's' perception and understanding of the patient's condition. In conjunction with hard physical markers of disease, the patients self-reporting and description of their history remains an important trigger for management and treatment decisions.

With the help of case examples, let us now explore 'in the moment', by using different methods that include the use of mobile data.

## **Integrating 'Connected Data' with the remembering self.**

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Using a mobile phone can help 'anchor' the remembering self. Similarly, it is sometimes important for memory to work as accurately as possible to understand moments in life. Asking someone to reflect on their past by using general questions without stimulus about that past is likely to be prone to short cuts: what comes most easily to mind. It can severely bias our overall understanding of what actually happened.

Many of us are privy to 'in the moment' via our twitter or Facebook feeds. The photos and comments reflect how you felt at the time. Are you not sometimes surprised at how it can differ from what you remember you felt at the time?

### **CASE STUDY 2 – PATIENT CHOICE IN THE USE OF BIOLOGICS**

Cello Health's proprietary health app was used to 'push' a series of simple questions on a daily basis to ask nurses with prescribing status whether they had initiated any patients that day on a biologic. They were then asked to describe what treatment was given and how this decision was arrived at via a number of sub-statements. This in itself revealed that patient choice was highly variable in terms of 'actual choice' and

physicians, as well as nurses, had a greater role than was originally hypothesised.

Whilst the what, where and how had been examined it was important to get some of the reasoning and emotional context of the decisions. As a result, participants were presented with the datasets they had created over the period of a week, and asked to examine the exact nature of what happened in each instance.

To help in this process we used a process of investigative or cognitive interviewing to enhance accurate memory recall and then examined reasoning and emotional drivers in decision making.

### **Outcome**

Patients had less choice than was hypothesised. Nurses often made prior judgements about the patient's suitability for a specific device that was based on their own preferences. Surprisingly, physicians often gave discreet indications to the patient during their consultation of what they felt the patient might get on with best. This influenced the nurse/patient consultation.

In our second case study we highlight a recent hybrid approach to understand injectable device choice in the treatment and management of biologics in RA. If you ask the extent to which patients are involved in choice directly, there is a natural tendency to convey that choice is standard, often the nurse will say 'the patient decides'. Similarly, when asked to discover whether the physician has a role in decision making around device, the physician may well say, 'I leave it up to the nurse'. Is this true in actual behaviour?

The main basis for the methodology was to avoid post-rationalisation of past experience by relying purely on the memory of an event. Instead, respondents focused on evaluating their own experience of actual events. They described how they felt at the time, what they saw, what patients said, and how they reacted or felt. The results gave a much deeper insight than would have been achieved by using any one method on its own.

Let us take a look at three less familiar methods used as market research tools. They concatenate alongside smartphone apps to understand behaviour through the lens of the experiencing and remembering self.

Cognitive Interviewing: creating an accurate remembering framework for understanding behaviour

As we saw in case study 2, the mobile app provided a unique and accurate 'anchor point' from which to explore how patients were actually managed.

This anchor point was supplemented with a method of capturing an accurate memory recall of each intervention. The study incorporated Cello Health's adapted form of 'Cognitive Interviewing', developed by Geisman and Fisher in the early 90s<sup>5</sup>.

This method is frequently used in eye-witness reporting to gather an accurate record of a crime or incident.<sup>6</sup> Respondents are asked to picture the situation in as much detail as possible. This may include drawing the consultation room and then picturing the person walking in the room.

#### **The 4 classic components of cognitive interviewing**

- Report everything
- Mentally reinstate the original context
- Change the order
- Change the perspective

They are asked to explore and describe every detail of the consultation, to the point of recognising smells, the environment, even what the patient was wearing. All of these factors trigger the memory more accurately to reflect what happened. The interviewer then focuses on specific areas and asks for further details, bringing to light specific events.

During the process of mental reinstatement the respondent is asked to focus on particular events and to visualise the scene they have accounted in detail. In this way, interviews capture detailed nuances in the consultation that can be overlooked in straightforward question and answers.

