



# From exposure to purchase – Understanding the interaction of affect and cognition in consumer decision making

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| <b>Title of thesis: From exposure to purchase – Understanding the interaction of affect and cognition in consumer decision making</b>  |  |
| <p><b>Abstract:</b> There is a gap in the literature in consumer affect and cognition, especially the interaction between the two systems. This interaction is of particular importance because this is where the decision to buy is made. This thesis aims to identify the mental processes of the consumer leading to a purchase, by studying what motivates the consumer to buy ecological produce. Motivation is what drives the consumer to behave in a certain way; this motivation can be of implicit and explicit origin. If both types of motivations are present, the behavior is strong and the consumer is likely to buy. When buying ecological produce, the consumer can have unconscious and affective motives and cognitive and conscious motives. Theory on motivation, decision making and consumer behavior are presented.</p> <p>The methodology includes qualitative interviews and measuring brain activity in consumers using an EEG (n=20). The experiment consists of pictures, value-promises and commercials, and are all chosen to embody a certain theme; taste, health and ethics. These themes have been identified in previous literature as drivers of ecological consumption. The data is used to construct an expanded model of the interaction between affect &amp; cognition in consumer behavior.</p> <p>The implicit motivator is taste and the main explicit motivator is identified as ethics. Implications for consumer behavior and marketing strategy are discussed and a model for the mental process and consumer decision making leading to a purchase is presented. The relevance of affect preceding cognition in decision making is discussed.</p> |  |
| <b>Keywords:</b> consumer behavior, neuromarketing, decision making consumer psychology, EEG, ecological marketing, cognition and affect, neuroscience, motivation, market research  |  |

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## **1 INTRODUCTION**

The customers' thoughts and feelings are factors that are critical for marketers to understand. For a company to be market oriented it needs to be able to identify their customers, how they think and what they respond to (Evans et al. 2006). As stated in Consumer Behavior and Marketing Strategy by Peter & Olson (2008) the American Marketing Association defines Consumer Behavior as "the dynamic interaction of affect and cognition, behavior and the environment by which human beings conduct the exchange aspects of their lives". The dynamic interaction of affect and cognition is of particular importance, as this is where the decision to buy occurs.

Effective marketing has to stand out, gain the consumers attention, answer to a need, and get the consumer emotionally and cognitively invested. In order to create effective and engaging marketing, the processes involved resulting in consumer behavior and the consumers' reaction to marketing stimuli, must be measured, so that insights can be drawn of what works, what does not, and what can be improved. When the consumer is interested enough in a product or service, they start to evaluate a purchase. This process is called consumer decision making (Peter & Olson 2008). Firstly marketing has to meet the motivations and needs of the consumers in order to be effective and gain their attention.

Motivation can be defined as the reason why we behave in a certain way (Pervin 2003), therefore why we buy in a certain way (Evans et al. 2006). Consumer motivations can be divided into different terms; implicit motives are often unconscious and driven by affect, while explicit motives are often conscious and driven by cognition (McClelland et al. 1989). Marketing that can entice both these motives is extremely engaging to a consumer and gains their attention. (McClelland et al. 1989).

Studies in consumer decision making have identified two separate models, one unconscious and emotional (Elliot 1998) and one cognitive and conscious (Peter & Olson 2008) and arguments are made that they are both very separate. Arguments have also been made that affect precedes cognition in consumer decision making (Zajonc 1980). Consumer affect and the unconscious has also proven to influence consumer behavior more than cognition (Shiv & Fedorikhin 1999). This illustrates the importance of

knowing how consumers react to marketing efforts on an emotional and unconscious level during the exposure.

The consumers' reactions and thoughts about marketing efforts can be of cognitive and affective origin (Peter & Olson 2008). The cognitive thoughts about a marketing stimulus can be assessed through qualitative interviews, where the researcher can explore why a consumer thinks in a certain way about the marketing action (Jansson-Boyd 2010).

The affective system is reactive, cannot be controlled and affects consumers physically (Peter & Olson 2008). 95 % of human decision making is considered to be unconscious (Ramsay 2015). This illustrates how vital it is for marketers to identify the unconscious processes that affects the consumer's decision making (Bridger 2015). How can the consumers' affective and unconscious response to marketing actions be measured?

The consumers' affective response to marketing can currently only be assessed by qualitative interviews; a consumer can reflect on the emotions experienced when exposed to a marketing stimulus. This process requires memory and cognitive effort. Memories deteriorate quickly and it is hard to form a reliable recollection of an emotional state during exposure to a marketing action (Bridger 2015). The presence of other people, especially an interviewer affect the arousal level and physiology of the person, which in turn influences the thoughts and answers (Smith & Mackie 2007). During an interview the consumer is also affected by the hindsight bias (Kahneman 2011), describing an event with the knowledge of how it ends. If consumer affect and the consumer unconscious influences the behavior more than cognition, it would make sense to focus more effort in measuring these responses in consumers in a more reliable way.

At the time Peter & Olson (2008) wrote their book they stated that scientists are still studying the affective systems effect on consumer behavior, and the interaction between cognition and affect. This statement is also made by (Jansson-Boyd 2010). Cohen et al. (2006) also encourages more research on the impact of affect in consumer behavior and decision making. How can the consumer affective system be measured in a more reliable way?

Dr. Kandel, Winner of Nobel Prize in Physiology states the following; "Understanding the human mind in biological terms has emerged as the central challenge of science in the twenty-first century". With new discoveries in neuroscience and application of

technology that measures brain activity combined with existing marketing theory we can measure the consumers affective system's direct response to marketing stimuli (Zurawicki 2010). This will give us an understanding of how affect interacts with cognition, the environment and ultimately behavior. It also provides biological data on how consumers act to marketing stimuli.

Neuroscientific methods in marketing provide a broad range of benefits. In emerging markets such as India, where the population speak 122 different languages, it is becoming increasingly difficult to gain market intelligence using traditional methods. Neuroscientific methods can provide a way to measure the consumers' response to market stimuli without translators present (Pillai 2015) and create marketing campaigns that works.

Music is highly emotional and has a great effect on the affective system of consumers (Wolfe et al. 2012). This effect is illustrated in the paper by North et al. (1999) when the type of music, German or French, directly affected the amount of wine sold from the respective country. When the consumers were asked later about the effect, results showed that they were oblivious to it. Consumer are not aware of how their emotions effect their behavior and decision making and cannot reliably report emotional responses towards a stimuli via interviews or surveys.

According to Lindström (2008), 8/10 new product launches fail within a few months. The Nielsen Company reports an even higher rate, 90% (nielsen.com). With neuroscientific methods, Cotton Incorporated was able to gain insight into what material of bedsheet has the highest score while subjects are asleep. They used this information to launch the best product (Trevisan et al. 2015). Product packaging can also be tested and optimized before the product actually hits the shelves (Feinkost 2015). This illustrates how neuroscientific methods can provide insights into the first P in marketing, the product, before it even is available for the public. This provides a safe way to test and develop a product, to ensure the best possible adaptation by the market. The same can be done for marketing campaigns, commercials and advertisement. Neuroscientific methods also give researchers a way to record a cognitive and affective response to a stimuli, the moment it actually occurs.

## 1.1 Scope of this study

To summarize, consumer behavior is influenced by motivation (Evans et al. 2006), which leads to cognitive and affective processes that influence the decision process which finally ends up manifesting in consumer behavior. The cognitive system is rational and includes interpretations and executive functioning. The affective system is highly reactive and affects the physiology of the consumer (Peter & Olson 2008). The decision to act after a consumer has been exposed to marketing action is driven by affect (Elliot 1998) and cognition. Consumer affect has shown to be more influential on consumer behavior than cognitive thinking (Shiv & Fedorikhin 1999; Zajonc 1980).

We can assume consumers are governed by two methods of thought, the cognitive and the affective (Peter & Olson 2008). Consumer affect can only be measured in qualitative research by asking respondents to use cognitive thought to remember and identify their emotions and feelings during the exposure to the marketing action (Bridger 2015).

Marketing efforts are sometimes ineffective, and when effective, the marketers usually do not know why it works. If the marketing effort influences the purchasing behavior of the market segment, businesses are happy. Marketing campaigns are often made with A/B testing to see which one the market responds better to. Marketers need to identify what works and what consumers truly respond to, both in affect and cognition, during the actual exposure to the marketing stimuli. The understanding of the cognition, affect and behavior in response to the environment will give marketers a deepened understanding of consumer behavior and a better idea of what their customers respond to.

As consumer affect during a past event can only be assessed via interviews, another method must be utilized to measure consumer affective responses. Neuroscientific methods can directly record the affective response of the consumer, without having to rely on cognitive reflection and interference from other factors during an interview. (Ariely 2008; Zurawicki 2010).

Asking consumers to think cognitively of their emotions is not a reliable source of data. Bias and heuristics are evident in most thinking (Kahneman 2011) and market research done today is influenced by bias (Lindström 2008). Examples of these mental biases

include; the confirmation bias and the hindsight bias (Halvorson & Rock 2015). Insights from the market are typically based on questionnaires and interviews, where consumers are subject to strong bias and heuristics, and the influences of the affective system on consumer behavior is not reliably accounted for (Bridger 2015). In an article by Kempf (1999) the author encourages the recording of responses to marketing both by measuring the affective and cognitive.

As the affective system is automatically and unconsciously used in decision making and it influences consumer behavior more than cognition, it makes sense to study this system and its responses to marketing stimuli, in order to create a more holistic and reliable view of consumer behavior. Affect evolved before cognitive thought in order to make humans and consumers more active (Bridger 2015).

In combination with qualitative interviews, neuroscience can provide insights into consumer behavior, especially the affective system. Neuroscientific methods including EEG have been used before in measuring consumer responses to TV commercials (Khushaba et al. 2013). When neuroscience is used in combination with marketing theory, the term neuromarketing is often used and will be used in this thesis. Neuromarketing is a new field that combines neuroscience and consumer behavior (Marichamy & Sathiyavathi 2014). Through the method of measuring the response to a stimuli during the exposure to the stimuli, neuromarketing methods will give superior insights into consumer behavior (Vlaceanu 2014).

The use of neuroscientific methods in areas such as market research, innovation, product development, advertising and sales are becoming more and more mainstream (Zurawicki 2010). Neuroscientific methods used in marketing can make advertising and marketing campaigns more effective on a global level (Marichamy & Sathiyavathi 2014). Yet there is no literature in marketing theory describing the possible role of neuromarketing and use of neuroscientific methods in the theory of consumer behavior. Most literature is not academic and written for, and by neuroscientists, or as practical guides for professionals.

To map out the mental processes that occurs in the consumer before a purchase, more information on the affective system and consumer motivation is required. This way a more holistic view of the consumer will be achieved and marketers can identify how to market their products more successfully.

## **1.2 Purpose of this study**

Butler (2008) encourages future research in the field of neuromarketing to close the gap between research and practice. Peter & Olson (2008) states that the affective system of consumer behavior is still being studied and the relation of affect and cognition in consumer behavior is unclear. Cohen et al. (2006) also encourages more research on the impact of affect in consumer behavior and decision making. Overall the exploration of the thoughts and feelings of consumers, is kept on a very vague level in marketing theory. One reason for this is that it has been measured via subjective qualitative interviews. The only way to find out what goes on in the mind of the consumer is to measure the physiological reactions and combine it with qualitative interviews.

Marketers today measure the effectiveness of marketing instead of observing what affects behavior and why. To illustrate with a simple example; a company puts different ads of the same beach balls in magazines. They observe buying behavior of beach balls and conclude that the marketing was effective. Instead they could measure which ad the consumer reacted strongest to and conclude which ad was the most successful.

This thesis focuses on consumer affect and cognition, utilizing insights from neuromarketing. Consumer motivation and decision making are explored in order to map the mental process of the consumer, leading up to the purchase. In the broader context of marketing strategy, this thesis aims to identify steps in the mental process of consumers where marketing messages can be effective. By knowing what motivates consumers to buy, marketing efforts can be more lucrative. This will give an improved understanding of the affective system of consumers and it will close the gap between neuromarketing practice and research related to marketing theory. The order in which a consumer responds to is also explored, testing the hypothesis that affect precedes cognition.

Neuroscientific measurement methods are used in order to measure the affective response of consumers with more validity, therefore adding to the best practice of quantifying and measuring how consumers respond to marketing efforts. Neuroscientific methods can measure consumers' affective response to marketing action and marketers can identify how to create marketing that engages the consumer and her motives, before cognitive; conscious thought is involved.

In this thesis the affective system of consumers will be recorded using brain activation measuring technology. The consumers' cognitive response to the marketing action will be assessed via qualitative interviews and brain activity measurement techniques. This thesis will also explore the application and validity of neuromarketing with Electroencephalography (EEG) (Wolfe et al. 2012; Glimscher & Fehr 2013) as a form of research methodology, both in practice and in academics, in order to further the knowledge into consumer behavior and consumer decision making (Vecchiato et al. 2011). It will also add to the existing ethics debate on neuromarketing (Flores et al. 2014).

In previous research into ecological purchasing behavior, three motives are identified that drive ecological purchasing behavior. This paper explores the consumer response to ecological stimuli, containing motives for ecological behavior. These ecological stimuli are designed to encourage activation of the cognitive and affective systems. EEG can be used to measure unconscious attention and implicit and explicit wanting. It can also be used to measure cognitive engagement. Most importantly, EEG can measure the affective response during the stimuli itself.

To summarize, this research aims to show how the consumer's affective and cognitive response to marketing stimuli can be enticed by ecological motivators, measured and recorded using EEG during the actual event, and how this knowledge, in combination with qualitative interviews, can be used in order to create a more holistic view of consumer behavior and consumer decision making. Today marketers establish what works based on the amount of consumers that buy the product or service. Neuromarketing can help marketers understand what works and why. The effectiveness of marketing is measured by observing the behavior of consumers. In order for marketing to truly influence purchasing behavior, marketers have to know why something works and identify what works.

This thesis will add to market research and explore a way to measure the consumers' affective and unconscious responses. Implications could be insights into how to create marketing that evokes both implicit and explicit motivation (McClelland et al. 1989) and activates the consumer in an unconscious and emotional way. By exploring the mental process of the consumer before the purchase, steps can be identified where marketing can be effective, especially which of the consumer systems responds before the other. In this thesis ecological marketing will be used in order to answer the research questions, as ecological marketing is something that can be cognitively and affectively engaging.

Based on the presented scope and purpose, these are the research questions this thesis aims to answer;

**1. What is the relation between consumer affect and cognition and how do these systems affect decision making and ultimately behavior?**

This question is answered by reviewing the theory on consumer motivation, affect & cognition and consumer decision making and then measuring consumer responses to ecological stimuli and conducting qualitative interviews. A theoretical model is presented with the aim of mapping the mental process in consumers; from exposure to purchase.

**2. Does the response of the affective system precede the cognitive system?**

Two methodologies will be used to gather data on consumer motivation to buy ecological produce. The data gathered from the EEG should provide an answer to this research question.

**3. What cognitive and affective factors motivates a consumer to buy ecological produce?**

The motivation of consumers to buy ecological will be studied by asking the respondents to reflect in qualitative interviews and buy measuring the brain activity of respondents while they are exposed to stimuli representing different themes. The EEG can measure the responses in both the consumer systems and the qualitative interview can provide an introspective view of the motivators of the respondent.

### **1.3 Terminology**

*Affect* – Feelings the consumer has related to a marketing action. Involves emotions, moods and evaluations. Affect can be negative or positive (Peter & Olson 2008).

*Cognition* – Higher level consumer thinking, such as interpretation, planning, understanding, memory, learning and evaluating (Peter & Olson 2008)(Eysenck 2012).

*Neuromarketing* – Also called consumer neuroscience. Neuromarketing is the field of research that draws insight from neuroscience and psychology adding to existing marketing theory (Zurawicki 2010).

*EEG* – Electroencephalography, a brain activity measurement device. EEG measures neural electrical activity (event-related potential) via in the cerebral cortex and provides great temporal resolution. EEG measures brain activity through electrodes placed on the scalp. EEG is a non-invasive method (Wolfe et al. 2012).

*Ecological produce* – Ecological produce in this research are edibles and food. The products are produced in an ecological manner.

*Marketing actions* – Marketing actions in this thesis include commercials, value-promises and diverse stimuli.

#### **1.4 Exakti Intelligence Oy**

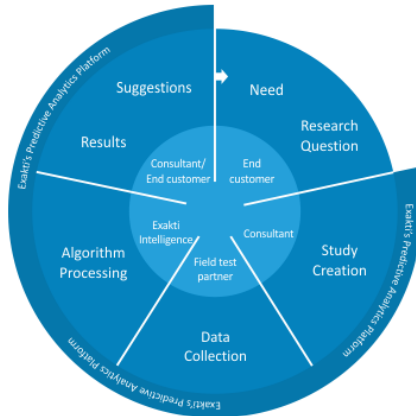
This thesis is done in collaboration with Exakti Intelligence Oy, a company in Helsinki doing market research and marketing consultancy with EEG and neuromarketing techniques. They provided the EEG devices and the software to analyze the data gathered from the EEG: s. The whole thesis is done by the author including all conclusions, data collection, analysis and research.

