



# **'And Now for Something Completely Different' Current thinking About the Brain Means we Need to Change the Way Brands are Researched**

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## **SUMMARY**

This paper will, we hope, dispel a number of 20th Century myths about brands.

It will dispel the myth that brand purchase decisions are based on reason, and that consumers depend in some way on the plethora of information we feed them about brands. It will dispel the myth that advertising is merely a weak force, and show that advertising can often exert a very strong influence on purchase behaviour, Along the way it will also show how other marketing activities, like names and pack designs, can be equally influential. It will also show how so-called strong forces like price, can be very weak, and can sometimes even work in reverse. Above all, it will demonstrate how current thinking in cognitive neuroscience reveals a much more plausible explanation of how marketing affects buying behaviour – an explanation which suggests that much of the traditional brand research we do gives misleading results. Finally, it offers specific guidelines as to how we can improve the way in which we research brands.

## **INTRODUCTION**

If you were to study the behaviour of a human and a dog, you would know which was master and which was servant. You would know this because you know that a human is more intelligent than a dog. But if you were a Martian rather than an Earthling, you might easily be fooled into thinking that the dog is the master, not the human. After all, the dog is looked after by the human, it is fed and watered, its bed is tidied, it is washed and groomed, and it is slavishly followed and protected when it goes for a walk. Lack of information can make fools of anyone.

Which is why we do research. We collect information so that we can understand what is going on. We interview consumers, record their views, analyse and map them. From this we can construct an understanding of the dynamics of the market, and we can classify brands into hierarchies, from new to established, from biggest to smallest, from 'best' to 'worst'. And we can perform this with consummate ease, because we have been doing this sort of research for decades.

But suppose we found we could actually get inside a consumer's head. And suppose, when we did so, we found that most of what respondents had been telling us was a function of the way in which we asked the questions, and that in reality consumers think in a completely different way. We would be as baffled as a Martian who thinks a dog is master to a human.

In this paper we use current thinking in cognitive neuroscience to paint a new and very different picture of how the consumer learns about brands, and how this learning goes on to influence purchase decisions. It is a picture some will find baffling, if not downright uncomfortable to look at.

## **RATIONAL THINKING IN RELATION TO BRANDS**

Imagine you are standing in front of a supermarket shelf. In front of you are five different brands of tinned tuna. You know you want to buy a tin of tuna, but the big question is, which brand do you decide to buy.

An average consumer can be expected to take anything between two and twenty seconds to decide which brand they choose, before moving on. So let us start by considering exactly what goes through this average consumer's mind in this short time.

Before we examine this, let us straighten out one very important potential misunderstanding. The 'big question' I referred to is a big question for us, the readers and writers of this paper. It is not a big question for the consumer. Which brand of tuna they buy is a very small question for the consumer. We must face the fact that quite a lot of consumers would be perfectly happy if there was only one brand of tuna on the shelf, then they would not have to spend even two seconds of their busy lives making this decision.

## **NEEDS**

So, back to the decision about the brand of tuna. Or rather, back to a bit before the decision about the tuna. Back to the moment when you decided you needed a tin of tuna. At some point – perhaps before you even entered the supermarket – you came to the conclusion that you *needed a* tin of tuna. At this moment you started to make some important decisions. What is it going to be used for? A salad? A pasta dish? Perhaps a sandwich? Perhaps just to put in the larder, because you know there isn't any there? This process leads you to another set of decisions: should it be a big tin, or a small tin? Should it be tuna in brine, or tuna in sunflower oil?

This hierarchical process of need decisions must by definition take place before the purchase is made, because once the purchase is made then the 'need' is satisfied, and ceases to be a need. Often it is done when we make a shopping list, or glance in the cupboard before rushing out of the door. Because it is relatively important – no one wants to waste money buying the wrong thing it is often a very *rational* process, involving many references to other interlinked needs. It can often be quite hard work, which is one of the reasons many people do not like shopping. Of course, after a time the selection of needs and of brands becomes routine, which is why people who regularly shop find it much easier and quicker.

In this case let us assume that you have decided beforehand you want a tin of tuna for the larder. There are five brands – Sainsbury, Princes, John West, Epicure, and Osprey. Let's imagine the reasoning which might be going on in your mind:

*'Five brands of tuna. Which one to buy? Glance at each tin for some clues and the*

*first thing I have to decide is do I want steaks or chunks. I never know the difference. Wait a minute, there's something we haven't seen before. Two of the brands are available not just in brine and sunflower oil, but in olive oil, and one is also available in tomato sauce and mayonnaise. Oh hell, I thought I'd sorted out my needs already, and now here's another need decision to be made. I definitely don't want tomato sauce or mayonnaise, so that's easy. Olive oil might be nice, but since it will probably end up in a sandwich with the oil thrown away, perhaps that doesn't matter. No, I'll stick to sunflower oil, And I'll buy chunks because they sound cheaper than steaks. So which brand. They're all 'Dolphin friendly' so that's no help. The Epicure is a lot more expensive, so that's out. Down to four brands, and I don't have time to think any more so I'll buy this one.'*

You are probably now slightly confused, because it appears from the above that our consumer has made their choice based upon a *random* decision. Perhaps understandable given the amount of thinking that had to be done in order to sort out the various needs. In fact the decision about which brand to buy is not random, but a deliberate choice driven by various factors, including advertising. The reason why we have not been able to listen in to our consumer's 'thinking' in regard to this choice is that the decision was made at a barely-conscious level. Not, we must stress, sub-conscious. These are cognitive processes, but they are not like the ones we are used to.

## **HOW WE MAKE BRAND DECISIONS**

Brand decisions are not wholly rational How can we state this with such confidence? Because *no* decisions are wholly rational.

Descartes would be among the first to challenge us on this point. Rumour has it he is dead, something we sometimes find quite hard to believe given the astonishing number of people in marketing and research who still cling to his ideas. Fortunately we don't have to argue the case against Cartesian beliefs because it has been done far more convincingly by Antonio Damasio in his book 'Descartes' Error' (1)

Damasio quotes the example of one Phineas Gage a singularly unfortunate man whose lot it was in life to have a metre-long steel rod some 4 centimetres in diameter pass at high speed through his head and remove quite a lot of his brain. Extraordinary to relate, Phineas Gage recovered from this episode, and, other than having a large hole right through his head, was able to behave in what appeared to be a perfectly normal fashion. He could eat, sleep, talk, walk, and apparently think, much like the rest of us, and his only evident problem was that he found it hard to control his emotions. He also found he was incapable of making decisions.