This process was used, alongside a series of questions examining treatment and management using a mobile app, in case study 2. The mobile app had the added

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<sup>5</sup> The Cognitive Interview: 'An Innovative Technique for Questioning Witnesses of Crime'. E. Geiselman & P. Fisher, Journal of Police & Criminal Psychology, October 1988, Vol. 4 No. 2

<sup>6</sup> 'Investigative Interviewing'. Psychology and Practice. Rebecca Milne & Ray Bull, Wiley Publications

advantage of recording 'real world' events, and helped to reveal how much the nurse swayed the decision-making process, as well as the subtle influences of the physician, who represented a silent third partner.

The outputs were an invaluable asset for a refocus on targeting specific customers. Furthermore, key product messages were better tailored to address different stakeholder needs as the research revealed important language that would resonate with customers.

## **Phenomenological Enquiry: integrating mobile apps with descriptions of experience**

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In the previous example the focus was very much on gaining an accurate memory recall of events recorded from a smartphone app that reflected the experiencing self; it was about getting an accurate account of what is 'inside our heads'.

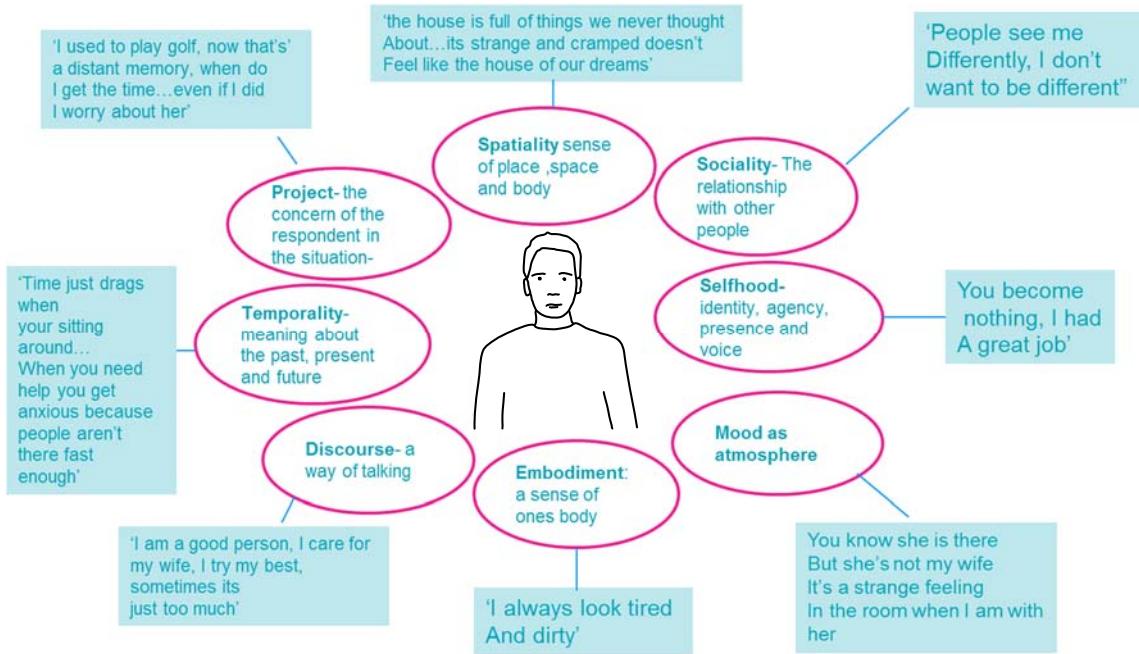
Smartphones also allow respondents to be more expressive using images and video diaries to reflect their experiences. They are an invaluable tool that can be used in one-to-one interviews as anchor points for 'in the moment' events they wish to reflect upon.

In phenomenological enquiry the focus is on first-person descriptions of experiences. It is a robust qualitative method that is used extensively in healthcare research. In contrast to the previous case study, phenomenological enquiry is the belief that we exist, 'outside our heads'. We interact with the world; it is being in the world, and the objects around us, that influence our behaviours.

Take the example of a study conducted to understand caregiver burden in dementia. The client wanted to get an insight into the burden of disease from a caregiver perspective that would inform marketing communication.

Armed with a smartphone device, a small sample of seven caregivers recorded significant moments during their day which highlighted the impact upon their lives. They were simply asked, 'what is it like...?' They were free to record photos, events or a brief video diary.

Subsequently, each respondent was then interviewed for an hour and asked to describe their life as a caregiver, using the additional resources of real life moments from the images and recordings they had made.