The author received guidance from Miikka Miettinen, with a degree in cognitive sciences and information technologies, and Jarkko Kotola, Chair of Finland for the Neuromarketing Science and Business Association (NMSBA). The EEG provided by Exakti Intelligence Oy have 8 electrodes, which is considered a low medical grade EEG device. It has been argued that 16 electrodes is the minimum for reliable medical data (Pradeep 2010) but 8 is sufficient for these purposes. The software used to analyze the data from the EEG is developed by Miikka Miettinen and the EEG measurement caps have been ordered and manufactured by BrainProducts GmbH.

Exakti Intelligence Oy:s business is illustrated by this model, taken from their website. Exakti Intelligence has worked with companies like Saarioinen and Hartwall. For the

most part they provide support during the design of commercials and packages and provide A/B testing for companies. Most of their services are sold through consultative partners, who include their analysis in a bigger offered solution. Exakti has measured over 2000 respondents in 4 different countries.

*Fig.1 Predictive Analytics Platform*



The standard approach is that a partner sells the services of Exakti Intelligence to the customer. The customer then states the problem, for example there might be a problem during the package development and design for a new product. This can then be tested using brain measurement techniques. Exakti Intelligence then recruits about 20 respondents and measures the consumers' responses to the different alternatives. Exakti analyzes the results and presents them to the client. Usually it is clear which package received the best responses from the consumers. Qualitative interviews are usually done after the measurements in order to gain an even better picture of the consumers' attitudes towards the alternatives.

## 1.5 Limitations

This study is mainly limited by the sample, which consists of students from Finland having similar socioeconomic background and education. The area chosen for this study is ecological marketing of ecological produce. The stimuli shown to the respondent have

been chosen to correspond to three themes: Taste, Health and Environment. Another limitation is the possible biases of the author, such as the confirmation bias.

A lot of authority is given to neuroscientific findings and it is therefore important to remember to keep an open and critical mind. People tend to easily believe arguments that are backed up by neuroscientific evidence. This thesis will show that the use of the EEG and the brain areas measured are also deeply rooted in theory in order to provide proof of the methodology. The terminology used in the chapter of the brain is kept on a simpler level in an effort to make the text more fluent.

As the results and conclusion will be based on physiological responses and humans have the same brain anatomy, results are generalizable. This study is also limited by the EEG, as it can only measure neural activation in the cortex and not the deeper tissues of the brain. The EEG also has only 8 electrodes. Finally this study is limited by the fact that it follows a certain structure and length, determined by Hanken School of Economics and the main function of the paper is to prove that the author is able to conduct and record research on a relevant topic in marketing.

## **1.6 Structure of thesis**

In chapter two Consumer behavior will be discussed (Peter & Olson 2008), particularly the affect and cognition that contributes to the observed behavior. A Neuromarketing approach will be used, utilizing insights in both theory and method from the fields of psychology and neuroscience. The focus will be on consumer behavior and marketing theory and what these other disciplines of study can add to the existing theory. The methods of thought introduced by Economics Noble Prize winner David Kahneman will be provided and compared to the existing model of consumer behavior. Motivational theory will be introduced, both from marketing theory and psychology, especially implicit motivation and the role it plays in this research. Theories on consumer decision making will be presented, both a cognitive model and an emotional model. The theoretical framework will discuss how to understand the interaction of cognition and affect.

Neuroscientific research methods used in a marketing context will be reviewed. An overview of relevant brain anatomy and the theory on unconscious attention, wanting and cognitive engagement will be presented (Carlson 2014; Exakti Intelligence Oy) in relation to consumer behavior.

In the method chapter three, the methodology of this study will be presented in detail and an experimental approach will be used, supported by qualitative methods. This chapter will include a presentation of the EEG (Electroencephalography) which is used during the experimental methodology.

Results will be introduced including figures and tables showing brain activation in consumers, illustrating the level of wanting, cognitive engagement and unconscious visual attention. This will be followed by a discussion and analysis of the findings, the research questions will be answered and possible implications will be discussed for consumer behavior, marketing practice and further academic research.

## 2 CONSUMER AFFECT AND COGNITION

Consumer behavior, especially the interaction between cognition and affect, the cognitive and emotional decision making of consumers and their effect on the behavior will be presented. Theories in motivation drawn from consumer behavior and personality psychology will be provided and put into a relevant context.



*Fig. 2 The wheel of Consumer Analysis - Peter & Olson (2008)*

The concept of Consumer Behavior consists of the interactions between three different factors. These factors are Affect and Cognition, Environment and Behavior (Peter & Olson 2008). These different factors all influence each other and together they illustrate how a consumer behaves in an economic world. The understanding of the interaction between these three factors formulate a marketing strategy for understanding the customer, creating content that engages the consumer and drives the wanted purchasing behavior. Marketing strategy is derived from knowledge about the business, the brand and the consumer (Peter & Olson 2008). In order to truly influence consumer behaviour, marketers have to know how affect and cognition work and how to measure these responses. Marketers today measure the success of marketing by observing behaviour,

instead of observing what affects behavior and why. By knowing what leads to the wanted consumer behavior the marketing strategy can be devised to increase consumer engagement. The theoretical framework will be used together with the data to identify steps in the mental process of consumers, where marketing will be effective.



*Fig. 3 Neuromarketing as part of marketing strategy*

The theories in the emerging field of neuromarketing will be presented and how they add to the existing theory on consumer behavior. Finally these theories will be brought together to provide a theoretical framework and model for this research and show a deeper understanding of the mind of the consumer. After the data is collected, the model will be updated and the mental process of the consumer; from exposure to purchase, will be presented.

## **2.1 Neuromarketing**

The ability to know consumers unconscious response to marketing stimuli without interviewing about the individuals own recollection of his conscious experience will lead to insights and predictions about consumer behavior which may have implications to businesses overall strategy(Burgos-Campero & Vargas-Hernandez 2013). Unconscious responses to marketing stimuli cannot be measured by asking someone to remember their conscious response.

Neuromarketing is a new field that combines neuroscience, psychology and consumer behavior. The term appeared around 2002. The first research on a large scale and arguably the most famous study in neuromarketing is the Pepsi and Coca Cola experiment. This experiment showed that Pepsi won in taste during blind tasting, Coca Cola won when consumers were aware of what they were drinking. The representation of Coca Cola, a powerful brand, showed huge activity in the frontal part of the brain. (Marichamy & Sathiyavathi 2014; Zurawicki 2010).

Neuromarketing has become a growing field in market research and academics. It utilizes insights from biopsychology, haptics and neuroscience in an effort to gain more unbiased market intelligence. Neuromarketing methods provide great insights into the brain responses of consumers when exposed to a certain market stimuli (Miljković & Alčaković 2010). Neuromarketing also provides great insights into consumer behavior (Colaferro & Crescitelli 2014). Cultural effects are not visible when data is gathered from the most reliable source, a source that filters out lies, embellishment of the truth and efforts to impress the researcher – the brain. Brain activity is also a global phenomenon (Pradeep 2010). Neuromarketing is based on the fact that consumer decision making is based 70% on unconscious processes (Marichamy & Sathiyavathi 2014). Ramsøy (2015) puts this number at 95%.

One of the main implications of neuromarketing is that it provides the tool to record the unconscious responses to marketing stimuli that cannot be assessed via traditional market research (de Oliveira et al. 2014). Neuromarketing has been shown to give major insights into consumer behavior (Vaceanu 2014).

Neuromarketing includes the use of methods such as eye tracking, galvanic skin response, Electroencephalography (EEG) and functional magnetic resonance imaging

(fMRI) (Pradeep 2010). These methods are used to measure the consumers' response to stimuli related to sales and marketing (Dooley 2012; Zurawicki 2010).

## **2.2 The mind of the consumer**

In the mind of consumers, the interplay of affect and cognition and decision making is what determines if the individual will act and be influenced by a marketing effort. To understand how to create marketing that affects these systems in a positive way, an understanding of these systems and the interplay between them is explored.

Out of the two systems that govern the mind of the consumer affect is of particular importance. It is the less studied and understood but also the more important for consumer behaviour. The thought of humans as rational decision makers and cognitive machines is outdated (Shiv & Fedorikhin 1999). According to Zajonc (1980) emotions precedes and then influences rational thought- this would mean the affective response happens first and the rationalization of the cognitive system happens after. In neuroscience evidence also show that the emotional part of the brain influences the rational part more than the other way around (Hazeldine 2014).

This insight can be combined with the model sequence of communication effects, presented by Evans et al. (2006). According to this model consumers respond to marketing action in a certain process, first they are exposed to the stimulus, then attention followed by perception, learning, attitude, action and post-purchase. Attention before perception is unconscious and driven by affective motives, such as wanting to approach or avoid. Attitudes are also influenced by memory, which always have affective factors.

In consumer behavior, affect can be described as feeling responses. These responses can be to any of the factors that build the concept of consumer behaviour: the environment, behavior and other thoughts or feelings (Peter & Olson 2008). When the affective system reacts to a stimuli, it can have different types of responses. Affect can influence the consumer without the presence of any cognitive thought (Zajnoc 2000). Emotional content is also proven to influence logical reasoning: affect influences cognition (Blanchette & Richards 2004).

Cognition often refers to the higher mental processes. Cognitive processes include understanding, planning, deciding, thinking and evaluating (Peter & Olson 2008) and also memory, language, interpretation and conscious attention (Eysenck 2012). The cognitive mental processes are used by the consumer to make sense of the world and the environment.

Affective responses can vary in level, strength, type and can be negative or positive. The different types of affective responses can take form as emotions, specific moods and evaluations (Peter & Olson 2008). Moods are less powerful than emotions and evaluations are the lowest type of affective response. Emotions can be categorized in different ways, hierarchical or dimensional models (Eysenck 2012). In consumer behavior research, a hierarchical model is often used (Laros 2005). The hierarchical models differ in small ways but they make the distinction between negative and positive emotions, and the thought is that all emotions can be contributed to either category.

The interaction between affect and cognition can be described through concept of cognitive appraisal (Eysenck 2012). The consumer thinks about a situation and then certain emotions have an effect on them accordingly. According to Zajonc (1980) it is the other way around- emotions come first and cause cognitive thought. Cognitive appraisal can be based on reasoning and interpretation, which requires deliberate conscious thought and also memory- an unconscious process involving past affect and representations from the past. The latter is an automatic mental event (Smith & Kirkby 2001). Both cognition and affect influence each other in consumer behavior.

The cognitive system is also used in consumer decision making where interpretation and attention combined with memory is used to create new knowledge. This new knowledge is then stored for future references and new attitudes are formed. This attitudes lead to decision making which ultimately leads to behavior (Glimcher & Fehr 2013). Affect influences the decision making through memories, beliefs and through unconscious attention. More on decision making in the next chapter.

In his book “Thinking Fast and Slow” (2011) Noble Prize winner Daniel Kahneman introduces characteristics for the two different mental systems that govern our mental world as consumers. System 1 is characterized by unconscious, automatic responses and decisions we make based on affect, intuition, habit and behavior we have previously learned via System 2. System 2 requires effort, is lazy and highly analytical. System 2 is

often more accurate than System 1 but we use System 1 more because we are a species with a drive to conserve energy. Kahneman's theory provides insight into consumer behavior, as the two systems can also be identified as the affective and cognitive system in consumer behavior. A similar approach to this dual model of reasoning has been presented by Evans (2008).

The affective system is like system 1. It is automatic, based on habit and memories. It is unconscious and reactive. It is a shortcut to decision making. System 1 is what consumers use the most. The cognitive system is like system 2. It requires energy, effort and it is categorized as a process of deliberate conscious thought. In order for a mental process to become automatic (system 1) it has to be learned by system 2 and stored in memory (Kahneman 2011).

Therefore, the affective system (system 1) and the cognitive system (system 2) interact with each other to shape attitudes which result in the consumer acting and forming a behavior. This interaction consists of automatic and unconscious affect- memories, which are coupled with cognitive and conscious thought- reasoning. The affective system is used more often and requires less mental energy.

To summarize, there are two systems that govern the mental world of the consumer: The Affective System 1: Past affect, attention and representations of the past and The Cognitive System 2: Interpretation, perception and reasoning.

These systems are active during different parts of the model of sequence of communication effects presented by Evans et al. (2006). This model is illustrated below. During the attention phase the affective system is highly active and the consumer knows if he wants to approach or avoid the product/service promoted in the marketing action. The consumers' cognitive system is then activated during perception and learning, where the consumer takes in the information and begins to evaluate the marketed service/product in relation to his motives. During the next phase, the formation of attitudes, previous affect interacts with interpretations and reasoning to form a decision that leads to action. Consumer decision making will be discussed in the following chapter.



*Fig. 4 Model of sequence of communication effects - Evans et al. (2006)*

### **2.2.1 Consumer motivation**

Motivation regulates behavior and influences the urge to behave in a certain way. The main theory on consumer motivation is that consumers act to satisfy needs. Motivation can be negative or positive, which causes avoidant behavior or approaching behavior in the consumer (Evans et al. 2006). This distinction can be named the level of wanting.

There are many different branches of motivation theory. Theory of cognitive dissonance is one, where consumers try to balance contradicting beliefs about something and they act to get rid of this internal conflict. Another theory is Maslow's hierarchy of needs which can be used to establish the level of importance of a certain need. Motivation can be also be described as the effort to move away from pain or towards reward. (Evans et al. 2006).

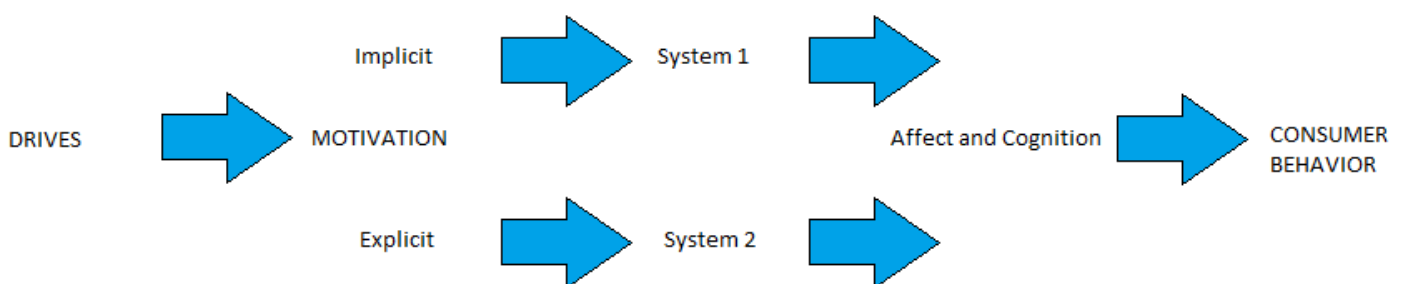
One of the motivation theories is the concept of drive, originally developed by Sigmund Freud, drawn from the notion that the human personality can be divided into EGO, SUPEREGO and ID. The motivations of a person are one of these parts of the personality trying to achieve a goal. The ego is used to navigate reality and combine the goals of the superego and the id, the superego is used for higher levels of thought (cognition), while the id is the unconscious affective part of personality, trying to achieve pleasure. (Pervin 2003). This theory has remarkable resemblance to consumer behavior. The ego navigates reality (consumer behavior) and is influenced by the drives of the superego (cognitive system 2) and the id (affective system 1). These drives can also be called explicit and implicit motivation.

In the context of consumer behavior, the analysis of the consumer seems incomplete without including motivation. For this research, implicit and explicit motivation is of particular interest. Consumer motivation has been studied in the context of ecological consumption (Zanoli & Naspetti 2002), retail (van Rompay et al. 2011) and online pricing (Suri et al. 2003). These studies illustrates the impact of motivation on consumer behavior.

In the case of ecological consumption, taste was found to be the main motivator to buy ecological products in Sweden. The behavior of the Swedish consumers was driven by the pursuit of tasty produce (Magnusson 2001). In other qualitative research the motivation was identified as health (Zanoli & Naspetti 2002) and also ethics concerning the environment (Fox & Ward 2008). These factors will be used in this study while measuring the affective and cognitive responses, as ecological marketing is known to engage both the cognitive and affective systems in consumers (Bridger 2015).

Implicit motivation is unconscious and driven by affect (McLelland et al. 1989). The consumer affective system (Peter & Olson 2008) will influence the behavior of a consumer in the direction that has a high chance of fulfilling the motivation (Pervin 2003). The implicit motivation influences the affective system 1 (Kahneman 2011)- past affect and representations of the past (Smith & Kirkby 2001).

Explicit motivation is conscious and driven by higher level mental cognitive thought (McLelland et al. 1989). Explicit motives influence the cognitive system 2 of consumer behavior. If implicit and explicit motives are aligned the effect on behavior is even stronger. Then the implicit motive activates the response in the attention phase (Evans et al. 2006) and the explicit motive activates the perception and learning phases. After the attention phase and when you have the consumer's attention, the next phases in the model of sequence of communication effects are perception, learning and attitude. During these phases the consumer is engaged in making a decision.

