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ATTITUDES TOWARDS NEUROMARKETING

AMONG FINNISH CONSUMERS

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I hereby declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading.

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ABSTRACT

The 21st century came with fast-moving and changing markets, which has led to a situation where everything in today's world is about marketing, as the competition of attention from the consumers intensifies. Naturally market researchers are constantly trying to find new and more effective ways to engage customers with their products. One way to understand customers better and the ways to engage them is neuromarketing.

Through this thesis, the author seeks to gain a more in-depth understanding of Finnish consumers' attitudes and views towards neuromarketing and its use to enhance marketing practices. The research problem of the thesis is "*the limited knowledge about the attitudes of Finnish consumers towards neuromarketing*". This thesis aims to provide a more profound knowledge of which attitudes Finnish consumers hold towards neuromarketing as a concept and for its practices. To gain a more in-depth understanding of this problem, a quantitative approach was selected to conduct an empirical study by using primary data collection through an online questionnaire.

The research findings showed that Finnish consumers are not particularly aware of the concept of neuromarketing and are somewhat sceptical towards the usage of its practices. They see it as an instrument which may affect the subconscious of consumers. To conclude this thesis, Finnish consumers see benefits in neuromarketing from the perspective of companies but not that much from the perspective of consumers.

Keywords: neuromarketing, neuroscience, consumer attitudes, consumer behaviour

INTRODUCTION

The world that we live in today is not the same as many of us grew up in. First, television used to be the device for entertainment, the computer was a device for productivity and the phone was simply a communication device. Then the development of technology came into the picture and everything changed for us. Now, with a just one simple device you can get all those things mentioned above; entertainment, productivity, communication, and much more at the same time. As most of us humans now have a technological device with a screen for our usage, we as consumers can now watch what we want, when we want, where we want, and how we want to. Which has lead marketers into the new era of "*engaging in the age of distraction*".

The digital transformation of our society is also changing the strategies that companies need to make and particularly on the relationships that companies hold with their customers. Brands exist nowhere else than in the mind of consumers and this is not an easy task to keep up as consumers are becoming increasingly demanding, and the evolving technology combined with access to the internet and many social platforms, has made their demands more prominent for the companies. Companies that do not pay attention and listen to their customers, in order to fullfill their needs, wishes and expectations tend to disappear from the markets rather quickly as consumers so called "vote with their feet" and move to elsewhere if they are not satisfied in the first place. It is not a simple task, to understand this new world of ours and the behaviour of consumers connected to it, which has led to an increasing demand also on the companies side to study consumer behavior in more detail. But in order figure out what consumers really want, the research has had to go as deep as to how our brains work and this is where neuroscience comes into the picture.

Consumer neuroscience was developed as a new approach for consumer research to advance the understanding of consumer behaviour based on modern methods and insights from neuroscience. Although the basics of human brain perception are not entirely unknown to scientists and average marketing professionals as through the traditional approaches in marketing research, scientists can measure the emotional and cognitive variables of consumers, but only as they verbally express them on a conscious level. (Iloka, Onyeke 2020).

In fact, this knowledge obtained from traditional behavioural researches has already been applied with marketing practises. As an extension to the conventional research, scientific research of neuroscience, the essential purpose for neuromarketing is to provide a better and deeper understanding of consumer behaviour responses to marketing stimuli, through the measurement of brain processing.

Neuromarketing is a relatively new field of science, which applies neuroscientific research methods such as eye-tracking and functional magnetic resonance imaging of the brain in real-life settings to assess stimuli, in order to find out how consumers make decisions based on the marketing stimuli that is targeted at them. Lee *et al.* (2007) described the term neuromarketing as “*the application of neuroscientific methods in analysing and understanding how humans behave in reference markets and the marketing exchanges*”.

A great deal of scientific and academic research has been done on neuromarketing, focusing on the methods that can be used and how the results can be linked to consumer behaviour. More empirical research should also be done from the consumer's point of view regarding the subject. This thesis on consumer attitudes towards neuromarketing defines ‘the limited knowledge in the attitudes of Finnish consumers towards neuromarketing’ as the research problem. The topic is also a relevant matter as consumer awareness on marketing strategies and campaigns has risen and any bad experiences with a company’s marketing may continue to negatively impact their brand image in the future. Understanding the attitudes of consumers on certain marketing strategies better may therefore help companies to plan their marketing indicatives better. Justification for this research is also the reason to understand the attitudes of the Finnish consumer market better, as there is no such information yet to be on hand concerning the subject.

