

# Neuromarketing, emotions, and campaigns

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## **Executive Summary**

Neuroscientific studies of emotional processes have proposed that it is primarily emotions and not rationality that plays a vital part in influencing decision making, perception, cognition, and behaviour. Understanding of emotional processes is vital for development of marketing and advertising campaigns because successful branding and advertising depends on understanding and developing an emotional appeal towards consumers. The issue however within advertising and marketing practice persists that traditional research methods cannot uncover these emotional processes as they are only reflected in the brain and through physiological reactions. This means that we do not know for sure the reasons for consumers perceiving ads and brands a certain way, nor do we know for sure how to engage their attention and behaviour. It is proposed that by applying neuroscientific research studies and physiological reaction testing to advertising and marketing stimuli, under the discipline of neuromarketing, traditional research methods can be made more accurate and advertising effectiveness increased. Although neuromarketing cannot be used to guide behaviour, it can be used to develop understanding of how emotional processes influence perception and behaviour. This has the potential to illuminate why some marketing actions and advertising works, and why others don't. In turn, this can guide towards creating more effective advertising executions, branding and marketing strategies.

The research paper explores the role of emotional processes and neuroscientific research into these processes from a theoretical and practical standpoint. The theoretical review explores the areas of the brain usually attributed to emotions in neuroscientific research, how the study of emotions in influencing behaviour and choice has altered behavioural economic theory, perception and preference to elements of the marketing mix, and advertising effectiveness measures. Issues from a practical standpoint are explored through monitoring of media articles available to the general public on the topics of neuromarketing and neuroscientific research. Interviews with practitioners within the advertising and marketing industry, neuroscientific research realm, and neuromarketing companies uncover further how the study of emotions through neuroscience and physiological reaction measures can be practically integrated into campaign development. A model for this integration is proposed by illustrating the areas in campaign development where neuromarketing can add value to advertising and branding.

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# Part 1. Introduction

## Emotional decision makers

Advertising practice and brand management have shown a growing awareness towards seeing consumers as emotional perceivers and less as rational choice makers. This awareness is growing due to results in consumer behaviour studies but also due to brain science studies which are increasingly showing that most of the decisions we make are based primarily upon emotion and not rational processing of information.

In simple terms, emotions can be described as a 'gut feeling' that comes into play to influence our behaviour and decisions. At times a decision may rationally seem unexplainable, however we still follow it because we 'believe' in it. In the majority of cases, we cannot classify what this 'gut feeling' is if we are questioned about it directly and this can be attributed to the fact that emotions function primarily on a sub-consciousness level. From an evolutionary perspective emotions guide us to better and quicker decisions in the face of danger and ensure our path to survival. In modern society we of course have necessary measures in place to minimise the threats to our survival. However, just because these measures are in place, does not mean that our emotional brain will be at rest and prioritise for more 'rational' decisions.

In modern society the issue of survival may translate into more elaborate manifestations. For example, survival can translate into elements of social acceptance, and social acceptance may translate into fitting to patterns of behaviour of a certain group. Crudely put, this behaviour in consumer society can be based upon what we buy. Hence consumers look for products and brands that reflect their self-identity in order to be socially accepted, which is essentially an inherent risk reducing strategy to ensure survival within a group. This gut feeling, or emotional states, cannot be easily uncovered by focus groups nor interviews as they are largely thought to be below the level of cognitive thought processes within the brain. It is now becoming evident that emotions have a very prominent role in all decision making and are particularly influential in decisions within consumer behaviour.

*“ What became blindingly obvious when I came to study the broader learning’s of brain science, is the huge split between the conscious world that drives most advertising practice and indeed market research, and the unconscious world that drives most decision making brains processes. The model that still underpins much the way we measure communication still seems to assume a rational consumer who cognitively and consciously processes the information from advertisements and is able to play it back to an interviewer through the medium of recall... (This is) what has driven what an entire industry has done for the last half century.” (Robin Wight, Podcast lecture The magic bullet that can help marketing hit the target better, University of Warwick.)*

The role of a marketer is to influence behaviour through marketing actions such as advertising and branding, however research into how emotions effect consumer perception and actions has been limited to consumer report and behavioural studies which in themselves are based on rational report and are not enough to explain vital emotional processes. What is needed is an exploration of these processes by looking at the source, our brain, and how marketing actions in reality effect it and our behaviour.

### **A Neuroscientific approach to understanding emotions**

In recent years, neuroscientific research has expanded to the realm of studying the brain in relation to decision influencing stimuli and how it effects behaviour and perception. The first of the two main technologies used for such research are Functional Magnetic Resonance Imaging (fMRI) which is a specialised brain scan that measures the change in blood flow within the brain. Neural activity is indicated by the increase in the consumption of oxygen by nerve cells within the brain, the response to which is increased blood flow to that area. The second technology is Electroencephalography (EEG) which records electrical activity of the brain over a short period of time through electrodes which are placed on the scalp. With the application of neuroimaging technology such as fMRI and EEG, understanding salient emotional reactions on a neurological level has been the focus of neuroscience for close to a decade. At first modern psychology was combined with the technology to explain decision making processes within the brain. Later, economic behavioural decision making theory was amended in the light of neuroscientific research results.

It is only in recent years that consumer behaviour and marketing research has started looking towards neuroscience for answers to salient consumer decision motives. It is from here that neuromarketing started to emerge.

*“When someone doesn’t get the message you’re trying to deliver to them, it’s not their fault. It is that you haven’t written the right messages in the right way that gets through to their brain. And a lot of times the mistake is that you are trying to appeal to their ‘thinking brain’ as opposed to their ‘feeling’ brain.”*(André Marquis, Senior Vice President of Sales and Marketing, Innerscope Research. Googletalks 2009)

I developed a particular interest in neuroscientific methods when I learned about the new elective courses being offered at CBS, in particular The Role of Emotions in Advertising and Neuroeconomics. I felt that consumer behaviour research lacked explanatory power on a more tangible level as most of the theories are based upon methods that require the consumer to uncover their motives through self report, which requires rationalisation of their decisions. In many cases however, subjects state a reason for their behaviour and motivation, and then go out and do the complete opposite. How can this be explained?

The new elective courses propose that emotions play a vital role in advertising and marketing and that the study of emotions would therefore be of value to the advertising industry. Millions are invested into research and advertising every year, however it is stated that almost half the expenditure is wasted, we just don’t know which half.

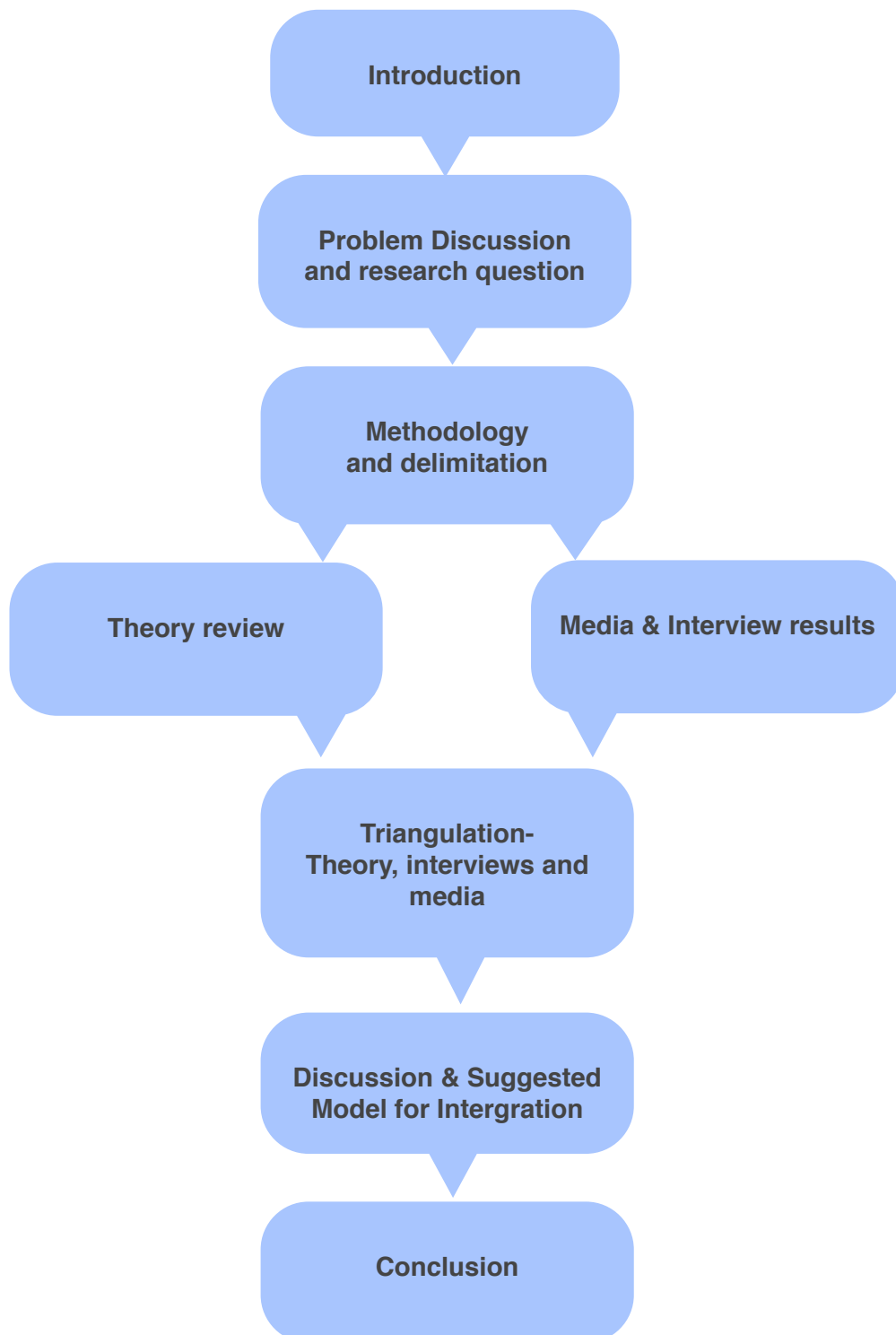
*“Ad agencies should be held more accountable for their work. This can be done by developing a more effective way to test ad campaigns. If people are going to spend serious amounts of money on advertising, they should spend serious amounts of money to evaluate it. The industry as a whole must also learn more about the creative process ... “We know terribly little about how creative ideas are generated. It’s an enigma surrounded by mystery.”* (John Philip Jones, interview Marketing news 1992)

With brand equity, ad effectiveness, and investment at stake, the question stands whether the industry can look towards a neuroscientific approach in order to understand consumer emotional processes and create better branding and advertising strategy.

## Research Question

1. Can neuroscience be applied to advertising campaign strategy?
2. If so, in what ways can it be applied?
3. Will insights from neuroscience add any value to advertising strategy?

## Thesis Structure



## Hypothesis

Neuroscientific research into human emotional responses to stimuli, has suggested a new way of looking at consumer decision making and perception as an emotional process rather than a rational process. An application of this research and methods to advertising research may offer tangible and measurable explanations of how advertising strategy works in the mind of a consumer.

## Part 2. Methodology

### An inductive approach for exploration

This research paper adopts the inductive approach. This was appropriate given that my main objective was an exploration of the area of neuroscience, neuromarketing and the practical day to day structure of marketing and advertising practice. The goal is to formulate a clearer picture of the actual issues surrounding the practices in order to develop a practical application model. Below is a diagram of the inductive approach to research (Fig. 1).

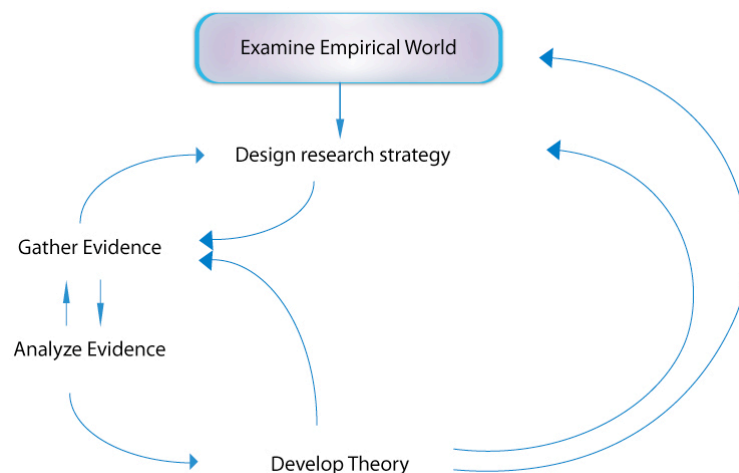


Fig. 1 Inductive approach to research (Esterberg, 2002)

It begins with examination of the theory based on research papers such as neuroscientific research publications on decision making, the limited available neuromarketing literature, marketing strategy literature, advertising effectiveness theories as well as blogs, articles and talks on the subjects of neuromarketing.



## **Preliminary research focus**

Early in the research process, I focussed my search on finding specific data and proven theories in brain activity that could be directly attributed to advertising creative flow, and the correct way that advertisers should form their communication to the consumer. However, the more research papers I read, the more I came to the realisation that at the current point in time there may not be such a relationship that can be translated into solid execution strategy for advertising. I therefore revised my research from a focus on ad execution, to a focus on the broader realm of advertising effectiveness.

## **Revising research focus**

The idea of uncovering the consumer mind as a whole and the promise of seeing all subconscious motivations of consumer preferences, may not be realistic in the current point of time. The research focus was therefore broadened from “How can neuroscience inform creative advertising execution?” - To :

“To what degree can neuroscientific research be applied to inform advertising and marketing strategy?”

## **Designing the research strategy**

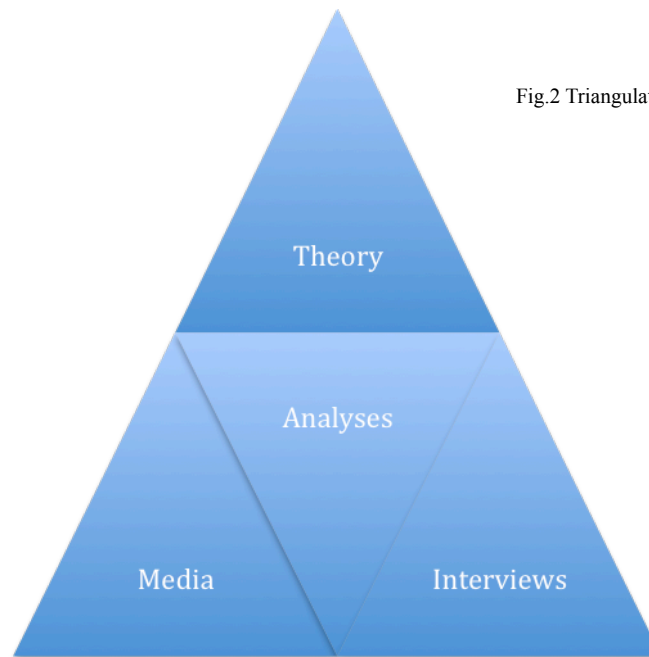
### **Triangulation**

To achieve a degree of validity and reliability within the research I triangulated my findings between the research papers, a media overview and the interviews themselves (Fig.2). This was primarily done to structure research results. It was also done for checking the validity of the interviewees opinions for analyses.

### **Theory**

The first part in the theory review focusses on research papers published on neuroscientific studies of emotional reactions within the brain to stimuli related to advertising, marketing, economics, and consumer behaviour. These research papers compare patterns of brain activity to stimuli between normal subjects and ones with medical in-abilities within the brain.

Fig.2 Triangulation model for analyses



The second part of the theory review focuses on gaining insight around the phenomenon of neuromarketing. These include published neuromarketing papers and books themselves, as well as blog entries and media coverage ranging from article publications to online broadcasts and talks. Research papers and books published on neuromarketing are unfortunately empirically weak to date and most have been criticised for being nothing more than ‘grand statements’ with no real scientific validity. However, this research paper deals with not only scientific fact, but also the social myths surrounding neuromarketing. Therefore it is still necessary to consider neuromarketing publications not for solid insights into the practice, but for revision of the nature of neuromarketing itself, its validity, and the problems surrounding it. The objective is to resolve these issues for a better integration of neuroscience and (neuro)marketing.

## **Media Overview**

To collect information about perceptions and practice of neuromarketing, I turned to sources that are readily available to the general public. Articles on the topic were therefore searched through Business Source Complete, Google, and news publications within Denmark. The podcasts I subscribed to for up to date information is the Youtube channel: “neurofocus”. Other subscriptions to blogs include Thomas Ramsøy’s (CBS) blog “Brainethics” and “Neurosciencemarketing.com”.

AdAge.com, a leading publication for global news in the marketing and advertising industry, was also monitored for mentions of neuromarketing and associated disciplines. For informed talks on neuro related disciplines I searched the TedTalks database which offers a collection of talks by speakers of various professional and academic backgrounds. Here the talks that were of particular interest did not relate directly to neuromarketing but to neuroscience, particularly to studies that have been conducted on emotional processes within the brain and the function of emotions on decision-making. What I gained from these talks is a deeper appreciation of the complexity of interrelations within the human brain, in particular when it comes to the subject of emotions and the role they play in human decision-making.

## **Designing Interviews**

Following an inductive approach, I chose to conduct recorded face-to-face, semi-structured interviews to address hypothesised issues (outlined above) and to gain knowledge about the situation from the perspective of practitioners from the marketing and neuroscientific, and neuromarketing realm. The results are later used to develop a practical model for interdisciplinary practice integrating neuroscience into strategic campaign development. Choosing the interview technique for my research was appropriate due to the fact that the research has explorative roots. The focus was to collect as much qualitative information on the topics relevant to neuromarketing, ranging from opinions to experiences within the marketing and advertising industry and their day-to-day practice.

Adopting the interview as a research method has a few issues that have to be considered in order to conduct the research in the most methodologically correct way, and to essentially collect relevant results for analyses. The following section outlines the complexities of conducting interviews in an explorative manner, and explain the way I tackle these complexities through my research design.