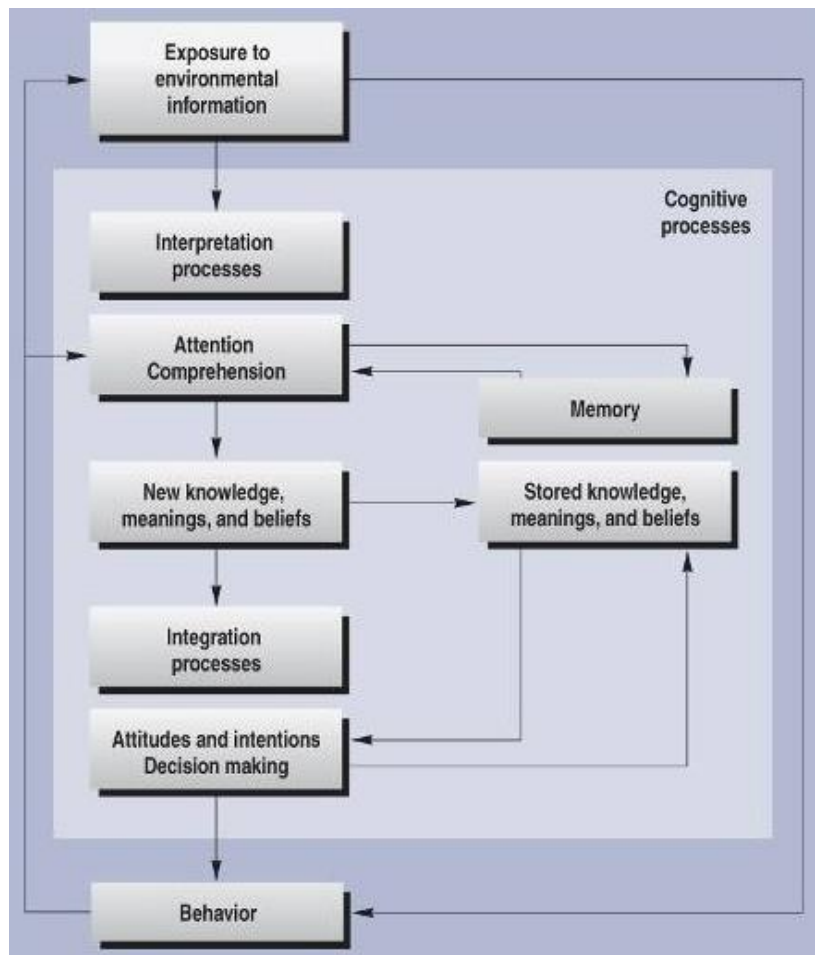


*Fig 5. Summary of consumer motivation. This model shows how drives turn into implicit and explicit motivation that influence system 1 and 2 which in turn influence consumer behavior*

### 2.2.2 The consumer decision making process

The result of the interaction between cognition and affect often results in some form of a decision for the consumer. In order to understand this process theories on decision making are reviewed.

There are different models to illustrate the process of emotional decision making (Elliot 1998) and cognitive decision making (Peter & Olson 2008). Cognitive decision making refers to a rational consumer. Studies done a long time ago already challenged the notion that decision making is purely rational (Zajonc & Markus 1982). In this section an overview of the two different models will be introduced in order to deepen the understanding of the interplay between affect and cognition.



*Fig. 6 Cognitive decision making – Peter & Olson (2008)*

This model illustrates the decision making of the consumer as a cognitive process. The process starts with stimuli from the environment and how the consumer attends and comprehends it. This is done by cognitive interpretation. This information is then compared to previous memory and stored knowledge which is integrated in order to make a new decision. This decision leads to behavior. This is a fairly straight forward way of looking at the process and it is similar to a computational way of thinking (Peter & Olson 2008). As discussed in the previous chapter, cognition is active during the interpretation and reasoning. Affect is involved in the exposure and attention and in the memory and through that, the creations of new beliefs (Evans et al. 2006).

This model illustrates the emotional decision making. The consumer is motivated by the thought of buying something for his sense of self-identity or buying something that constructs the social world that surrounds the consumer. This motivation is then influenced by self-illusion - the consumer seeks pleasure in the purchase, and self-focus - the consumer tends to evaluate products based on how they would use them instead of focusing on the features of the product. The decision is also influenced by an affective overall impression (holistic perception) and other non-rational preferences.

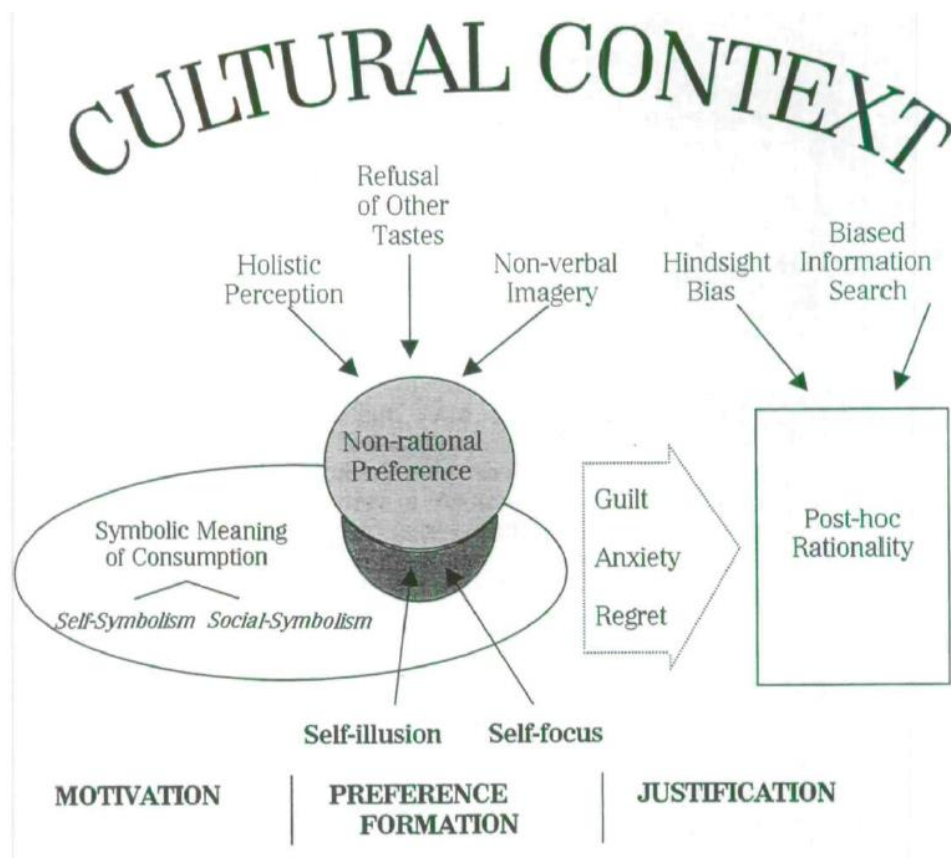


Fig. 7 A conceptual model of Emotion-driven choice - Elliot (1998)

The emotions of guilt, anxiety and regret then effects the rationalization of why the consumer bought the product/service. This rationalization is highly influenced by bias. This process is automatic and unconscious (Elliot 1998). As we can see from the model, asking about the consumers emotions after the marketing action is highly prone to bias. Heuristics and biases will be discussed later.

If we assume that cognition and affect in consumer behavior represent two very distinct and different systems the cognitive and affective systems are seen as very independent structures (Zajonc 1980) this would indicate that decision making is a parallel process where there is an emotional input and a cognitive input that together influences choice. The emotional input starts before the cognitive process and therefore the last stage in the emotional process is to justify it with cognitive means. Sensation and perception precedes all thought and emotion (Wolfe et al. 2012) which would indicate that before cognition and affect, there is a sensation of the environment. If we take a closer look at the model of cognitive decision making we can see the arrow from Exposure to Environmental Information to Behavior. This is where the model of Emotion-driven choice fits in. It could also be argued that the emotional decision making process happens first and leads to the process of then evaluating the decision cognitively, finally resulting in a behavior. The truth is probably more complex. If consumer behavior is influenced by the interaction between affect and cognition, we can assume that both these processes are influencing the behavior.

This two processes will later combined, in an effort to see how affect and cognition work together during consumer decision making.

Sometimes consumer skip some steps in this model when making a decision. This is due to the presence of heuristics and biases. These “mental shortcuts” are also factors that compromise the validity of qualitative interviews asking the consumer to remember a past affective response.

### **2.2.3 Heuristics and Bias**

Heuristics and bias are mental “shortcuts” in so that consumers can make quick, relatively good decisions when exposed to a lot of stimuli (Kahneman 2011). There are

many kinds of heuristics; affect heuristic, familiarity heuristic and the recognition heuristic to name a few. The heuristic judgement causes cognitive bias, something that influences the decision. These mental processes are unconscious and automatic. They help consumers make decisions when exposed to large amounts of information or choice (Halvorson & Rock 2015). Bias is universal and it is extremely difficult to manage for bias when making a decision. Happy and sad states also affect how easily we rely on heuristics, it appears the happier the consumer is, the more he relies on heuristics in making his purchase decisions (Park & Banaji 2000). Bias and heuristics affect consumer thinking and decision making to a high degree, especially when confronted with fear of loss or opportunity to gain. Consumers often make emotional and judgements that are unconscious regarding products and services (Bridger 2015).

During qualitative interviews the presence of bias and heuristics dilute the real reaction to the stimuli that is studied, especially when looking at the consumer affective system. Heuristics and biases affect the consumer during the event itself and then new heuristics and biases affect the answers in a qualitative interview (Bridger 2015). For example the familiarity bias can be a big problem, where the respondent reacts in similar ways as he has reacted before in interviews, not necessarily providing the researcher with the most accurate self-knowledge for the particular research question (Halvorson & Rock 2015). The hindsight bias is also a problem, when rationalizing of a path event, the respondent has knowledge of the whole process of events. Surveys that use multiple choice questions are also prone to biased answers. Depending on what the choices are the availability bias will lead the consumer to choose one of the available choices.

The hindsight bias is the biggest problem in qualitative interviews (Eysenck 2012). The reaction to a product or marketing campaign is measured after the exposure, by asking the respondent to comment on her thoughts during the exposure. This is done in hindsight. This is one more reason why neuroscientific methods, measuring the response of the consumer to marketing efforts during the actual event, can provide more accurate information on how the consumer reacts to a marketing stimuli.

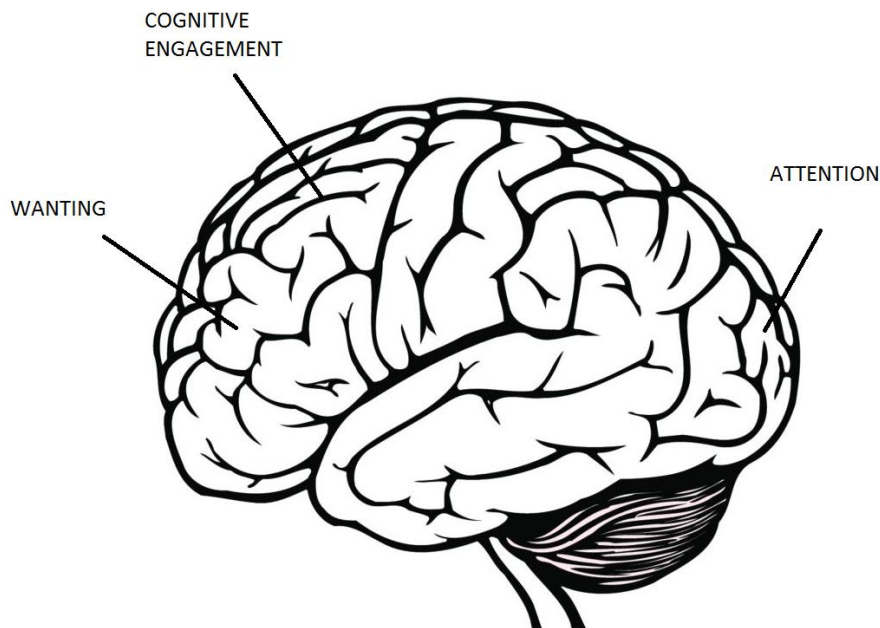
A way to use heuristics and biases to an advantage in creating marketing communication is establishing the marketed service/product in the mind of the consumer. This will influence the behavior of the consumer so that it becomes more likely that the consumer will choose the services that he has been exposed to via marketing. This can be called a form of priming. Priming is the concept of showing a stimuli to a respondent which will

remain in the individual's implicit and unconscious memory and affect the person's/consumer's future decisions (Eysenck 2012). Priming results in the use of mental shortcuts, mostly based on memory.

### 2.3 The brain of the consumer

When doing research and drawing conclusions from brain activity in consumers, it is important to know the science behind the method. This is why this chapter explores the relevant brain anatomy when recording consumer responses with an EEG. This also adds to the validity of the study.

The brain areas relevant to this study are situated in the frontal cortex of the brain (above the eyes) and the occipital cortex (just above the neck), which is also known as the striate cortex, the center for vision. Basic theory on visual and auditory perception and sensation will be introduced. A more detailed review of brain anatomy can be found elsewhere (Carlson 2014). The factors and the corresponding brain areas that are of interest in this thesis are wanting, attention and cognitive engagement. Wanting is a variable for the affective system and cognitive engagement is for the cognitive system. Attention measures the level of visual activity.



*Fig. 8 The brain areas relevant to this research*

### **2.3.1 Wanting**

Wanting is measured through electrodes placed on the prefrontal cortex (above the eyes). This area of the brain is responsible for evaluating if something should be approached or avoided (Wolfe et al. 2012). This relates to consumer motivation theory (Evans et al. 2006). This area is used for the processing of risk and reward. Affective value is applied to a stimuli via the frontal cortex in cooperation with the limbic system that is known to regulate emotion (Zurawicki 2010). The amygdala, the emotional center of the brain, is part of the limbic system. Activity in the frontal cortex can also be due to dopamine from the nucleus accumbens, which has been connected to gambling behavior and the anticipation of reward (Glimcher & Fehr 2013). Here, activity in the affective system of consumers can be measured, for example if the consumer likes the commercial she is watching.

### **2.3.2 Attention**

Unconscious attention is measured from the visual cortex (above the neck). When the visual stimuli is presented to the eye, the nerves in the eye transports the neuronal activity to the visual cortex where it is further analyzed as the information moves in different pathways (Wolfe et al. 2012). This process is unconscious and is the second step in the model presented earlier developed by Evans et al. (2006), the sequence of communication effects. Here all the activity is unconscious. It is only after identification the attention becomes conscious as we begin to identify what an object is and where it is. After unconscious attention, perception follows.

The identification of objects and the identification of movement uses different connections in the brain (Kalat 2009). During this process the consumer becomes conscious of the visual stimuli. In this research the consumer's unconscious attention, driven by affect and motivation is measured.

### **2.3.3 Cognitive engagement**

Cognitive engagement is measured from the frontal lobe (where the forehead meets the hair). The prefrontal cortex is involved in higher levels of thinking such as planning, executive decisions, analyzing and effortful thought. The prefrontal cortex is the most

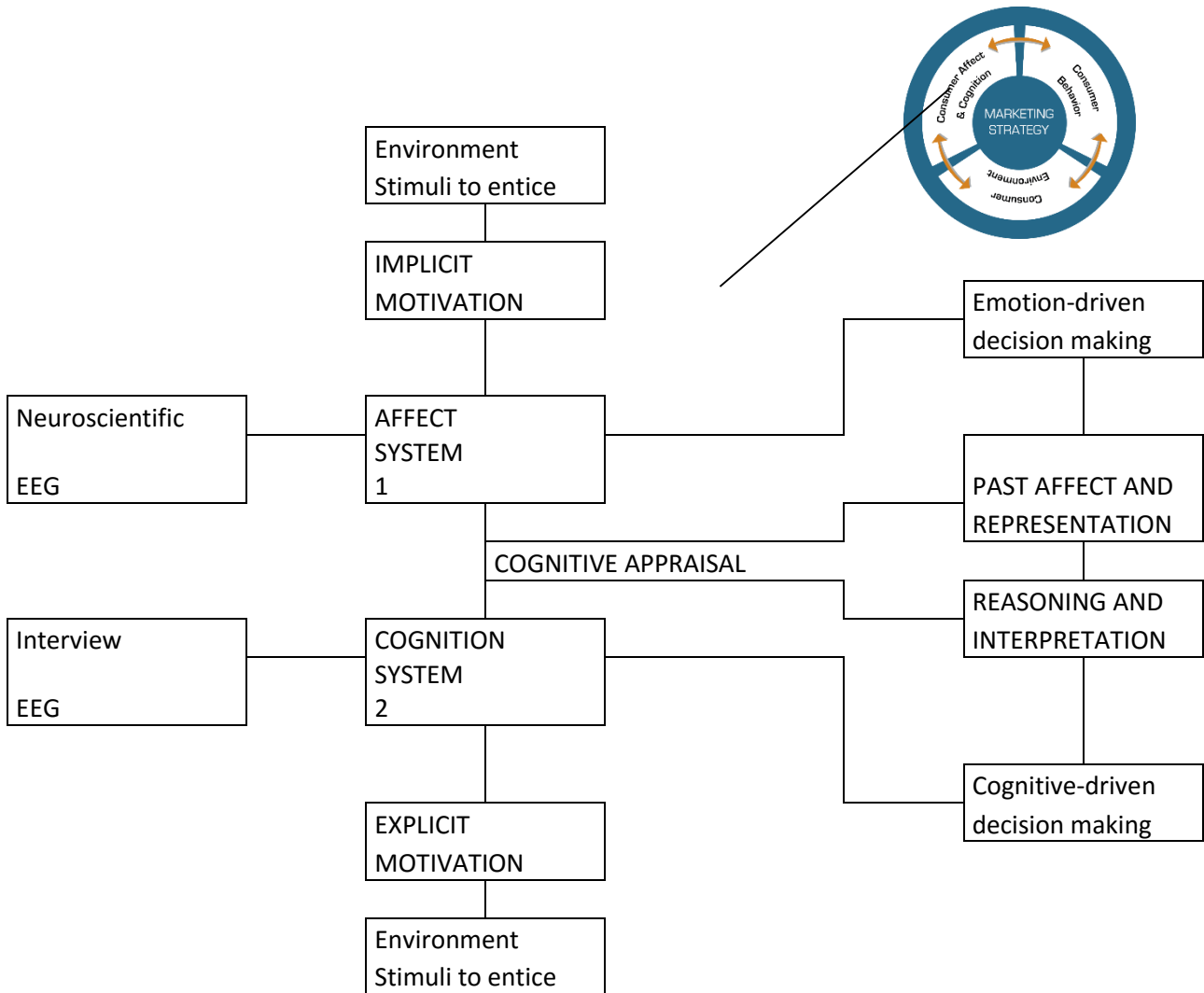
recent part to evolve in humans (Eysenck 2012). This relates to cognitive decision making, especially interpretation and attitude creation. From this brain area, the level of cognitive and rational thought a consumer has can be measured.