Through this study, the aim is to provide a profound understanding on what attitudes Finnish consumers hold towards neuromarketing as a concept and for its practises. The research questions of this thesis are created on the three elements of consumer attitudes; affect, behaviour, and cognition. The research questions developed to fulfil the aim of the study are as following:

Q1 - How consumers perceive neuromarketing?

Q2 - Are there differences in the attitudes between different age groups or generations?

Q3 - What are the shared beliefs and knowledge about neuromarketing among the target audience?

Based on these research questions, it is assumed to create a picture of the current situation on attitudes that Finnish consumers hold towards neuromarketing, involving the three elements of attitude formation. To find out answers to these research questions, a questionnaire was formatted and distributed to a sample of Finnish consumers between 18 to 90 years of age.

The thesis is structured with three main parts. The first chapters introduce the reader to the main theories regarding the study's research problem. The author is going to explain the basic concepts neuromarketing, its tools and methods. In addition to the neuromarketing theory discussed, a literature review of attitude formation models as well as the development of neuromarketing is conducted. The second chapter will give an overview on research methodology. Discussing the research design, data collection process, sampling and analysis for the chosen research method, questionnaire. This chapter is expected to give an understanding of the findings that are presented in the data collection, as well as for the analysis stage in chapter three. In the last chapter, the author will give an overview of the results and findings of the empirical part and answer the research questions based on the conducted analysis. Lastly, some suggestions for future research and guidelines for neuromarketing are presented.

The author would like to thank everyone who took part in the online questionnaire and, in particular, express her gratitude to her supervisor Merle Küttim for her professionalism guidance, support, compassion and help during the thesis writing process.

1. LITERATURE REVIEW

This theoretical part will introduce the main theories regarding the framework of the study. Author is going to explain the concept of consumer attitudes as well as the affective, cognitive, and behavioral components of it, which together form the ABC model of attitudes. Following that will be taken a closer look to neuromarketing as a practice and its development over the years. Without forgetting to explain the basic neuroscientific tools and methods used in research.

1.1. Consumer attitudes

Attitude is a widely used concept in consumer behaviour theory and it has been seen as one of the most important drivers of purchase behaviour, as it affects consumers' selective processes and learning, as well as ultimately affects the buying decision making of a consumer.

Ajzen (2000) described attitudes as an individuals inclination to react either positively or negatively to an object or to other aspect of the world of the individual. He also described the difference between attitudes and behaviour to be typically be the degree of correspondence between the evaluation responses of a verbal kind and evaluative responses of the nonverbal kind.

Our attitudes are developed as a result of previous experiences, which is why many attitudes can be tracked back to our childhood. As a result, attitudes also have a cultural component. In general terms, people tend to behave in a manner consistent to their own attitudes, but also, on the other hand, behaviour drives attitudes, and attitudes drive behaviour. (Mooij 1998).

Whether attitudes are viewed from a psychological or sociological perspective, it has a different definition between the contexts. A psychological definition for attitude identifies a verbal expression as a behaviour. A sociological definition of attitude in a turn looks at the verbal expression as an intention to act. (Chaiklin 2011).

The functional theory of attitudes was originally developed by psychologist Daniel Katz, who explained how attitudes facilitate social behaviour. He suggested that beliefs and attitudes include both the affective and the cognitive elements, which describe the object of the attitude and its characteristics as well as its relations to other things. Thus, all attitudes include beliefs but not all beliefs are attitudes and that when specific attitudes are organized into an order of precedence, they construct a value system. (Katz 1960).

Schiffman *et al.* (2014), defined attitudes as a learned predisposition to behave in a consistently favourable or unfavourable way, with respect to a given object. So, it should not come as a surprise that attitude-behaviour relations are learned tendencies to evaluate things in a certain way people, issues, objects, or events.

1.1.1. Affective, cognitive, and behavioural components

Attitudes are learned tendencies that evaluate things in a certain way, and we can be broken into interactions of three components: affective, cognitive, and behavioural or conative, which together form the so called ABC model of attitudes based on the work of Ostrom, 1969.