Within this method, specific aspects of living with the disease were explored in a systematic way looking at agency, sociality, embodiment, temporality, spatiality, discourse, mood as atmosphere, project and selfhood<sup>7</sup>.

These 'real world' insights were used to explore the 'lifeworld' of the caregiver when describing what it was like to live with a partner with dementia; some of those thoughts are reflected in the visual.

Using a rigorous analytical process drawn from phenomenological enquiry, and anchoring the interviews with 'real life data', the caregivers shared a changed lifeworld that impacted on perceptions about themselves, the tensions and altered relationship with their partner and how others thought about them. The outputs were used to inform internal communication strategies to ensure they remained focused on the needs of the real world.

<sup>7</sup> For a detailed understanding of these phenomenon a good reference is Ashworth, P. (2006) Seeing oneself as a carer in the activity of caring: Attending to the lifeworld of a person with Alzheimer's disease. International Journal Of Qualitative Studies on health and well being. 2006; 1:21-225

## **Gestalt Techniques And Smartphone Apps: understanding drivers and barriers to product uptake**

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One of the cornerstones of pharma business intelligence is understanding what drives HCP prescribing. In more traditional approaches physicians are often asked to establish their prescribing behaviour in the recent past; say over a two week period. The approach can be to simply ask the question, 'How often have you prescribed product x.... and for what type of patients....', or, 'how many patients have you seen with condition y....'

This is often followed by questions that focus on reasoning, and the advantages and benefits of different treatment and management decisions. In order to gain a more accurate picture physicians are sometimes asked to complete patient report forms or diaries of their prescribing or management behaviour.

More recently, mobile smartphones have been used to gather this information. There are clear advantages to using smartphone technologies, as the physicians can be push-notified to gather information close to the actual experience. This discovery gives us accurate information of the 'what', 'where', 'how' and may even give some of the 'why' as well.

However, it does not reveal the drivers and barriers to using products of which they are aware. It says nothing about their reasoning or (and probably more importantly) their contingent feelings and understanding of products that influence habitual behaviours. In this instance a mobile apps shows its limitations in relation to understanding the deeper dialogue that occurs in our heads when we make a decision.

Decision-making theory argues that to make a decision we need 'options', that these options are 'non-random' and 'goal-directed'. Further, decisions carry 'risk'. But how do we capture this narrative that goes on in the heads of our customers? An aspect of behaviour that we often fail to consider is that the options we have create 'ambivalence'.

This ambivalence is a cornerstone of new methods that are required pre-requisites for behaviour change. Take, for example, a habitual behaviour such as smoking.

Telling a smoker that cigarettes have major health risks is not news to them. What might be more revealing will be the internal dialogue they have regarding the upsides and downsides of smoking.

Enabling and nurturing this dialogue is a key process in methods such as 'motivational interviewing' to encourage change in unhealthy behaviours<sup>8</sup>. In order to capture this dialogue, methods used in Gestalt therapy can be used to good effect.

Within Gestalt therapy approaches are used for individual experience to be examined in the present moment. They reveal the self-regulating adjustments people make as a result of their overall situation.

An interesting approach within this field is commonly referred to as the 'the two chair exercise'. Case study 3 used this approach among oncologists in the treatment of lung cancer.

The process asks the respondent to talk to an imaginary other part of themselves in the opposing chair. This embraces the Gestalt effect of the capacity of our senses to generate forms and create meaning. Physically moving from one chair to another accentuates the ambiguities that exist and how we work them out. It reveals ambivalent positions towards the product and in particular, creates emotional and rational dialogue.

Within oncology, patient tolerance towards combination chemotherapy creates an internal dialogue within the physician's mind-set. They can take into account the patient profile and what the patient says about the success or lack of success of treatment over and above the evidence of the products' efficacy. Similarly, products they can prescribe invoke emotional and rational drivers that together create the stimulus for decision-making. Revealing these dialogues and how they resolve internal conflict can reveal vital trigger points, and understanding of the language of the customer.

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<sup>8</sup> For the original paper please see Miller, W. R., & Rollnick, S. (1991). Motivational interviewing: Preparing people to change addictive behavior. New York: Guilford Press.