## **2.4 Summary of the theoretical framework**

This section will introduce the theoretical framework used in conducting this research. This model will be developed further after the data is analyzed. Theories from previous chapters will be combined in an effort to create an expanded model of Consumer Behavior (Peter & Olson 2008) including System 1 and System 2 (Kahneman 2011; Evans 2008), implicit and explicit motivation (McClelland et al. 1989; Pervin 2003) and the role of neuroscientific methods (Zurawicki 2010) in creating a more holistic view of consumer behavior, both in theory and practice. This in turn will provide a deeper understanding of the customer and has implication to overall marketing strategy.

The ecological motivations discussed previously will be presented, as they will be represented by the stimuli shown in the EEG measurement, in an attempt to entice both implicit and explicit behavior. This motivators are health (Zanoli & Naspetti 2002), environmental ethics (Fox & Ward 2008) and taste (Magnusson 2001).

This model illustrates what goes on in the interaction with cognition and affect within the model presented in Peter & Olson (2008): Wheel of Consumer Analysis. It also introduces a method of conducting research within this interaction. Stimuli can be used to entice implicit and explicit behavior and the responses can be measured to this motivation with EEG. The motivation will cause a reaction in the frontal cortex of the consumer, which can be measured to be negative or positive. This will determine the will to approach or avoid (Evans et al. 2006). In practice, this translates to testing the response of consumers to different forms of marketing in order to create a marketing action, which establishes itself and leaves an impression in the mind of the consumer.



*Fig. 9 The theoretical framework used in this research*

The affective system 1 can only be measured with EEG, while the cognitive system 2 can be measured via conducting interviews and recording cognitive responses to explicit motivation with EEG. If both responses are fueled by a corresponding motive, the behavior will be strong. Pure behavior on its own can be measured statistically with quantitative research and the environment can be observed, explained and analyzed. This model in combination with the other factors will result in a more holistic view and a more detailed knowledge into the mental activity of consumers, and ultimately can

provide insight for marketing in forms of campaigns, package design, product design, advertising, sales, web design and more.

The responses of affective system 1 can be recorded with studying the wanting and unconscious attention of the respondent, using an EEG with electrodes placed on the frontal cortex and the visual cortex. The responses of the cognitive system 2 can be recorded via qualitative interviews and measuring cognitive engagement with EEG placing electrodes on the frontal cortex.

The cognitive decision making is more rational than the emotional. Both the processes of consumer decision making will influence the final decision of the consumer through past affect and representation and reasoning and interpretation. The final behavior is a compromise of the two systems. The affective factors will then be justified with the cognitive system and the consumer will believe he was in full control of the purchase.

The use of implicit and explicit motivation is used to entice reactions from the affective and cognitive systems. The possibility in identifying segments that respond to a certain implicit and a certain explicit motivation is also an exciting possibility. In this research the motivations used are for ecological produce. These motives have not been identified as implicit or explicit, but have been recorded via qualitative interviews. The thought in using them is that the respondents will identify them as either explicit and/or implicit. The motives for buying ecological are health, taste and environmental ethics.

This model will serve as the basis for gathering data. The data will then be combined with this theoretical model and it is developed further in the discussion.

### **3 METHOD**

I chose this subject for my thesis as I wanted to do something that combines my academic background from both marketing and psychology. While researching the different industries that utilizes insights from both I stumbled upon neuromarketing and found a small start-up company in Helsinki, Finland supporting the marketing activities of companies with neuroscientific measurement techniques. I contacted them and set up a meeting and we quickly agreed on a subject and a timeframe. As marketing essentially is a tool for society to influence behavior, this tool of influence should be used influence behavior that actually benefits society. This is why I have chosen to answer my research question with ecological marketing in mind.

The research questions in this study are:

- 1. What is the relation between consumer affect and cognition and how do these systems affect decision making and ultimately behavior?**
- 2. Does the response of the affective system precede the cognitive system?**
- 3. What cognitive and affective factors motivates a consumer to buy ecological produce?**

The method for answering these questions will be to expose consumers to ecological stimuli, consisting of pictures, sound, and video. The marketing material is designed to entice the motivation of consumers, both explicit and implicit. Through the measuring of wanting, unconscious attention and cognitive engagement the results will show how the respondents react unconsciously to these marketing stimuli. This will then be combined to results from qualitative interviews from the same sample. This way the affective and the cognitive response will be measured. This study will also test the hypothesis stated by Zajonc (1980) that affect precedes cognition in consumer decision making.

The hypothesis is that the measurement with EEG will provide insight into the affective responses of the consumers that cannot be obtained via qualitative interviews (Bridger 2015). The interplay between cognition and affect will then be discussed, drawing conclusions on possible identifications of explicit and implicit motivators. The results will then be reviewed and it will be concluded if any insights were gained via this method. The measurement with EEG will also illustrate a method that can be used to measure the consumers' response before conscious thought and attention.

This research uses an experimental and qualitative approach. The experimental methodology is represented by a neuroscientific approach, where an Electroencephalography (EEG) is used to measure the electrical brain activity in the cortex, in relevant brain areas discussed earlier (Cozby & Bates 2012). The qualitative approach is represented by semi structured interviews (Patton 2002). Both methods will measure both mental systems of the consumer. The goal is to mainly measure the cognitive response to explicit motivation with interviews and measure the affective response to implicit motivation with EEG. The behavioral statistics is measured by asking about the respondents purchase behavior of ecological produce. The stimuli showed to the respondent will account for the environment. In this way all factors will be present in order to understand the consumer behavior regarding ecological products.

The qualitative approach is used to measure the explicit motivations of consumers to buy ecological while the quantitative method is used to get an overview of the consumers' ecological behavior. The neuroscientific method is used to measure response to implicit motivation and to some degree explicit motivation as well.

### **3.1 Research philosophy**

On the fundamental level this research has been conducted with a belief in chaos theory. As a quote from the book by Patton (2002) states: "It is like walking through a maze whose walls rearrange themselves with every step you take." To this quote I would add that the walls stay still when you study them intensely. The author believes that the "glasses" chosen to study a problem ultimately affect the outcome and the frame of the problem. The researcher sees an event from a certain perspective that has been created in his life through past experiences and thoughts and emotions. This research is therefore conducted from a social constructivist view. The author believes that the subject being

researched is constructed socially; the attitudes of consumers shapes the habits involved in buying ecological. This is similar to the Heuristic Inquiry view: “If I am investigating the meaning of delight, then delight hovers nearby and follows me around.” (Patton 2002).

This thesis is made as an abductive research (Saunders et al. 2012). The theoretical framework for answering the research questions has been provided before the gathering of data and patterns in reality will be studied using this theoretical framework. However, there is a possibility for new theories to arise or an update of the framework, this is why an abductive approach is taken. The interviews are carried out in a deductive and open-minded way. The interpretivist view has been used to understand the different behaviors of consumers and the individuality is taken into account in the effort to generalize and identify patterns (Patton 2002). The text itself is sometimes written in a more positivist and normative form in order to convey the message in an authoritative way and the most effective manner possible.

### **3.2 Preconceptions**

Gummesson (2000) discusses the importance of realizing and managing for preconceptions when conducting scientific research. Preconceptions consists of the combination of all the information the researcher has of the subject before conducting the study. This includes any possible bias the researcher may have towards the subject. The author’s preconceptions include knowledge and practical experience in conducting market research with neuroscientific methods and that may have caused a less critical approach to the subject. It can also be argued that it provides another level of validity as the methods clearly work in practice.

### **3.3 Choice of method**

According to Patton (2002) a qualitative approach is suitable when studying the behavior of consumers. It is important to choose the right research methods that can answer the research questions in the best way possible (Silverman 2006). It has been argued that

neuromarketing methods are considered qualitative (Bercea 2013) and it has also been stated that neuromarketing methods and qualitative interviews provide a strong valid and reliable research method (Ozdemir & Koc 2012). The methodology in this thesis will be a combination of qualitative and neuroscientific methods. Because the neuroscientific methods here consist of measuring brain activity with an EEG, the research method can be considered experimental (Kjellberg & Sörqvist 2011).

Experimental methods are essentially observations in an enclosed environment, in this case the measurement of physiological activity. The independent variable in this research is the marketing actions: pictures, value-promises and commercials. These are manipulated by the experimenter in order to evoke a certain response in the respondent. The evoked response in this case is the dependent variable. The extraneous variable is the background and personality of the respondent, which cannot be controlled, but managed via sampling strategies (Kjellberg & Sörqvist 2011).

### **3.3.1 Electroencephalography (EEG)**

Nerve impulses are electrochemical (Wolfe et al. 2012). Electroencephalography is a noninvasive electro biological measurement tool- it measures electrical activity in the cerebral cortex. It is mostly used in medical science and research. EEG can measure the change in neural activity in a certain brain area by measuring electrical dipoles (Teplan 2002). First the EEG is used to measure the alpha rhythm, which is the normal neural activity when the respondent is awake and with his eyes closed. This activity is then compared to the responses during the exposure to a stimuli (Goldman et al.2012).

Though brain activation measurement with EEG and MEG researchers have been able to prove what stimuli activates an emotional response and what stimuli engages cognitive processing. (Vecchiato et al.2011). EEG has great temporal solution and works very well in analyzing the response to a commercial or to sound (Pradeep 2010).

Another effective and noninvasive tool is Functional Magnetic Resonance Imaging (fMRI). fMRI has great spatial resolution and can record activity in the deeper parts of the brain, such as the limbic system, while EEG can only record activity on the cortex. The advantage with the EEG is that it has great temporal resolution, is cheaper and more

portable. EEG is one of the best techniques when measuring a consumer's response to stimuli (Wolfe et al. 2012). For this thesis, EEG was more accessible and fMRI measurement technology costs over a million euros.



*Fig. 10 The EEG used in this research. It has 8 electrodes positioned on the frontal and visual cortex*

### **3.4 Research design**

The general idea is that by combining qualitative and experimental neuromarketing research methodology, the validity and generalizability of the results are greatly improved (Lindström 2008) and a more holistic view on consumer behavior is achieved. The affective system and the cognitive engagement are measured at the time of exposure and the cognitive system is measured before and after. Implicit motivation is measured by neuroscientific methods, explicit motivation and behavior is measured through interviews and surveys. This way cognition and affect can be measured, predicting behavior. These factors influence how to consumer behaves and interacts with the environment. The qualitative interviews will answer the question WHY while the experimental method using an EEG will answer the question WHAT. Through the qualitative interviews the explicit motivator will be researched and through the EEG, the implicit motivator.

The measurement takes about 20 min, depending on the calibration of the EEG and the amount of stimuli shown to the consumer.

The experiment starts with the respondent filling in a survey with basic background questions about age and sex followed by a question concerning their ecological purchasing behavior. This method will gather background information and demographic facts about the respondents in this research.

Profile questions    EEG measurement

Study: Version 1

1. Sex  Male  
 Female

2. Age

3. Education  Bachelor level studies  
 Master level studies

4. Work  Part time  
 Full time  
 Full time student  
 Looking for job

5. How often do you buy ecological?  Never  
 Couple times a month  
 Once a week  
 Several times a week  
 Every day

*Fig. 11 The survey at the beginning of the measurement. This is also a part of the software provided by Exakti Intelligence Oy*

The stimuli shown to the consumer will consist of 18 pictures with ecological motives designed to prime the respondent to think about ecological products and identify implicit and explicit motivators. Some of these pictures contain motives that will be seen as negative such as global warming, pollution and unhealthy habits. These pictures are quite provocative and will serve as a way to test the negative and positive level of affective response. After this 9 value-promises will be played also designed to identify implicit and explicit motivators in ecological consumer behavior. Sound is also a great stimuli to

measure thanks to the great temporal resolution of the EEG in measuring event related potentials. Finally three ecological commercials by Wholefoods are shown, representing the different themes: health, environmental ethics and taste. EEG has great temporal resolution so the measures in brain activity will match a certain moment in a commercial, say where a certain motivator is illustrated. The stimuli will also include pictures with environmental and ecological themes both negative and positive, that can be connected to a certain theme- a motivator.

Each stimuli will be presented three times. This way the normal activity in the brain areas measured (baseline-alpha) can be identified and the activity in response to the stimuli itself recorded. This will be the neuroscientific method used in this research and the results will later be combined with marketing theory.

After the experiment I will interview the same 20 respondents in a semi-structured qualitative interview. This way all two research methods will be used to gain as much insight into consumer behavior regarding purchasing of ecological produce. I will conduct the interviews after the EEG measurements, in order to be able to compare the answers with the results of the EEG measurements. I will then compare the results gained from the interviews and the brain activation measurements and explore any possible differences or similarities.



*Fig. 12 Example picture from the experiment. This picture stands for the theme “Health”*



*Fig. 13 Example picture from the experiment. This picture illustrates the theme “Taste”*



*Fig. 14 Example picture from the experiment. This picture belongs to the theme “Health” but shows a negative representation of the theme*

### **3.4.1 Sample**

The data collection will first start with recruiting a non-random, homogenous sample and organizing the measurements. Criteria sampling is used in this research (Patton 2002). The sample consists of 20 respondents. The respondents all fulfill a certain criteria. The respondents will be students with a similar socioeconomic background and a good education, as these factors have been identified to influence consumers having stronger ecological values (Tilkidou & Delistavrou 2008).

For the qualitative interviews the same 20 respondents will be selected for the sample. This way it is possible to compare each respondent's answers with their EEG measurement results. Using both methods is motivated by the fact that the EEG answers the questions "what?" and the interviews answer the question "why?" This sample is considered reliable and valid for drawing insights.

### **3.4.2 Respondents**

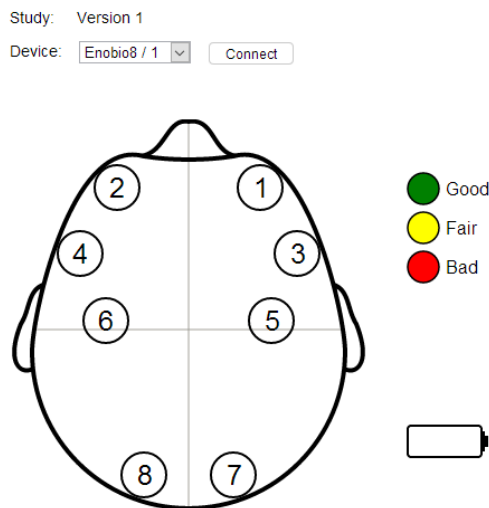
The respondents are recruited from Helsinki, Finland and have an average age of 25. Ten of the respondents are male and 10 are female. The respondents are all students and most of them are working as well. The respondents were recruited on social media and they are all volunteers. Normally an incentive would have been offered for attending but due to the fact that this is a thesis, there were no funds for this purpose. This is why the respondents are friends to the author. The relationship to the author should be irrelevant when measuring brain activity and may help in the qualitative interviews by creating familiarity and an open atmosphere.

### **3.4.3 Ethics**

When conducting research with experimental methodology, it is important to consider the ethics involved (Kjellberg & Sörqvist 2011). All the respondent were volunteers, the experiment and the measurement technology used was clearly explained to them, they had the right to quit during the experiment and the data is kept anonymous. No respondents were tricked during this research. This research also followed the ethics laid out by the Neuromarketing Science & Business Association (NMSBA).

### 3.4.4 Data collection

The EEG that is used to measure electrical activity in the cortex of the respondents has 8 electrodes (16 is minimum for a medically scientific study in neuroscience) (Pradeep 2010). For these purposes a low-medical grade EEG device is sufficient (Exakti Intelligence Oy). The electrodes measure activity in the prefrontal cortex and the occipital cortex (visual cortex). EEG is a noninvasive and completely safe method of measuring brain activity. This method will be used to measure consumer response to marketing stimuli. Data will also be gathered using a qualitative approach, through semi-structured and open-ended interviews. These interviews will be conducted via skype and



*Fig. 15 Exakti Intelligence Oy software for creating experiments and recording brain responses with EEG*

recorded. This method of data collection will be more common in the future especially in market research as it provides a way to meet the consumer on a comfortable and convenient platform. More on the interview guide in the next chapter.