### **Issue of bias within qualitative interviews**

The subject of bias within interviews is a main concern for researchers. This concern involves the bias that can be introduced from the interviewers or the interviewee's side. Bias can completely invalidate results if it is not acknowledged, it is therefore necessary to examine what sort of bias can occur, and how it will influence results. Once the bias is acknowledged,

it can actually serve in illuminating aspects of a phenomenon from new dimensions, and contribute to a multiperspective construction of knowledge. ( Kvale, Steiner, 1996, Interviewing as research)

The multiperspective construction of knowledge is the focus of my interviews. I wanted to gain insights about the opinions held about neuromarketing from the side of neuroscientists, neuromarketing companies and from the side of the marketers. Once these issues are solidified and their relation analysed, can a working solution be developed for integrating the two disciplines by addressing the issues directly. The knowledge that I uncover through the interviews is itself based on opinions, and hence bias from the side of the interviewers is something that is sought after in this part of the research, as apposed to something that should be avoided. Here my role as the researcher will be one of an intermediary between the two sides.

### **Interview target group**

The interview target group is split into three groups. This was done to gain information from the marketers, neuroscientists and neuromarketers to bring this information together into data that can help build a model for co-operation between the two disciplines.

The target group is split into:

- A. Individuals working within advertising agency and brand managers within companies
- B. Researchers working with neuroscientific method
- C. Companies working with neuromarketing and or measurement of cognitive and emotional responses.

Group B and C interviews are conducted last, to incorporate the information from interviews with Group A. The objective is to question people working within neuromarketing and neuroscience how the concerns brought up during the Interviews in-group A can be resolved or incorporated into neuromarketing practice.

An issue of concern with the interviewees is how much each party knows about each other's practice. Therefore the first couple of questions are meant to serve as a benchmark for the

background of the interviewees<sup>1</sup>. From these questions it will be easier to access the opinions in consecutive questions. Dividing the questions in this manner serves as a test of bias. The opinions will reflect the degree of prior knowledge of each interviewee.

## **Criteria for Groups**

### **Group A (Marketers and advertisers)**

From the research into theory, I found that the application of the neuroscientific method is a very expensive process to integrate into brand research. The brands that are today said to have used or are using neuromarketing technology are huge brand names. From this I gathered that I would have to interview brand managers of big brand names, as they would likely be the ones with any interest or knowledge of neuromarketing due to budgetary constraints. High and low involvement products are said to have differing decision making responses in consumers. Therefore, the nature of the brand also plays a role in my choice. It was important to get the perspective from a brand who's relation to the target group would include low involvement decision making, and one that would involve high involvement decision making. Advertising and marketing practice has long assumed that high involvement brand purchases would require a greater part of rational decision making, as apposed to low involvement products, where the decision to buy is more emotional laden and in some respects an "automatic" process.

Carlsberg International was chosen as the low involvement product. From their advertisements and current brand placement it is evident that their brand equity is based on connecting the brand and it's target consumers on an emotional plane, with an appeal towards lifestyles similar to that of premium brands.

Microsoft was chosen as the high involvement brand. Here however the branding is looked upon as a processes of employee branding rather than branding of Microsoft products themselves. The brand Microsoft, is communicated as a place to work and their target consumers are IT college students and IT professionals. One can expect that the branding of Microsoft as a workplace would assume very rational type of communication to the target

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group, as career choice and development would probably be of the highest involvement decision making processes.

Lastly I include an advertising agency to offer their opinions on the balance of rational and emotional appeal for advertising and how that affects campaign development. I also wanted to learn about the whole process of developing an advertisement for a client's brand, from the research to the creative execution itself. I chose DDB for their renowned work with large international brands and years of experience in dealing with brand communication. DDB is the largest Danish advertising agency operating with global brands for the Danish market.

### **Group B**

Group B includes a researcher within the neuroscientific discipline, who has worked with the theories and research on human emotion, and brain processes in relation to perception and decision-making. Here the objective was to find out the type of research that is being done within the field, and which research in his opinion can be applied to advertising and branding. Another objective is to uncover the possible issues and complications associated with integrating neuroscience with marketing and advertising practice.

### **Group C**

Group C includes companies that today are specialising in the field of Neuromarketing and offering their services to companies. I chose two companies based in Denmark. The first is Mindmetric, who attempt to integrate neuromarketing theory and technology to service clients communications. The second is iMotions, who have integrated emotion reading technology specifically to aid in testing advertising effectiveness and branding on a visual level. The objective with these interviews is to find out how marketing and neuroscience are being integrated in the market today, and the process and results of this integration.

### **Delimitation**

The disciplines that are dealt with in the paper are very large in scope. It is therefore necessary to limit the discussion within each discipline in order to identify key elements. When talking about marketing and marketing strategy, I decided to limit the discussion to promotional activities with a strong focus on TV advertising and branding. Essentially the focus is on visual elements within marketing. These elements were chosen because the

majority of neuroscientific studies on emotions and physiological reactions in relation to consumer behaviour, have been in conjunction with visual stimuli.

Neuroscience in itself is very complex in methodology and in interpretation of study results. I therefore limited the theoretical research to studies which focus on elements of emotional processes to visual stimuli, as well as studies on brain processes that have been conducted in relation to consumer behaviour. It should be noted that there is agreement within the discipline on the general interpretation of brain activity and what it means, however due to it's complexity there are no solid theories as such. New interpretations and studies of brain activity are continuously being published.

The interviews with respondents marked "Group A" will result in giving a solid account of the important processes in marketing and advertising practice. By choosing individuals from differing backgrounds and positions within the marketing industry, common issues can be identified in their work processes that span across the marketing discipline as a whole, instead of focussing only on a specialisation of marketing practice (i.e only focussing on advertising practice). This is also why the majority of interviews are conducted with respondents from the marketing industry rather than from the neuroscientific realm (Group B). Neuromarketing companies (Group C) usually have patented technology which they are reluctant to talk about, hence the interviews that I received from the two Danish companies working with neuromarketing were possible only due to networking connections. Although these companies operate on a global scale, they are still notably smaller than leaders in the industry such as Emsense and research institutions in the US. Given time and resources it would have been beneficial to interview a representative of at least one of these larger players.

## **Part 3 Theory Review**

### **We function primarily through emotions**

To explore the importance of emotional processes on decision making, we can start by looking at the evolutionary development of the human brain. Through the process of evolution, homosapiens developed a larger frontal lobe, which is responsible for cognition. This includes processes involved in planning, control of emotions, problem solving and rational decision making. However primarily our ancestral brain functioned similarly to all

mammals, through emotion. Emotional processes determined what is dangerous, guide us to decide when to flee, when to approach, what tastes good and what tastes bad. These processes were vital to our survival as a species, and ensured survival of the fittest. Learning however did not occur through conscious weighting of alternatives and logical progression of decision making. This learning was involuntary in nature, based on quick reactive decisions that were the result of exposure to prior emotional stimulation and situations, which formed memories for correct reactions in future situations.

## **What exactly are emotions?**

At a basic level, emotions can be defined as the initial reaction to stimuli in the environment. According to Hansen & Christensen (2007) an emotion precedes a feeling and gives rise to it. The definition of an emotion, and its relation to a 'feeling' has been a subject of debate, however there is a general consensus that it is the basic concept that gives rise to the more complex thought processes such as rational decision making. By looking at how information 'flows' through our brain once it has been stimulated by the environment, we can see that emotions play a central part in laying down the memories by which we interpret and react to our reality.

Memory formation within the brain can be seen as a recording of emotions experienced in relation to the environment. The memories that form are interconnected patterns of activity throughout the brain rather than in any specific part of the brain. Neuronal activity forms clusters dependant on the degree of similarity that exists between stimuli, which can be related to the Gestalt<sup>2</sup> principle- like things will be connected together to form something bigger than the sum of their parts. Therefore triggering one memory will give rise to and trigger associated memories within the brain. The way these associations come about are unique from individual to individual, since each individual cannot be exposed to quite the same emotional stimuli as another throughout a lifetime. This implies that one persons understanding and perception of reality can be quite different to another.

The involuntary nature of emotions and the memories laid down are very powerful psychological processes that are largely out of our own control. One example to illustrate this

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<sup>2</sup> From the Berlin School of thought- The Gestalt effect refers to the organizing and form-forming capability of our senses, especially in relation to visual recognition of figures and whole forms.



point is if one is asked not to think of an elephant (duPlessis 2005). The mere mention of the word will instantaneously bombard our conscious with memories and associations, e.g pictures/feelings/situations/synonyms we have with the word 'elephant'. Some of these will be brought to a cognitive level where we can acknowledge them, and some may reach subconscious levels and make us react in ways we cannot rationally fathom. If we had voluntary control over how our brain initially reacts to stimuli, it would be quite simple for us not to think of an elephant when asked to. This is because the first process in the brain to stimuli is emotional. Perhaps with some subsequent effort from us we will be able to drown the elephant out of our mind but that would take quite a bit of effort and immense exercise of control.

## Where do we find emotions in the brain?

The areas that are of interest when talking about emotions are the amygdala and hippocampus within the limbic system (Fig. 3). The limbic system as a whole is associated to controlling feelings of pleasure and pain. The amygdala plays a role in reacting to stimuli. The hippocampus plays a role in short term memory formation. This system interprets the stimulus through previously formed neuronal activity (memories) and tells us how to react. It will determine if we should pay attention to the stimuli, whether it is good for us or bad for us, and whether we should move toward or away from it.

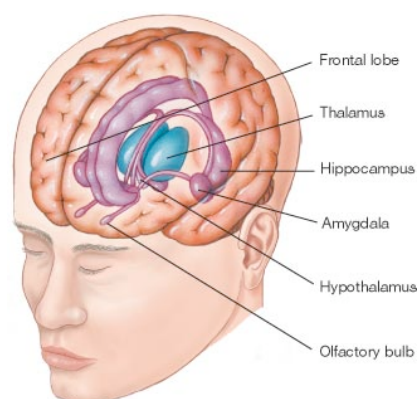


Fig.3 Limbic system. Google source

The process of registering emotions and the flow of this information in the brain to the amygdala is illustrated by Ledoux (1998) model of the Low and High roads to the amygdala (Fig 4.) which demonstrates what happens when our senses are exposed to a stimulus. The stimulus first gets sent to the sensory thalamus. At this point the stimulus can either take the 'low' (for quick reactions) or 'high' road (incorporating prior memories) to the amygdala

which will emit an emotional response. In the case of danger, the signal will take the low road to the amygdala so that a fear response is emitted to danger as fast as possible by bypassing some of the other memories in the sensory cortex. This will cause psychological changes to our body, such as increased heart rate and freezing, which stops us from walking straight into a dangerous situation. Only after the information has been transmitted to the amygdala is it sent up the high road to access more memories, and sent back to the amygdala to assess the situation to emit a more informed response. This is why we jump in our seats during horror movies only to realise shortly after that there was no real danger. These processes are all subconscious, as we do not have time for cognitive thought processes in the face of danger. Due to this stimuli having taken place, the brain tags the stimuli as either being pleasurable or not, and connects the memory of it to other memories which seem to be similar within the brain.

The Insula, a cerebral cortex structure has also been linked to diverse functions to do with emotion and the regulation of the body's homeostasis. Some of the functions include perception, motor control, self-awareness, cognitive functioning, and interpersonal experience. Therefore if activation of the Insula is recorded in brain imaging studies, it can indicate avoidance behaviour as a reaction to a stimuli.

The nature of the emotional flow in the brain, illustrates that our cognition is the last resort the brain turns to when interpreting and reacting to stimuli. The memories (perceptions) that are formed sometimes never even reach cognitive thought processes, meaning that most memory

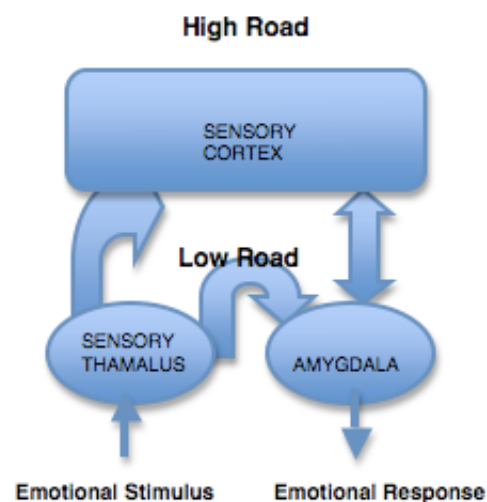


Fig.4 Own illustration- High and Low road to Amygdala (Ledoux, 1998)

connections happen out of our control and out of our cognitive awareness. Understanding this process has many implications towards research methods prominently used today in advertising research, since all of them are based on cognitive and not emotional processes. Ads essentially are visual/auditory stimuli, which suggests that the response they elicit will rely primarily on emotional processes. These implications will be explored later in the paper.

### **The Somatic Marker hypothesis**

To further explain the concept of memory formation from emotional stimuli, we can look at Damasio's Somatic Marker hypothesis (1994). Damasio describes Somatic Markers as tags in our brain manifested as memories of emotions from stimuli experienced in the past. It is these tags, which in the immediate term, allow us to make swift decisions to get away from danger.

In relation to branding, the concept of the 'soma' can be understood as the overall feeling that a consumer has towards a brand or ad. We can say that a consumer has a generally negative or positive soma towards the brand or ad, which will relate to all the memories (somatic markers) that he or she associates with it. An important aspect of Damasio's somatic marker hypothesis is that it shows that emotional processes can become very complex. Emotions do not have to arise solely in the presents of stimuli, they can also arise from memories of experiences from past stimuli. In given situations, a certain stimuli can spark off an emotion that could previously have been associated to another stimuli, this is what he calls the "As if body loop". Hence we can experience an emotion from an associative memory rather than from any direct stimuli within the environment at that moment in time. This means that our perception of a brand, will depend on all the previous emotional stimuli we associate to it. This will not only include the TV ads we have seen for the brand, but also our experiences with using the brand, what others say about the brand, amongst many more associations we may have made. This has a huge implication for brand managers as it displays that all communications that are sent out voluntarily or involuntarily, will have an effect on our perception and behaviour, whether we as consumers pay conscious attention to the communication (stimuli) or not.

## **Emotions are stronger than rationality**

We need to learn how to deal with situations when they arise and this is where emotional learning comes into play. Previously formed emotional memories of a positive and negative nature will guide us to fulfil our needs. Emotional learning is so quick and impactful, that more often than not, it bypasses rational arguments. So if a situation occurs in which we are used to dealing with in one way, our brain will keep forcing this solution onto us. Logically speaking, it may not be the most optimum solution to a situation, however somehow we just cannot resist doing the same as we have always done. These patterns of behaviour are hard to break, unless the associations within the brain are altered by stimuli that will lay down new emotional experience. The more frequently an action is performed, the stronger the associations within the brain. This explains for example addictive behaviour that is usually quoted beyond physiological addiction and it's true for everything from smoking to eating chocolate. We know it's not healthy, but given a stressful situation our brain will still jolt us into wanting to go out for a cigarette to relieve the stress, not because this is necessarily the best solution for stress relief, but because this is the way a smoker has relieved stress everyday for say 20 years.

## **Emotions have altered behavioral economic theory**

In the previous section, the importance of emotions in perception and influence on decision making has been discussed from a scientific, evolutionary and psychological perspective. Now we turn to how neuroscientific research, has changed behavioral economic theory by exhibiting the importance of emotions in economic decision making. It should be kept in mind that the amendments to economics that will be discussed also have implications towards consumer behavior, which in turn have implications to marketing strategy.

Neuroscience met economics when it was thought that decision making can be enlightened by examining the processes occurring within the brain when subjects were faced with choices of an economic nature. In particular the focus has been on processes during situations that involved financial risk taking. The behavioural impact that emotions have in such situations, has been documented through neuroscientific studies which compared healthy peoples brain activity with that of people who have lesions in the same areas. It has been found that lesions to the amygdala produce deficits in emotional expressions and responses, which in turn led to

bad financial decision making in studies conducted. Lesions in the vmPFC (ventromedial prefrontal cortex) an area for processing of emotional reactions to risk, fear and decision making have resulted in a decline in good financial decision making, as well as social decision making, even though the IQ and intellect of the individual remained the same. Since the area was responsible for rational decision-making but also emotions, it led to the assumption that the rational and emotional systems were inter linked.

*“Emotions can flood consciousness...because the wiring of the brain at this point in our evolutionary history is such that connections from the emotional systems to the cognitive systems are stronger than connections from the cognitive systems to the emotional systems” (Lowenstein, et al. “Risk as Feelings” 2001)*

Prior to neuroscientific studies, economic behavioural theory viewed human decision making as rational (reflective) where the probability could be calculated to predict our decision making in a given situation. Neuroscientific studies however uncovered activity in emotional parts of the brain (reflexive system) during economic task choices. Before this, emotions were not considered as being part of economic decision making. However it turns out that they do have a very strong role in guiding our economic choices.