Damasio's explanation for this is founded on research into the way our brains evolved. The largest part of a human brain is the neocortex – a relatively recently-developed part of the brain where we do all our 'rational' thinking, and which marks us out as (supposedly) civilised beings compared to other mammals. But within our brain still lurks the original visceral brain (known as the 'limbic system'), the part of the brain which developed when we evolved from reptiles into mammals. This visceral brain still operates our biological bodies, but it is also responsible for generating our senses, emotions, instincts, and intuitions. It was the *connection* between the neocortex and the older visceral parts of Phineas Gage's brain which was destroyed by the rod.

The implication which Damasio draws from this and other case studies is that although we are equipped with new parts of the brain which give us wondrous powers of reason and analysis, these are still 'wired up' through the older, biological brain. So however hard we 'think' about a decision we can only *make* that decision via an area which interfaces with our senses, emotions,

instinct, and intuition. Unlike Mr. Spock of Star Trek, we are physically incapable of making decisions based on purely rational thinking.

What has this to do with our tins of tuna? Simply this. When faced with an irritating, time-consuming, and low-risk decision such as which of five brands of tuna to buy, we quickly get to the stage where we cannot be bothered to think about it any more, and we resort to using our instincts and intuition to make the decision for us. We don't reason, we resort to our so-called 'lower' mental powers.

Does this mean that we are not influenced by marketing when we make such choices? Not at all. Damasio explains the way instinct and intuition operate in situations like these. He postulates that we construct throughout our lives what he calls 'somatic' markers (derived from the Greek word soma, meaning body):

*'Somatic markers are ..., feelings generated from secondary emotions ... (which)... have been connected by learning, to predicted future outcomes. When a negative somatic marker is juxtaposed to a particular future outcome the combination acts as an alarm bell. When a positive somatic marker is juxtaposed instead, it becomes a beacon of incentive.'*

We use somatic markers almost continuously in order to make everyday decisions. Usually they operate as a warning, a 'negative' marker. For example despite all our parent's advice, we never learn to look before we cross the road. Then one day we step out and a car flashes by and nearly hits us, or screeches to a halt a few feet from us. Our heart pounds, our pulse races, we break out in a sweat. All of this creates a strong somatic marker which will re-occur every time we need to cross the road, and make us look carefully. It is not a 'rational' marker – we do not say to ourselves 'Here's a road I want to cross, so I'd better look so I don't get run over like I did that time when I was small', instead it is an emotional stimulus that 'marks' the event forever, and promotes instinctive behaviour.

Somatic markers are by definition highly individual, but since we all tend to encounter similar emotional events in our lives, we can to some extent generalise about the sort of somatic markers which might arise to guide our consumer's decision about the tuna.

A common somatic marker arises in respect of price. Past experience tells us that nothing in life is free, so anything unfamiliar and cheap is quite likely to be poor quality. In this case, Osprey is not well known, and is some 20p cheaper than all the other brands. Rationally this is no reason to reject a brand, and indeed to some consumers might be a good reason to buy it. But to our consumer such a price difference is suspicious, and represents a risk not worth taking for the sake of 20p. So Osprey is ruled out, in effect, for the opposite reason Epicure was ruled out.

Princes might be ruled out for a quite different reason. Past experience suggests to our consumer that brands which use names like King, Queen, Duchess, Duke, Colonel, Lord, Sir, and so on, in their names are often trying to invoke an association with patronage in order to compensate for inadequacy elsewhere. This, of course, may be a wholly unjustified conclusion, but with only a few seconds to make a decision, anything, true or otherwise, helps.

So now we are down to two – Sainsbury, and John West. Not much difference in price, but one is a retailer own brand, and the other a fairly long-established brand which specialises in canned fish. At this point it becomes necessary to consult what our consumer has 'learned' about these two brands from the multitude of messages he or she has received.

## **'LEARNING' ABOUT BRANDS**

Let's make it absolutely clear from the start that when we talk about what we learn about brands we are *not* just talking about product claims and brand benefits; nor, when we talk about messages, are we just talking about the messages we get from advertising. Brand learning covers *all* the manifestly varied ideas and signals we pick up about brands, from the unique smell or taste of a particular brand, to the shape and colours of a particular pack or logo. All these are examples of information we receive which help us to learn about brands. For example, the predominant colour red used by Coke and the predominant colour blue used by Pepsi on their respective cans are 'messages' which increase our learning about these brands, even if their meaning is not as obvious as the messages contained in their TV advertising.

Using this definition, it is clear that every day we are exposed to thousands of 'messages' which tell us something about brands. For example, when we go into the bathroom in the morning and pick up our tube of toothpaste, we receive messages about that toothpaste. Even if we are bleary-eyed we will be reminded of the brand logo, the colours on the pack, perhaps one or two design elements. Translate that through to the rest of the packs that might be visible in the bathroom, then those we might see in the kitchen when we have breakfast, those we might see in the shop windows when we walk to the station, and you can see that we are constantly immersed in a world full of brands,

### **Brand learning is not seen as important!**

Having established how much there is to learn about brands, we are now probably going to upset a lot of people by saying that in general none of it is seen as being very important by consumers.

Mainly this is because most brands are seen, with some justification, to perform in the same way these days – the disappearance of the USP (Unique Selling Promise) in the eighties and nineties is a well-documented phenomenon. And if you as a consumer think that beer 'A' is going to taste almost exactly the same as beer 'B', that detergent 'A' is going to wash your clothes almost exactly as well as detergent 'B', that bank 'A' is going to give you almost exactly the same products and services as bank 'B', and that washing machine 'A' is going to be just as reliable as washing machine 'B', then why do you need burden yourself with collecting information about any of them?

This is not to say that consumers do not need *product* information. It helps to know whether you want a biological detergent, or a detergent which protects colours, or a detergent which is especially good for low temperatures, or a detergent which gets rid of underarm smells. The problem is that, sooner or later, all detergents end up offering versions with these benefits (or, more precisely, end up being seen by the consumer as offering these benefits whether or not they do), which is why it is product not brand information. This is one of the reasons why we said at the beginning that the choice of a brand of tuna is not a 'big' question for the consumer. As we illustrated earlier, there are quite enough decisions to be made about what needs you have in respect of a tin of tuna, without spending time worrying about what brand you want.