The elements in ABC model are indicating the fact that all together influence the formation of attitude. Although during the attitude's formation phase one of these elements might be more substantial than the others (Breckler 1984). The ABC model emphasizes the relations between knowing, feeling and doing and by so, it allows researchers to investigate how people feel, think and interact, what attitudes they hold with the attitude object (Solomon *et al.* 2006), which in this case is neuromarketing.

The affective component of attitudes refers to the demonstration of feelings, evaluation or emotions about the attitude object. These can be expressed as a verbal response, with a direct positive or negative expression to the object or as a non-verbal response, for example with facial expressions and body language (Ikechukwu *et al.* 2012). Ajzen (2002) also stated that affective responses can also occur without prior cognition.

Cognitive components on the other hand refers to the knowledge, beliefs, and opinions that the person has about the attitude object. These components of an attitude can be understood by studying a person's accessible beliefs about the attitude object (Ikechukwu *et al.* 2012).

Lastly, the behavioural also called as the conative components of attitude refers to behavioural tendencies towards the attitude object. Conation is also concerned with probability or tendency that the individual will take the action or behave in a positive or negative way towards the attitude object and, thus, may include the actual behaviour itself, but does not require it. (Ikechukwu *et al.* 2012).

Consumers' attitudes towards an attitude object cannot be measured entirely by their beliefs about it as attitudes might be more complicated than that. These attitudes can be expressed as a verbal response, with a direct positive or negative expression to the object or as a non-verbal response, for example with facial expressions and body language (Ikechukwu *et al.* 2012).

To analyse the ABC model further, researchers have developed the concept of a hierarchy of effect to explain the relative impacts on attitude formation, of the three components. (Solomon *et al.* 2006) This model is illustrated in Figure 1 below.

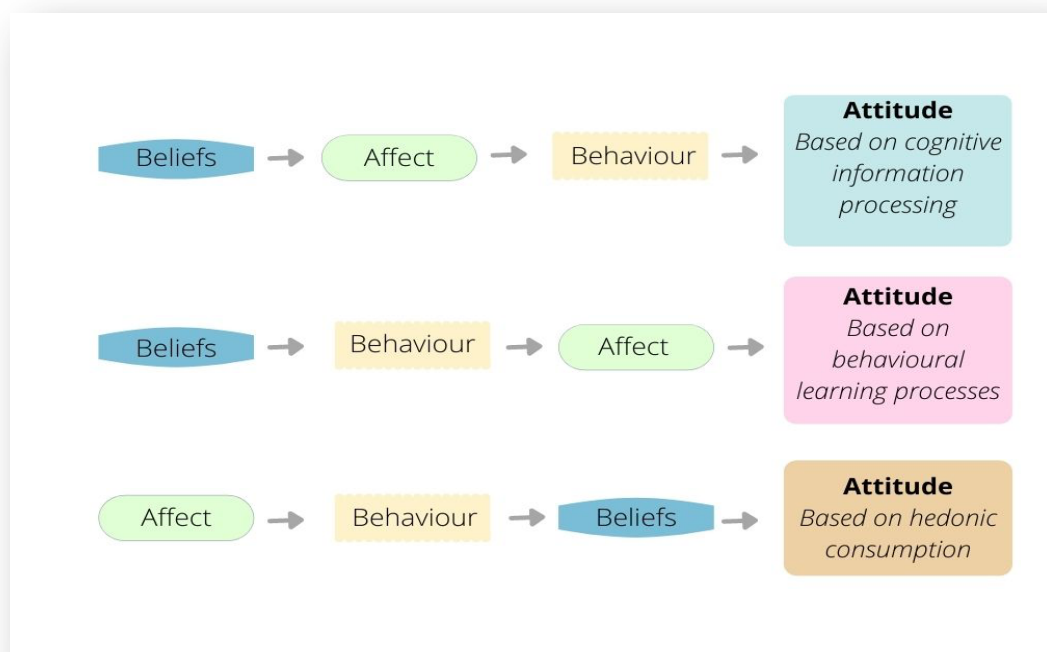


Figure 1. A hierarchy of effects

Source: Solomon *et al.* 2006, elaborated by the author

The hierarchy of effect shows how the different components of attitude formation, influence the factors on which the attitude is fundamentally based on. Depending on the order of these components of cognition, affect and behaviour, the attitude can be based on three different things which form slightly different perceptions for it. Attitude can be based on cognitive information processing, behavioural learning process or hedonic consumption. Hedonic consumption referring to the emotional aspects of consumers' interactions (Hirschman, Holbrook 1982).