Neuroscientific research has particularly helped in understanding the reflexive system (emotions) processes that occur in the brain prior to the reflective system (cognitive) coming into play to influence decision. It has been found that the initial reaction of the reflexive system to a particular situation will be very strong if not stronger than the reflective in influencing the final outcome. In their Risk-as-Feelings hypothesis, Lowenstein et al. (2001) support the theory of the impact of emotions on decision-making under uncertainty and risk. They found that emotional reactions to risky situations often diverge from cognitive assessments of the risks involved. In their review of studies they found that people experience fear (strong emotion) as a type of premonition in the face of a bad decision before they cognitively evaluate the decision. *In the case of such emotional reactions people would not even know what they were afraid of.* It has been demonstrated that feelings (emotions) about risk are insensitive to changes in probability, whilst cognitive evaluations take probability into account. This may explain why marketers of investments in insurance do not communicate probabilities of unfortunate events, but play on emotional queues such as ‘peace of

mind' (positive emotion) and 'what if' (negative emotion) scenarios. Lottery marketers also know that to get people to buy lottery tickets one must instil an emotional appeal of 'winning' to promote the feeling of anticipation towards potential gains, and stay as far away as possible from communicating the realistic probabilities of winning a lottery. (Lowenstein et al. 2001)

Another influential study on emotion in decision making- specifically related to economic topics of risk, reward and punishment, is referred to as the Iowa gambling task (Bechara et al. 1994). The task required participants to choose repeatedly from four decks of cards, some cards implied monetary wins and others implied monetary losses. Two of the four decks held cards that led to small wins but even smaller losses, where as the other two decks carried large wins but even larger losses. It was found that with each trial, normal individuals will start to pick from the more advantageous deck with small wins and smaller losses. However individuals with damage to the VmPfc ( Ventromedial prefrontal cortex- emotions such as risk and fear) would continue to choose from disadvantageous decks. Skin conductance (SCR) responses (measurement of emotional arousal) was also monitored during testing, and showed that normal individuals would have enhanced SCR prior to choosing from disadvantageous decks. This implied that they experienced a negative emotional response that was warning them about picking from the 'bad' decks, which eventually after several trials changed their behaviour to picking cards from the 'good' decks. This change in behaviour occurred primarily because of an inherent emotional response, and not due to cognitive evaluation of the decks. Participants with damage to the VmPfc exhibited hardly any difference in SCR when choosing from the good or bad decks.

### **Changing the idea of Expected Utility in economics**

Expected Utility theory in economics states that people will assess the options for utility (or value of an object) and then weigh their probabilities of occurrence to choose the best option to maximise their utility. Within economics, the risk/return model proposes that calculations can be made for the point at which individuals will see the risk as proportional to the return. It is assumed that risk attitude and risk taking can be predicted for decision making for all individuals across financial situations. Neuroeconomic studies however have shown that these models cannot be attributed to real world situations. Details such as, how information is presented as well as the gender, culture, situational ambiguity, reference points and other

individual factors such as learned experience (also a function of emotional system) give variation to the variables that are assumed to be static, when they in fact vary across different types of decision making. All of these factors operate on both the rational and emotional level, so prediction of behaviour through normative models becomes less dependable nor easily generalised since they are derived from static one off decision making. Real world decisions however are more complex and rarely static.

## **The marketing mix reflected in the brain**

Marketing theory has for a long time followed the route of economics by assuming that models such as Kotler's 4 Ps<sup>3</sup> (product, price, place, and promotion) function on a rational level in consumers minds. However it is questionable to what degree consumers cognitively base their decision upon evaluating the product, its price, and where it's placed on a shelf. Neuroscientific research however may offer explanations of how these dimensions actually effect behaviour through emotional processes at play in consumers minds.

Knutson et al. (2007) conducted a study based on the microeconomic theory that purchases are driven by the combination of consumer preference for a product and price. They applied fMRI scanning to see how preference and price are reflected in neuronal activity within the brain, and whether it could predict purchase decision. As discussed before, choices involve the element of risk, hence it is assumed in the study that there will be circuits that anticipate feelings of loss (pain of paying) and feelings of anticipating gains (pleasure of acquisition).

In their study, the activation of the MPFC was associated with gain prediction errors, and insula activation was associated with anticipation of pain or negative arousal. It has been also been hypothesized that insula activation has a profound association with loss prediction. They found that product preference activated the NAcc, which corresponds to anticipating gain; excessive pricing activated the insula. Hence, NAcc activation and MPFC activation during product consideration, and insula deactivation during price consideration could essentially lead to a purchase decision.

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<sup>3</sup> In Principles of Marketing, Philip Kotler

*“The findings are consistent with the hypothesis that the brain frames preference as a potential benefit and price as a potential cost, and lend credence to the notion that consumer purchasing reflects an anticipatory combination of preference and price considerations.” (Knutson et al. 2007)*

Since losses are more painful than equivalent gains, the natural strategy would be to minimise the perceived losses to a level where perceived gains dominate the decision. Many marketing strategies already account for this and try to minimise the impact of perceived losses in payments. Credit cards and loyalty cards are a good example, as they change the individual's reference point of the actual monetary amount. These cards give the illusion that the purchase is being charged to an indefinite deposit as the total amount in that deposit is not immediately available to the customer at the moment of purchase. Hence the customer has no means of comparing the cost (loss) of this specific purchase to the overall status quo (how much money there is in total), and so the anticipated gain outweighs anticipated loss.

### **High & Low involvement products**

High and low involvement products are said to have different emotional weights in decision-making properties. Hansen & Christensen (2007) make a strong distinction between advertising for low and high involvement products. With low involvement products they suggest that the emotional processing dominates decision making as it is made on a low level of consciousness. Customers do not tend to think twice whilst shopping for products in this category as their decision is guided by habit that has formed over time through repeat purchasing, satisfaction and overall “feeling” towards a brand. Here we can see that the emotional memory of these values and prior behaviour have a strong guiding factor for choice, which will be very hard for a competitor to break into.

It is proposed that high involvement purchases, usually characterised by higher costs, are dominated by cognitive or rational decision making. Customers will want to go through information regarding a product and consider it in relation to competitors, in order to make their final choice. *Cognition or rationality, however will take place as a consequence of the emotional processes calling them into play due to the perception of inherent risk in choice.*



## Perception of value and preference

Studies into the perception of value and how it is formed reflect what is known in marketing theory, that is that marketing mix variables can be altered to influence the perceived value of a product. Studies into value perception can apply neuroscientific method in order to see how this influence is reflected and operates within the brain. Plassman et al. (2007) conducted a study on the perception of pleasantness in the taste of wines through alterations of price. They found through fMRI scanning of subjects activation in the medial orbitofrontal cortex, an area believed to encode for experienced pleasantness. This area was more active whilst subjects were drinking wines they believed to be of higher price. The results show that reported pleasantness of wine was correlational to perceived price and value of the product, rather than it's taste.

*“Despite the importance and pervasiveness of marketing, almost nothing is known about the neural mechanisms through which it affects decisions made by individuals. We propose that marketing actions, such as changes in the price of a product, can affect neural representations of experienced pleasantness.” (Plassmann et.al 2007)*

The study shows that, contrary to standard economic assumption that experienced pleasantness from consuming a good depends only on intrinsic properties, perceived pleasantness can be modulated by marketing actions.

People who have heard of the “Pepsi challenge”<sup>4</sup> taste test will know that the majority of times Pepsi is chosen over Coke as the better tasting drink. However Coke is still the preferred drink off the shelf in stores. McClure et al. (2004) conducted a more complex taste test of the two brands by applying fMRI scanning of the test subjects to see the processes underlying individuals preferences for either drink. The hypothesis was that both drinks have essentially the same properties. Several test alterations, including a blind test, showed that there was stronger activation in the hippocampus and the DLPFC ( areas for modification of behaviour based on emotion, affect and memory) where the Coke label was present as apposed to absent. Smaller differences were found for preference of Pepsi between the blind

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<sup>4</sup> The Pepsi Challenge is an ongoing marketing promotion by PepsiCo since 1975.

test and the labelled test. The results imply that preferences for Coke or Pepsi are driven by culturally formed brand perceptions and memories, rather than taste. In the study it was also evident that the Coke brand had many more associative memory processes within the brain than the Pepsi brand, which can explain why Coke dominates the market.

## **Emotions and advertising**

Neuroscientific studies into the effect of emotions on perception and decision making have so far been discussed in relation to economic theory and elements of the marketing mix. At this point in the paper their role will be discussed in relation to an element within marketing which is perhaps the most dependant on emotions, and that is advertising. How advertising works within the mind of the consumer is till this day a type of enigma.

*“Advertisers control two main factors that influence advertising effect, those are media expenditure and message content. Advertising effects such as campaign recall and campaign liking, as well as brand effects such as brand recall, are more influenced by message content strategy than media expenditure.” (van den Putte, International Journal of Advertising 2009)*

The majority of literature published on advertising strategy and the focus of most courses in advertising circle around management of media planning (media expenditure) based upon statistics of effectiveness against budget. The resulting success or failure is measured by the sales effects, or recall and recognition testing. However, understanding of the effect message content itself creates, is left largely unexplored and unexplained. A review of theory suggests that a step toward explaining the effect of message content lies in the study of emotional processes.

*“...agencies and clients need better insight into consumers’ emotional connections...This has huge implications for media planning especially for those who still think in terms of ‘effective frequency’. A successful brand is one that engages the consumer in personally meaningful ways. To realise the potential of expression, better metrics and research are needed.” (Chris Walton, CEO Mindshare )*

This section of the paper will review the prevalent theories of advertising campaign strategy and outline their strengths and weaknesses in the light of theories on emotions.

The section is divided into three parts:

- Sales, reach and frequency as measures of ad effectiveness are discussed and critiqued. This is followed by a discussion of how emotions impact these measures.
- Recall and recognition measures of ad effectiveness are discussed in relation to emotions.
- The measurement of ad and brand effectiveness through the measurement of 'liking' is discussed and critiqued.

## **Part 1 Sales, Reach and Frequency**

### **Measuring ad effectiveness through sales**

It is doubtful to what degree measuring ad success through sales reflects true effectiveness as so many other variables in the marketing mix such as price, product, place and promotion (P. Kotler, 4ps, Principles of Marketing) come into play to influence sales. One major problem of measuring effectiveness in this way is accounting for all other variables, such as prices, distribution, seasonal variation, and competitors. Since advertising is said to function over time, sales effects may be seen as a result of collective campaign efforts. In this case it is difficult to assign success to a single advertisement, by looking at sales effects.

A persistent problem for companies who use sales measures as guidelines for their advertising and communication budgets is that they do not consider what actually makes sense for their brand. Many times media channels that are inappropriate for a brand will be chosen simply because they have shown to improve sales of other brands. Chasing industry trends in this way, with little consideration for how the choice of communication affects the brand in the mind of consumers will reflect unfavourably on brand value and sales in the longer run.

*“Most decisions taken in connection with advertising- and in a broader scope, all promotional and marketing-planning, may rest on mathematically formulated conditions of optimality when it comes to determining the amount of spending. In practical life, this is rarely done, and the reason most often cited for this is lack of reliable data”. (Hansen & Christensen 2007)*

### **Do reach & frequency measures reflect true effectiveness?**

Reach and frequency measures in advertising are designed to indicate the potential effectiveness of ads. It is assumed that the bigger the number of people in a target group that see the ad, the bigger the chance that the communication will get through to them.

Reach is a statistical analyses used to evaluate media by measuring the total number of people that are exposed at least once to an advertisement through a certain media for a given period of time. In a media schedule, reach is calculated by gross rating points (GRPs). GRPs are the sum of the percentage of reach for each advertisement or promotion insertion in an advertising cycle. One GRP equates to having reached 1% of the target audience. Here the actual reach or what is referred to as effective reach and frequency is omitted in calculation. It only considers the total number of exposure opportunities (OTS) and doesn't differentiate whether it is the same individuals who have seen the ad or different ones. An important issue with this measure of ad or media effectiveness is that from the results it is assumed that a certain viewer-ship for programs, indicates a similar viewer-ship for the ads in commercial breaks. In reality however the audience of those programs may not even be looking or near the TV set during the time the ads are running. The same principle applies to print and radio ads.

Frequency is calculated as the number of exposures per individual in the target audience in an advertising cycle. Effective frequency is the believed number of times an individual must see the ad in order for it to push them towards behaviour, for example, purchase. An ad will have a minimum effective frequency in which it is ineffective in getting the individual to act. This implies that if the ad is run infrequently within a time frame, it will have no effect. An ad also has a maximum effective frequency point after which it is said to decrease the disposition of the individual to act.

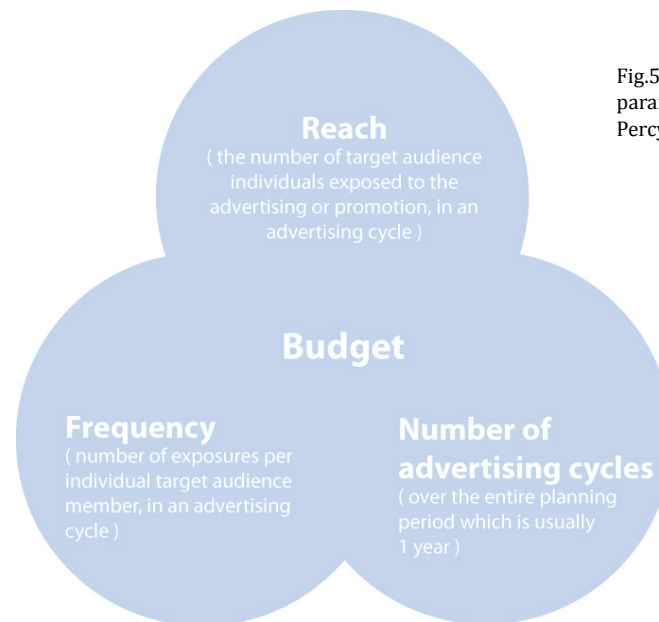


Fig.5 “media balloon” basic parameters of media plan. Rossiter & Percy 1998

A media plan will have a trade off between reach and frequency. The planner may decide to design the plan to either reach a lot of people a few times or a few people a lot of times. (Fig 5. Rossiter & Percy 2008) This choice rests with either choosing many media vehicles through which to run the ad to reach more people, or to invest the budget into one vehicle to reach less however more specific viewers. The tradeoff between reach and frequency and advertising cycles are determined by the product in question. Different strategy will be adopted dependent on factors such as whether the product in the ad is well-established or new, high or low involvement. There are very many tradeoff strategies within media planning each tailored to the type of product in question. All of them are traditionally calculated upon the measures of the type of communication which rests upon the parameters of vehicle attention (low or high), target audience (brand loyals, switchers, new category users), communication objectives of which there are two: recall or recognition, and personal influence. It is important to note that when Rossiter and Percy talk about attention in the frames of traditional media planning, it is only treated as *initial attention*. The *subject* and *content* of the communication is left to be dealt with by the “creatives”- *“Once initial attention is achieved, the ad’s creative idea and execution tactics have to take over to achieve further attention, necessary for brand awareness and persuasion.”* (Rossiter & Percy 2008)

What Rossiter and Percy meant by “initial attention” is quite unclear. From the perspective of neuroscience, this ‘initial attention’ and ‘further attention’ may be one and the same. It can be the length of the ad or where it is placed that catches our attention or how many times it is repeated, however just as powerful is the appeal to the viewer on an emotional plain of relevance within the message where memories guide the attention.

*“Results suggest that variation in message content strategy has more effect than variation in advertising expenditure” (Bas van den Putte, International Journal of advertising. 2009)*

In some cases, as proposed by DuPlessis (2005), attention can operate on a subconscious level and still register with the viewer even if they are unaware of the ad whilst being exposed to it (Supervisory Attentioning System, discussed below) Therefore it is important to consider to what degree the execution of an ad itself overrides these statistics and strategies for gaining attention.

*“The objective of an advertising schedule should be to create memory traces, not simply to provide an opportunity for many people to see the advertisement.” (duPlessis 2005).*

An apparent weakness of these measures is that by basing effectiveness upon statistics, there is no explanation for the processes that function in gaining the attention that actually leads to effectiveness. They also do not account for variations of creative ad executions. An ad may have all the technical specifications down, media channels appropriately chosen, timing frequency and reach goals attained, yet still flop in sales as well as recognition/recall tests. This is a high risk to take for any brand not only in monetary terms but also for their brand value. The execution and elements of appeal to memory and emotional connection to the viewer are vital to ad success. Therefore it cripples the strategy if the two sides, media and creative execution are separated in the way of traditional ad planning.

Basing the structure of a media plan on elements of a generic marketing mix, such as the product and price, promotion elements, and media channels over simplifies the value that can be found in the brand and ad executions by placing them under categorical umbrellas. Let's say it is decided that a new product brand to be advertised is high involvement, transformational, the target audience are new category users, the communication objective is brand recognition, and therefore the media chosen should be a 30 second ad on TV between prime time programming for best reach and frequency results. This type of decision process minimises the focus on the message itself and can lead to decisions which harm the brand.

Alternatively, if the focus is on the message first - the brand, the memories and what the ad should make viewers feel- and consideration for delivery of the ad second, then there is more chance for a coherent integration of message and media to create an effective campaign.

*“So, which is more important for the advertiser who wants to make an effective campaign: media expenditure or message content strategy? For most effects, message content strategy is more important than the absolute and relative number of GRPs.” (van den Putte, International Journal of Advertising 2009)*

### **Reach and frequency in the light of emotions**

Emotions play a vital part in what we pay attention to and what we bypass. Emotions are the first processes that will trigger memory effects and drive our attention to or away from stimuli in our environment. In relation to advertising this has important implications as attention is a vital part of effectiveness. However focus should be put on the message of the ad as a trigger of emotional memory associations, and not solely on the delivery vehicles outlined in the above section of this paper. In this section the discussed measures of effectiveness will be considered in the light of emotional processing and the implications this brings to advertising.

### **Supervisory Attentioning System**

There are many stimuli in the environment around us that we dismiss. It would be an immense waste of energy and counterproductive to pay attention to absolutely everything all the time. The supervisory attentioning system at the limbic level is based on the concept that we will only pay attention to things that have relevance to us. It is a start and stop mechanism that functions on emotional cues and depends on memories in our long-term memory that have been formed as a result of an emotional response to a stimuli. Since the nature of the circuit is emotional, it also means that it is an involuntary action. (DuPlessis, 2005)

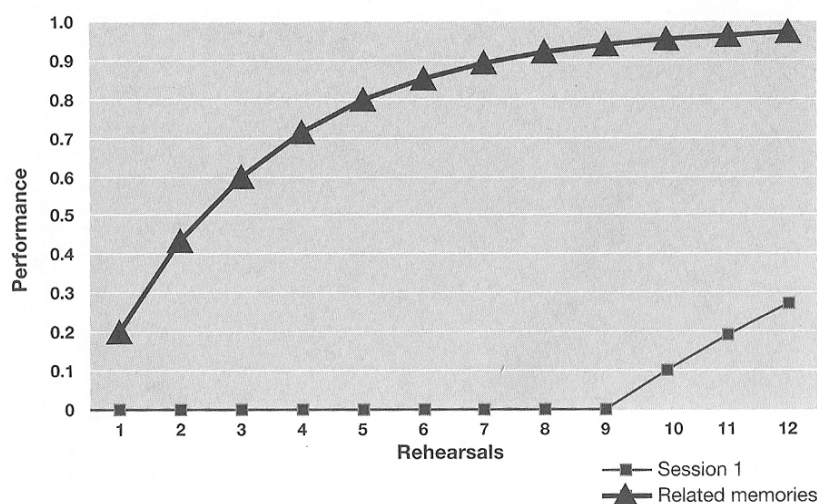
The supervisory attentioning system proposes that if a brand or ad has emotional weight in a consumer's long term memory, it will call the consumers attention to itself, no matter if the consumers focus was on something else at that point in time. This means that getting a viewers attention does not lie in making loud, obnoxious ads to get attention and to produce recall, but lies in appealing to the emotional memories of the viewer.