### 3.4.5 Interview guide

The interviews are conducted in a semi-structured way with open ended questions. Patton (2002) states that semi-structured interviews is a good method for gaining in-depth answers that can be converted into insights. The interview guide will be detailed

but leave room for some free association if the direction of the discussion is seen as valuable. The themes that will be discussed during the interviews are the respondents' views on the experiment, which will also serve to increase the quality of the research, and their own view and introspective knowledge of their ecological consumption. I will ask about their motives, their behavior and why they buy ecological, both cognitively and affectively. The knowledge from the interviews will then be used to compare with the results from the experiment. The interviews were recorded in order to guarantee a thorough analysis and the validity of the study. The main goal with the interview is to identify the explicit motivator for buying ecological produce.

The interview guide is based on the theoretical framework of planned behavior, developed by Icek Ajzen in the 1980s. This model has proven to predict behavior in a reliable fashion. The elements consists of these three points, which will also serve as the base of the interview guide.

1. Attitudes towards a specific behavior, in this case consumption of ecological produce, and how often the individual does this behavior.
2. What the respondent considers normal regarding the particular behavior, especially how the respondent's peers behave.
3. Limitations of the particular behavior.

(Bridger 2015)

This information combined with the experimental methodology using EEG will provide a complete package of consumer motivations to buy ecological. The respondents were also asked to distinguish between affective motivations and cognitive motivations. The interviews will also show if the behavior has changed after the experiment was conducted. Through the interview the motives for buying ecological produce and the cause for this behavior is studied. The interviews were conducted during the three first weeks of April.

### **3.5 Analysis of the data**

Spiggle (1994) presents a process to follow when analyzing qualitative data. This analyzing method will be used when combining the results from the experimental part of

the research and the results from the interviews. The different phases in this process are categorization, abstraction, comparison, dimensionalization, integration, iteration and refutation.

First the data is categorized into different clusters. Then these clusters are given an abstract representation where after the clusters can be compared with each other and tied to relevant theoretical concepts. During the abstraction phase the different respondents are categorized into the different “themes” of ecological motivation. After this the data gathered from the experiment is compared with the data from the interviews and dimensionalization is made. After this the knowledge is integrated. During iteration the researcher compares data and analysis constantly to always update the insights. Finally the results are refuted and criticized in order to maintain an objective and academic overview of the subject (Spiggle 1994).

### **3.6 Quality of this study**

There are three general elements for evaluating the quality of research. These are reliability, validity and generalizability (Silverman 2006). Internal and external validity is also reviewed (Cozby & Bates 2012). The research has to remain objective, repeatable and have a high level of integrity. The reliability can also be improved by asking feedback from the respondents after the data has been collected. (Wallendorf & Belk 1989). Triangulation is also used in this study as it combines experimental methodology (Wallendorf & Belk 1989), measuring physiological responses through observation, conducting qualitative interviews, and also through the statistical analysis of the survey and the data gathered through the experimental method.

The quality of this research has also been assured via the employees of Exakti Intelligence Oy. The seminars, presentations and peer reviews also added to the credibility and reliability of this study. The author has also attended 100 ECTS worth of courses at the Helsinki University in Psychology.

The research is easily repeatable using this thesis as a model, as it was also the wish of Exakti Intelligence Oy to be able to conduct the same research with different marketing

stimulus in order to identify trends in different markets. The generalizability is extremely high, as brain anatomy and physiology is the same throughout the human species.

The EEG measurement device can only measure the cortex of the brain and cannot measure the deeper regions but it has excellent temporal resolution. The EEG device also has only 8 electrodes, which is considered a low-medical grade measurement device. The affective response of consumers can only be measured indirectly via the cortex, as the brain structures deeper in the brain are the source of emotional and affective action. The cognition is more reliably measured as the cortex processes a lot of the cognitive thought in consumers. Therefore the reliability of this research is very good but could be done with better equipment. This however is not possible as the other alternatives are too expensive. According to Stanovich (2004) an experimental setting is also created to deter any extraneous variables and therefore is a very reliable way of studying behavior.

The internal validity refers to the conclusions that can be drawn from the results of a study. A strong internal validity is present if a variable caused a measurable change in another variable (Cozby & Bates 2012). In this case the internal validity is strong as the dependent variable, the marketing actions, had an effect on the physiology of the consumer- the independent variable. The external validity refers to the extent in which the results are generalizable. The results can be done with other respondents and similar results would be received, as the physiology of humans are the same. However personal attitudes toward ecological marketing might affect people differently.

The validity is high in this research, as the methodology is well rooted in practice and used by not only Exakti Intelligence Oy, but by many multinational companies worldwide like The Nielsen Company; the world's biggest and leading market research agency. EEG as a measurement device has been used in medical context for a long time. During the experiment the most neutral location was chosen and carefully designed to minimize any disturbance. Overall the validity, reliability and generalizability of this study is high, based on the arguments stated above.

This study was also presented at the Neuromarketing World Forum 2016 in Dubai in front of a group of experts in the area of consumer neuroscience and neuromarketing. The conference is organized once per year by Neuromarketing Science & Business Administration.

## 4 RESULTS AND ANALYSIS

The results of the data collection will be presented in two parts. The first part will be the results from the EEG experiment and the second part will focus on results obtained from the qualitative interviews. The EEG will mainly report on activity in the affective system of the consumer and the interviews will focus on the cognitive activity. Finally the most significant results from both methods will be combined and presented. The whole experiment can be seen from the appendix, the links for the commercials can also be found there.

Below is an illustration of all the respondents and the background information collected before the EEG-measurement. The EEG measurement was conducted about a month before the interviews and the results and data from both methods were reviewed at the same time.

| Respondent             | Sex | Age | Education         | Work              | Buying ecological       | EEG       | Interview |
|------------------------|-----|-----|-------------------|-------------------|-------------------------|-----------|-----------|
| 1                      | M   | 26  | Master's Degree   | Part time         | Couple of times a month | 8.3.2016  | 12.4.2016 |
| 2                      | M   | 26  | Bachelor's degree | Part time         | Never                   | 8.3.2016  | 12.4.2016 |
| 3                      | M   | 27  | Master's Degree   | Full time         | Couple of times a month | 15.3.2016 | 17.4.2016 |
| 4                      | M   | 24  | Master's Degree   | Part time         | Never                   | 15.3.2016 | 16.4.2016 |
| 5                      | M   | 26  | Master's Degree   | Part time         | Once a week             | 15.3.2016 | 16.4.2016 |
| 6                      | M   | 25  | Master's Degree   | Part time         | Couple of times a month | 16.3.2016 | 12.4.2016 |
| 7                      | M   | 25  | Master's Degree   | Part time         | Once a week             | 16.3.2016 | 12.4.2016 |
| 8                      | M   | 25  | Bachelor's degree | Part time         | Couple of times a month | 16.3.2016 | 15.4.2016 |
| 9                      | M   | 24  | Bachelor's degree | Part time         | Couple of times a month | 16.3.2016 | 12.4.2016 |
| 10                     | M   | 24  | Bachelor's degree | Part time         | Several times a week    | 16.3.2016 | 12.4.2016 |
| 11                     | F   | 24  | Master's Degree   | Part time         | Couple of times a month | 21.3.2016 | 18.4.2016 |
| 12                     | F   | 24  | Master's Degree   | Full time         | Couple of times a month | 21.3.2016 | 12.4.2016 |
| 13                     | F   | 24  | Master's Degree   | Part time         | Couple of times a month | 21.3.2016 | 18.4.2016 |
| 14                     | F   | 24  | Master's Degree   | Part time         | Once a week             | 21.3.2016 | 15.4.2016 |
| 15                     | F   | 25  | Bachelor's degree | Part time         | Couple of times a month | 21.3.2016 | 15.4.2016 |
| 16                     | F   | 24  | Bachelor's degree | Full time         | Couple of times a month | 22.3.2016 | 18.4.2016 |
| 17                     | F   | 24  | Master's Degree   | Part time         | Couple of times a month | 22.3.2016 | 21.4.2016 |
| 18                     | F   | 23  | Master's Degree   | Full time student | Several times a week    | 22.3.2016 | 12.4.2016 |
| 19                     | F   | 34  | Master's Degree   | Full time         | Once a week             | 22.3.2016 | 16.4.2016 |
| 20                     | F   | 23  | Master's Degree   | Full time student | Couple of times a month | 22.3.2016 | 18.4.2016 |
| <b>M=male F=female</b> |     |     |                   |                   |                         |           |           |

*Tab. 1 The 20 respondents*

## 4.1 The affective system

The affective system of the consumer is measured using EEG. The goal is to find the implicit motivator. The results from the EEG are reported in different parts. First the results from the part of the experiment on pictures will be reported. After this the value-promises will be presented and finally the commercials. The results are an average measurement of all the respondents' brain activity. An individual respondent's brain activity cannot be measured in a reliable way as the respondent might have unrelated thoughts during the experiment. With averaging the brain activity random thoughts are eliminated and the common pattern can be analyzed.

### 4.1.1 The pictures

| Theme  | Picture                     | Attention | Wanting | Engagement |
|--|-----------------------------|-----------|---------|------------|
| Taste  | Ecological chicken pie      | -27       | 13      | -16        |
| Ethics-  | Clearcutting                | 8         | 3       | -5         |
| Taste  | Ecological vegetables       | -2        | 31      | -2         |
| Health   | Healthy diet                | 50        | -7      | -39        |
| Health   | Healthy heart               | -1        | 29      | -24        |
| Health   | Healthy food and exercise   | 12        | -40     | -44        |
| Ethics -   | Nuclear powerplant          | 36        | -25     | -22        |
| Taste  | Fresh fruits                | -10       | 50      | 10         |
| Health -   | Woman eating junk food      | -3        | -16     | -50        |
| Ethics   | Ecological farming          | 31        | -22     | -42        |
| Taste -  | Processed food              | -19       | -33     | -9         |
| Ethics   | RecycleBox                  | 13        | 17      | 39         |
| Taste  | Steak                       | -31       | 39      | 50         |
| Health   | Brain food                  | 14        | -16     | -15        |
| Ethics   | Rainforest                  | 14        | 7       | 3          |
| Taste  | Ecological chicken meal     | 29        | 17      | -42        |
| Ethics   | Big city                    | 3         | -15     | 7          |
| Health   | Ecological produce in store | -50       | 19      | 24         |
| a minus after the theme signifies a negative representation of the theme |                             |           |         |            |

Tab 2. The pictures

The pictures were shown first in the EEG-experiment. There are 18 pictures, 6 for each theme. The figure below shows the respondents average brain activation for each picture,

using the variables Wanting, Cognitive Engagement and Attention. The color coding as has the following meaning: green signifies a lot of activation and red signifies less. A negative activation of wanting signifies a negative, strong response. Attention is mostly related to the complexity of the picture and the colors and brightness. The level of wanting is again greatest for the pictures depicting taste in ecological produce and also the level of cognitive engagement. The picture of the recycle box also generated a lot of cognitive thinking in the respondents.

High levels of cognitive engagement are illustrated with the green color and low with the red color, the same for attention. For the wanting variable, green signifies positive affect and red negative affect. What is surprising is that the negative representation of ethics through the picture of clearcutting evoked a very neutral response in respondents. Also the picture with healthy food, a dumbbell and a measuring band evoked negative affect in the respondents, maybe because of feelings of guilt.

#### 4.1.2 The value-promises

The value promises were measured on the variables of wanting and cognitive engagement and shows the affective and cognitive responses in consumers towards the value promises. These results are the average of the data collected from all 20 respondents. In the figure below we can see the level of affective activity in the brain of the respondent and the level of cognitive engagement. Here the value-promise “Better produce-better taste” showed huge activity in the affective system of the respondent and very low cognitive engagement. High levels of cognitive engagement are illustrated with the green color and low with the red color. For the wanting variable, green signifies positive affect and red negative affect.

| Theme  | Value-promise                         | Wanting | Engagement |
|--------|---------------------------------------|---------|------------|
| Health | Nutritious and Natural                | 36      | -24        |
| Health | Healthy food - Healthy Life           | -5      | 23         |
| Health | You are what you eat                  | -3      | 5          |
| Taste  | Fresh and Tasty                       | 31      | 14         |
| Taste  | Natural and Delicious                 | 2       | -11        |
| Taste  | Better produce - better taste         | 50      | -50        |
| Ethics | Spare the environment and feel better | -1      | -12        |
| Ethics | Saving the environment starts now     | -15     | 50         |
| Ethics | Reduce your carbon foot-print         | -7      | 49         |

*Tab. 3 Value-promises*

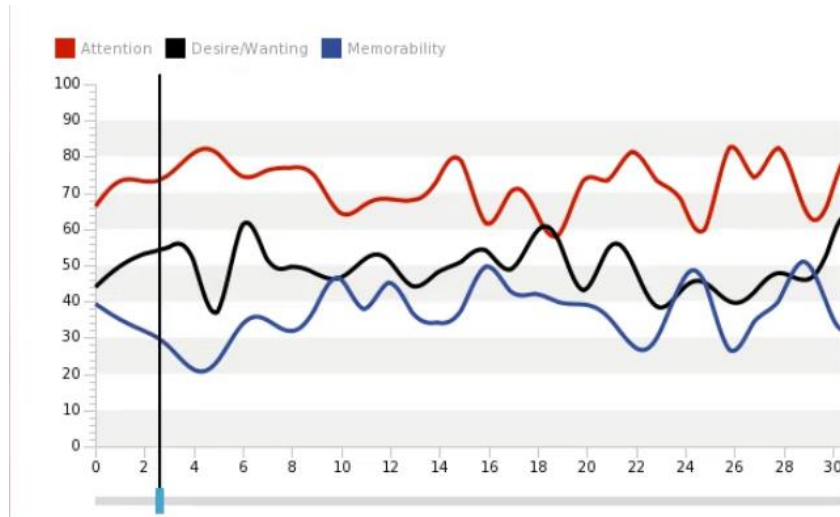
The value-promises that performed the best in activating the affective system of consumers was “Nutritious and Natural”, “Fresh and Tasty” and “Better produce – better taste”. In the figure we can see what theme they corresponded to. The value-promises that evoked the highest level of cognitive engagement were the ones regarding ethics followed by one value-promise regarding health.

#### **4.1.3 The commercials by Wholefoods**

Finally the commercials. Three commercials were shown to the respondents, all from WholeFoods and each of them corresponding to one of the themes: taste, health and ethics. The commercials are attached here as a video file and next to the video there is a real time illustration of the activity in the brain of the respondents. Cognitive engagement is here named Memorability. During the commercials the respondents’ level of wanting, attention and cognitive engagement was measured. The results shown below are an average of all the respondents.



*Fig. 16 This commercial is on the theme Health. (The commercials and the real time EEG-waves can be watched by clicking the link in the appendix.)*

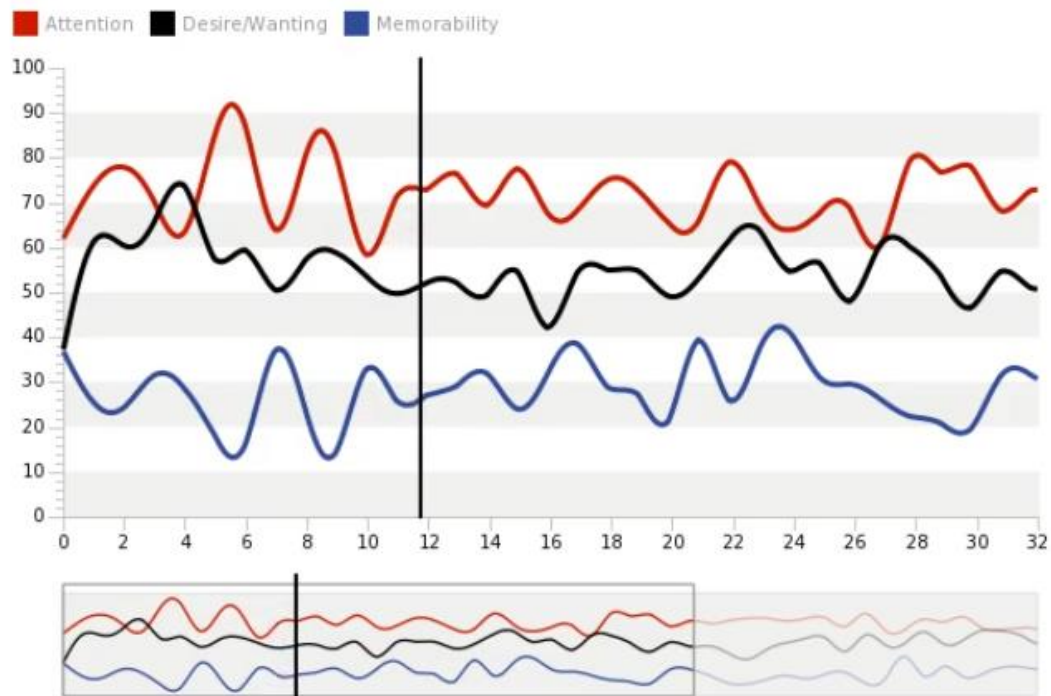


*Fig.17 The brain activity in the commercial about the health aspect of ecological produce.*

This commercial shows a representative of WholeFoods cooking and presenting healthy produce to have in your pantry. This commercial is about 30 seconds long and shows a high level of cognitive engagement. This commercial shows the lowest level of attention. The different waves are on different starting points on the y-axis in order to show the development of all variables clearly through time. Time is represented on the x-axis.