No one reading this is likely to deny that brand learning is unimportant in regard to tinned tuna, because it doesn't much matter if you get the choice wrong. But is this also true with a really important purchase decision, like, for example, buying a car? Extraordinary though it might seem, it often is.

Although car manufacturers would deny it, it is arguable that, in the mainstream sectors which make up 80% of the car market, the only two brand elements seen as being of real importance to consumers are 'what the car looks like', and 'how much it costs'. Under the skin a Ford Mondeo has the same sort of features, performance, safety, and reliability as a Vauxhall Vectra, a Peugeot

406, a Renault Laguna, and so on. At least that is certainly what many consumers think, if for no other reason that if it wasn't true, then the various manufacturers would be shouting their heads off about it.

Of course once you have picked a brand shortlist, there is then a lot of important *product* information you need to know in order to decide the exact model to buy (what colours are available, what size and power engine, how many extras, and so on). But from the consumer's point of view, other than the appearance, you don't actually *need* to know very much by way of information to decide which brand of car you buy. Mind you, this is very hard to prove, because if you ask a consumer if this is true most of them will deny it, because they think it makes them seem stupid.

This perceived low importance of brand learning has a significant effect on how we learn about brands. Put quite simply, we do not do it enthusiastically. We do not sit in front of our televisions, pen in hand, waiting for the ads to come on so we can write down what they say. Neither do we go round supermarkets studying packs, memorising what is written on them. We do not generally seek out brand information; we let it come to us.

This in turn has a profound effect on what we record and store in our memories about brands. But in order to understand what happens, we have first to understand how our brains function. We need to know how we receive and process information, then how we memorise and store that information, and finally, how we retrieve and use that information.

## **HOW OUR BRAINS PROCESS BRAND LEARNING**

When we talk about learning, most of us assume we are talking about how we were taught at school. There we were told to pay attention, to think about what we are being told, and to ask questions if we did not understand what was being said.

This process is what is known as 'active' learning. Because it requires attention, active learning is also called *High Involvement Processing*. As we shall see later, it makes intensive use of what is called 'working' memory.

### **High involvement processing**

High involvement processing is activated at will. The objective behind it is not just to record information but to 'understand' it, and categorise and relate it somehow to other ideas we have learned in the past. Rita Carter, in 'Mapping the Mind (2)', eloquently puts it like this:

*'The nuts and bolts of thinking ('are') holding ideas in mind and manipulating them...'*

As mentioned above, active learning requires a degree of attention. But despite our best endeavours we cannot maintain high levels of attention for long periods. Even in a classroom situation, when we know we should pay attention all the time, our level of concentration varies. How, then, do we know when to pay attention when we are not in the classroom? Do we randomly monitor everything which happens all around us, all the time?

You may be surprised to know that this is exactly what we do. What happens is that all the information received from our senses is constantly monitored by us, and considered via a process called *pre-attentive processing*.

Pre-attentive Processing.

Giep Franzen (3) describes pre-attentive processing as follows:

*'We are constantly scanning our surroundings, unconsciously and automatically, to determine whether there is something deserving of our focused attention. This primary processing is also known as pre-attentive processing, because as yet there is no call for attention as such.'*

Pre-attentive processing is a shallow mental process, which contributes little to our learning and store of knowledge.

*'The only mental action we perform (in pre-attentive processing) is to determine the relevance of what we perceive... We do not do much else with the data, because every word and image contains more information than we are inclined to use or process further at this stage'*

Pre-attentive processing is an essential part of survival, the mechanism which allows us to anticipate a punch and jump out of its way. It is also an essential part of day-to-day life in our busy world. Imagine you are driving down a busy street. Your attention is on a conversation you are having with your passenger. All the time you are doing this you are using pre-attentive processing to watch the traffic and to watch the pedestrians to see if anyone steps off the pavement in front of you. If they do, you will instantly switch your full attention to them, and either swerve to avoid them or slam on the brakes.

Pre-attentive processing is sub-conscious, that is, we do it without being aware we are doing it. But there is a *third* form of processing, which also happens all the time. Like pre-attentive processing it is instinctive, but unlike pre-attentive processing, it is conscious, and stores information in our memories.

## **Low involvement processing**

Many of us make the mistake of assuming that thinking, or 'cognition', is an on-off process. In fact we think at *various levels of consciousness*. Take the situation of the car we described above, Whilst you are processing your conversation with your passenger at high involvement, and all the pedestrians at the preattentive level, how are you driving the car? You cannot do this pre-attentively, because you need to reference your long-term semantic memory. Likewise, you cannot be thinking about every step (working out how fast you are going, whether to change gear, how much to move the steering wheel, how hard to brake or accelerate) because if you were you would find it pretty difficult to concentrate on the conversation you are having with your passenger. The answer is that you are driving using what is called Low Involvement Processing.

Low involvement processing is a passive method of learning. It is not active 'nuts and bolts' high involvement thinking; but nor is it subconscious, like pre-attentive processing. It is, as its name suggests, a form of processing which takes place at very low levels of attention.

Low involvement processing was first used by us as a term in Robert Heath's award-winning 1999 MRS Conference Paper 'Just popping down to the shops for a packet of image statements' (4). Here we discuss in more detail how Low involvement processing actually works.

Low involvement processing is in many ways the exact opposite of the high involvement, active learning process. In particular it has two distinguishing characteristics which are of crucial

importance when it comes to considering how we learn about brands.

The first of these is that whilst high involvement processing is activated by *volition*, low involvement processing is *instinctive*. In a situation where consumers regard brand information as being of little importance, the likelihood of them paying high levels of attention is not great. Given half a chance they will switch off. The value of low involvement processing is that even in a switched off mode, certain brand information can still be processed.

The second difference between low and high involvement concerns the use of working memory. In order to fully understand this we need first to examine how it is that these different forms of processing remember and store brand information.

## **How our brains memorise and store brand learning**

It used to be thought that our memories were complete and perfect pictures we kept in our minds of all the things and events we had experienced. However, if that were the case our memory capacity would have filled up long before we grew up. Memories are imperfect, and are a function not just of what is stored, but how they are retrieved. Joseph LeDoux writes in his book 'The Emotional Brain' (5):

*'Even though a memory is strong and vivid, it is not necessarily accurate. Explicit memories, regardless of their emotional implications, are not carbon copies of the experiences that created them. They are reconstructions at the time of recall, and the slate of the brain at the time of recall can influence the way in which the withdrawn memory is remembered.'*

This issue of retrieval of memory is very important, and we will deal more with it later. But first let us consider how memories are created.