We can describe our memory as a big mess of interconnected thoughts and memories. Nothing is filed neatly, and there is no predictable logic in how one memory may lead to another. Du Plessis describes our memory as an adolescent’s bedroom. Everything that has been used recently lies at the forefront on the shelves, on the floor, on the bed, and the less used items are less accessible until the need for them arises. When an ad or a product triggers our emotions, there may be a whole load of memories that come to mind all at once. They may be completely random in the logical sense, however they are all linked in some way by emotional stimuli that has caused the interconnections between them.

The memories with the stronger (more used) sensitized neuronal interconnections will come to mind first. We may not even be conscious of some of the memories that get triggered, but they are still there influencing our positive or negative perception of the ad and/or brand.

### Effective frequency and rate of learning and retention in the brain

The objective of ad planning can be looked upon as a method of reinforcing memories about a brand or product associations by bringing them to the forefront of the viewers mind. As discussed before, memory formation will occur when the brain “learns” from an emotional process, which will be triggered in reaction to the environment. This happens mostly incidentally without conscious effort. There is also conscious learning where we drive our attention towards something, however it seems that the effect of directed voluntary learning and incidental learning is the same- the memories formed will be interconnected according to degree of perceived similarity to other memories (duPlessis 2005).



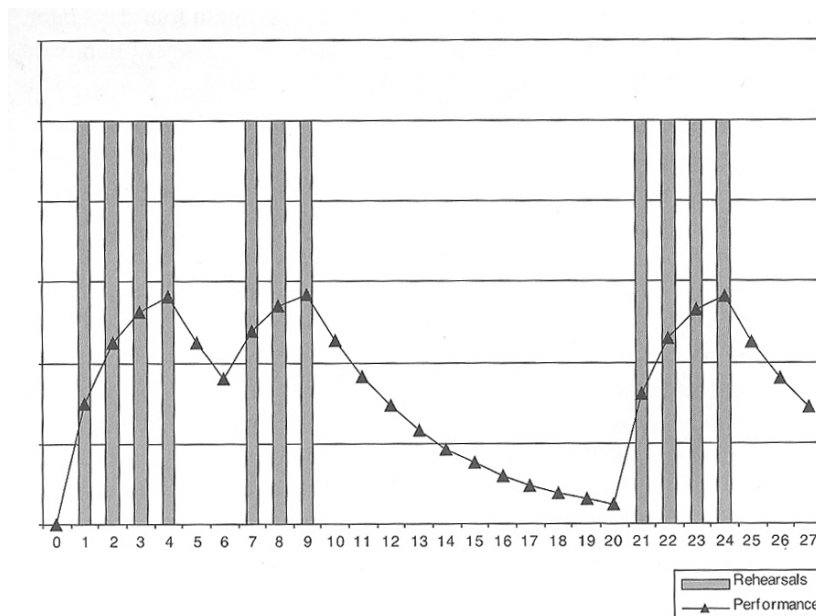
*The learning curve with related memories*

Fig.6 Learning curve with related memories (duPlessis 2005)



The learning curve (Fig.6) is very similar to the s-shaped curve of advertising effectiveness as duPlessis describes in his book. The s-shaped curve in advertising demonstrates the rate of response in relation to the number of ad exposures. The learning curve for a new skill, for example learning to drive (no associative memories) will also be S-shaped (performance over number of rehearsals) in the beginning when rehearsals commence. With each subsequent rehearsal the curve will move to the left more and more until it becomes convex. The rate of learning is not the same for everyone, as it depends on the amount of associative memories you already have i.e what you have already been exposed to. However associated with the rate of learning there is a rate of forgetting as well (Fig. 7). For each rehearsal new memories are laid down and associations made, so for consecutive rehearsals your performance level will start from a higher level than a previous rehearsal did. If a long enough time passes between rehearsals, the performance level drops with each day passed however the rehearsals will never disappear completely from memory. Therefore, if a brand starts advertising again after a long period of absence, it will not be starting from zero awareness as there are previous memories of the message still somewhere in the viewers mind.

Fig 7. Rate of learning and forgetting. DuPlessis 2005



*“There is a myth in the advertising world that viewers will forget your message if you don't repeat your advertising often enough. It is this myth that supports many large advertising expenditures...I would rather say the public comes closer to forgetting nothing they have seen*

*on TV. They just "put it out of their minds" until and unless it has some use . . . and [then] the response to the commercial continues" (Henry Krugman, 1965)*

The S-shaped response curve (duPlessis 2005) in advertising effectiveness is an illustration of the “three hit theory”<sup>5</sup> by Herbert E. Krugman which is widely adopted in the advertising industry, and resembles the learning curve for new skills discussed before. Krugman’s idea was that advertising doesn’t work immediately, but after three exposures. In the first exposure viewers will react to the brand by asking “what is it?”, the second will be “what of it?” and they then start comparison of the brand to other brands. The 3<sup>rd</sup> exposure functions as a reminder of the previous two and is the point at which a viewer will start paying attention to the brand or dismiss it altogether as irrelevant to them. Other practitioners have hypothesised response to grow after the 3<sup>rd</sup> exposure and with each additional repetition. The first two exposures are a threshold that viewers have to pass before advertisements become effective. After a certain number of repetitions there is a wear out point after which response levels out or declines and the ad no longer has a function.

*“Most advertising response researchers however find that the S-shaped response curve does not happen very often. What they find most in their measurements is the convex curve instead” (Sissors & Baron 2002).*

By applying what is known about the process of learning and memory, it does not come as a surprise that the convex curve happens more often in advertising response. The reason why most advertising response in reality occurs on convex response curve instead of the s-shaped curve can be explained by the fact that no viewer, will have no prior associative memories what so ever to a product or brand advertised. Perhaps the s-shaped curve is true for advertisements of brand introductions, as it may take the viewer a few exposures to understand what the brand is. For most advertising however, no early exposure is really wasted as even the first exposure can register with the viewer on an implicit emotional level and lay down it’s memory traces.

Ads will at some level of repetition have a wear out point. This can be found when the convex curve levels out. In relation to learning this would be the point at which performance (fig 6) is

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<sup>5</sup> Herbert E. Krugman. The impact of television advertising: Learning without Involvement (1965)

no longer increased with the number of repetitions due to a lack of new emotional stimuli. Cognitive attention is no longer needed, as the well-established memories are enough to perform the task. It is therefore vital for ads to either be slightly changed in execution before the wear out point, or altogether pulled out.

## **Part 2. Message content strategy- Recall, recognition & brand linkage**

Recall and recognition measures assume that viewers must remember an ad for it to have any effect, and that is precisely what these methods are designed to measure. We have so far seen that emotional impact must be present in order for viewers to remember an ad, as that's what guides our attention and memory formation. However recall and recognition measures do little in terms of explaining how and why the execution leads to the viewer remembering or not remembering the ad or brand. These measures are also based on subjective report by the viewer, which implies a weakness, as rationalisation of effects which are primarily emotional in nature can be skewed.

In ad awareness testing through Millward Browns Adtrack it was found that recall (brand prompted awareness without description) declines by 10 percent each week of no exposure to the ad. However the average recognition rate for ads that have not been aired for years was at 67%. This implies that recognition of an ad does not decay as fast as is believed within the ad industry. This, duPlessis assigns to the fact that the visual memory of the ad will always be somewhere in the consumers brain.

*Recognition scores have little if anything to do with memory. Instead, they represent the respondent's subjective estimate of the probability that he looked at the ad when he went through the issue before. Recall scores reflect the advertisement's ability to register the sponsor's name, and to deliver a meaningful message to the consumer. In addition to these two important characteristics, recall scores are more objective and therefore more trustworthy than recognition scores. ( Williams Wells, Journal of Advertising Research, 2000)*

Recall by brand prompting has different memory roots than a direct showing of an ad. Essentially it is the recall route that has more relevance as it reveals whether the ad has placed the memories of the brand within the consumers mind. It is the consumer's perception of the

brand (all the associated memories) that will play in during recall, as well as purchase decisions as consumers rarely think of the ads whilst they shop. Purchase is therefore not prompted by the ad but by the brand itself. From this perspective, it can be seen that recognition measures of ad awareness as a measure of effectiveness may have no direct role in relation to influence on sales.

*“Advertisers have never been entirely sure what recall scores mean. They frequently suspect that an ad can get a high recall score just by being spectacular, without saying anything meaningful about the product or even registering the sponsor’s name.” ( William Wells, Journal of Advertising Research, 2000)*

Flops in recognition and recall testing therefore is usually attributed to poor brand linkages (Fig. 8) within the execution of an ad. The concept of ‘effective length’ assumes that effectiveness starts at the point of when the viewer realises what brand is being advertised. The most successful recall ads will have the brand creatively integrated throughout the ad not by plainly showing the brand in the visuals, but pulling on and representing the memory associations or “brand values”. Simply showing the brand at the end of the ad with no attempt at linking it in some visual form, such as brand colours, or topic, jingle, and so on will result in the ad being effective only in the last second making the rest of the 30 or 60 second ad a waste of time and money.

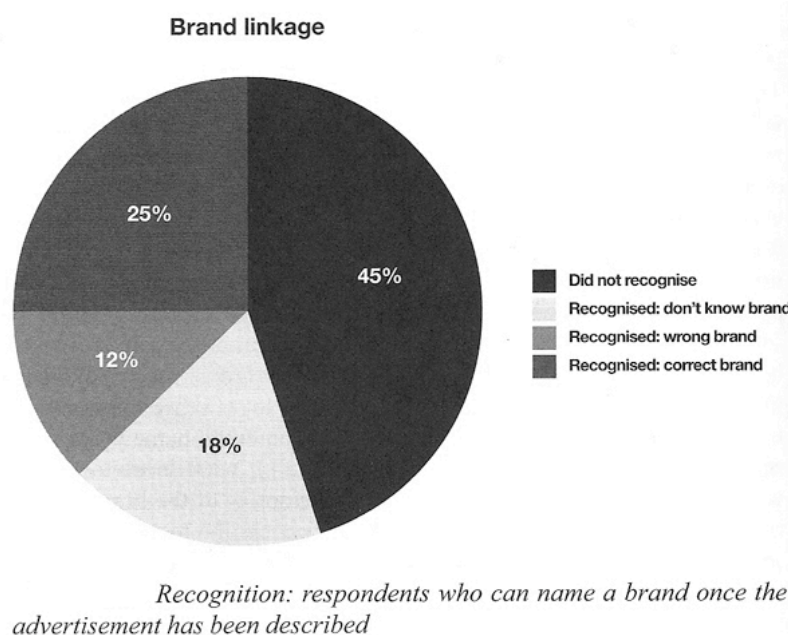


Fig. 8 Brand linkage  
duPlessis 2005

*“What is important is whether there is a good link between the memories of the brand and of the advertisement, and this can be tested by seeing whether the advertisement comes to mind when the consumer is prompted by the brand.” (duPlessis 2005).*

In an attempt at producing ideas that push the envelope in comparison to competitors, creatives will come up with wonderful and very engaging ad executions, which will be recognised and remembered by many respondents. The issue is, that sometimes the ad is so engaging that it overpowers the brand. One of such ads is one that many people remember and love, featuring colourful balls bouncing down hills through city streets. The image is enchanting, warming, and playful. The visual of the brand in this ad appears at the very end and makes no appearance prior to the last seconds. Everyone remembers the ad, very few remember that it was for Sony Bravia<sup>6</sup>.

The challenge to creativity in ad execution should be focussed on making the brand memorable through the ad, and not just the ad itself memorable. For this to happen, the creatives must pay attention to the emotions that they want to instil in the viewers through the communication. From an execution perspective, neuro-research into how people react emotionally to visual stimuli can inform creatives of when and where and how to place important visual elements so that they have an effective emotional impact and hence memory formation of concept linked to the brand.

### **Part 3. The concept of “liking” as a measure for effectiveness**

It is commonly thought that in order for viewers to be receptive of an ad, they must first and foremost ‘like’ the content of the message. Measures such as recall and recognition give little indication of like-ability of an ad and it is therefore thought that they mean little in terms of indicating effectiveness as the emotional appeal, that leads the viewer towards liking the ad, is left unexplored. *“On the whole, ASTAS<sup>7</sup> measures give “indications” of advertising effects. Real understanding of what is going on, however, requires better insight into the emotional processes underlying the attitudinal reasons to recall purchases and advertising exposure and into how emotionally based brand equity contributes to shaping buying behaviour” (p.280 Hansen & Christensen 2007)*

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<sup>6</sup> “Balls” by Sony Bravia - ‘Color like. no. other’ 1996

<sup>7</sup> ASTAS- Short term advertising strength

## **Ad-liking**

One method of testing advertising effects in advertising is measurement of attitude- whether viewers “like” an ad or not. The theory of ad liking has been researched in numerous advertising and brand research studies across several different parameters where viewers had to rate an ad usually on a 5 point scale. Numerous research results suggest that ad liking and ad effectiveness are strongly correlated. From their study Brown and Stayman (1992) suggested a “dual mediation” model which states that attitude toward the ad has an impact through two avenues: (1) It influences attitude toward the brand which, in turn , influences brand purchase intention and (2) it modifies brand cognitions which also effect brand attitudes, which again influence purchase intention. The first influence has to do with cognitive processes and assumes that if consumers like an ad they are more likely to consequently pay attention to it, take in the message and respond to it. The second influence has to do with emotional or effective responses where if viewers experience positive feelings towards the ad they will connect those feelings with the ad and the brand. (Walker & Dubitsky, Journal of Advertising 1994). The common response when they questioned viewers about their reason for liking an ad, usually came down to remarks about specific elements such as music, story-line and visual elements. They conclude however that liking is driven by many different elements and even by existing attitude toward the brand.

*“Consumer response to advertising is a complex phenomenon. Meaningful evaluation requires multiple measures and useful interpretation depends in part on knowledgeable judgement... Used in conjunction with other appropriate measures, liking measures add substantial value to the assessment and optimization of advertising effectiveness” (Walker and Dubitsky, 1994)*

After noting a trend in Adtrack database of ad liking creating ad noting (remembering the ad) duPlessis and his team set out to determine the factors within ads that would explain what like-ability entails. From their research they designed a COMMAP model of communication (Fig. 9) based upon seven variables. The ad-liking measure consists of 32 statements. These 32 are summarised into 7 factors: Entertainment, relevant news, empathy, and brand reinforcement high scores, which indicated high liking. High scores on confusion, familiarity, and alienation indicated low liking of an ad. From this model it is implied that confusion is

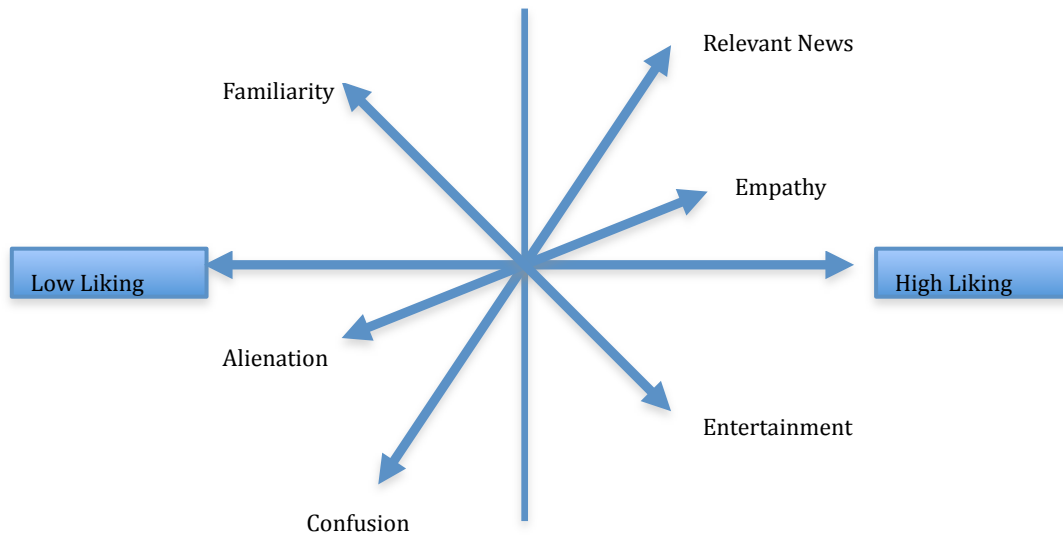


Fig. 9 - COMMAP model of communication, duPlessis 2005  
(The y axis is shown unlabelled in the book)

the biggest danger. This indicates brand linkage problems, the creative execution of the ad may be poor, or too many of the 7 factors were included which led to a confusing message. If a viewer feels confused by an ad, he will not spend time watching it. Familiarity leads to boredom, as the ad offers nothing new to catch the viewer's attention. Alienation can be caused amongst other things, by misdirected humour. There is a danger in trying to appeal with a message that only a few find funny, as the ad could create a negative soma in viewers' memories and dig a grave for the brand altogether. The formation of positive perception is reliant on scoring high on the 4 liking measures; these are directly linked to emotions. If the viewer is entertained, empathises, gains some valuable info, it means that his emotions have been triggered and positive memories have been called to mind. This means that the ad has not only caught attention, but also formed positive emotions that feed back into the viewers mind and connects the memory of the ad to his memories of the brand.