*Fig. 18 This is the commercial relating to the “taste” theme*



*Fig. 19 The brain activity measured through the different variables in the “taste” commercial, also by wholefoods*

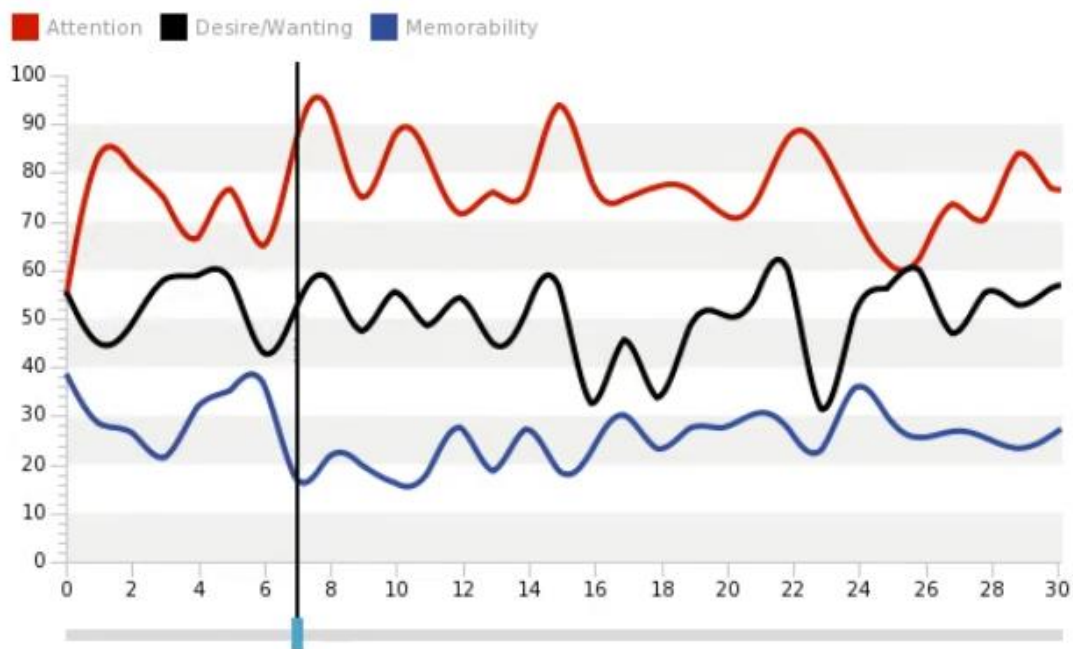
This commercial is about tasty ecological and organic food and shows why people like food. It also talks about the different processes involved in a purchase of everyday produce. This commercial is also about 30 seconds long and shows a high activity in the level of wanting and some high peaks in attention. The different peaks will be explored and analyzed further in the next chapter.

The last commercial touches on the theme of ethics and how organic and ecological food is grown responsibly. This commercial is also around 30 seconds long. This commercial shows a high level of attention as the imagery is the most complex. Also the ethical implications of sustainably grown foods is illustrated through imagery including tractors, farms and farmers.



*Fig. 20 The “values matter” Wholefoods commercial illustrating sustainability and ethics.*

Here you can see the different brain activity decoded through the variables and the high level of attention through the commercial. This commercial evoked a low level of cognitive engagement. The momentary peaks will be analyzed later.



*Fig. 21 The brain activity recorded with the EEG for the “Values matter” Wholefoods commercial*

## **4.2 The cognitive system**

The cognitive system is measured using qualitative interviews. The goal is to find the explicit motivator. During this chapter I will methodically report the answers from the different questions in the interview guide, corresponding to the different themes in the model of planned behavior. I will also report relevant quotes that sums up certain ideas and findings in a strong way.

### **4.2.1 Attitudes towards the behavior**

Vegetables and fruits were mentioned by 10 respondents when asked what they usually buy when purchasing ecological produce. Meat and milk were also mentioned.

8 respondents reported buying ecological produce about twice per month.

3 respondents reported buying ecological once a week.

6 respondents reported buying ecological twice or more often a week.

2 respondents reported buying ecological couple times a year and one never buys ecological produce. Women buy on average more ecological produce than men and the average was a couple times a month.

Every single respondent mentioned that price plays a difference in the buying behavior of ecological produce, a few respondents have also reacted to the lower pricing of ecological produce. Produce from Finland was considered more important than ecological. It was interesting to see that 7 respondents, 3 female and 4 male, reported an increase in the amount of times they buy ecological produce after being exposed to the experiment. Four respondents increased their behavior from once a week to several times a week and three increased their behavior from couple of times a month to once a week.

“How often do you buy ecological, and what do you usually buy? - Maybe a couple times a month, maybe every other week. I buy vegetables for cooking and I think ecological produce is cleaner. I guess it depends on the range of alternatives available.”

Ethics came up as the main motivator for buying ecological. Health was also quite popular and only two respondents named that better taste is a factor that contributes to why they buy ecological produce. Many respondents also said that buying ecological

makes them feel better about themselves. Most of the respondents also first stated a personal reason regarding themselves and then moved on to the environment and ethical benefits. Thoughts on what constitutes ecological produce were also discussed, some respondents were not sure what criteria a product meets in order to get the label “ecological”. Many respondents mentioned that the lack of pesticides also influences their purchasing behavior of ecological produce.

12 respondents reported ethics as the main motivator for their behavior. Six respondents reported health and only two reported that taste is the main influence.

| <b>Respondent</b>      | <b>Sex</b> | <b>Age</b> | <b>Buying ecological</b> | <b>Motivator</b> | <b>Respondent</b> |
|------------------------|------------|------------|--------------------------|------------------|-------------------|
| 1                      | M          | 26         | Couple of times a month  | Health           | M1                |
| 2                      | M          | 26         | Never                    | Ethics           | M2                |
| 3                      | M          | 27         | Couple of times a month  | Health           | M3                |
| 4                      | M          | 24         | Never                    | Ethics           | M4                |
| 5                      | M          | 26         | Once a week              | Health           | M5                |
| 6                      | M          | 25         | Couple of times a month  | Ethics           | M6                |
| 7                      | M          | 25         | Once a week              | Ethics           | M7                |
| 8                      | M          | 25         | Couple of times a month  | Ethics           | M8                |
| 9                      | M          | 24         | Couple of times a month  | Taste            | M9                |
| 10                     | M          | 24         | Several times a week     | Ethics           | M10               |
| 11                     | F          | 24         | Couple of times a month  | Ethics           | F1                |
| 12                     | F          | 24         | Couple of times a month  | Health           | F2                |
| 13                     | F          | 24         | Couple of times a month  | Ethics           | F3                |
| 14                     | F          | 24         | Once a week              | Ethics           | F4                |
| 15                     | F          | 25         | Couple of times a month  | Ethics           | F5                |
| 16                     | F          | 24         | Couple of times a month  | Ethics           | F6                |
| 17                     | F          | 24         | Couple of times a month  | Ethics           | F7                |
| 18                     | F          | 23         | Several times a week     | Taste            | F8                |
| 19                     | F          | 34         | Once a week              | Health           | F9                |
| 20                     | F          | 23         | Couple of times a month  | Health           | F10               |
| <b>M=male F=female</b> |            |            |                          |                  |                   |

*Tab 4. Respondents and the main motivators for buying ecological produce*

“Because it tastes better... It feels like the right thing to do.”- (F10)

“I think it is fairer. My conscience is clearer if I buy ecological products. Better for nature. Sometimes it is on sale and it is cheaper. The milk is usually cheaper.” – (F8)

When asked if there is some feeling in their motivation to buy ecological produce most people described a positive feeling because of doing the right thing. Some respondents also described a feeling of guilt if they do not buy the ecological product. Three respondents also stated that they are not influenced by feelings at all and only cognitive and rational thinking. What is interesting is that all of them described their rational thinking with the word “I feel...”. When confronted they said it is just a descriptive word. When asked about the origin of the feeling, some respondents said that it comes from their family and their behavior and attitudes and some said it is because of the media and the trend that is currently happening. The majority of respondents named ethics as the main emotional motivator and health was again second. Taste was more of a bonus.

“Yes I get a positive feeling when I buy ecological food. I feel like I am doing something better for the nature.” – (F8)

“I have no feelings about ecological produce. I base my decisions on rational thought.” – (M1)

“A feeling of guilt makes me buy an ecological alternative. I do not just look at the price and I feel more good-hearted.” – (F2)

“Difficult question. I feel like a better person if I choose ecological”. – (F2)

When asked about any cognitive and rational thoughts behind their ecological purchasing behavior ethics again came as the number one factor, health second and taste last. The price of ecological produce was also brought up by almost all of the respondents. One respondent said that ecological produce is sometimes cheaper. Some respondents said that their behavior is purely rational and others said that both emotions and rational thought influences their behavior. When talking about cognitive thoughts many respondents used the word “feel”, as mentioned in the previous chapter as well. One respondent also pointed out that the perceived better taste in ecological produce can be due to the placebo effect.

“I buy ecological to protect nature, not really for other reasons.” – (M10)

“As a student I do not have that much money. Ethical factors are the most influential. I want to do my part” – (M8)

“I want to avoid substances that are harmful for the body. I think reducing my carbon footprint is important but that does not influence my purchasing behavior. With more money I would buy ecological more often.” – (M1)

Most of the respondents described the EEG measurement as interesting and exciting. Some said it was a bit boring that the stimuli shown had to be played three times, so it became a bit repetitive. Everybody said they wanted to hear what kind of results the experiment gave.

“I thought it was interesting. It is cool that the effect of commercials can be measured at the same time someone is watching them.” – (M7)

“It was exciting. Some parts became a bit repetitive, especially when the pictures were shown.” – (F1)

#### **4.2.2 What the respondent considers normal regarding the behavior**

The respondents thought that the average person in Finland buys ecological produce a couple times a month. This is the same as the average estimation of the respondents own behavior. Price was again mentioned here by almost all respondents. Vegetables, milk and meat were identified as the most common ecological product bought and all respondents said that the motivator for the average person is the same as they reported for their own behavior. It is remarkable how the respondents reported the same behavior they had described themselves as the behavior of an average person.

“Pretty seldom. No idea. Twice a month? No idea. It is more expensive and if you are not invested in what you buy and not know what you buy I would not buy the more expensive stuff. I don't think people care enough either. Not that much variation. Not that much choice. Ethics is the main motivator I would say.” – (F8)

“In Helsinki I would say a couple times a week. There is a price difference and the eating habits of people have not moved yet to ecological and organic. It is strongly rooted in habit. It is connected to income, as more money will lead to more consumption of ecological produce. Besides money. Ethics and concern for the environment is a driving factor.” – (M9)

About half of the respondents described the behavior of their friends and half described the behavior of their family. Here the motivator to buy ecological in the respondents peers was the same as the motivator they individually reported. Ecological buying behavior seems to be highly related to the behavior of the consumer’s peers. 14 respondents said that their own behavior is influenced by their friends and family. All of the respondents that mentioned the behavior of their family stated that the family buys much more than they do, the average was a couple of times a week. The reason for this was again price, as most of the respondents are still studying.

“Mom buys ecological every day. Because they have money. She thinks it is the right thing to do, tastes better. I don’t think my friends give a shit about anything.” – (M2)

“My friends buy more often than me. I think it is because they have a higher salary.” – (F10)

“People who are more aware of their image and want to follow trends buy more ecological produce.” – (F3)

Four of respondents reported their ecological buying behavior below average, nine reported their behavior as average and seven reported their behavior as above average. Money was mentioned as the reason for consuming below average and if the respondents had more money they would all buy more ecological.

#### **4.2.3 Limitations of the particular behavior**

The main limitations for not buying more ecological produce was price and supply. Often the respondents reported that there is not an ecological choice for the product they want.

Habit was also reported as an important factor as people tend to buy the product they are used too. All but one respondent said that with more money they would buy more ecological produce.

“I don’t see a reason for buying. In the future I might buy more if research shows that there is a difference and if the prices comes down. There has to be clear evidence for the benefits of ecological produce.” – (M4)

“If there would be a Wholefoods in Finland I would probably buy everything from there. The ecologically themed stores in Helsinki are still so expensive so I don’t buy my groceries there.” – (F9)

“The price difference and the availability are the main reasons I still buy more normal produce. Also habit, if I like a certain type of yoghurt I will buy the same brand even if there is an ecological alternative.” – (F10)

### **4.3 Analysis and summary**

This chapter will present the analysis of the data collected, categorizing it into data from the EEG and from the interviews. The chapter will aim to clarify the key insights that are used in answering the research questions.

The data and analysis is divided into relevant theories on consumer behavior; the affective system and the cognitive system. This illustrates the process of abstraction. The third section will compare and discuss both methods and the remaining steps in the process of analysis will be illustrated. These sections will provide the insights required to answer the research questions two and three; the differences between the methods and the consumer motivations for buying ecological produce.

The final section will discuss and analyze the results and data relevant for the first research question- “What implications does results obtained through methods from neuromarketing combined with qualitative interviews give to the field of consumer behavior and marketing strategy, in the case of marketing ecological produce?”

The respondents were all highly educated and there is no correlation between the frequency of ecological purchases and education. There is no correlation either with ecological consumption and the economic situation of the respondent, measured through asking about their professional situation. This is interesting as almost all respondents said that if they had more money they would buy more ecological produce.

Females buy slightly more ecological produce if we look at the average behavior reported by the respondents but it is highly individual. Age also seemed to be irrelevant in forecasting the level of ecological purchasing behavior, but all the respondents were also around the same age. Many respondents said that when they are older and have more economic freedom they might buy more ecological. The oldest person in the sample, a female aged 34 reported a frequent behavior. This would be interesting in the future to research how age affects the frequency of buying ecological produce.

From the pictures the EEG-data shows the highest level of wanting for the fresh tasty fruits. The peak in cognitive engagement occurred for the recycling picture and for the picture with ecological beef. This shows the importance of having fresh and tasty looking produce on display and maybe showcasing the ready-made product. Recycling engages the cognitive system in consumers and makes them think. It is important to remember that attention and affective responses have to be high in order for the consumer to spend enough time with the product to engage in cognitive thinking. Attention can also be high if the package or image is complex, which does not necessary mean the consumer is drawn to it.

In the value-promises it became apparent that the “slogan” that evoked the highest affective response was about Taste. The highest cognitive engagement was shown during the value-promise: “saving the environment starts now” and “reduce your carbon footprint”. This translates to insight in the form of first marketing to the affective system of the consumer by emphasizing taste and later emphasizing the importance of environmental ethics and global warming.

The commercial with the theme health evoked a high level of cognitive engagement. This may be due to the fact that it was about organizing your pantry and making an effort to eat healthier. The video with the theme taste, evoked the biggest brain activity in the affective system, through wanting. This is not a surprise as it is also the most emotional

clip. Finally the commercial about sustainable produce evoked high levels of brain activity corresponding to attention, perhaps because of the complexity of the imagery.

The interviews reported that ethics is the most important motivator. Respondents could not distinguish between affective and cognitive attitudes and motives for buying ecological, they reported the same motivator for both questions. Price was mentioned by all respondents and they said that if it were cheaper they would buy more. Some respondent reported a feeling of guilt that makes them buy ecological. When asked about what limits their behavior the respondents named price, product variation and habit.

The next chapter will break down the data and an analysis will be performed in order to best answer the research questions and draw relevant conclusions, in a marketing and consumer behavior context.

#### **4.3.1 Data from interviews**

During the interview an effort was made to make the respondent think of what is their affective and cognitive motivation for buying ecological produce. It became clear already during the first interview that respondents had difficulties making a distinction between the two and reported the same motivator both on an affective level and a cognitive level. This shows that a consumer has difficulties reporting how something makes them feel and how feelings affect their decision making. This is why the method of qualitative interview was chosen to study the explicit motivator. Ethics was reported as the major motivation followed by health. Many respondents also reported that it feels right to say that ethics is the major motivator. The respondents also reported the average ecological purchasing behavior of others and their motivations as the same as their own. When asked about why ethics or health is a major motivator many respondents said that the attitude is from their parents.

Many respondents reported their decision making process as purely rational when buying ecological produce. This also shows how the qualitative interview only activates the cognitive system in consumers.

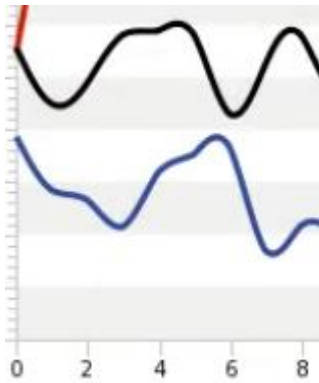
This finding points to the fact that when asking about how a consumer feels about a product, they can only describe their feeling using their cognitive thinking and rationalization and in hindsight (Eysenck 2012).

The respondents who reported an increase in their ecological buying behavior (without their knowledge) can be seen as something that indicates that the commercials had an effect on the consumers or that they knew an interview was coming up and they wanted to seem more aware of ethics and ecological benefits. If the increase was due to effective commercials, Wholefoods would be happy to see that seven out of twenty respondents increased their buying of ecological produce one month after seeing their commercials. There was no common denominator between these seven respondents, five of them reported ethics as the main motivator and two reported health.

#### **4.3.2 Data from EEG**

The data collected with the EEG shows clearly if the stimuli evoked a response from the affective or cognitive system of the consumer. The patterns are very similar when looking at the pictures and the value promises. The commercials did not have a lot of variation in the evoked brain activity except the difference in what variable had the highest level of activity.