At its very simplest, memory can be divided into long term memory – things we 'keep' for later – and short term memory – things we recall as we go along, but do not store. However, George Miller (6) established that short term memory has a capacity of only about seven items of information, which begs the question how we can reason at all. Studies in the early 70's by Alan Baddeley (7) led to the concept of Working Memory. Le Doux writes:

*'Baddeley's experiments led him to reformulate the notion of short term memory. If he replaced it with the concept of working memory, which, he suggested, consists of a general-purpose temporary storage system utilised in all active thinking processes, and several specialised temporary stop-age systems that are only called into play when specific kinds of information have to be held on to.'*

Working memory shares the fragility of short-term memory. Schacter, in his seminal book 'Searching for Memory' (8) describes this as follows:

*'Everyone is familiar with the operation of working memory from experiences in day-to-day life. Imagine that you need to look up a friend's number in the phone book. You find the number, then walk across the room to make the call, all the while madly repeating the digits to yourself as rapidly as you can. If you are distracted for even a moment during your walk to the phone, you will need to consult the book again; if you punch in the number successfully, you will probably forget it almost immediately.'*

Schacter concludes that working memory relies on a shallow encoding process, which must be

repeated frequently in order to survive. Long term memories use a quite different system:

*'To establish a durable memory, incoming information must be encoded much more thoroughly or deeply, by associating it meaningfully with knowledge that already exists in memory.'*

Schacter describes this process as 'elaborative encoding'. How this works is that we construct in our minds networks of connections, called 'engrams'.

*'Engrams are the transient or enduring changes in our brains that result from encoding an experience. Neuroscientists believe that the brain records an event by strengthening the connections between groups of neurones that participate in encoding the experience. A typical incident in our everyday lives consists of numerous sights, sounds, actions and words. Different areas of the brain analyse these varied aspects of an event. As a result, neurones in the different regions become more strongly connected to one another. The new pattern of connections constitutes the brain's record of the event: the engram.'*

The importance of this theory is that memories, other than those we create when we are young, are not created from scratch each time, but connect with and adapt existing networks. Schacter defines this as follows:

*one of the most influential approaches to thinking about memory in recent years, known as connectionism, has abandoned the idea that a memory is an activated picture of a past event. Connections or neural network models are based on the principle that the brain stores engrams by increasing the strength of connections between different neurones that participate in encoding an experience.'*

So these engrams not only connect with each other, but connect with other memory, to produce a vast network of memories, accessible via a whole range of pathways.

Now we understand how we memorise information, let us deal with the question of how information gets into our minds in order to create these engrams, and more specifically, the difference high and low involvement processing make to the type of information we store about brands.

### **How we store high involvement processed thinking**

High involvement processing is active thinking, which makes extensive use of our working memory. Because of this it is able to manipulate learning, and compare it with existing engrams we already have.

Take price as an example. When we look at the price of an item we register what it is. But using high involvement processing we can then form a whole raft of new conclusions and interpretations about the significance of that price. We can work out how much more or less it is than other products. We can work out if the difference is important. We can make a judgment as to whether the product is worth the price being asked. We can decide if we have enough money to buy it. And we can decide if the money would be better spent elsewhere, And when we store the price of the item in our memory, we store it along with all these other interpretations and conclusions.

But it is important to realise that these interpretations and conclusions are *not* stored as they are written in this paper, as words, Indeed they are not even 'thought' verbally. In the words of Albert

Einstein (9):

*'The words or the language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The psychical entity which seem to serve as elements in thought are certain signs and more or less clear images which can be "voluntarily" reproduced and combined.'*

A moment's consideration makes one realise that we cannot possibly 'think' in words, for the simple reason that they are too limited, As Steven Pinker argues in 'How the mind works' (10), words and sentences are simply too ambiguous for thought.:

*'Thoughts cannot be English words and sentences; notwithstanding the popular misconception that we think in our mother tongue (Sentences) achieve brevity by leaving out any information which the listener can mentally fill in from the context, in contrast, the "language of thought" in which knowledge is couched can leave nothing to the imagination, because it is the imagination.'*

## **How we store low involvement processed thinking**

So High Involvement Processing uses working memory intensively to produce additional interpretations and conclusions, Low involvement Processing does not, Low involvement processing uses very little working memory: it does not, as Rita Carter (2) says, 'hold ideas in our mind and manipulate them.' It collects input and stores it pretty much exactly as it comes in, without 'thinking' about it very much at all. When we look at the price of an item using low involvement processing we draw no further conclusions, We pass it straight through to our long term memory just as it is – as the price of the item.

On this basis, low involvement processing seems to be the poor cousin of high involvement processing. In fact it is not, Low involvement processing is an immensely powerful tool. Indeed, it is the glue that holds the entire world of brands together.

To illustrate this let us consider an example of brand learning. We have chosen an example from advertising, but the same processes apply to any brand message delivered by any media, from packaging, to sponsorship, to direct mail, to promotion, to PR, and so on,

## **AN EXAMPLE OF AD PROCESSING**

Let us assume we are a consumer sitting in front of our television when an ad comes on. The ad contains a whole truckload of brand messages. It might show us pictures, people, the brand, its logo, it might play us music, and all the while a voice over is perhaps tells us something about the brand performance, or product features, or price.

To make things easier let us take as a working example the Citroen Xsara ad starring Claudia Schiffer. In this ad she walks down some very grand stairs, removing items of clothing, until finally when she gets into the car she is naked. The 'slogan' is 'It's the only thing to be seen in', and the idea is that it is such a good looking car, that it is the ultimate fashion statement. So, as Claudia says, 'Why wear anything else',

You might think that as soon as the ad comes on it will be processed pre-attentively, and this will signal to the brain whether or not to pay attention. In practice this does not happen. When you watch TV you are by definition continuously paying *at least a low level of attention* – if you were not, then you wouldn't be watching it, you would be doing something else. What happens when an

ad comes on is that Low Involvement Processing automatically starts recording what you are seeing and hearing, checking this with stored data, so as to enable you to decide how much attention you should pay. If you have seen the ad before and recognise it, then the memories and reactions stored in the engram for the ad might indicate it is one you enjoyed enough to want to pay attention and concentrate on again; when you identify the car you can check the engram marked Citroen Xsara (if you have one), and decide if you want to pay more or less attention. All the time this is happening, the data you are recording – the fact that the ad is being seen again, the shape of the car, the fact that you are seeing an ad for this particular model and make, and much, much more, is being 'added' to existing engrams in your memory, via Low Involvement Processing.