The COMMAP model serves as a generalised account of communication. It can be well applied to advertising strategy, however some issues have to be accounted for. First, ads can be very divergent in their executions and what a viewer rates upon the above scales may be a reflection of some detail in the ad and not attributed to the whole ad itself. Positioning an ad as generally likeable or generally not likeable gives little indication for where to look exactly in order to remedy perhaps a specific problem which may be related only to a small detail which caused the effect. The measures are also based on subjective report by the viewer, and this can create flawed results as the viewer rates the ad on the parameters which primarily function on emotions- as discussed before, these do not lend well rationalisation.

Secondly the impact of brand perception may get mixed into the evaluation of the ad. Hence the likeability factor may not even be related to the ad but more the brand likeability, a dimension that the COMMAP model does not consider. In conclusion, ad liking measures may be too general in nature and it is important not to just know whether people like an ad or not, but what exactly they like and why they like it.

### **Brand-liking**

The perception that a viewer already has about a brand can have a strong influence on whether he or she consequently likes or dislikes an ad. Therefore research into the attitudes towards a brand and product category is just as important as research into attitudes towards an ad.

An attitudinal research method by Hansen & Christensen (2007) measures the net emotional response that viewers have towards brands. NERS (The Net Emotional Response Strength) is a combined score of positive and negative emotional/feeling words associated with a brand and product categories. The score is increased if positive emotions are reported and decreased if negative emotions are reported. Participants were asked to go through lists of positive and negative 'feeling' words and mark out the ones they would associate to a product category. Participants then went through lists of brands, marking off which 'feeling' words they associated with the particular brands. What the results show is that feelings and emotions play an important part in consumer choice. At the very basic level, the emotional NERS score towards a brand and product category, when uninterrupted by other stimuli from the environment (such as special offers) can indicate consumer preference for one brand over another.

The study found that it is not only important for a brand to score high on emotional strength, but that the brands must also score high in relation to the emotional score of its product category. Three categories developed out of these results. The first category includes brands that scored higher than the product category itself, which could even have a negative NERS score. This means that there is good potential for a competitor within that category to easily divert the consumer away from competition, if it comes up with a strong emotional proposition. Brands within this category must strengthen their position in relation to the category and its competitors. The second category of brands are those that score lower than



their product category. These brands stand weak in the market as they provide no incentive for a consumer choosing either one or the brand as favourites. The third category are brands that score higher than their product category. These brands are strong and tend to have very loyal customers. The higher than category scores also means that competitors will have a hard time diverting the customer emotionally away from their favourite brand. This implies that emotional appeals may have a stronger sway effect on non-users or the undecided, than the brand loyals who have already made up their mind.

*“NERS is the basic stock of brand equity... It reflects that part of what the company has managed to build up as an asset in the market normally referred to as “emotional attachment to the brand””. (Hansen & Christensen 2007)*

### **Critique of ‘liking’ measures.**

DuPlessis’ and Hansen & Christensen’s studies illustrate the impact of emotions and feeling on ads and on brands. Hansen and Christensen’s NERS measures suggest that a high net emotional response is significant in determining the effectiveness of a brand within a product category. This insight is especially important since brands must have *positive emotions* in order to have *positive memories* associated with them, as that will imply that the whole experience the consumer has had with the brand has been positive. A consumer has no reason to buy a brand he or she has negative experience with. However, combining an emotional score on the number of positive and negative reported emotions has its complications. Firstly, it is the researchers who decide which words are associated with negative emotions and which are associated with positive emotions. The real validity of this association can only be uncovered through studies of the nature of emotions through neuroscientific methods, as there are centres in the brain which, when activated, imply the experience of positive or negative emotions and their intensity. Once these associations are in place, can they be applied to NERS. Secondly, emotions vary in intensity and it is therefore difficult to assign a value to an emotion. In relation to NERS scores, this implies that the score may be invalid as some positive emotions may have less impact than negative emotions, and vice versa. The third issue is that, once again, the tests are based on consumer self report which implies rational evaluation of emotions which do not lend well to rationalisation.

Emotions to advertisements function slightly differently than emotions to brands. This can be seen when an emotional reaction to the message of an ad is negative however the consumer still buys the brand. DuPlessis' study puts a lot of focus on like-ability or positivity towards ads as a deciding factor of success or failure. This draws the question of what happens when viewers are exposed to advertising that shocks them or produces negative emotional reactions. Would this imply that the ad is not "liked" and therefore imply that it is not successful? It is questionable to what degree like-ability should be correlated to ad effectiveness, as many ads that are specifically aimed at producing negative emotions, are in fact quite effective towards their target audience as they consequently instil positive emotions about the brand. To explain this phenomenon, there is a need for distinction between execution and message. Viewers may not like the way an ad shocks them or disgusts them however they may still "like" the message due to it being for example innovative or thought provoking. The negative emotions will be the first reaction to an ad to draw in the viewer's attention. If the message produces emotional response in the viewer they will watch the ad, if not they will simply not register it. If they watch it, it is cognition that then steps in and tries to make sense of the message of the ad. Therefore, what a viewer emotionally dislikes can turn into something he or she likes once they understand the message.

Another counter argument is that viewers do not have to like the ad to like the brand. As Walker & Dubitsky (1994) remark in their paper, attitude toward the ad and attitude toward the brand have a chicken-and egg relationship: it may be difficult to distinguish the cause from the effect. This illustrates a strong interplay between brand perception and ad perception and therefore effectiveness should be measured in relation to both, as separating them will create a distorted picture of actual effectiveness. This argument also point towards that advertising should be created in the name of the brand, and not separate from it.

## Neuromarketing- reverse inference fallacy

There are certain myths regarding the application neuroscience that have spread through the marketing and advertising industry as well as the general public. At the extreme it's application is regarded as a dangerous game where marketing becomes a bigger evil as it is given access to 'the black box'<sup>8</sup>. Myths include the idea that marketers will be able to determine exactly how to manipulate customers' choices by seeing customers' reactions through brain scanning. However in reality this type of direct manipulation is quite unfeasible, since the complexity of the brain makes it extremely difficult to perform.

Across many neuroscientific studies one can only infer from correlational experimental results that a certain behaviour that produces activation in a particular area of the brain may imply a certain emotional response or processes at play. Activation for example in the amygdala, implies that the stimulus has elicited some sort of danger. This danger however may not even be in reaction to the stimulus itself, it could be to a memory associated with the stimulus. The assumption that neuroscientific technology can, "read peoples minds" is unrealistic. In reality what is only possible is reaction studies to stimuli in conjunction with behavioural/psychological theory, the combined results of which can be applied to inform marketing practice.

*"We stress again that the only ways around this general problem are comprehensive surveys of (1) all stimuli known to affect a particular region, and (2) all associations and dissociations attributable to the specific stimulus in question"... Researchers need to be aware of the difficulty of separating causal and correlation explanations, which can be exacerbated in neuroimaging settings when self-report and other process measures are not collected." (Yoon et al. 2008)*

Lindstrom's book (Buyology, 2008) which has created hype about Neuromarketing in the general media worldwide has widespread criticisms throughout the neuroscientific realm as well as the marketing industry. First this is due to the fact that the studies he conducted, which he claims as being the largest neuromarketing study of all time, contains no publication of results or methodology available for critical review. Secondly, he infers consumer behavioural

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<sup>8</sup> "Black box refers to processes within the human brain"

processes from brain activations during the scanning studies. Such inference is a methodological fallacy within neuroscientific research. The third issue is that he criticises in a bombastic way all marketing theory as it stands today, supporting his arguments with his own assumptions and conclusions about brain function, not upon accurate scientific results. Martin Skov (neuro researcher CBS and Hvirtdorve hospital) has critiqued Lindstrøm's book in the press as being purely a work of hype and self branding, with no connection to science what so ever.

*“Even if there can be found quite a few serious neuro-marketing researchers, the majority remain frivolous. Martin Lindstrøm's new book Buyology which has received substantial coverage in television and newspapers, is an example of such.”(Martin Skov, 14 November 2008, Kommunikationsforum)*

## **Conclusion of theory review**

From the theory review it can be concluded that emotions play a vital role in many aspect of human decision making. From the evolutionary perspective they have been demonstrated to guide us towards correct behaviour for survival. From the economic perspective they have altered the idea of decision making being based solely on rationality to also being based on emotional perception of risk and reward in economic choice. From the marketing perspective they have been seen to play an influential role in value perception and behaviour towards brands and products. From the perspective of advertising effectiveness, they have called into question the degree of validity of measures such as reach, frequency, recognition, recall, and liking. It has also been brought to focus that effectiveness in advertising lies in the message content and in brand content. Both of these have to primarily appeal to the emotions of the viewer for gaining attention, and for creating memories of the ad and brand.

The fact that emotions operate largely on a sub-cognitive level within the brain, implies that they cannot be easily uncovered through attitudinal or behavioural studies. However, the studies that have been applied to the different disciplines outlined above, suggest that research into emotions can be better understood through application of neuroscientific research of correlation between stimuli and reactions in the brain.

In the next section of the paper, the potential of research into emotions adding value to marketing and advertising practice will be revised from a practical perspective. This is done by learning more about neuroscientific research and the day to day operations of marketing and advertising practice. **Through the media review and the interviews with practitioners within the field of marketing, advertising, neuroscience, and neuromarketing, issues of combining neuroscience to marketing and advertising will be explored.**

## Part 4. Media overview results

A review of articles published in the Danish press, as well as articles in international press specifically in the US, suggests that the topic of Neuromarketing is primarily treated as a window in to the psyche of consumer decision making. The topic is treated with a mix of fascination of applying neuroscience to develop marketing theory and consumer behaviour theory, however there are also ethical concerns related to this application, as well as elements of fear of marketing gaining such information. Most of the articles in the Danish press such as Politiken and Berlingske Tidende and Børsen base their articles upon the theories introduced by Martin Lindström's Buyology book, published in 2008. In January 2009 a large number of articles promoted an element of fear towards application of neuroscientific technology such as fMRI to marketing practice, referring to it as a form of brainwashing, manipulation, and uncovering of "a buy button" within the brain. Amongst the headlines are the following: "Companies want to find gold in our brains", "Fear of brainwashing in the advertising industry", "Marketing scans your brain", and "As we search for the buy button". For support arguments for neuromarketing, they most often quoted Martin Lindstrøm who gave examples of discrepancies in marketing practice.

*"If we trust the test results, we can see that 60-70 percent of what the chains do today to influence customers in the store is wrong," (Martin Lindstrom, Politiken, 17 January, 2009)*

Professor Flemming Hansen (CBS), and Professor Thomas Ramsøy (Neuropsychologist/Neuroscientist Hvidorve Hospital/CBS) were quoted in one article as supportive in application of neurotechnology in uncovering salient buying behaviour processes.

*“Marketers today cannot predict what communication works and therefore campaigns in many cases fail. In brain research, we can better explain why people prefer, remember and choose one product over another.” (Thomas Ramsøy, Politiken, 17 January, 2009)*

Mindmetric, a Danish neuromarketing company were quoted within the articles as having developed technology that will enable measurement of emotions for product and ad testing. It should be noted here that in my interview with Mindmetric it was said that they *do not* have a fully developed product on the market for emotion measurement as opposed to their primary competitor iMotions, who do have patented technology developed and on the market.

Procter & Gamble, Google, Intel and McDonalds have been mentioned as the first companies to be looking towards application of neuromarketing as well as some unnamed companies within Denmark. (Politiken 16 January, 2009). Companies are in general wary of admitting to looking into neuromarketing for fear of negative backlash from consumers.

Coverage on the topic of neuroscientific research is attributed to many disciplines of human perception, as can be seen through topics covered on Ted.com and blogs dedicated to neuroscience. Particularly talks circulate around medical research into physiological human behavior alterations as a result of brain damage to specific areas. Besides Neuromarketing, other realms of discussion include Neuroaesthetics (exploration of aesthetic perception of art and music on a neurological level), Neuroethics (ethical responsibility of neuroscientific research), Neuroeconomics (how the brain evaluates decisions, categorize risks, perceives reward) and Neuropolitics. An article which caused much controversy in the neuroscientific realm is New York Time’s “ This is your Brain on Politics” (November 11, 2007) which proposed a neuro-imaging study on people’s true perception towards political candidates as reflected in the brain. Other talks take the form of how we are influenced by processes within the brain in more abstract concepts (e.g. Anthropologist Helen Fischer on the brain and romantic love, Ted.com February 2006).

**Note:** The overview has been limited to the subject of Neuromarketing specifically, as it is beyond this paper to explore the other realms of neuroscientific research. The media results were obtained through Google/online search engines and Business Source Complete database and not through a media tracking agency. Therefore the articles listed and reviewed are limited to the degree of coverage accessible through these search engines. Most searches are

also limited to Danish media due to relevance for interviews as it is more likely that interviewees from the marketing industry will have been primarily exposed to media in their home country, as apposed to international publications.

## **Part 5. Interview Results**

Following a brief introduction of the respondents, the results are presented by categories that emerged across the interviews through open coding and emergent themes of interest for the research question which were found through focussed coding.

### **Introduction of respondents**

#### **Group A**



**Linda Weldenboe- PR and communications manager for Microsoft Development Center Copenhagen.**

Linda is working with employer branding at Microsoft. She has previously held positions as a marketing manager for several high profile IT companies. The employee branding initiative at the development center is focussed on attracting qualified and talented IT professionals from around the globe. The success of the campaign is vital to the growth of the company.



**Trine Jellingholt- Marketing manager for Microsoft Development Center Copenhagen**

Trine has worked for Microsoft for 11 years. Prior to this she had experience working with point of sale marketing, promotion and direct mail. Her duties at the company centre around promotional activity and the executive briefing centre. Trine states that she has limited academic knowledge of marketing however she has extensive experience working within the marketing field.



**Martin Best- Global sales & Marketing for Carlsberg International**

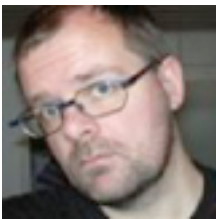
Martin works with marketing activation within the marketing department at Carlsberg International. The department works with different Carlsberg brand teams in creating international campaigns. This ranges from creative campaign communications from TV to store retail marketing activation focussed on promotional activities of the brand.



**Pernille Zillmer- Planner at DDB**

Pernille's role as a planner at DDB is to develop the branding behind commercials and brand identities. Her daily activities centre around reviewing consumer behaviour research results in order to identify key insights to connect to a brand, and develop creative briefs for creative at the agency. Her clients include McDonalds, VW, Codan, Coloplast and Arla Foods.

**Group B**



**Martin Skov- Neuroscientist working with CBS Decision Neuroscience Research Group and Hvidorve Hospital**

Martin's current research focus is conducting studies to uncover the way values are generated in connection to the reward system in the brain. His latest study using fMRI shows how framing of content elicits different value perception of art. (Modulation of aesthetic value by semantic context: An fMRI study. NeuroImage. 2009)

**Group C**



**Nicolai Krarup CEO- Mindmetics- Neuromarketing technology**

Nicolai's academic and professional background is in marketing. He founded Mindmetic with his business partner 2 years ago. The company is first and foremost a technology company that is in the process of research and development of a product that will measure emotional reactions of viewers towards visual stimuli. They focus on eye tracking, galvanic response, and EEG technology.





### **Jakob deLemos. CTO iMotions- Attention technology**

Jakob's background is in computer science, marketing and psychology. He has worked with computer science focussed on interaction of machines to humans in order to develop better contact interaction points. The inspiration for the technology of iMotions comes from this area. The "Attention tool" developed by iMotions is a high speed camera built into a screen which monitors physiological changes, and is based upon traditional eye tracking technology. The machine takes 240 images per minute, and records how the visual stimuli drives attention and emotional response.

## **Coding**

### **Open coding and focussed coding method**

For coding of interviews, the open coding and focussed coding method was adopted to determine relevant categories and topics for analyses. These methods are commonly used in making sense of interview data by identify themes and categories from the patterns and commonalities. (Estberg 2002. Qualitative Methods in Social Research) This method was the most appropriate for research as the interviews were conducted in a semi-structured manner. This means that since respondents had a relative degree of control over what they chose to talk about, there would arise different themes and topics which deserve consideration. The pre-prepared questions had some influence on the direction of the interview however they mostly served as bullet points for expansion. It is noteworthy that in most cases, the questions were not even asked as they were covered naturally over the course of the interview by the interviewee him or herself.

All interviews lasted between 1- 1 ½ hours taking place in private rooms at the office of the respondents company. This ensured that the interviews would not be disturbed and allowed for open conversation. They were recorded and later fully transcribed.

**Note:** The categorization of responses were placed as a "best fit" under each category. Several responses transgress the boundaries of the categories. It should be taken into account that

mentions of topics placed within one category may reside in another category due to the context of the response. Specifically the Neuromarketing and Neuroscience/Technology categories have notable transgression in responses. Not all categories were commented on by each group or respondent. To reflect this, group labels have been placed under each category. **Unless otherwise referenced, each paragraph refers to the comment of the interviewee quoted in the beginning of that paragraph.**

There emerged in all six categories: Consumer behaviour, Brand identity and Value, Advertising, Market/Target group research, Neuromarketing, Neuroscience and technology. Each category starts out with a summary of topics within the responses. Under each category the responses are arranged according to comments on the category found through the focussed coding method.