1.2. Neuromarketing

Neuromarketing is a new field of marketing research that studies consumers' sensorimotor, cognitive and affective response to marketing stimuli. Fundamentally it can be viewed as the study field which applies the neuroscience techniques to assess and understand the behaviour of humans about the market and economic exchange (Lee *et al.* 2007).

Salati *et al.* (2018) concluded comprehensively neuromarketing's values to be in the insights of consumer behavior which will not only make a difference in our understanding of the needs of customer but also to help in product offerings which actually satisfy end user needs.

Many of our needs, wants and expectations are created in our subconscious and we cannot point them out ourselves. In neuromarketing the research is done on information on general consumer purchase decision making process and its place on the mental, emotional and instinctive level of the brain, which take place in the subconscious brain that is under the levels of controlled awareness (Salati *et al.* 2018).

In fact, neuroscience research has demonstrated that the homo economicus theory for decision making is in the wrong and that emotions and other aspects have a great influence on the decision-making process (Satpathy 2012). This fact is also found in many other studies like in Lindstrom's study (2012) it was found that well over two-thirds of consumer buying behaviour is happening at the unconscious level of the brain. Which means that consumers cannot pinpoint the whole decision-making process of a purchase themselves. By no means consumers are mindless when it comes to buying products and services, as humans do a lot of decisions subconsciously.

Neuromarketing initiatives cannot make the consumers to have a so called “buy button” in their brain, but for sure can subconsciously have an influence on the feelings associated with the purchasing situation or on the decision making process to make a purchase.

Gluth *et al.* (2012), expressed how neuromarketing now makes it now possible to investigate how the central stimuli is perceived, processed, evaluated, reacted, and ultimately utilized by human beings in order to come to decisions in their daily life.

Šola (2013), concluded that where the traditional marketing research of consumer behaviour ends, is where neuromarketing begins. Meaning that traditional marketing has its own limitations on its research and theories. But where their means end, neuromarketing can continue ahead revealing the underlying aspects where traditional marketing research cannot reach.

Always when new technologies emerge, there are many debates and discussions on the subject and whether it is following ethical values or not and like with other new fields, neuromarketing has also got its fair share on this discussion too. During the rise of neuromarketing practices, neuromarketing raised a series of ethical issues, academic as well as professional, given that it consists of a bridge between neuroscience and economics (Fisher *et al.* 2010). Also, the technology used in neuromarketing research has raised a series of discussions on it’s ethical issues. The two main concerns that are arising from the discussions are if neuromarketing has an opportunity for violation of consumers' autonomy and their privacy or not, although the current tools and technological capabilities are still far from the point in which the consumers autonomy would be wiped out completely.

Although, neuromarketing can be defined as marketing research that is carried out for commercial purposes rather than a clinical research. These kinds of applications that benefit from neuroscience and devices are most often seen as a threat and provided with bioethical considerations with business ethics requirements, as the human integrity and identity are in question.

Vlăsceanu (2014), divided these ethical problems of neuromarketing into two categories. The first category has to do with protecting and the protection of different parties which could be suffering damages or be taken advantage of in neuromarketing research. The second category, the issue of protecting consumer autonomy if neuromarketing develops to be a much more efficient tool for detecting consumer behaviour.

What actually brings out the ethical concerns is not necessarily the practices that neuromarketing is using now but more over the possibility for these practices (brain scanning and analysis) to develop too much and that there would be a potential for manipulation in some extent the future.

People representing different points of views (researchers, marketers, consumers etc.) tend to have a different perspective on the subject and its ethics, which also shows, for example, in scientific research papers. Broad criticism towards neuromarketing and its practices is harmful in a way that the negative toned discussion draws tension away from the benefit that neuromarketing could also provide for both marketers and consumers. If the discussion is only lead in a negative way, the perception on the matter also adapts to the eyes of consumers as a negative thing and shapes their attitudes towards neuromarketing.

1.2.1. Development of neuromarketing

Neuromarketing is a relatively new concept in marketing and it is hard to pinpoint exactly when it evolved. But it has been said that the term neuromarketing was first introduced in early 2002 by Ale Smitdts. Also, as not just one person who came up with the concept "neuromarketing" can be pointed out, there are no uniform definitions for it. This has led to the fact that at this point there is almost as many definitions as there are researchers and the term has been defined with confidence by a variety of different sources and these definitions don't all agree.