Let us say that so far signals have come back saying 'no need to pay more attention'. Then Claudia Schiffer appears. Two things might happen. If she is already known to you as a celebrity, then the long term memory might respond with a signal to the working memory to pay attention. Alternatively, if you are male and heterosexual, your emotions might fire a 'pay attention' signal without any reference to long term memory. Either way you start to pay more attention, and, by definition, you start to process at a higher level of involvement.

Now your working memory can start to adding various extra thoughts to the mix. For example, 'Why is such a beautiful woman doing an ad for this car?', or 'It is really very tacky in this day and age to try and sell a car by showing a partially-clad model. All this data – the image of Claudia, the interpretations about how she looks, the questions about why she is there – is interacting with various engrams in your memory concerned with 'attractive women', 'models', 'Advertising', 'Claudia Schiffer', and so on. Hopefully it also modifying or creating the engrams Citroen and Xsara, and connecting these with all the other engrams.

But is this all that is processed? By no means. Even though much of the working memory is now busily engaged paying attention to Claudia Schiffer at High Involvement, part of it will still be collecting other things it sees about the car or the ad, and feeding them direct into various engrams, without any additional consideration or new conclusions. It might be collecting and feeding in a message about the stairs, the look of the car, the music being played, or the tone of voice of the narrator, or the setting, or the mood of the film, or any number of different things. This is the 'magic' of Low Involvement Processing. All these things are being attached to various engrams, and are making various connections, whether or not you are paying attention. No matter how much High Involvement Processing you are doing, provided you are still looking at the TV screen, part of your working memory will be collecting elements of the advertising using Low Involvement Process, and storing them exactly as they are recorded.

Now let us consider another consumer. This one is exactly the same as the first, hut while the ad is playing they are also receiving signals from their partner about whether or not they would like a cup of tea, and signals from their small child who is playing with a dog. Because their working memory is finite, they don't even pause to pay attention and fully appreciate Claudia Schiffer, Nevertheless, because of Low Involvement Processing, they *still process her passively*, and modify their Claudia Schiffer and Citroen Xsara engrams with her. They also process at Low Involvement all the other elements that our first consumer processed.

Now let us take a third consumer. This one is more interested in the Citroen Xsara, so they pay even more attention. They register that Claudia is walking down stairs as she takes off her clothes, and that she does actually take all her clothes off. Of course they are so busy looking at Claudia Schiffer and processing her at high involvement they do not really understand what the significance of taking her clothes off is. Other than recalling the stairs, this consumer's engrams are modified exactly as the previous two.

The significance of this analysis is that three consumers seem to produce exactly the same end result, one by paying some attention, the other by paying almost no attention, one by paying lots of attention. What, then, does attention contribute to ad processing?

Attention does have a positive effect on the durability of the changes which take place to engrams. The higher the levels of attention, the stronger the signals which pass from synapse to synapse, and the more permanent the change in the engram becomes. But aside from this there is no evidence to say that attention *per se* is an *essential prerequisite* to successful low involvement ad processing.

However, high attention is a prerequisite to High Involvement Processing. In order for the Citroen Xsara ad to work fully, you have to process and understand the idea that it is an especially good looking car. Some people undoubtedly get this, but not many.

Why is it so hard to get this final piece of the jigsaw? The problem stems partly from need to get the viewer's attention for a significant part of the running time of the ad. This is not easy, for two reasons:

- It has been shown in the past by Krugman (11) that when we watch TV advertising, our brains operate on a generally slower than normal wave pattern than is the case, for example, when we read ads in newspapers. One of the reasons for this, as we mentioned above, is that we do not see brand learning as being that important, so in consequence the need to watch TV ads is not that important either.
- But another reason concerns the way in which TV ads impart information. With TV, unlike a newspaper, we do not have control of the speed at which information is fed to us, so we do not know when something interesting or important is going to be said or shown. This leads us to adopt an habitual low attention viewing mode, and even if something of interest comes up, we will tend to revert to our Low Attention mode once the 'novelty' has passed.

This of course is why advertisers put attractive women like Claudia Schiffer in their ads. By doing so you definitely get higher levels of attention. Sadly, the attention is likely to be on her, and not on the ad, which can actually have a negative effect on the likelihood of your ad getting over the message you want it to. Why this happens will become clear after we have looked at the next part of the mental process, the part which covers how we retrieve what we know about brands.

## **HOW WE RETRIEVE BRAND LEARNING**

Over time, three important things happen to engrams. The first we have covered above, which is that they get modified and expanded. The second, which is really part of the first, is that we recall them, we remember them.

Our minds are full of engrams like those we have outlined above. Each connects to a greater or lesser extent not just to the name of a brand, but to all the other elements which we might use to identify it – the pack, the logo design, any 'abbreviations' or nicknames used, and so on.

### **'Pathways' to memories**

Each of the above represents a 'pathway' into the brand engram. But because of the connection system there can be any number of other pathways which lead you into a single brand engram. You may get to it via another product in the same market, or via another product made by the same company, or via a strong need which is linked especially to this product, or via recall of

advertising, or elements within advertising. It is quite likely that more people get to the Citroen Xsara via Claudia Schiffer ('Which car ad is it that she is in? I know, it's the one for...') than vice versa, The pathways to a brand are not infinite, but when you try to count them they turn out to be very large in number,

Another important fact about pathways, is that each time you use them they become better defined, and more likely to be used in the future, This is known as consolidation. It ~s rather like walking across a field of grass. The more people use a particular route, the more they wear away the grass, the more clearly defined that route becomes, the more other people use it, and so on. Eventually what was just a faint mark in the grass ends up as a clearly defined strip of earth, which everyone uses.

## **Forgetting**

Returning to engrams, the third thing that happens to them is that we lose the pathways into them. In other words, we forget them.

No one quite agrees yet how this happens. Schacter suggests that it is the result of interference from the increasing traffic.