## **Categories:**

### **1. Consumer behaviour**

#### **Group A**

##### **Consumers are rational and emotional decision makers**

The focus on consumer behaviour and how consumers make decisions was a topic that emerged mostly in interviews with marketers (group A) Some saw that consumer decision making would be split into either rational or emotional processes dependant on product category. Linda said that rational decision making would dominate if the product category dealt with high investment or high monetary costs. The process would include acknowledgement for a need for a product (such as hardware, washing machines, PCs) and then searching the market for the best offer by weighing of all criteria alternatives. Emotional decision making would come into play mostly during impulse buying and here she said advertising would play a big role in influencing decision. Trine sees consumer purchase behaviour as being very much based on combinations of feelings. Impulse buying she says occurs most often if there's a trigger, such as a discounts or sales. If products are not on sale, then ads have a deciding role to play in the decision process. Martin saw the purchase decision as being made in store. *"They are always made at the point where you see the product, and this is for the basic reason that you need to realise that you need something for a*

*reason.*” He attributed the decision making to circumstances such as price and product, which would influence choice . *“So you make your purchase decision based on the physical product that’s in front of you. If the products are all the same price then that’s where it would actually go to a level playing field. You would want to buy the one that had the most powerful emotional connection to you”.*

### **Advertising tool for targeting emotional triggers**

Pernille described a tool used in DDB to determine the buying process the consumer would go through. One of these is Touchpoint analyses where typical purchase scenarios are explored and the points at which they can remind, trigger a need, or trigger recall of the brand, are determined. They also work on post purchase points where they could reinforce the buyer’s decision of buying the brand. The point of the exercise is to identify whether there is an emotional appeal potential or if there is a rational step they should tap into. *“ It’s complicated, it’s an art form”.* By targeting these barriers, she says we are on an emotional and subconscious level answering a consumer need that goes beyond the product. One example is her work on McDonalds. Here the need for family together time is the subconscious emotional barrier that needs to be met, and this extends far beyond just the burger itself.

## **Group B**

### **Emotions play a strong role in creating value and guiding decision making**

Martin S took a more evolutionary perspective on consumer behaviour by saying that emotions have great influence on decision making. He explains that evolution has built a quick system of valuation that is based upon emotional responses which fall on a dimension of positive and negative, to guide the individual to initiate approach or avoidance behaviour. This is called learning behaviour and is dependant on the reward system which is based on subjective values, which usually have no “rational” explanation of valuation. *“When neuroscience started looking at decision-making back in the early 90s, they quickly realised that there were a lot of emotional processes underlying all the decision-making situations. And most of these decision- making processes are actually unconscious”.* There are of course rational or at least cognitive processes however it seems that the two systems are very intricately inter-linked. The nature of the linkage is still unknown and the subject of research.

*“The big question is of course to what degree is our decision, behaviour, influenced by factors we have no control over”. Going back 50 years in psychology or cognitive science, many people assumed we were rational actors, taking into account all information and making comparisons to find what is best for us. However it seems that it’s not as simple as that, and there are factors driving our behaviour which we have no control over.”* This can be seen especially in neuroeconomics research where people tend to choose what would seem an irrational option as apposed to a logical rational one.

## **2. Brand identity and value**

### **Summary**

Brand identity was a very prominent subject within the interviews for group A. Participants reinforced the fact that all communication must be well integrated and reflected through all communication efforts. The message within their advertising has to be synonymous with the brand values and the identities of their target group in order to have appeal.

### **Brand value should transcend all corporate communication**

Linda stressed the fact that an appeal to the target group has to be directed towards their identity. But it is not enough to just state in the communication that these values are understood, these values have to become the communication itself. Good communication, always has to be in sync with the brand, the organization itself, the media, and the message sent out. If any of these are unlinked, then the communication becomes untrustworthy and incomplete, and undermines the brand and the company. *“ It’s not enough to launch a campaign, and say we speak code, it cannot stand alone. We have to back it up in everything we do. Being a responsible employer in every way.”*

### **Good brands appeal to the soul not the head**

Trine commented that the story of the brand and the values it presents will trigger personal associations within the lives of the consumer. Brands become a source of personal expression, and a lifestyle for consumers. They provide some sort of emotional security, social acceptance, and help build identification of self. At times it is very much about adhering to a group mentality. Martin Best described how the message of the Carlsberg brand is reflected in all promotional including advertising initiatives they undertake. Carlsberg’s key brand

identity is positioning the beer in a way that appeals to the innate lifestyle values and identity of the target group and communicates feelings of togetherness. One of their most successful ads, as Martin puts it, has been “The world according to Carlsberg”. He says the point is that they want the experience of drinking a Carlsberg to be an “emotional” experience of special moments with friends. *“You have to really think carefully about what is the brand personality, and how does it fit into the lives of the consumers.”*

### **Understanding of the brand gets lost in company hierarchies**

One of the most unexpected and interesting perspectives was Pernille’s comment on the lack of understanding that a lot of companies have towards their own brands. These companies have mission and vision statements which give them no real direction, and due to the employee turnover rate within these companies, the real value gets lost along the way or forgotten. This is where the clients may turn to the ad agency for help. Other times the work they do is simply adaptations of ads to the Danish market, where sections of ready ads are cut out and rendered to fit the market. Creative freedom is not altogether constrained for all clients, it depends on whether the job is about realisation of a brand or a maintenance.

## **3. Advertising**

### **Summary**

Interviewees were quite divergent in their responses in relation to topics about advertising. Online media was quoted as being the new media for advertising yet the downside is that it’s effect is not measurable. Within group A there was an element of tradeoff being mentioned between client and ad agency where clients lack of dedication to their brand values led to badly executed advertisements. It is also mentioned that the client sometimes kills freedom of creativity, which is essential for viewer involvement in the ad which depends on Involving the viewer emotionally. Alternatively from the client side, one of the respondents countered this aspect by saying that ad agencies sometimes are the ones who do not take account of the brand values of a company in creating advertising. He goes into detail about how the company controls creative ad execution by pronouncing the brand values and the importance of these always being reflected in their ads.

## **Group A**

### **Good campaigns extend beyond product and budget**

Linda sees advertising as playing a very strong role in informing and influencing brand perception. She felt that in general within the ad industry, a lot of campaigns fail because clients go to agencies with a product, a certain budget constraint and end sale requirement results. *“It’s impossible to get a good valuable campaign going like that. It needs to be coherent with the values of the company, the product, what it represents and all of the other things within the communication of the company”*. She would rather do less campaigns over a year, but do them well and be involved in them.

### **Viewers have to ‘like’ the ad**

Trine offered a more personal perspective on advertising- she sees humour as having the most powerful effect on her as a consumer. Mostly it’s the sense of humour that becomes the appeal itself. She says that she likes ads that give her a nice image of the product. However a likeable ad is not likely to make her switch from a brand she has been loyal to and one she is satisfied with mostly due to switching costs and effort. Brands that present themselves with clear personal relation to her lifestyle, are the ones she prefers.

### **Emotional appeal is hard to find but vital in creating competitive advantage**

Pernille offered a perspective on the importance of emotional involvement with the consumer. Emotional selling propositions have been practised in the industry for over 10 years now, so it’s nothing new. She says if there is no emotional connection between consumer and brand, then competition is levelled out to the point where practical aspects such as price would play a deciding role. Without emotional wrapping it is easier for a competitor to take over market share based on other aspects such as novelty, or price, specifications amongst others. *“So it is very important to get that emotional association, emotional connection, that goes beyond price and physical features of the product”*.

### **Ad effectiveness is in the emotional appeal of the message**

Success of a campaign or an ad is hard to determine as media agencies tracking results take up to a year to come back to the agency, says Pernille. An important part of communication, is thinking of an appeal that engages the right consumers or viewers. It's not a matter of mass appeal but targeted appeal, and this is rather hard to find as it's emotionally based. *“Creativity today is so important and vital, because if it's not remarkable in any way, people will just not notice it. You are subjected (to ads) 3000 or 6000 times a day. (A lot of them) you just don't see, you filter them out. But if it's creative enough, and involving enough, then there's a slight chance that you might see it and take action”.*

### **Clients constrict creative freedom of ad agencies**

With bigger brands, it would take too long to clear a creative idea as there are so many levels to get through. Pernille said that you may have all the good intentions and ideas but you have to get a check for them from too many people before it can go through. *“It's a shame, it really is a shame”.* She attributes this to the fact that at the top management of such companies sit people who have been with the company a long time, they may know a lot about their business but may not know or trust new insights about branding or communications. Creative freedom is also constricted by the clients branding strategy, but also by advertising regulation. In Denmark there are strict regulations against certain types of communication or media usage.

### **Engagement and new media**

Influencing the consumer to engage in your brand is vital. Pernille sees new media channels for two way communication, such as online social media including Facebook, Myspace and Twitter as powerful tools that can aid in forming this type of engagement. However she points out that for a lot of bigger clients it may not be an option as they require measurable results, and at the moment measurement of results that translate to sales from online social media interaction is not available. Smaller clients however engage in these platforms as they do not have to show or test effectiveness in results that would translate into numbers.

## **Ad agencies may mistreat a client brand for the sake of creativity**

Carlbergs advertising is generally done by the larger ad agencies, such as Saatchi and McCann Erickson. They are given creative freedom however within the bounds of certain non negotiable aspects in relation to the brand value. One of the difficult elements in localised campaigns has been the attempts of ad agencies to mainstream the communication, into something that goes against Carlsberg values. They wanted to add humour to ads at the expense of the consumer. *“So we would say to agencies, come with creative ideas, have the freedom to explore within this area... but don’t talk down to the consumer or make the brand look inaccessible”*. They make sure that there’s central governance that controls the way the brand is communicated, says Martin B.

## **4. Market/Target group research**

### **Summary**

Respondents in group A mostly look towards observational and attitudinal research methods to inform them of their target group. All respondents said that focus groups are much too unreliable in response for them to gain any insights, however they work well for idea generation. Respondents pull on various research methods in order to learn about their target group.

### **Group A**

#### **Focus groups are good for creative idea generation but not market testing**

In order to execute one of their campaigns, Linda conducted a series of focus groups in house for campaign idea generators, as she says they would not have been able to come up with such a message on their own, nor could an external partner such as their advertising agency. *“They simply would not have the intelligence about the target group”*.

Trine attributes the problem with using focus groups to the fact that people will tend to reply like the person they want to be and not the person they actually are. *“I think most people will give you answers that would reflect how they want to be perceived and not how they are really”*. She says that as most purchases are emotional, people in focus groups for example will try to rationalise their behaviour and preferences in order to justify themselves, which in many cases may require lying, even if they are not aware they are doing it.



Pernille is personally not a big fan of focus groups, but her clients are. This is for the simple matter that you can put a percentage number on the opinions presented during a sitting. It's easy to show these numbers, however due to the bias in focus groups, the need of acceptance, you cannot count on what people say. Considering the cost of conducting such research, you get little out of it. *"It's always hard for people to articulate what they are going to do (in the future)"* in cases where they are asked whether they would buy a brand or not. In cases of recalling for example how many times they purchased a brand, the lack of concrete memory will lead people to make up a number or scenario.

### **Behavioural observation and testing favoured as a research method**

At Carlsberg, they have an in house R&D team who have done research based on testing consumer behaviour within controlled environments. These could be simulated or real in store environments where elements of promotion are altered and differences in behaviour are observed. They evaluate rational and emotional elements, and the response to different promotional stimulus. They also use focus groups to evaluate ideas, however again Martin states that in such situations participants may succumb to group pressure or make up stories in an attempt to guess at the reason for their behaviour.

Pernille favours qualitative research, such as conversations or observation of behaviour itself. *"I really like doing it, I get a lot of insights from that"*. At the same time she stresses that one cannot just depend on one research method, you have to draw your conclusions on an intuitive level from all the different kinds of research and angles you are presented with. Especially in observational research, she says you have to account for the fact that people are out of their natural environment, stripped of all stresses of everyday life.

## **Group B**

### **Neuroscience can enlighten behavioural processes**

Martin Skov comments on how neuroscience can inform behavioural research. *"There's a lot of things going on that neural machinery can show, which behavioural studies will never be able to uncover."* With behavioural studies there's a black box between the input and the output (behaviour). He says that in research, one can manipulate the relation in order to say something about the black box by looking at the algorithm generating distinction between

how people process information. To do this you would have to go to the brain itself. The direction of the research can be formed from theories within behavioural studies. *“You would also have to take your departure from what is already known about the brain and try to find connections between the two.”*

## **5. Neuromarketing**

### **Summary**

All but one respondent in Group A said that they have heard about the term Neuromarketing but to varying degrees. Two of the respondents knowledge comes directly from Martin Lindstrøms ‘Buyology’ book and seminar. These respondents found the ideas that Lindstrøm presented as interesting and thought provoking, however not applicable in daily practice due to cost and time. They also were not sure how the insights could be applied to strategy as they seemed to be of too “high level awareness” for marketing. One respondent expressed a concern about the actual term and the ethical implications it could provoke. Another respondent viewed neuromarketing as simply a marketing fad, that will disappear with time.

In Group B and C there were varying topics of discussion. The two companies that practice what can be called “neuromarketing” discussed the importance of emotions in perception and decision making and how they are trying to or have developed technology which can measure these responses in relation to visual stimuli in a cost effective and commercially applicable way. Mindmetric commented that in order to do so they have to cut down on scientific accuracy in their methods. Both companies didn’t see the diagnostics part of their method as a stand alone discipline, and said that it would have to be integrated with other research measures such as attitudinal and behavioural research in combination with the technology.

The respondent from a neuroscientific research background said that neuromarketing should be seen in two parts. The first is research based -delving into brain processes in relation to branding, advertising and consumer behaviour. The second is direct application to testing emotional responses to advertising.

## **Group A**

### **Limited knowledge of neuromarketing, Lindstrøm's book dominates knowledge**

Linda knowledge of Neuromarketing is based on Martin Lindstrøms Buyology book and seminar. Although the cases presented at Lindstrøms seminar really got her thinking about the subject of emotions within communication, and the discrepancies between execution and perception, she still states that this sort of information is too detailed and of “high level awareness” to be applied on a day to day basis for a marketing manager. It would be a powerful tool, and intriguing for someone sitting on a budget to make the most of a campaign. *“Just the thought of getting in the head of the consumer, is so valuable, this is what made me go to the Buyology seminar”*. Getting the whole truth in focus groups would be something she could use to make campaigns better.

Pernille's knowledge of Neuromarketing is also based on Martin Lindstrøms book and seminar. She found a lot of the insights quite informative and found a lot of truth in what he presented in relation to her own interpretation of smoker's habits and reactions to communication. She commented that the campaigns being run at the moment in Denmark do not have the desired effect on smokers, and insights from brain science can help explain this. *“If the creators of that campaign were aiming to change the behaviour of smokers, then they completely missed the point. It doesn't resonate with smokers...you just block out the message... and this happens on a subconscious level.”*

### **Confusion about how neuroscientific method can create value to marketing**

Linda finds that (neuro) research may not be universally applicable as it focuses a lot on the individual. Individual perception and how a certain communication will make someone feel is very much based on their cultural background, gender, life experience that make up that person. She regards brain scanning as too hard of a process to get anything up and running practically, much too expensive, and not available on the market. She would need much more information, background material, and facts proven than what was presented at the seminar, in order to even consider launching a big scale campaign based on this kind of testing. If there were simplified tools, knowledge or techniques that could be applied based on the intelligence from brain scanning research, this would make it more realistic.

*“ It would have to materialise into something besides brain scans”. “It seem that we are already doing it, but we are just guessing now. This is just proving if we were right about this”.*

Martin Best hasn't heard much about neuromarketing but he understands it as scientific insights built on completely different subject areas such as psychology, sociology, social observation, and measures such as eye tracking. These insights are then applied to how a consumer thinks and feels perhaps at the point of purchase, or towards a brand. However he says that it's not one of the buzzwords in marketing, very niche and regarded as a fad. He assumes that in his day to day activities it plays no relevance.

Pernille finds the insights neuromarketing can bring as interesting however she also feels that in practice, on an everyday level it's impossible to put such testing into practice. Firstly because an ad agency doesn't have the budget for such research. However she says that the bigger brand clients should definitely invest money in such research, but there will most likely be resistance from the leading seats in such companies, as they tend to be closed to such advances in research. She has heard that some of her clients have however engaged in research with EEG and eye tracking technology. *“Bigger clients would find that interesting, whether or not they would use it is a different ball game, but I'm sure they would buy it”.*

### **Neuroscientific method is too complex and expensive for marketing**

Martin B feels that neuromarketing is too complex, and transcends the normal boundaries of marketing into very detailed measurements that may be too scientific and too niche. *“It would be something to invest in if you wanted to take a deep dive study of how people are responding to your communication of your brand, and have the time and money to invest in such a study”.* He has also experienced that there are a lot of agencies trying to sell promises they can't deliver, for whatever new technique they offer. *“I'm contacted every day by agencies selling an idea, a promise, a solution, an insight using a range of different things...”*

### **Neuroscience is out of bounds of marketing**

The neuroscientific research method is being particularly good for looking into consumer emotional responses to a brand, but it wouldn't be very effective if you wanted opinions, or reasons instead of just responses. *“(In a focus group) we actually want to hear them say that's*

*brilliant, or that's crap, or that doesn't make sense or is confusing", says Martin B. He continued by commenting that a lot of marketing research is done for political reasons to please stake-holders and third parties. In these cases numbers and statistics have to be presented and convincing to show that the budget is being spent effectively. "One of the inherent weaknesses of it (neuromarketing) expanding as a big area within marketing is it's perception is so niche...it's outside of normal boundaries of what marketing assessments you might do." A lot of people feel cynical about neuromarketing and think it is simply a fad that does not necessarily account for real personal feelings. It seems to be based on academic assumption of what the brain does. From an academic point of view there are reasons to do this research, however "in a marketing environment you have to consider that it's full of business oriented people that ultimately have some sort of profit in mind. So you're thinking in quite commercial reasons and these lean towards having more tangible pieces of information"*

### **Ethical concerns with application of neuroscience**

Trine had never heard of the term "Neuromarketing". However judging from the term itself, she expressed concern in relation to manipulation of consumers, such as subliminal advertising. *"But I think being able to look into the mind and see how it reacts to certain things can just give you even more possibilities of manipulating, which could be dangerous if not done in the right way... Everything is good from a technological perspective as long as you don't over do it"*. She states that the issue is often about creating a need for something that a consumer doesn't really have a need for, and this is what bothers most people about marketing and advertising.