The peaks in the commercials illustrates a moment that evoked a particularly strong response in brain activity. As the EEG has a great temporal resolution, we can look at what moments evoked the high responses. Attention in commercials has a high peak during complex imagery as the visual cortex has to process more information. This is why more emphasis will be put on the level of wanting and cognitive engagement. Attention is crucial in gaining the attention of a consumer in the store but while watching a commercial and being told to not do anything else, the attention is guaranteed. Usually after a peak in wanting, a peak in cognitive engagement follows. This can be seen in all of the commercials. This suggests that the affective and emotional response happens before the cognitive system of the consumer is activated. Without the affective response the cognitive system is not engaged at all. This finding seems to fit well with the model of sequence of communication (Evans et al. 2006).



This is taken from the commercial with the theme ethics. As we can see here the increase in the level of wanting; the affective response, happens about 2 seconds before the cognitive engagement increases. This illustrates that if a consumer finds something approachable and positive on an unconscious and affective level, it will also entice the cognitive parts of the brain to think about why the stimuli is positive.

#### 4.3.3 Affective system

When looking at the overall data gathered from the EEG it shows that taste was the greatest implicit motivator. Health follows, and last is ethics. This illustrates how consumers are driven by wanting pleasure and something that makes them feel good.

The consumer seems to be very egoistical in that sense, as the satisfaction of their senses is the number one motivator. This seems intuitive, but delivers more insight when backed with proof. Past affect and representations of the past (Smith & Kirkby 2001) could be what causes the high level of activity towards taste.

When looking the model of emotional choice (Elliot 1998), this model seems to describe this phenomenon in a really convincing way. First the consumer behavior is driven by a motivator. In this case it would seem as taste is that motivator. The consumer is after sensual satisfaction and self-focus. Only after this, the cognitive engagement follows. This is illustrated in the model by rationalization.

#### 4.3.4 Cognitive system

The data collected with the EEG shows that ethics and health had the highest levels of cognitive engagement. Health and ethics are clearly the explicit motivators. This is confirmed in the qualitative interviews. Ethics and health require more rational thought and mental effort in the consumer (McClelland et al. 1989). There is one picture in the

EEG experiment with the theme taste that evoked the highest response of cognitive engagement. This is probably due to the fact that the respondents thought of how to make steak look that good. This was a statistical outlier and was the only picture with the theme taste that evoked a high level of cognitive engagement. Taste actually evoked very little cognitive engagement throughout the experiment.

When the consumer is exposed to the stimuli and processes it, the respondent interprets it cognitively. This information is then compared to memories and past attitudes and then new learning takes place which forms new attitudes. This became apparent in the interviews when respondents talked about learned behaviors from their family. This process is illustrated in the consumer decision making process; cognitive decision making (Peter & Olson 2008).

#### **4.4 Comparing the methods**

When comparing the methods there are clearly strengths and weaknesses with both. This is why they seem to go very well together. The EEG can give a detailed illustration of how the consumer reacts to commercials, ads and value-promises with the cognitive and affective system and the interviews can explore why a consumer behaves in a certain way and what they think about other consumers. In a small sample size such as this, there cannot really be any comparison between groups in the sample, the minimum sample for an EEG experiment is around 20.

The EEG can record the responses when the consumer is being exposed to the stimuli in a relaxed environment and without someone observing them or asking them about their behavior. However, it cannot account for stray thoughts or consumers not paying attention to the stimuli and it does not provide data on why a consumer behaves in a certain way. The EEG can record unconscious responses as well, as respondents were unaware of the factors the EEG could report on.

The interviews can only access the cognitive thinking of consumers and are subject to biases. However, they provide a method for asking why a consumer behaves in a certain

way, who influences them, what influences them and how their subjective reality views the stimuli.

Together it would seem that the methods work really well and provides a deeper understanding of the consumer, both on a conscious level and unconscious level. It seems that both the affective system and the cognitive system are very separate processes and still very integrated. This is illustrated by the fact that during interviews respondent could not state their affective motivation for buying ecological produce. During the interview some respondents also described their rational motivation with the words: "I feel.." which I think illustrates well how integrated both systems in consumer behavior are.

## 5 DISCUSSION

This chapter will conclude this thesis and present the main implications and findings, the managerial recommendations and suggestions for future research. The research questions will be answered and the conclusions will be scientifically and critically explained.

This thesis has identified the motivation that drives consumer to buy ecological produce. The main implicit motivator recognized in this thesis is taste. The main explicit motivator is ethics.

The combination of both research methodologies seem to give a deeper level of insight than just using one of them. The choice of method always depends on the type of research conducted. When measuring attitudes, consumer motivation, attention, decision making and emotional and cognitive responses in consumers the use of both methods adds further value. The combination of methods answers both the questions what and why. In the particular case of marketing ecological produce; we can see that consumers are motivated by taste on an unconscious and affective level, while ethics and health motivate them on a more rational and conscious level.

This thesis also shows that affect precedes cognition in consumer decision making. The cognitive process and the affective process seems very separate but still very integrated. This is illustrated by the fact that without an affective response there is no cognitive response. Still, during the interviews when the consumer cognitive system was engaged the consumer could not state the affective motivator.

In this research the respondents were unable to make a distinction between affective and cognitive motivations for buying ecological produce during the interviews. The motivations reported during the interviews for both implicit and explicit motivations were the same as the motives recognized through the measurement of cognitive engagement. It seems that respondents were unable to know their feelings associated with buying ecological produce when asked in the qualitative interviews.

It seems that Zajonc (1980) was right to theorize that affect precedes cognition. This has been illustrated in this thesis in the EEG analysis of the commercials, where a strong

affective response was the cause of a higher level of cognitive engagement. This has been taken into account in the theoretical model presented in the next chapter.

### **5.1 From exposure to purchase – consumer decision making**

The customer centred business approach is identified by having a deep understanding of the customer and the ability to serve the customer. Market research is critical for a company to be able to listen to their customers and see trends in the market.

As mentioned before marketing strategy consists of knowledge of three things- the business, the consumer and the brand. This thesis has focused on the consumer, which is also the most important one for a customer centred company.

EEG and qualitative interviews provides a methodology to understand what the customer likes, wants and is motivated by, even if the customer herself is not even aware of these likes, wants and motives. Data from EEG can show us the implicit and explicit motivators in a consumer, which results in a powerful behavior (McClelland et al. 1989). When combining the results from both methodologies in this thesis, the implicit motivator is taste and the explicit is ethics. The implicit motivator is what makes a consumer approach a product and explicit motivation is something that leaves the consumer intrigued. The interaction between affect and cognition also includes the decision making process. By knowing the process and how the systems react to stimuli, we can aim to create a theoretical model.

The fact that wanting is first registered in the brain of the consumer and cognitive engagement follows, gives huge implications for the creation of marketing communication. It also provides basis for the creation of a new model for consumer decision making. For example, a commercial that first explains the taste and smell and the sensual experience of a product and later explains the ethical and health-related benefits would leave a strong impression on the consumer. Perhaps this is one reason why Subway has been so successful. They first give a sensual experience to the customer with smells and the ability to see the fresh ingredients and pictures of the ready products, while they more subtly also market the health benefits of eating there.

This is a model of the consumer decision making process based on the data collected in this thesis. This model is modified from the model of emotion-driven choice (Elliot 1998) and the consumer cognitive decision making process presented by Peter & Olson (2008). It can be seen as an updated version of the theoretical model presented in the summary of the theoretical framework. It is an effort to combine the affective and cognitive decision processes with theories on motivation and the model of sequence of communication effects. This model further explains how a consumer is affected by marketing efforts and how they lead to a behavior. The main parts are environment, affect & cognition and consumer behavior, the three factors in the wheel of consumer analysis (Peter & Olson 2008). Successful marketing actions are able to engage the consumer through all the steps of the model.

The model is divided into the factors that together create consumer behavior: environment, affect & cognition and the behavior itself. The environment is the marketing stimuli but also peer behavior, cultural norms, self-focus, drives and attention. During this phase the marketing organization should make sure to stand out and know what the cultural norm is, the average behavior and the egotistical reward for attending to the stimuli. During this phase you want to catch the unconscious attention of the consumer.

During affect & cognition motivation is the first factor. During this step it is important for marketers to know what motivates the consumer. After this the exposure is cross checked with the motivation in the consumer to see if there is a match. If there is the consumer has a positive affective response and wants to approach the product. If the product has a strong connection to memory it is more powerful. The memory then triggers a process of interpretation and evaluation which leads the activation of the cognitive system in the consumer. All this input works together to form new learning, attitudes and knowledge. This leads to intentions of buying, the decision and ultimately the behavior itself. After the purchase the consumer rationalises why he bought the product. This rationalisation combined with the new learned attitudes and the symbolic meaning of ecological consumption and memory leads to the formation of habit. This is a form of heuristic, which provides the consumer a way of buying the same products and guaranteeing the same sense of satisfaction.

**FROM EXPOSURE TO PURCHASE**



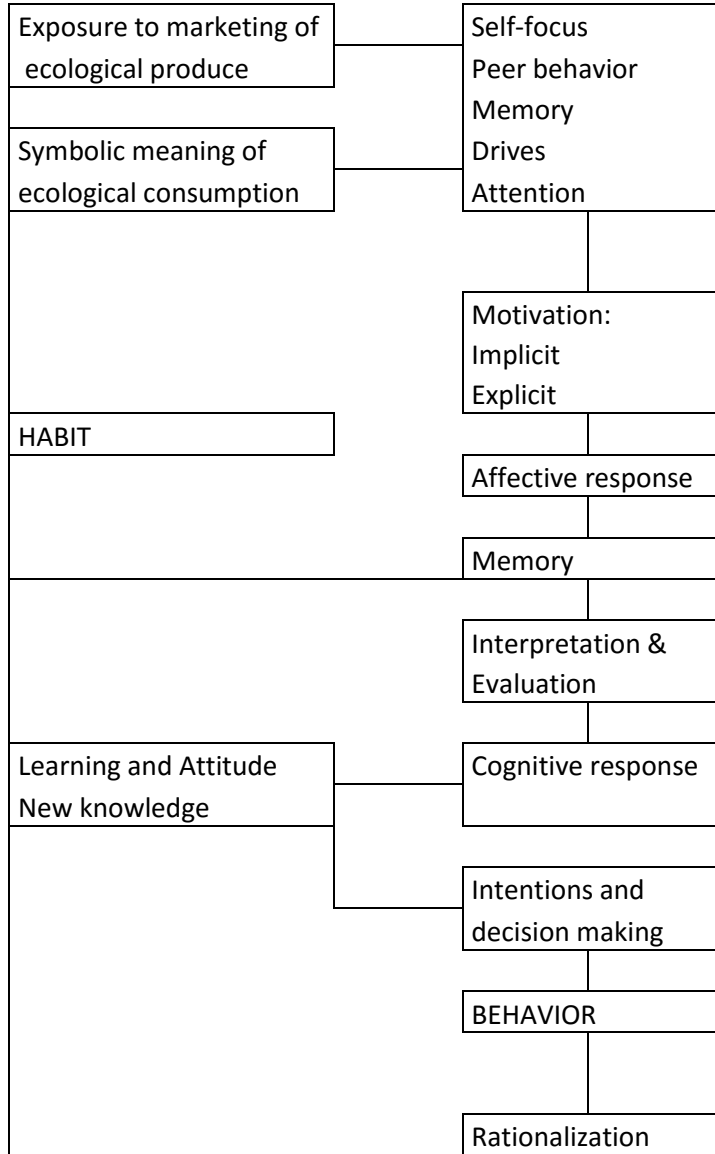
**ENVIRONMENT**

**AFFECT & COGNITION**

Cognitive Appraisal

**CONSUMER BEHAVIOR**

Purchase



*Fig. 22 From exposure to purchase – the mental process in the consumer that ultimately leads to purchasing behavior*

## **5.2 General implications**

The consumption of ecological produce is affected by the consumers' affective and cognitive motivations. Consumer cannot report their unconscious affective motives through qualitative interviews, as interviews can only gather information from the cognitive and conscious thoughts of consumers. This is why EEG is a valuable tool when measuring consumer behavior and in understanding what happens internally before a consumer makes a purchase.

Evidence gathered in this research shows that the affective response arises first in the consumer. This response is either positive or negative. If the stimuli evokes a substantial enough response from the affective system the level of cognitive engagement in the consumer will also rise. This illustrates the importance of appealing to the consumers' unconscious and emotional side and not only to the rational side. Both the cognitive and affective systems are of great importance, work in unison and it is not enough for marketing efforts to engage just one of the systems.

There has been much discussion on the ethics of measuring consumers' physiology and brain activity (Flores et al. 2014). The point is that it helps us understand what consumers like, it does not provide a way to tell them what they want.

## **5.3 Managerial recommendations**

Practical implications for managers is to create in-store marketing that evokes an unconscious affective response and catches attention. This is done by emphasizing the theme taste for ecological produce. Ethical and health benefits should then be used as the factor that tips the scale in the favor of the ecological alternative, after the interest for the ecological produce has been established.

This can be done by having pictures of the ready-made product, utilize the other senses in marketing, have free samples and use package design that emphasizes taste. When the customer is contemplating a purchase you want to make them see all the ethical and health-benefits involved in the purchase. This will also make the price seem less steep.

When conducting market research it is worth considering using EEG as a method for gathering information about what motivates the consumer. EEG is becoming relatively cheap and the uses are huge. EEG also offers a way to study consumer attitudes without speaking the other language and bypassing bias. However, it is not recommended to just use EEG as you miss all the vital information on why they behave in a certain way and what they think is normal behavior and why they do not behave in the opposite way.

Implications for marketing strategy are the following:

1. It is important for the company to know the market and what is the normal behavior of their customers. Consumers tend to model their behavior to what they think is normal. The attention of the consumer can be caught by something that gives them pleasure or that can avoid harm.
2. The affective response in the consumer is activated first. In the case of ecological produce this is taste. By appealing to the taste of the product, it guarantees that the consumer attends to it long enough to engage cognitively. If there is a similar representation in the memory of the consumer it will result in high activation of the cognitive system. The ethical factors of the product will then act as the tipping scale that convinces the consumer to buy the product. The first step is to appeal to the egoistic consumer who is looking for satisfaction in some form.
3. Engage the consumer with the above points to create a habitual relationship with the product/brand.

#### **5.4 Future research and limitations**

This thesis is limited by time, resources and sample size. The EEG experiment could have been done better with designing all the stimuli. In this research all the stimuli was found online. Time and resources limited this study in a way that it was impossible to recruit other respondents then friends of the author, as most strangers would not come and have their brain activity measured for 30 min in the evening without any incentive. Efforts have been made to keep the research as objective as possible, which is hard in the social

sciences and when the matter being research is highly subjective. This research is also limited by the EEG used, which has only 8 electrodes. More electrodes leads to more detailed data and possible more insights. With a bigger sample size, more comparison with demographics and between groups could have been made, here the time was the limiting factor.

Recommendations for future research is to study the attitudes towards ecological produce in different age-groups and get to the root of the trend of eating and buying ecological. This can be done with a larger sample size. The model presented here should also be tested with observations.

Another topic of research for the future is studying the unconscious and affective attitudes towards other products or brands. Especially with the combination of qualitative interviews and EEG, a holistic view can be gained of that goes on in the mind of the consumer and what influences them to behave in a certain way.

## 6 SVENSK SAMMANFATTNING

# Från exponering till köp – en förståelse av samspelet mellan konsumentens affektiva och kognitiva system samt beslutsfattande

## INLEDNING

För att ett företag skall vara marknadsorienterat är det viktigt för marknadsförare att förstå konsumenternas tankar och känslor samt vad som fångar deras uppmärksamhet och engagerar dem (Evans et al. 2006). I boken om konsumentbeteende och marknadsföringsstrategi av Peter & Olson (2008) definieras konsumentbeteende på följande sätt: det dynamiska samspelet mellan affekt och kognition, beteende och omgivning, genom vilken människan styr sitt liv i en ekonomisk värld. Beteende går att observera, omgivningen går att kontrollera men marknadsförare vet mycket lite om hur affekt och kognition påverkar köpbeteende.

Motivation är det som får konsumenten att utföra ett beteende (Pervin 2003). Effektiv marknadsföring måste först möta konsumentens motivering för beteendet, annars uteblir det önskade köpbeteendet (Evans et al. 2006). Det blir svårare och svårare för företagets marknadsföring att stå ut ur massan och det är viktigt för marknadsförare att veta hur de bäst kan fånga kundens uppmärksamhet. Konsumentens motivation för att köpa kan delas in i två delar. Implicit motivation som är omedveten och driven av affekt, samt explicit motivation som är medveten och driven av kognition. Marknadsföring som kan engagera kundens båda former av motivation resulterar i ett starkt köpbeteende (McClelland et al. 1989).

I denna studie undersöks vad som orsakar konsumenter att köpa ekologiskt på en affektiv samt kognitiv nivå. Tidigare forskning har identifierat tre faktorer som påverkar konsumenten till ekologiskt köpbeslut: hälsa, etik och smak. (Zanoli & Naspetti 2002). Dessa faktorer har forskare identifierat via data från frågeformulär.

Musik är ytterst emotionellt och har en stor effekt på konsumenters affektiva system (Wolfe et al. 2012). I undersökningen av North et al. (1999) visade sig att typen av musik påverkade vilket vin konsumenten köpte. Konsumenterna var omedvetna om effekten på deras beteende.