*'As time passes, we encode and store new experiences that interfere with our ability to recall previous ones, I can remember what I had for breakfast today, but not what I had for breakfast on this day a year ago because I have had many breakfasts since then that interfere with my ability to pick out any single one from the crowd, Interfering events of this kind may give rise to an increasingly fuzzy or blurred engram as time passes. Many researchers would agree that blurring or even loss of information from the engram plays a role in the pervasive forgetting that afflicts us all. But some have contended that no information is ever lost from memory – that all experienced events exist somewhere in the mind, pretty much in their original form, simply awaiting the right cue to elicit them It seems likely that as time passes, interference from new experiences makes it progressively more difficult to find a retrieval cue that elicits an increasingly blurred engram.'*

Using our analogy above, what he is saying is that is a lot of other pathways are created across the grass field, it becomes increasingly difficult to see and follow the original.

Applying this principle to the ad we discussed above, let us consider the pathways which build up in respect of the car.

Each time we recognise Claudia Schiffer and the car, the pathways into Claudia Schiffer, and into the Citroen Xsara, and between the two, are reinforced. The same happens with taking off her clothes, the slogan 'The only thing to be seen in', and the 'fashion statement' idea, and the message that the Citroen Xsara is a good looking car.

Of course, if the Citroen Xsara really was *especially* beautiful, then a nice strong direct pathway might open up, being:

Citroen Xsara 'especially good looking car' message

But because no mid-range cars these days are especially good looking, this message has to be stored in conjunction with some of the other elements in order to make it at all distinctive. Some possible links which might work are:

Claudia Schiffer, Citroen Xsara, 'Fashion Statement', idea, Message

Or:

Citroen Xsara, Claudia Schiffer, 'Fashion Statement' idea, Message

Or:

Citroen Xsara, Slogan, 'Fashion Statement' idea, Message

Or:

Citroen Xsara, model taking off clothes, 'Fashion Statement' idea, Message

If, as is likely, we pay a lot of attention to Claudia Schiffer, and not much attention to the car, what happens? As we mentioned above, the higher the attention, the stronger the signal, the more durable is the pathway. What we end up with is a very 'well trodden' pathway to Claudia Schiffer, a fairly well-defined path to 'taking off clothes', and much less well defined pathway to Citroen Xsara, and even weaker links to the slogan, the 'Fashion Statement' idea, and the message. This reduces the potency of the message in three ways:

- Not everyone will 'get' the message (that is, not everyone will establish the final link between Citroen Xsara and 'especially good looking car')
- For those who do, the pathway to the message is likely to be the least well-defined, which reduces the likelihood of it being spontaneously revisited.
- Being poorly defined means that the pathway to the message is vulnerable to being overwritten and 'forgotten'.

In addition, over time Claudia Schiffer will undoubtedly be involved in many other news stories, As other pathways open up to her, the relative strength of the links between Claudia Schiffer, the ad, the car and the message will all weaken. This is an inevitable downside of shoehorning famous celebrities like Claudia Schiffer into your advertising, rather than 'growing your own' (as did Renault with Papa and Nicole,)

So how does all this affect the performance of this ad? To understand this we need to examine how we use learning like this in helping us to make purchase decisions,

### **How we use Brand Learning to help with purchase decisions**

The final stage of the process is when we decide to make a purchase. In order for us to use brand learning we have to retrieve it via one of the pathways into the brand engram.

For reasons stated earlier, we do not regard brand learning as being particularly important. Most brands perform very similarly, and unless we face a situation where we clearly have to make an important decision between two brands, we are not likely to work very hard at retrieving brand learning.

Of course, many brand buying decisions become routine, the habitual purchase of the same brand with no evident thought whatsoever, It may be of interest to know that recent thinking by (12) suggests that once behaviour becomes habitual it is consigned to a different part of the brain altogether. In order to change behaviour the whole business of brand choice needs to be extracted

from the routine area of memory, and brought back to where the original decision was made. This might explain why brand leaders are so hard to topple.

But even habitual brand purchasing has to be the result of a decision at some stage. When faced with four brands of tuna, we have to choose one. How do we cope with this?

The answer, as explained earlier, is that we use our intuition. We operate at a very low level of consciousness, making full use of somatic markers. And because we are using our instinct, *we cannot prevent our mind retrieving brand learning involuntarily.*

Let us use this knowledge to examine the car situation we have been following. We decide we want to buy a car in the mid-range band. What we will start by doing, just as in the case of our tins of tuna, is to consider our needs. Do we want four doors, or two? Do we want higher than average performance? Do we want a particular styling? Which countries might we consider? Are there any specific features or extras we might want? And exactly how much are we prepared to pay?

From these needs we might assemble a list of possible 'brands'. There are probably a dozen or more brands/models we could consider, but in reality we will probably only have three or four on our list. Why so few? Because we 'learn' (that is, collect impressions, and associations) about car brands almost continuously, from long before we are even old enough to drive, and by a combination of associations and somatic markers we have already intuitively rejected many brands,

Let us assume that Citroen is on our list. The next step is to look at one or two of the four possible models. All the showrooms are reasonably close, so how do you choose which to visit first?

Because none of the cars are exceptionally different from one another, the basis for choice is going to be intuitive. At a half-conscious level you connect with the pathways into the engrams of each of the 'brands', to see what comes up. And what comes up with Citroen Xsara is just two low-involvement processed elements: 'Claudia Schiffer', and 'taking her clothes off'.

A number of somatic markers immediately spring up: The first is that she is beautiful and rich, and it is nice to have someone beautiful and rich associated with the make of car you buy. But the second is that she is a model, and that models are paid to endorse products. The third is that she is taking her clothes off, which is tacky. And a fourth is that the whole idea of her endorsing a French car is daft, because she is German and would probably only drive a Mercedes or a Porsche or a BMW,

The net is that there are more negative somatic markers than positive. Citroen Xsara does not therefore qualify to be on your list to go and see. Instead you decide to go and see a Volkswagen Golf and a Renault Clio. Why? Because the Golf (and Passat) advertising has left you with a feeling that Volkswagens are very reliable (and carefully made); and because the Papa and Nicole, although no longer on air, left you with a feeling that the Clio is a bit flirtatious and sexy.