### **Group B**

#### **There are two sides to Neuromarketing, research and application**

Martin S sees Neuromarketing as divided into two areas. One should be seen as a tool for marketers, and the second is the neuroscientific investigation of consumer behaviour. In the first case you have companies that scan people looking at a brand or product and determine if there are reactions regions of the brain, which implies reaction to the brand. In the second case you can be not very interested in the commercial application of the results. You would

be interested in looking at marketing as a way that the brain works, and how it treats this sort of information.

### **Mapping neural processes within marketing is of interest to neuroscientists**

Martin S comments that we know that certain things work in marketing, but we don't know really why they work as getting into the brains of focus groups is not going to happen in the foreseeable future. The processes are too complicated as they interact and compete with each other. At the moment, neuromarketing can only offer explanations for what generates value and preferences. *"Now we have at least a little bit of light shining on that aspect, which is very important for consumer behaviour... that's taking off like a freight train at the moment, it's very very big."* He sees value generation within the brain to be of great interest in the neuroscientific discipline. And this kind of research can help in understanding marketing actions since marketing is based upon creating value. What is interesting to see is how it is internalised by people. Presumably memory would play a huge role, when you look at communication surrounding a brand or product. *"So one big question would be, what role does memory play?"* He says there's a lot of focus on the cognitive and emotional underpinnings of brands, what makes a good branding strategy- and there's a lot of institutions around the world working on this type of research at the moment.

### **Neuromarketers misuse neuroscience**

Martin S has reviewed Martin Lindström's book and remarks that Lindström misuses theory about the brain by applying it incorrectly, mostly basing all his results on speculation. *"So that's an example of his use of neuroscience which is just...laughable"*. Secondly, because none of his studies are published, there is no way of knowing how the tests were conducted. In the area of neuroscience, there's a lot of different ways of obtaining results, the way you analyze things is very important. *"He infers from a brain activity that the tests subjects are in a specific state, and in fMRI research that is called reverse inference, and it's a fallacy, you cannot do it."* To the question about the book bringing awareness in the general public to the area of neuromarketing, Martin responded *"It's like saying Jack the Ripper built awareness around surgical instruments, I'm not sure that's a good thing."* However he says there are companies working responsibly to figure out how they can use tools such as MRI scanners and EEG, to improve measurements of consumer behaviour. Alternatively there lot of

neuromarketing companies out there just trying to earn a lot of money by selling to companies.

## **Group C**

### **Neuromarketing should be cross-disciplinary with standard marketing research**

Nicolai Krarup of Mindmetric doesn't see neuromarketing and the accompanying technology as a stand alone discipline. Therefore their companies does a type of triangulation in research where they incorporate elements of emotion measurement with attitudinal, and observational research. With attitudinal research such as focus groups, he states that there is a missing element as test subjects often state one thing however in reality do something completely different. This is where measurement (neuromarketing) can come in and complete the "picture" by discovering inconsistencies between report and behaviour.

iMotions incorporates 3 levels of attention research. They combine attitudinal and behavioural research with diagnostics. Diagnostics is the actual measurement of attention and perception using technology. The diagnostics testing can be applied to testing advertising visual effectiveness as well as in store product placements. It measures what would be the emotional subconscious reactions to visual stimuli, whilst the behavioural and attitudinal would uncover the more cognitive aspects. Other applications of diagnostics include EEG and fmri however their focus on eye tracking as a measure.

Besides selling the hardware and the software for attention measurement, iMotions also have enabling services for clients where they train them in attitudinal and behavioural research. Clients may also wish to combine whatever methodologies they already have in place, with the diagnostics. The technology also serves as guidance to other research methods such as attitudinal research. Upon knowing the elements that are gaining attention or not, specific attitudinal questions can be asked which otherwise would not be uncovered.

### **Studies show that people are very divergent in emotional responses to stimuli**

From their research Mindmetric discovered that people react very differently to the same stimuli. From the framework of people's emotional responses being based upon reward or punishment, and the expectation of such, it must be appreciated and accounted for that there will be huge differences in response to stimuli dependant on what people have been exposed

to in their lifetime. To correlate measurements they chose personality tests and visual batteries of positive and negative visual to baseline the results. During testing they see if those same patterns repeat themselves, and from there they can assume which emotions are in play during an ad. They also include opinion questionnaires about the ad after the test subject has viewed it, in order to compare to the results in reactions.

### **Neuromarketing does not imply finding a buy button that will lead consumers to purchase**

Nicolai says that Neuromarketing research will never be able to find a “buy button”. However a marketer can manipulate his communication in order to influence attention, perception and consequently decision-making. The technology simply serves to bring to light problems that may exist in the communication that a marketer may not be aware of. It is a test of whether the advertiser has achieved the emotional impact he or she set out to achieve.

### **Neuromarketing can be used to test visual elements in ad executions and promotion**

Measurement of arousal levels is especially of value to advertising, as there is the risk of what has been referred to as attentional blink. Nicolai comments that ads generally follow a formula where they catch people’s attention; build arousal level up, and peak at the end. The issue is that if people are too aroused towards the end, they miss the concluding scenes and don’t register the brand being advertised. *“This for many marketers would equal a disaster. If I spent a million DKK on making a TV commercial, spend another 10 million rolling it out, and more to ensure other marketing material links up to my TV commercial, I would kind of want to know do I catch people’s (attention) or don’t I? And I can’t ask them. I would measure that.”*

Nicolai states that ads can also go wrong if it is polluted with too many elements, where attention is drawn to less relevant elements and important ones are not even seen. This is something that can be measured prior to launching an ad, thus saving clients from wasting money on an ad in which a simple change in elements could make it much more effective.

iMotions technology and testing gives marketers the ability to test their product or ads against competitors unobtrusively in a virtual space. It also gives the opportunity to choose a high performer amongst alternatives in ad executions. The high performer will result in high



activation as apposed to the weak ones who will have low activation results. The visual system will put attention to what is most attractive, and for an advertiser or marketer it's important to know which elements are strong and which are weak in their product or ad, in order to fine tune them or in order to choose the right alternative one amongst proposed executions. It can also serve as a test against other marketing predictions, to see if the results resonate with the other research. However, Jakob comments that the technology is only based upon attention activation and that you cannot infer from the results whether the viewers like the ad or not, as that moves into more complicated areas of cognitive processing and memory effects. However since attention is directly linked to recognition, and recognition to recall, clients can test whether the results fit across other research methodologies. *“So what we have today is a very good methodology for looking at the activation because we know even though it's positive or negative, it's a matter of gaining attention. The valence component, the negative or positive, is something you would measure quite through attitude (research).”*

### **Neuroscientific technology is difficult in methodology**

From a technological perspective for Mindmetric, the challenge lies in development of a emotion measuring apparatus that is compatible, easily transportable and applicable. The challenge also lies in understanding the results. This is where base lining and building up a database from testing is important to classify different emotions. Hence Nicolai says they are still in research mode. They're goal is to design the technology to be able to collect data within 24 hours on 100 individuals, preferably in their own homes.

### **Clients feel neuroscientific studies are too complex and expensive**

Nicolai commented that so far he has not met a company that has not been interested in Neuromarketing, however they think that it is too complex and too expensive. If someone could remedy these two hindrances then companies would definitely be interested. Market research companies can also benefit by adding a new method to their portfolio in order to up sale their services. Many are already buying into neuro-research and neuromarketing companies, including Nielsen who have bought into Neurofocus , Millward Brown who have bought into Emsense.

### **Collaboration with neuroscientists is difficult but valuable**

Collaboration with neuroscientists is however difficult Nicolai says, and this is to be expected as they demand a very high degree of accuracy and accountability within the research method. He sees their research as more of what he refers to as a “Silo” of knowledge that should be tapped into and learnt from. As is the case of research and theories within the “silos” of psychologists, eye trackers, and market researchers. He states that he’s deeply into reading published neuroscientific research papers which he refers to as “lighthouses” of theory, which he then would try and test out in relation to advertising. *“I think the trick for us is to put us in a sweet spot somewhere where we don’t offend anybody too much. You always want to make sure that the scientific community is not out there pointing fingers at you, saying that what you are doing is blasphemy. But we have ongoing discussions of what is scientific and what is not.”*

### **Neuromarketing is divided into two areas: research into the mind, and measures of emotions from physiological reactions to stimuli**

As Martin S, Jakob of iMotions also sees Neuromarketing as divided into looking at physiological emotional responses (the body) whilst technologies such as fmri and eeg look exclusively at the mind (brain). The mind is however wired to the whole body, therefore it is very limiting to only look at the brain as the main command centre without considering the body. iMotions combine 3 features- the gaze, the blink, and pupil dialation to record emotional activation. The eye is basically hotwired to the seed of emotion that is the amygdala. Hence emotional reactions are visible by analysing the eye properties because it acts as a mirror- “the mirror to your soul”. *“So basically what we have is a method for analysing arousal where you don’t have to use wires, and it’s faster because it’s basically hotwired into the brain”.*

### **Neuromarketing as a discipline is highly misinterpreted by the public**

Jakob doesn’t like using the term Neuroamarketing as he says it is highly misinterpreted and has become a buzz word connected mostly to fRMI, which in many cases is not even applied to this type of marketing research and consumer behaviour research. Therefore they use the

term diagnostics instead. fMRI has gained the notoriety due to the fact that it looks very impactful result wise as you can show visually what is happening in the brain- however not what it means. He comments that you cannot say that through diagnostics will explain everything you need to know about your research. The percentage of information that a company can get from diagnostics would be dependant on what kind of research and knowledge they already have, for example from attitudinal or behavioural. Larger companies such as P&G who invest in extensive product research and development would want to bring their accuracy of results beyond the 50% mark, so they would have an interest in diagnostics.

People are a little on guard of what is going on due to the hype around the term neuromarketing as the term implies some sort of key to brain manipulation, when the idea of finding or “pushing” the buy button is quite a crazy idea from Jakob’s perspective, *“it just doesn’t make sense.”* He says that all marketers know there are a lot of variables involved. *“It is extremely arrogant to say yes our small part (emotion measurement) can tell you about the whole thing. This is not the case, the case is however an effort to bring market research as a whole, through the use of technology, up to or past the 70% assurance percentage”.*

### **Lindstrøm’s study is purely hype**

In relation to Martin’s Lindstrom’s book, Nicolai says that it’s great that he published it but it serves no other purpose than creating hype and making the topic mainstream. From a neuromarketing perspective it’s a waste of time, and there’s nothing in it that wasn’t already known. Jakob comments that Lindstroms book is obviously a case of a brand guy talking about something he knows nothing about. From a branding or marketing perspective it is however a good way to get the debate going. Otherwise there would be only a few people dictating their understanding of the area.

## **6. Neuroscience & Technology**

### **Summary**

Neuroscientific research in relation to marketing focuses on uncovering processes of value creation within the human brain: The focus is specifically on studies where responses are tested in relation to brands and uncovering the role that memory and emotions play in this interaction. The two companies therefore focus on simplifying the neuroscientific method and emotion reading technologies to make them more applicable for commercial use. They

comment that fMRI technology studies are much too complex in methodology, are too costly and time consuming. Therefore their focus is more on EEG and eye tracking technology.

## **Group C**

### **Care must be taken with neuroscientific methodology**

Jakob described the basics of MRI technology and quoted that you have to be very careful with the methodology as there are no centres in the brain that can be attributed solely to one response or another. Techniques such as EEG are being used more broadly, by consultancy companies such as Neurofocus in the US, who have been acquired by Nielsen a couple years back. There are also people from Harvard and MIT working with this technology trying to find ways marketers can apply this it for bettering their practice. However there are a lot of smaller companies that have not really surfaced who are working with these technology as well as fMRI, some of which show colourful mind maps to marketers and promising results that they simply cannot deliver. He says that many a time at these neuro-conferences it's the, as he puts it, "long haired" scientists who work with fMRI and EEG who acquire some results, and assume it may have some relevance to marketing. However many a time is has no relevance.

### **Emotion measuring technology is more applicable to marketing than EEG and fMRI**

iMotions sell most of their product to market research departments within companies. The computational models, as apposed to other methods such as EEG and fMRI, are all applied within the software automatically, so there is no need for filtering and correction of data or detecting outliers. You can easily test 70 respondents within a couple of hours across locations. There is also a data collection network built into it so you can share your study and collect studies from other locations. Using iMotions technology you would spend about 100 dollars per respondent, as apposed to around 20.000 per EEG study and 200.000 per fMRI. Jakob says that the turnaround time for as study with iMotions technology would be 2 weeks on average compared to one month for EEG and several months for fMRI. EEG measures the outer part of the brain so it is good for cognitive measures, however not emotional measures. The combination of eye tracking to EEG is therefore beneficial.

## **Eye tracking technology has great potential to inform visual execution**

iMotions eye tracker is used to show how you decode the different elements within an ad. Here they record which elements the eye is looking at, pupil dialation, and blink potentials. From this you can see the initial subconscious emotional response within the first second of exposure. Certain elements in a product design will make you have an emotional response, which will influence and prime the visual system as well as your decision. Then you can heighten this response with design elements (shapes, colour, contrast etc) or through the brand. Today there are prediction systems that can actually predict with 80% accuracy how you will react emotionally. This cuts down on test persons as you can test your ads without respondents.

## **Making emotion reading technology commercially applicable requires cutting down on scientific accuracy.**

Mindmetric are looking across different medical technologies such as EEG, eye tracking, galvanic skin response sensors, heart variability, amongst others to find the optimum combination of technological measures that could measure emotional responses cost effectively, quickly, and practically. In order to combine these technologies to meet the requirement, they have cut down on medical grade- which implies the degree of accuracy required for a certain signal. *“We don’t really care about about the grade of quality as long as it’s good enough for us, and as long as it’s consistent across every measurement we make”*. They plan to make what he describes as not a conclusion machine but an editing machine, where they track reactions and then ask the creator of the stimuli, such as an advertiser, whether he or she expected these types of reactions to the ad. If there is a mismatch between the intention of what the stimuli was meant to elicit and what it actually elicits then the recommendation would be to go back and edit the stimuli (the ad). A challenge is mapping valence of emotional responses- how do people react if they like what they see or if they don’t like what they see? Nicolai says that when they get to an accuracy of 75% in predicting responses upon the base lining, it will no longer be based on guessing and they can then move on to commercial application of the technology. *“ And then it doesn’t matter if I’m scientifically correct, as long as I can give you a 75-80% probability that you have a problem- eye tracking is all over the map, low arousal, can’t figure out if they like it or not, cognitive*

*processing not there, visual attention dropping- you have a problem here.*” The level at which neuromarketing is at today, it is very impractical in application for commercial use. However he says that neuromarketing technology companies around the world are starting to change this. This includes Emsense in the US, who have developed an emotion measurement tool that is easily applicable. Emsense has also developed a database of over 150.000 impressions for over 1.000 ads. This allows not only for measurement, but benchmarking of ad effectiveness.

## **Part 6. Analyses**

### **Triangulation of interviews, media, and theory**

Insights from the interviews, media and theory will now be brought together for cross-analyses of the research. The following issues have been identified to play a role in the combination of neuroscience and advertising practice:

#### **1. Emotions have a strong influence on decision making and therefore also on consumer behaviour**

The review of studies in the theory section suggest that emotions have a strong role in decision making. This concept is reviewed in neuroeconomic studies on the difference of risk perception in individuals with damage to emotion processing centres in the brain, which has demonstrated an inability of those individuals to correctly access choice in decisions involving gains and losses. Emotions have also been shown to have important perception and choice influences to marketing mix variables such as price, product, preference and value. Their effect in reach, frequency, recall and recognition measures has called into question the real validity of such measures in determining ad effectiveness.

Interviews with Group A show that the advertising and marketing industries rely on consumer behaviour research in order to develop effective communications and strategies. They favoured observational techniques (such as in store behaviour testing) over attitudinal research such as focus groups which they quoted as being unreliable. The issue with attitudinal report is that it requires subjects to rationalise behaviour and attitudes which are

primarily based on emotions. Emotions are however mostly below the level of cognition and do not lend well to rationalisation. Therefore this method does little to uncover true motivations for purchase and reasons for perceptions. This suggests that real insights into consumer preferences are to be found in research that does not solely rely on attitudinal report by consumers themselves.

Neuroscientific research demonstrates that testing emotional reactions in relation to stimuli, has the potential to uncover the salient reasons for certain behaviours and attitudes. Such research promises to cut bias that is now a prevalent issue in consumer behaviour research.

## **2. Effective branding and advertising effectiveness are based on emotional appeal**

Theory review of reach and frequency of advertising has shown that true advertising effectiveness measures are to be found in measurement of emotional engagement to the content of the message as apposed to statistical measurements of media. This is supported by the discussion of ad-recall and ad-liking testing as well, where it is evident that it is emotions that will guide recall and liking scores. The discussion led to the conclusion that it is important that both the brand and ad communicate the same underlying emotional message in order to be effective.

Emotions rule perception and decision making as they guide our attention and memory and largely our cognitive processes. Attention and memory processes have been discussed in the theory section as being very much based on emotional processes (DuPlessis, Hansen & Christensen). Emotional engagement is therefore a vital component in advertising effectiveness. This notion is supported by the interview with Pernille (DDB), who said that it is her main objective to find and target emotional appeal in development of an advertising campaign. It is also supported by the interview with Linda (Microsoft) who pronounced the importance of finding a personally relevant appeal (based on emotional appeal) to a target group in brand communications.

Respondents in Group A saw branding and communications as a whole to rely on an emotional appeal to their target groups. It was mentioned that the inherent message of advertising has to be in sync with the values and message of the brand. It also has to function on an emotional plain as focus on rational appeal such as product or price does not seem to

produce a strong enough connection between consumer and brand. Values based on emotional appeal are what will attract and engage the target group. Finding the right emotional appeal between a brand and a consumer, is seen as vital as it creates unbeatable competitive advantage and strong loyalty.