### **CASE STUDY 3 – THE USE OF ‘TWO-CHAIR’ TECHNIQUE AMONG ONCOLOGISTS MANAGING LUNG CANCER**

Early diagnosis and intervention, allied to new products in its treatment, means there is now greater hope in the management of lung cancer.

Given the growing array of combination therapies to choose from at different stages of the disease, the key question in this study was to understand the drivers and barriers for use of a product in earlier intervention.

Pulmonologists and lung specialists from North America and key European markets used a smartphone app that ‘pushed’ them once a day for two weeks to record their prescribing behaviour with a brief description of the patient. During one-to-one interviews the physician was presented with the behaviour they recorded on the smartphone for further rationale and understanding of management.

During the exercise they were also asked to perform a two chair exercise and to verbalise their thoughts as they positioned themselves as either advocate or non-advocate of the product for a specific patient profile

#### **Outcome**

The barriers for use focused on early clinical experiences and outdated clinical evidence that clung to the physician’s mind-set, and as a result dismissed the product for older patients. There was a degree of ambivalence to this position with a feeling they erred on the side of safety to some extent. This, allied to a feeling of lack of company presence or concern, conveyed the need to re-develop communication materials in a more targeted manner.

In case study 3, a smartphone was used to record recent prescribing behaviour. This information, whilst useful as a more accurate reflection of experience, also provided a contextual frame-work that could be explored qualitatively. Again, note the process: the ‘what, where and how’ using the mobile app and the deeper exploration integrating mobile data with qualitative enquiry.

This is a process of co-discovery where the respondent is presented with what they did in the recent past and then given the opportunity to discuss it in more detail. These 'real world' experiences become the anchor points to examine product choice during the two chair exercise.

In the case study, the respondent was asked to play 'advocate' and 'non-advocate' of the product of interest. This approach revealed rather surprising feelings among some individuals, in particular how they underplayed a particular product's tolerance. The results not only opened the way for a potential leverage point, it also revealed a rich customer language.

## **Connected Moments: addressing business challenges**

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Within this paper we have highlighted two key points:

- We have both experiencing and remembering selves. They give different perspectives on behaviour. They are both important in the right context.
- Hybrid approaches which integrate mobile technologies with qualitative enquiry create a more holistic approach to understanding complex behaviours.

Within business intelligence and qualitative research there are frequent requests for understanding what people 'do', as well as what they think and how they feel. We will ask a physician how often they see a particular patient type, and their treatment journey, including who they see and what they are prescribed. Relying on the remembering self is prone to error. Patient report forms or diaries are useful but can be time-consuming. Do respondents do them every day or the day before the interview? Smartphone applications can be integrated into qualitative processes to capture real world data.

The 'doing' is objectified. However, its real strength is that the 'doing' is often presented to the respondents using a process of co-discovery; the case studies highlighted all used this approach. The live data is sense checked for typicality, and explored in more detail. In effect the discussions are contextualised within actual

behaviours; additional insights are gleaned about thinking and feelings. Barriers and drivers of therapy are exposed within a real context as additional methods are used to capture both clinical and emotional elements.

Another key consideration is the ability to capture the difference between the experiencing self when it first hears about a product (e.g. a sales call) and what is remembered further down the line. These differences can reveal the nature of the actual call and its subsequent uptake by the remembering self: how customers have prioritised messages. For example, does a main message from the experiencing self, when a sales call is made, reflect that dominance when time has elapsed. Again, using smartphone apps allied to some of the qualitative approaches we have discussed earlier gives a rich source of message uptake over time.

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## Conclusions

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- Behaviours are complex requiring mixed methods of observation and enquiry.
- A pre-requisite for examining behaviours is to provide a reference point to evaluate 'real' behaviour
- Smartphone apps are a relatively new and unique tool to record actual experience, in the moment. They do not add significantly to the process of research, yet provide considerable value to qualitative enquiry as a mechanism for grounding behavioural discussions.
- However, you need 'connected moments'. This involves in the moment methods working together to grasp not only the, 'what', 'where' and 'how', but also the 'whys', the feelings and understanding of the world we live in to contextualise our behaviours.
- Armed with a number of traditional and newer methodologies business intelligence has an array of modular approaches that can be used to address specific research questions regarding behaviours in the moment.

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