But in the same way that we can hypothesise that this ad will not work very well, we can hypothesise about many other marketing activities that will. Anything which establishes a powerful need-related association and links it to a brand engram is likely to be a good move. Here are some good examples:

<b>Brand</b>	<b>Association</b>	<b>Need</b>
Punto	Sexist parody ads	Recognition of modern values
Andrex	Puppy	Softness, family values
Direct Line	Red Telephone	Speed of response, ease of contact
Marlboro	Cowboy	Identification with freedom, individuality
Marmite	'Divisive taste'	ads Recognition of individuality
Jack Daniels	Celebrities	Identification with heroes of young
Budweiser	Frogs/Lizards	Irreverence, parody of advertising
Carling Black Label	Football league	Support of national pleasure-related activity
Cadbury	Coronation Street	Identification with popular tastes
Virgin	Richard Branson	Anti-establishment hero
Body Shop	No animal testing	Stance against unnecessary cruelty
Iceland	Natural eggs	Stance against food tampering
Coke	Vending machines	Easy availability

So now we can end the story of the five tins of tuna. As you may recall, by using somatic markers our consumer had got the choice down to two brands – Sainsbury's, and John West. He or she obviously believes Sainsbury's is an OK brand, or they wouldn't be shopping there. Mind you, their confidence has been dented slightly by stories of falling profits, and that leads to a very obvious response that they might be saving a few pounds by buying cheaper, less good quality own label products like tuna. But the influence that drives the actual choice they make – John West – is twofold. Partly it is because it is the only can which has green on it, and green is a good association for food; mainly it is because in the hidden recesses of our consumer's mind lurks a connection between the John West engram and the word 'best'. This word 'best' is all that remains of a once stronger advertising engram which included the slogan 'When it comes to fish, John West pick only the best', and the pathway to the word *best* has survived only because it rhymes with *West*. It might all seem to be a very poor reason for buying John West tuna, but remember, we are dealing with a consumer who has much better things to think about. Being guided by this type of semiconscious 'intuition' is an easy way out of an irritating situation,

This story hopefully serves to demonstrate how need-related associations in advertising, or indeed any other form of marketing, can be more powerful than strong forces like price, and can indeed be far from weak.

So finally, now we understand how memories are retrieved, and how brand decisions are made, let us see what lessons there are for research,

### **Retrieval of brand learning in a research environment**

A popular misconception about memory is that it is somehow immutable – our memories of

events may fade, but they do not change. This is not true. As Joseph LeDoux said

*'(Memories) are reconstructions at the time of recall, and the state of the brain at the time of recall can influence the way in which the withdrawn memory is remembered.'*

Schacter endorses this in respect of 'In vitro' situations (of which research is a classic example)

*'in the ... psychology laboratory, distorted recollection. sometimes result from the way memory is probed or cued, For instance, some experiments have shown that the exact way a question about the past is worded can influence what a person claims to remember. Distorting effects of present circumstances on past events can also occur when people are asked to make retrospective judgements about attitudes and views they held in the past.'*

The effect of repetition on veracity is another alarming finding of cognitive neuroscience

*'Experiments have shown that simply repeating a false statement over and over leads people to believe that it is true. Likewise, when we repeatedly think or talk about a past experience, we tend to become increasingly confident that we are recalling it accurately. Sometimes we are accurate when we recount frequently discussed experiences that we remember inaccurately. Retrieving an experience repeatedly can make us feel certain that we are correct when we are plainly wrong.'*

What are the implications of all this on research, and in particular brand research? On one level it is perhaps no great surprise. All researchers become quickly aware of the distorting effect which questionnaire structure and changes can have on data. But few of us perhaps realise that memory itself can be altered by the way we ask questions. What Schacter and others are saying is that when distortion takes place because of the way questions are asked, the resulting changes in memory become permanent. The engram is changed for ever.

## **IMPLICATION FOR QUESTIONNAIRE STRUCTURE**

It is traditional to start a brand tracking survey with a question about spontaneous brand recall. Most of us assume that such a question merely records existing knowledge, and no difference would be seen between the answers to a questionnaire which started with a prompted brand list and one which started by asking spontaneous awareness.

So how do we explain the dramatic difference between the results from a pilot wave and the initial wave of a survey into the DIY market, in which the only difference was the inclusion of a spontaneous awareness question? And how do we explain why it was that the image endorsements for the brand which had the highest spontaneous awareness were the scores which increased the most? The only logical conclusion we can draw is that the very act of asking a spontaneous brand recall question at the start of the survey 'altered' the memory of respondents, and thus changed all their subsequent replies.

In practice all questionnaires have to have a start point. What needs to be recognised is that the early questions will alter the respondent's memory, and set a pattern which will inevitably dictate how the rest of the questionnaire will be answered.

Imagine then what happens when media advertising recall is asked at the start of a tracking questionnaire? We alter the memory of the respondent so that he or she will 'believe' they have seen advertising for those brands they identify. When it comes to brand image endorsement, this will then influence their view of these brands, whether or not they have seen any media

advertising in reality.

Now imagine what happens to advertising diagnostics when brand image questions are asked beforehand? Is it likely that any brand whose image has just been rated as poor, is going to have its advertising rated as brilliant? In the mythical Cartesian world where everything is answered accurately, our respondent might give their true opinion, unbiased by their previous answers. In the *real* world, what Schacter and other neuroscientist have demonstrated is that the respondent *cannot help* their answers being biased.

Nor does the respondent necessarily recall any change in memory taking place. An illustration of how memory can be affected without the subject being aware is provided by 'Priming'. Schacter reports tests in which subjects were shown words, and then later provided with fragments of these words.

*Conscious memory was, of course, much less accurate after a week than after an hour, but there was just as much priming (effect) ... after a week as there was after an hour. In fact, the priming effect was just as strong for words that people did not remember seeing earlier as for words they did remember seeing. The results pushed us toward a strong, seemingly unavoidable conclusion: priming occurs independent of conscious memory.'*

## **IMPLICATION FOR AD AWARENESS**

The implications of this last point with regard to, for example, advertising awareness, are significant. What this suggests is that exposure to advertising can have the same effect irrespective of whether or not the advertising is recalled.

Schacter emphasises this point in a later reference:

*'implicit influences on our judgements and behaviours may be especially pernicious because they operate outside our awareness, Commercial advertising provides a good example. You may think that because you pay little attention to commercials on television or in newspapers, your judgements about products are unaffected by them. But a recent experiment showed that people tend to prefer products featured in ads they have only glanced at several minutes earlier – even when they have no explicit memory for having seen the ad. Such implicit effects make us vulnerable to what social psychologists call 'mental contamination': when our thoughts and judgements are biased by unwanted but unconscious influences. None of us like to think that our purchasing decisions are swayed – advertising we barely notice... (yet) it is precisely because we are oblivious to the source of these influences that we are prone to mental contamination.'*

This confirms what everyone who has worked in advertising for any length of time already knows, which is that high ad awareness is not a pre-requisite for successful advertising; and, more importantly, that the lack of ad awareness does not necessarily mean that an ad has failed to impart a message, or modify a brand engram.