### **3. Neuroscience and physiological measurements can help uncover emotional processes**

The review of biological structures in the brain, show that there are certain structures which are responsible for emotional processing. Structures such as the amygdala, hippocampus and insula are especially linked to processing of emotions and short term memories. Their activation during fMRI studies could therefore imply emotional processing. The reviewed studies in neuroeconomics have shown this application of technology to be informative in uncovering how emotions effect decision making in situations of risky choice.

The interviews with Group C show that it is possible to measure viewer emotional engagement through measurement of physiological response processes. Imotions in particular have developed technology which they claim can determine whether a viewer is emotionally engaged to a visual, and what elements he or she is engaged. This has the potential to aid in creative ad execution, and direct testing of ads on parameters of emotional engagement.

### **4. Neuroscience may be too complex for direct application to advertising and marketing**

At the current point in time, it doesn't seem plausible that the neuroscientific research method such as fMRI can be applied to marketing or advertising practice directly. Interviewees in Group A and C attribute this to the cost, complexity, and time frame required for the studies. Group A also found that the studies may be too complex for practical application as they transcend the normal boundaries of marketing.

From the interview with Martin Skov (Group B) it was learned that neuroscientific studies are of an exploratory nature into processes within the brain and their connection to behaviour and perception formation, some of which have been discussed in the theory. There is however a strong interest in connecting this type of research to exploring how marketing and advertising effects function within brain. He mentions that research into brand effects within the brain is an especially prominent research focus in neuroscience today. The results of this research may be useful to marketing and advertising practice.



## **5. Myths and inappropriate application of the neuroscientific method is creating boundaries between neuroscience and neuromarketing.**

From the interviews with Group C it was found that in order to create commercially applicable technology into the measurement of emotional engagement, the degree of scientific accuracy of neuroscientific method has to be simplified. This has led to criticism of neuromarketing from the neuroscientific realm, as they see the methods employed as being inaccurate (Group B, and in theory- the issue of reverse inference).

However the main issue seems to lie in the motivation behind neuromarketing companies. Some are seen as merely taking advantage of the hype that application of the neuroscientific method has raised in the general media, and trying to apply it with no respect nor understanding of the scientific method. This was especially the case with comments about Martin Lindström's Buyology book within group B and C. However there are technology companies that do respect the neuroscientific method, and are trying to develop technology, in some cases in collaboration with neuroscientists, that is scientifically valid and commercially applicable (Group B). This type of collaboration between research side and commercial application side will hopefully lead to producing results that are scientifically correct as well as demonstrate their relevance to marketing and advertising practice.

This in turn will minimise the 'hype' reputation and the confusion of application that neuromarketing has received from the marketing realm (group A) as well as in the media. It can also cut down on the cost and applicability concerns that were prominently mentioned as barriers by Group A.

## **6. Neuroscience can be applied under the discipline of Neuromarketing which should be cross-disciplinary**

Neuromarketing as a practice is very young, and therefore there are no credible research papers published on the subject. What is published are mainly books written by marketers who try to pull on scientific research results (the validity of which is still explored and refined in neuroscience) to introduce new insights to marketing theory by wrongly interpreting neuroscientific results (group B). However, there are several companies worldwide working in the realm of neuromarketing, such as iMotions and Mindmetric, who concentrate on

methods of measuring physiological reactions (such as eye movement, pupil dilation, skin conductance) to determine emotional engagement to visual stimuli.

In order for neuromarketing to develop into a solid practice, it must be cross disciplinary. Theory from consumer behaviour, marketing research methods, psychology, and neuroscience must be combined to develop results which truly increase and add value to testing visual stimuli such as ads and promotion. iMotions already demonstrate this by incorporating behavioural and attitudinal measures in their practice, to bring their diagnostic results up to higher accuracy. From the interviews with Group C, both respondents demonstrated that they were knowledgeable across different academic disciplines. They also seemed very involved in keeping up to date on neuroscientific research which shows an engagement and respect for the practice.

Due to methodological complexities of the neuroscientific method, the area of 'neuromarketing' should be viewed as two disciplines (Group B and C). The first would be neuroscientific research based studies into processes within the brain into elements of marketing, which would include neuroscientists working fMRI technology. The second discipline should concentrate on testing of emotions as reflected by psychological reactions in the body, in connection to visual engagement and stimuli. This can include technology companies which work directly with testing clients communication executions.

## **7. Combining science and marketing is unethical**

Apart from articles published in the general press promoting the idea of marketers getting into the brains of consumers, there was minimal concern with ethical misuse of technology by marketers within the interviews. In fact, group B and C said that the idea of mind manipulation and of finding the 'buy button' in the brain was quite unreasonable. The case seems to be that the general media is misinterpreting the practice of neuroscience and creating a misguided image of its potential application to marketing. Both negative and positive images were promoted by articles in the media overview, some pronouncing the revolutionary developments that neuroscience can bring to marketing and some pronouncing the misuse and manipulation that this will lead to.

## Part 7. Discussion

### Research question answered

Triangulation analyses of theory, interview results, and media overview has shown that there is potential for neuromarketing informing advertising and marketing practice. However it has also uncovered many technological, methodological, and social complexities that have to be accounted for. The following section proposes how these complexities can be overcome.

#### **1. There is a potential for applying neuroscience through neuromarketing to aid ad campaign development**

Emotions have been shown to have a great influence on whether ads gain attention, retain it, and create brand value. They have a strong influence on measures used by the industry to determine campaign effectiveness, such as reach and frequency, recognition and recall which base results upon rational processes of consumer decision making instead of emotional measures. This is due to the fact that emotions function primarily on a subconscious level, and cannot be easily uncovered by the research methods used by the industry today.

Neuroscientific research methods, and measurement of physiological reactions to stimuli, can uncover emotional processes and determine their impact on effectiveness. It is therefore beneficial for advertising, and marketing in general, to look at their viewers and consumers as emotional decision makers, and to start applying theories about emotions from neuroscientific research into development of campaigns.

The interviews with marketers and advertisers show that the impact of emotions is vital in campaign development. However to uncover the emotional appeal, the sources they pull on are consumer behaviour and market research which cannot uncover these processes but only imply their existence. Therefore there is a general interest for the insights that neuroscience can bring about in relation to emotions.

Interviews with neuromarketing companies uncovered the potential of emotion reading technology such as eye tracking, galvanic skin response, and skin conductance to test ad effectiveness executions directly. In combination with recall measures this has the potential to reveal true effectiveness results, instead of focussing on measures such as sales, reach and frequency which do not take emotions into account.

## **2. The degree to which this application can be done**

Combination can occur on two levels:

a. Neuromarketing application to advertising practice is based on neuroscientific *research* into emotional perception and processes in branding, advertising, and effects on behaviour and attitude. This part can serve to create a knowledge base which advertisers and marketers can tap into to develop their current theories and strategies. Here technology such as fMRI will be prominent in research.

b. Neuromarketing informs advertising effectiveness based on *application* of physiological reaction measurements of emotional engagement to visual stimuli. This part can serve as practical effectiveness testing of promotion and advertising material specific to a brand or company. Here technologies such as EEG, eye tracking, and skin conductance will dominate due to simplified and less costly application and result interpretation. Through this technology advertisers can test whether their communication is effective in engaging the viewer emotionally or not.

## **3. The value that this will create**

Neuromarketing can add value to advertising and marketing practice in the following ways:

- a. Uncovering salient ad and brand effects through research into correlations between processes in the brain and marketing stimuli.
- b. Testing effectiveness in a scientific manner can point out execution flaws and weaknesses that can be remedied prior to release. It can also aid in deciding between proposed ad executions. Problems within branding or advertising campaigns can be detected and remedied. This is very beneficial for marketing and advertising practice as it saves on huge investments by minimising the risk of ineffective executions or misplaced brand communication.

Value can be added in the following areas:

- Measurement of emotional perception and reactions to details within ad executions and marketing stimuli *in combination* with other research techniques can bring execution accuracy level up and lead to more informed creative ad executions.

- Less reliability on media measurements of effectiveness, which are laden with influences from other marketing mix variables and do not account for emotional processes.
- Better understanding of the processes at play in consumer behaviour and decision making which can lead to more informed brand strategies, brand linkages, and creative ad executions.
- Understanding of memory processes and emotional processes can inform ad *research* development which can lead to better formulated attitudinal research questions as well as recall and recognition measures.

#### **4. Issues that must be resolved for effective integration**

- Lack of information

The marketing industry is informed about the value of neuroscientific research from untrustworthy sources which are mostly based on hype within the media and publications of incorrectly applied scientific method. The lack of information leads to less responsible neuromarketing companies offering services and promises of scientific results which have no real value. This reflects unfavourably and creates barriers of mistrust towards neuromarketing practice as a whole.

- Lack of dedication to scientific accuracy

Simplification of neuroscientific method for commercial use will result in inaccurate results, methodology, and create more confusion and hype about the potential value that can be derived. The risk will be that neuromarketing will essentially become a fad, which will be disregarded by the marketing industry as nothing more than empty promises.

- Methodological complexity

Application of neuroscience to marketing practice is laden with methodological complexities which at the current point of time are generating problems of integration of the two practices. This implies that:

- a. There is a need for the practice of Neuromarketing to be cross-disciplinary. This can be accomplished through integration of emotion reading technology with traditional consumer behaviour research, psychology, marketing theory, and neuroscientific research.
- b. The complexity shows a need for Neuromarketing to be in close collaboration with neuroscience than is currently the case. Two suggestions follow for this collaboration:
  1. Neuromarketers can develop projects based upon discrepancies within consumer behaviour and marketing practice for neuroscientists to research.
  2. Neuroscientists can collaborate with neuromarketing companies by sharing of research results, insights, and correct methodological practice.

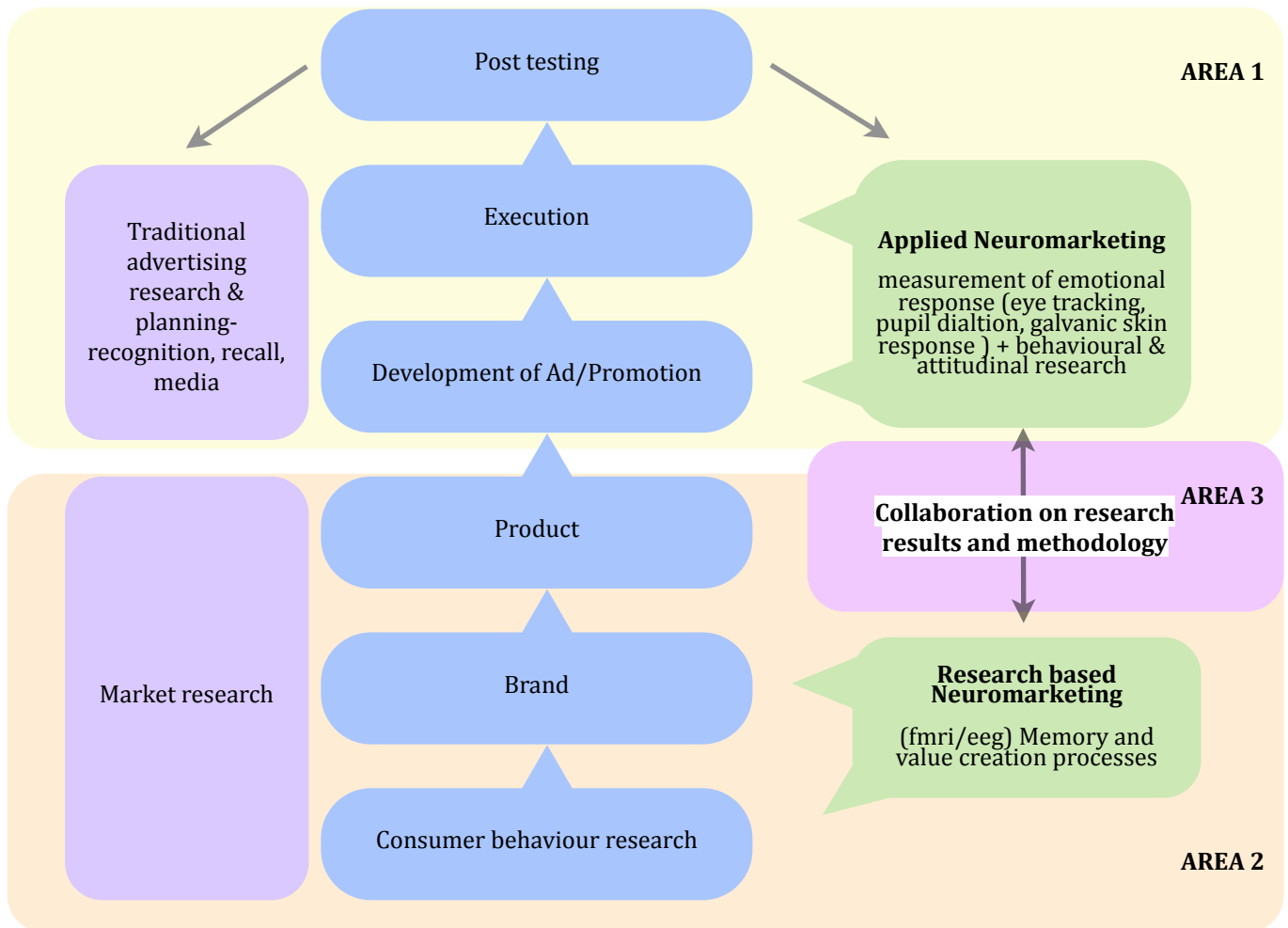
The issues that have been found in the research across the theory, media and interviews have been outlined in relation to the research question. In the following section a working process model of integrating neuromarketing into campaign development is proposed, on the basis of the conclusions drawn from the research.

## **Part 8. Model for Application**

It has been demonstrated that neuroscientific research within the discipline of neuromarketing, has the potential to uncover vital emotional processes in advertising and marketing to turn what right now are guesses about communication effectiveness, into proven and applicable theory. It has been proposed that this can happen on two levels, through dividing neuromarketing into an area of *research* and into an area of *application*.

The following model (Fig.10) suggest how neuromarketing can be integrated into the key processes of campaign development.

Fig 10. Model of integrating neuromarketing to campaign development



A brand is perhaps the most valuable asset to a company. Therefore it is vital that the brand is developed in relation to the values of the company itself and the values of it's customers. Research into the way the brand is perceived is important not only from the customer side, but also for the company itself to understand what their brand means. Most companies will have this type of knowledge developed through market research and consumer behaviour research prior to launching campaigns. Many times however, this knowledge gets lost in company hierarchies, and the values are forgotten. Other times, companies have no real understanding of what their brand really represents. Marketing and especially advertising practice has already altered their understanding and evaluation of consumer behaviour from rational decision makers to emotional ones. Due to this shift, they have developed tools for analyses of consumer behaviour and report, however at the moment they are mainly based on correlational guesses. Integration of neuromarketing into campaign development can help

explain these correlations through neuroscientific research into brain processes responses to marketing stimuli, and through application of physiological testing technology of emotional reactions to visual stimuli to inform campaign execution effectiveness.

**Area 1** of the model, represents where research based neuromarketing can be applied to campaign development through theory about how the brain creates value, and the processes of memory association. This knowledge can inform brand managers in ways of conducting relevant research to uncover salient memory associations customers have to their brand. Understanding these associations will help in branding strategies, whether it is uncovering a current brand perception or brainstorming on how to alter it. It can also help to understand how to form the campaign communication. The connection here is not one of technological application to traditional research, but application of theory from neuroscientific studies to marketing strategy in conjunction with traditional research.

**Area 2** of the model represents how the visual elements of a campaign can be tested through technological application of emotional engagement measurement. Once the marketer has formed a campaign upon the basis of brand and consumer research, a neuromarketing agency can be brought in to help identify the campaigns effectiveness. This can entail a combination of diagnostics testing of emotional reactions to elements within an ad, and comparing them to what emotions the marketer had intended to communicate. If the two are in sync, then it can be assumed that the ad will produce the desired effect. By applying traditional advertising research methods to test the ad, the accuracy of results of effectiveness testing will be pushed even higher up.

Research into emotional processes cannot stand alone in informing advertising and marketing. It must be combined with other disciplines such as traditional consumer behaviour theory & research methods. This is due to the many variables involved in the complexity of interpreting the processes in the human mind. In which case, cross comparisons of results from different research methods is the only way to gain more clarity into the processes at play.

**Area 3** The two levels of neuromarketing must be in collaboration with each-other to create value for campaign development. Neuromarketers on the research side can inform the application side of methodological accuracy and results of fMRI studies. Neuromarketers on



the application side can work to develop applicable body of knowledge that is understandable to marketers and applicable to practice. They can also develop a database of emotional reactions in tested ads. Collaboration between *research* and *application* is necessary for development of solid theories on emotions in relation to advertising and marketing effectiveness. It is also necessary for correct testing and interpretation of results of emotional reactions to advertising and marketing stimuli.

The model of integration proposed here functions primarily as an illustration of where neuromarketing can add value in a typical campaign development process. For the purpose of clarity, specifics of how the interaction between neuromarketing and campaign development has been omitted, as campaigns often differ in their structure and flow.

## **Conclusion**

This paper has explored the role of emotional processes and neuroscientific research into these processes from a theoretical and practical standpoint. Neuroscientific studies have proposed that it is primarily emotions and not rationality that plays a vital part in influencing decision making, perception, cognition, and behaviour. Research into emotional processes is vital for development of marketing and advertising campaigns because, as interview results show, successful branding and advertising depends on understanding and developing an emotional appeal towards consumers.

The issue however within advertising and marketing practice persists that traditional research methods cannot uncover these emotional processes as they are only reflected in the brain and through physiological reactions. This means that we do not know for sure the reasons for consumers perceiving ads and brands a certain way, nor do we know for sure how to engage their attention and behaviour. By applying neuroscientific research results and physiological reaction testing to advertising and marketing stimuli, under the discipline of neuromarketing, traditional research methods can be made more accurate. Although, neuromarketing cannot be used to guide behaviour, it can be used to develop understanding of how emotional processes influence perception and behaviour. This has the potential to illuminate why some marketing actions and advertising works, and why others don't. In turn, this can guide towards creating more effective advertising executions, branding and marketing strategies.

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