Genom en marknadsundersökning kan ett företag få information om sina kunder. De flesta undersökningar görs via intervjuer och frågeformulär. Dessa metoder kan bara nå information i konsumentens kognitiva system (Bridger 2015). Beslutsfattande är vad som leder till ett köp. Denna process sker mentalt via både affekt och kognition. Konsumentens beslutsfattande kan ske på en affektiv och kognitiv nivå (Peter & Olson 2008; Elliot 1998). Detta betyder att det affektiva systemet inte kan nås via traditionella metoder men spelar en oerhört viktig roll inom konsumentens beslutsfattande.

Om 95 % av konsumentens beslutsfattande sker på en omedveten och affektiv nivå, är det avgörande att veta hur affekt påverkar konsumentens beslut (Bridger 2015). Hur kan marknadsförare mäta det affektiva systemet?

Dr Kandel, nobelpristagaren i fysiologi uttrycker sig på följande sätt: "Att förstå det mentala hos människan i biologiska termer har visat sig vara den centrala utmaningen för 2000-talet." Uttrycket är fritt översatt från engelska och är skrivet i boken av Pradeep (2010). Genom nya upptäckter i neurovetenskap och med hjälp av teknologi som kan mäta hjärnaktivitet i människan kan vi nu också mäta det affektiva systemet hos konsumenter (Zurawicki 2010). Detta ger oss en bild om hur affekt och kognition samverkar med varandra. Den litteratur som är tillgänglig är skriven för praktikanter eller neurovetare och är inte välkänd inom marknadsföringsteori.

Neurovetenskapliga metoder, till exempel Elektroencefalografi (EEG) kan underlätta marknadsundersökning till exempel i Indien, var populationen talar 122 olika språk. Neurovetenskapliga metoder gör det möjligt att mäta konsumentattityder mot marknadsföring utan att anställa en översättare (Pillai 2015). När neurovetenskapliga metoder och teori används tillsammans med marknadsföring används ofta begreppet neuromarknadsföring.

Butler (2008) uppmanar till fortsatt forskning inom neuromarknadsföring och ett minskat gap mellan forskning och praktik. Peter & Olson (2008) skriver att det affektiva systemet i konsumentbeteende behöver mera grund i akademiska studier och Cohen et

al. (2006) skriver att mera forskning behövs i området om hur det affektiva systemet påverkar konsumentens beslutsfattande.

Neuromarknadsföring är en ny forskningsgren som utnyttjar teori från psykologi, biologi, neurovetenskap samt marknadsföring. Denna forskningsgren utnyttjas i denna avhandling.

## **SYFTE**

Syftet med avhandlingen är att undersöka det affektiva och kognitiva systemet och vilka roller de spelar i konsumentens beslutsfattande, genom att mäta respondenters kognitiva och affektiva respons till marknadsföringsstimuli och vad som motiverar konsumenten att köpa ekologiska livsmedel. Detta kommer att mätas med en EEG och via kvalitativa intervjuer. Resultaten kan ge insikt om samspelet mellan affekt och kognition samt vilka roller de spelar i konsumentens beslutsfattande.

Forskningsfrågorna är följande:

1. Vad är relationen mellan konsumentens affektiva och kognitiva system samt hur påverkar dessa system beslutsfattandet och köpbeteendet?
2. Reagerar det affektiva systemet före det kognitiva?
3. Vilken implicit och explicit motivation resulterar i att konsumenten köper ekologiska livsmedel?

Med att svara på dessa forskningsfrågor är det möjligt att veta vad som motiverar konsumenten att köpa ekologiska livsmedel, både på en affektiv och på en kognitiv nivå. Om båda dessa motiveringar kan mötas i marknadsföringen är köpbeteendet starkt (McLelland et al. 1989). Med att mäta konsumenters affektiva och kognitiva reaktioner kan det insamlade data kombineras med existerande teori och ett försök att skapa en uppdaterad modell av konsumenters beslutsfattande kan göras.

## PRESENTATION AV TIDIGARE FORSKNING

Teorin som används för att skapa det teoretiska ramverket för studien har sin utgångspunkt i teorin om konsumentbeteende- affekt och kognition. Som nämndes i introduktionen är samspelet mellan affekt och kognition var beslutsfattande sker, vilket leder till ett köpbeteende. För att förstå konsumentens köpbeslut är det avgörande att förstå det affektiva och kognitiva systemet. Teorier om affekt och kognition, motivation, beslutsfattande och heuristik presenteras. Denna teori är baserad på akademisk litteratur från psykologi, marknadsföring och neurovetenskap. En kort genomgång av relevant hjärnanatomi illustrerar hur man kan mäta det affektiva och kognitiva systemet hos konsumenten med en EEG.

Samspelet mellan affekt och kognition är vad som påverkar konsumentens beteende och köpbeslut (Peter & Olson 2008). Av de två systemen är affekt av stort intresse. Redan en tid sedan har det konstaterats att konsumenter inte är så rationella som man en gång antog (Shiv & Fedorikhin 1999). Enligt Zajonc (1980) så sker det affektiva före det kognitiva i tankeprocesser och studier inom neurovetenskap har visat att emotionella delar i hjärnan har större effekt på beteendet än de rationella delarna (Hazeldine 2014). Emotionellt innehåll har också visats ha ett större inflytande på logiska processer (Blanchette & Richards 2004).

Kognitiva processer beskrivs också som den högre nivån av tänkande hos konsumenten: evaluering, tolkning, minne och inläring. Det affektiva systemet är omedvetet, påverkar konsumenten fysiologiskt samt innehåller känslor, humör och sinnesstämning (Peter & Olson 2008; Eysenck 2012).

Det affektiva och kognitiva systemet i konsumentbeteende har stora likheter med tankemetoderna presenterade av Kahneman (2011) i system 1 och system 2. System 1 är omedvetet och intuitivt samt automatiskt. Emotioner påverkar starkt system 1. System 2 är medvetet och kräver mycket mental energi. System 1 är det analytiska systemet.

Samspelet mellan dessa system kan beskrivas med termen kognitiv tolkning som syftar på att en konsument tänker på ett köp och emotionerna aktiveras därefter (Eysenck 2012). Enligt Zajonc (1980) är det tvärtom, emotioner sker först och efteråt tänker konsumenten.

Konsumenter är drivna av viljan att öka på tillfredsställelse eller undgå smärta och söker därmed efter produkter och tjänster som kan hjälpa dem med dessa grundläggande drifter. Kundens motivation för ett stimuli kan vara negativt eller positivt, konsumenten vill antingen närma sig objektet eller dra sig tillbaka (Evans et al. 2006). Om marknadsföringen inte stämmer överens med en konsumentens motivation, saknas köpbeteende.

Det finns två olika huvudsakliga modeller inom konsumentbeteende som beskriver processen för beslutsfattande: en kognitiv och rationell modell samt en emotionell modell. Modellen av Peter & Olson (2008) beskriver en rationell, medveten process var konsumenten utvecklar nya attityder; inläring och evaluering leder senare till beteende. Denna modell är mycket annorlunda än den emotionella modellen av Elliot (1998) som beskriver processen som omedveten och beskriver hur konsumenten vill fylla sina egoistiska begär, jämför med tidigare känslor och rationaliserar beteendet efter att köpet har skett. Om både affekt och kognition influerar beteende, görs antagandet att dessa processer sker parallellt.

Heuristik och partiskhet är olika genvägar som tankarna tar för att snabbt kunna fatta relevanta beslut speciellt efter exponering till ett nytt stimuli (Kahneman 2011). Heuristik och partiskhet påverkar starkt svaren och informationen man får genom kvalitativa intervjuer, speciellt från konsumentens affektiva system. Heuristik påverkar konsumenten hela tiden och konsumenten ser på en sak på ett annat sätt än hon gjorde tidigare. Därför är familjaritet och efterklokhet faktorer som påverkar svaren (Bridger 2015; Haloverson & Rock 2015). Konsumentens beslutsfattande är också starkt präglad av heuristik, konsumenter väljer ofta det alternativet de är vana vid.

Hjärnorna som mäts i denna avhandling är frontala loben och prefrontala hjärnbarken och occipitalloben. Prefrontala loben har neuronpopulationer som är aktiva när affekt och kognition är pågående. Det affektiva systemet kan mätas från prefrontala pannloben och det kognitiva systemet mäts en aning högre upp mot hjässan, via frontala hjärnbarken. Från occipitalloben (ovanför nacken) kan man mäta hur mycket uppmärksamhet konsumenten sätter på stimulit som mäts (Carlson 2014; Zurawicki 2010).

De olika variablerna som används i denna avhandling är villighet, kognitiv verksamhet samt uppmärksamhet. Villighet mäter det affektiva systemet och kognitiv verksamhet

mäter det kognitiva systemet. Med att mäta dessa system kan en förståelse för relationen mellan konsumentens affekt och kognition nås och i kombination med kvalitativa intervjuer kan vi konstruera en uppdaterad modell för konsumentens beslutsfattande.

## **VAL AV METODER OCH GENOMFÖRANDET AV STUDIEN**

Metoderna som används för att svara på forskningsfrågorna är följande: en experimentell metod med EEG-mätningar och kvalitativa semi-strukturerade, deduktiva intervjuer. Ansatsen är social konstruktivism (Patton 2002).

Elektroencefalografi (EEG) är en metod som möjliggör mätandet av neural aktivitet i olika hjärnområden. EEG:en mäter elektriska impulser som uppstår när en stor population neuroner är aktiva samtidigt (Wolfe et al. 2012). Dessa impulser kan mätas med elektroder som placeras på olika områden på hjässan, ovanför de hjärnområden forskaren är intresserad av att mäta (Zurawicki 2010). Ett stimuli visas sedan till respondenten och reaktionen kan mätas med de olika variablerna, i detta fall villighet, kognitiv verksamhet samt uppmärksamhet.

Respondenterna visas ett experiment som består av bilder, sloganer och reklamer. Deras reaktioner och hjärnaktivitet mäts sedan och kopplas ihop till det stimuli som visades. Stimuli är delat i tre olika grupper eller teman. Dessa teman är identifierade i tidigare forskning om vad som motiverar konsumenter att köpa ekologiskt. Dessa är etik, hälsa och smak. Det temat som får största hjärnaktiviteten från affektiva systemet är den implicita motivatorn. Det temat som får störst aktivitet från det kognitiva systemet är den explicita motivatorn.

De kvalitativa semi-strukturerade intervjuerna följer en intervjuguide som är skapad utav modellen för medvetet beteende (Bridger 2015). Denna modell är tredelad: först frågar forskaren vad respondentens egna attityder är gentemot beteendet, vad respondenten anser om andras beteende, inklusive vänner, och i den sista delen efterfrågas olika hinder för beteendet. I detta fall är beteendet köp av ekologiska

livsmedel. I intervjun frågas också efter vilket av de tre motiven för att köpa ekologiskt som påverkar respondenten mest.

Intervjun mäter det kognitiva systemet, det vill säga den explicita delen av motivation. EEG mäter det affektiva systemet: den implicita delen av motivation. Denna avhandling använder två metoder för att kunna se responsen av båda systemen i konsumentbeteende.

Med att kartlägga det affektiva och kognitiva systemets reaktion hos konsumenter och fråga om deras köpbeteende, kan vi få en bild av hur processen för beslutsfattande ser ut.

## **RESULTAT**

Resultaten presenteras här i två olika delar. Resultaten från EEG-mätningen visar hur aktiva det affektiva och kognitiva systemet är under experimentet. Det affektiva systemet mäts via variabeln "villighet" och kan ha ett negativt eller positivt värde. Desto högre värde variabeln har, oavsett om det är positivt eller negativt, orsakar stimuli en hög nivå av affektiv respons. Det är intressant att se att 7/20 respondenter rapporterade ett ökat beteende för att köpa ekologiska livsmedel, efter EEG experimentet.

Nivån av kognitiv aktivitet mäts med variabeln "kognitiv verksamhet" och kan vara hög eller låg. En låg, negativ nivå av kognitiv verksamhet tyder på att inget medvetet rationellt tänkande skedde i respondenten medan ett högt positivt värde signalerar att stimuli väckte en stark reaktion från det kognitiva systemet.

Om den affektiva responsen är stark så följer en högre nivå av kognitiv verksamhet. Detta illustrerar att det affektiva sker före det kognitiva och orsakar även i viss mån den kognitiva verksamheten. Om en respondent ser något hon gillar på en emotionell nivå, börjar hon sedan tänka på det också på en rationell nivå. Resultaten i denna avhandling stöder påståendet av Zajonc (1980) att den affektiva responsen sker före den kognitiva i konsumentbeteendet.

Via EEG-mätningarna går det att se att det ekologiska tema som fick den största affektiva reaktionen hos respondenterna var smak. Den högsta nivån av kognitiv verksamhet kan

ses i reaktionen till stimuli som hör till temat etik. I intervjun kunde respondenter inte skilja på det kognitiva och affektiva och rapporterade bara en motivation för deras ekologiska konsumtion. Detta var etik. I en jämförelse mellan metoderna kan vi se att båda visar att den explicita delen av motivation gentemot köpandet av ekologiska produkter är av etiska skäl. Den affektiva, eller implicita delen av kundens motivation är smak.

De kvalitativa intervjuerna ger en djupare inblick i beteendet, attityder mot andras beteende, orsaker bakom beteendet och möjliga hinder för beteendet. Under intervjuerna kom det fram att de flesta respondenter ser frekvensen för sin konsumtion av ekologiska livsmedel som den samma som medeltalet. Alla respondenter berättade också att deras beteende har formats via deras familj och att det finns emotioner i dessa minnen. Det var intressant att höra att alla respondenter nämnde att pris är en avgörande faktor medan resultaten inte visade någon skillnad på frekvensen av köpandet av ekologiska livsmedel när man jämförde med respondentens arbetsliv och arbetstider. Medeltalet för en respondent att köpa ekologiska livsmedel är ett par gånger i månaden.

När respondenter köper ekologiska livsmedel visade det sig att kött och mjölkprodukter hör till de vanligaste. Många respondenter sade också att det är en känsla av skyldighet som får dem att köpa ekologiskt.

## **AVLSLUTNING OCH KONKLUSION**

Syftet med denna avhandling är att undersöka samspelet mellan affekt och kognition för att bättre förstå konsumentens beslutsfattande. Denna avhandling visar att den affektiva reaktionen sker före den kognitiva och att den affektiva också påverkar den kognitiva. Några respondenter sade att "det känns bättre" när de beskrev en rationell tanke. Respondenten tolkade ändå inte denna ordanvändning som ett tecken på en affektiv process. Tolkningen här är att affekt och kognition är mycket integrerade medan affekt ändå visar sig vara viktigare i konsumentbeteende och hur man bäst kan påverka kunder via marknadsföring.

Konsumentens beslutsfattande är en komplex process. Genom att förstå hur denna process är uppbyggd kan marknadsförare förstå hur en konsument fattar ett köpbeslut.

När man vet varför och hur någon kommer fram till ett köpbeteende, vet man också hur man kan påverka detta köpbeteende.

För att få konsumenter intresserad måste deras affektiva system ha en stark reaktion. Bara om det händer har konsumenten tid att tänka mera rationellt på köpet. Till exempel i ekologisk marknadsföring kan det bära frukt om marknadsförare fokuserar på att lyfta fram hur bra en produkt är och hur gott den smakar. Därefter kan man visa konsumenten hur produkten är för miljön. Då är miljö faktorn det som får konsumenten att köpa. Det som fångar intresset är bara en egoistisk motivering att sträva efter tillfredställelse. Många respondenter nämnde att vana är ett hinder för att ändra köpbeteendet till mera ekologiskt. En vana uppstår bara om konsumenten upprepar ett visst beteende tillräckligt många gånger så att det sker automatiskt och omedvetet.

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- [www.nielsen.com](http://www.nielsen.com) The Nielsen Company
- [www.google.com](http://www.google.com) Google Image Search
- [www.wholefoodsmarket.com](http://www.wholefoodsmarket.com) Whole Foods

## Commercials

[https://www.youtube.com/watch?v=6Uj\\_FCY\\_qyM](https://www.youtube.com/watch?v=6Uj_FCY_qyM)

<https://www.youtube.com/watch?v=e1fTPCsRMIs>

<https://www.youtube.com/watch?v=8eDKFWHVfdk>

## 9 APPENDIX

### Interview guide

1. Attitudes towards a specific behavior, in this case consumption of ecological produce, and how often the individual does this behavior.

-How often do you buy ecological produce? What do you buy?

-Why do you buy ecological produce?

-Is your motivation based on some feeling? Describe it.

-Is your motivation based on some cognitive thought? Describe it.

-What did you think of the experiment with the EEG?

-Which of these is the most important factor for you when buying ecological produce? -  
TASTE, HEALTH and ETHICS

2. What the respondent considers normal regarding the particular behavior, especially how the respondent's peers behave.

-How often do you think an average person buys ecological produce? Why?

-How often do your friends and family buy ecological produce? Why?

-Is your consumption above or below average? Why?

3. Limitations of the particular behavior.

-Why don't you buy more often ecological produce? Any other reason?

-Why do you choose normal produce over ecological produce?

-Without these limitations, would you buy all your produce ecological?

## **The commercials with EEG**



Healthy Pantry Makeover - Values Matter I Whole Foods Market.mp4

Commercial with the theme “Health”.



Responsibly\_Grown\_I\_Whole\_Foods\_Market.mp4

Commercial with the theme “Taste”



Values\_Matter\_TV\_Commercial-\_Produce\_-\_Values\_Matter\_-\_Whole\_Foods\_Market.mp4

Commercial with the theme “Ethics”