## **Implication for image grids**

Now let us take this knowledge and apply it to the foundation of most Brand Evaluation research conducted in the world today – the comparative image grid.

What cognitive neuroscience has demonstrated is that consumers take decisions based not upon reason and logic, but upon intuition guided by 'markers' derived from past experience. We have shown that many if not all brand decisions will be made in this way, guided semiconsciously or even subconsciously by brand associations which have often never been interpreted for any further meaning. We have shown that the consumer's own ability to comprehend this state of affairs is limited, and can be influenced by the way in which he or she is questioned.

So now guess what happens when a respondent is shown an image grid with a selection of statements and a selection of brands to match them with?

The effect will be to change permanently that respondent's frame of reference in respect of how they evaluate brands. The effect will be to destroy their ability to retrieve the reality of how they make purchases, and replace it with a Cartesian framework which only we, in marketing and research, ever use.

If, as is frequently the case, the image statements are based upon a particular set of needs regarded as being important to one brand, then this has a further biasing effect on the respondent. The effect it will have is to heighten the importance of these particular needs in the respondent's mind, and we will then have insinuated into the respondent a set of needs which thereafter they will use to judge brands, irrespective of their own views of the importance of those needs.

And no matter how much you then go back and question that respondent about their 'real' views, and the reasons why they gave the answers they did, you will never get them to change back. Their memory of the way they really behaved has been overwritten, and is gone for ever.

## **A better way to do brand research**

The findings of this paper are perhaps not pleasant reading for those wedded to traditional research methods, and they might be justified in making two points:

- Despite their shortcomings, traditional research approaches are tried and tested, have resulted in numerous successful brands and advertising campaigns.
- The problems outlined are innate to research of any kind, and are unlikely to be overcome by changes in technique.

The first of these points is valid. There is no question that traditional research has in the past played a role in making brands better. But by the same token neither is there any doubt that on occasions it has also destroyed brands and snuffed out advertising which failed to achieve what we can now identify as unrealistic objectives.

The second point we cannot accept. New ways of conducting research are being developed, and, as was demonstrated in Robert Heath's paper last year (4), they can indeed be more accurate when it comes to evaluating brands.

But more important than this is that we must accept that the world is changing. Brand marketing is becoming more diverse, and the arrival of the internet has already seen dramatic changes in the way brands are supported. Research simply has to get better, otherwise it will be left behind.

## **New Rules of the brand research game**

Brand research must be conducted from a consumer perspective. It must replicate how consumers

learn about brands and make brand decisions. In order to do this it must:

- Accept that the most important element of a brand in the consumer's mind is the 'engram' he or she has constructed for that brand. The first step must always be to attempt to reconstruct what this engram is,
- Accept that brand decisions are driven more by intuition than by reason. This means that rational questions about purchase intention and future behaviour are just as likely to give misleading answers as correct answers.
- Accept that consumers rarely if ever make overt comparisons between brands, and if you invite them to do so you are likely to change their perceptions for ever. It is far better to deal with brands monadically, not comparatively, when we are eliciting attribute and personality data.
- Accept that prior exposure of selective groups of need-based statements will contaminate the views of a respondent. Image statements need to be balanced, and need to be elicited from the consumer, not imposed on the consumer by brand owners whose lists are biased by their view of the market,
- Accept that the way in which marketing stimuli like television advertising are processed (Low Involvement Processing) *cannot* be recreated 'in vitro', Research which attempts to do this (e.g. Pretesting) may well have a role to play, but exposing consumers to ads in anything other than a viewing environment will cause them to be processed with artificially high involvement, and will over-estimate the extent to which rational messages are received.
- Accept that traditional media advertising is no longer a more significant element in brand marketing than other activities, Putting questions about advertising before questions about brands may suit the objectives of a study, but it must be recognised that this will set a context for the consumer which *does not represent reality*, and which will inevitably bias subsequent brand responses

## CONCLUSIONS

Most rational thinking related to brand decisions concerns the 'needs' we have, not which brand we choose. If one particular brand satisfies our 'needs' better than any other, then this is highly likely to be chosen.

However, because brands are so competitive, and are updated in performance so swiftly, 'needs' are almost always satisfied by many brands. Consumers quickly discover there is little to be gained by trying to rationally analyse and compare brands with each other, and brand decisions tend to be taken intuitively.

For this reason, learning about brands is generally *not* seen as being very important. As a result we tend to process anything to do with brands at very low attention levels, using a process called Low Involvement Processing.

Low Involvement processing uses very little working memory and does not generate thoughts about the 'meaning' of the information, It tends to store everything in long term memory as it is received.

Because Low Involvement Processing is instinctive, it cannot easily be replicated in a research environment, Interview-based evaluative studies such as pre-testing can be misleading, because they encourage artificially high levels of High Involvement processing.

Brand are defined in our memories by 'engrams' – a network of connections in our brains which link together everything we know about the brand. Any brand signal or message sent from

working memory is attached to the engram via a pathway.

The more frequently a pathway is used, the better defined it becomes. Thus the more frequently an element is 'connected' with a brand engram, the more strongly it tends to be associated with that brand in our mind.

Intuitive brand decisions are often driven by rules generated from past experience, known as 'somatic markers'. The elements associated with a brand can trigger somatic markers, and exert a powerful influence on intuitive brand choice.

Memories are retrieved by re-activating pathways into the engram. The *way* in which memories are retrieved has a powerful influence on the *nature* of the memory retrieved.

This means that questionnaire structure to some extent *creates* the memories respondents have about a brand, and dictates the responses given about that brand. So if advertising awareness questions are placed before brand questions at the start of a study, then respondents will instinctively evaluate those brands in accordance with their advertising perceptions of those brands.

Likewise, because purchase decisions tend to be intuitive, if we are asked to 'reason' between brands, we will construct in our minds a rational framework by which we can compare brands. These then become our new memories, *even if we have never in practice used such rational comparisons to make purchases*.

Responses such as those above will often give a completely false picture of brand values. A better and more accurate way to measure brands is to evaluate them monadically, in the light of the elements which each individual consumer associates with them.

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