The author herself would define neuromarketing as the following; Neuromarketing is a relatively new field of marketing research that examines the emotional responses of unconscious and conscious parts of consumers' brains to stimuli, by applying tools, methods, and knowledge from psychology, economics, and neuroscience. Neuromarketing research is mainly carried out by imaging the brain, using a variety of techniques such as eye movement monitoring and functional magnetic resonance imaging.

Analysis of the research results collected by these methods has revealed more reliable information than traditional market research on how the human subconscious responds to what it perceives with the senses and thus influences human behaviour. The results of the behaviour are utilized to develop and promote marketing, to achieve the goals of the commercial marketing strategy.

Oxford University professor, Martin Lindstrom is one of the leading forces of the discipline. He conducted a three year long research on scanning volunteers' brains with modern equipment and examined how they reacted when exposed to different marketing strategies. Lindstrom's research results found that 90% of consumers make their final buying decision on what to buy solely on a subconscious level. These research results indicate that all the decisions we make regarding shopping can be assured to be results from the primitive subconscious part of our brain. (Lindstrom, 2012)

In 2004, Gary Ruskin stated on the matter that neuromarketing is "*a controversial field which uses medical technologies such as fMRI in order to increase the efficiency of marketing campaigns*" (Ruskin, 2004, p.30). What may make neuromarketing a controversial field of research is that it is connected with these brain research methods. However, it must not be forgotten that in some respect, "all marketing is neuromarketing". Since the objective of marketing campaigns is almost always to raise some sort of brain activity on the consumer's end that will lead them towards a desired behaviour like, for example, buying a product.

Fugate (2007), argued that combining neural activity images with conventional tools may produce more effective marketing practices. Furthermore, he made a list from the different concrete areas where neuromarketing had already at that time made advances in understanding consumer behaviour choices. The list included advertisement effectiveness; product appeal; logo and brand selection; media selection; the role of satisfaction; as well as delivering the right sensory elements at the right time.

1.2.2. Neuroscientific tools and methods in marketing

Neuroscientific methods that are generally accepted to generate neurological visualization for neuromarketing purposes can be divided into three categories based on their measuring principles. With these methods, neuroscience creates a context where research can fully explore, how the decisions are made among consumers and relate them to discovering the underlying patterns of attention, attitudes, emotions, and memory (Constantinescu *et al.* 2019).

These three measuring principal categories are metabolic activity recording, electrical activity recording and physiological activity recording. Metabolic activity recording keeps inside techniques like fMRI, which stands for functional magnetic resonance imaging, and positron

emission tomography. From these techniques, fMRI is more known and used in neuromarketing research as it reveals the areas of the brain with a high concentration of haemoglobin through brain scanning. Electrical activity recording in turn, includes EGG(electroencephalography) and Magnetoencephalography techniques. Both of these measurement techniques are conducted by measuring and recording electrical and magnetic flows in the neural system. Lastly physiological activity recording refers to eye tracking and facial coding. Eye tracing uses the visual behaviour to measure the consumer's attention and emotions and facial coding in turn uses electrodes to record facial muscle movements. (Bakardjieva, Kimmel 2017) In addition to these two physiological activity recording methods there also a ways to monitor heart rate and skin conductance, but as an only measurement they are not that revealing but rather a supportive measurement format.

In neuromarketing mostly neural activity inside the brain is recorded and used as it is the most reliable way to analyse the non-conscious reactions of the subjects. To conclude briefly how these methods apply to marketing knowledge is that whit a ways like functional magnetic resonance imaging and EGG the activity of the brain in measured. Eye-tracking shows where we direct our attention and heart rate as well as skin conductance shows us what we find exciting.

Thanks to these neuroimaging techniques, marketers can truly understand the aspects that drives consumers behaviour and by applying these measured information of individuals unconscious responses to a larger scale of initiatives, marketing can be made more effective.

2. RESEARCH METHODOLOGY

2.1. Research design, data collection and analysis methods

The research for this thesis was conducted with two main approaches. Firstly, in order to gain a more thorough understanding of the topics neuromarketing and consumer attitudes, in order to analyse collected data and results, a thorough review of available literature and additional materials was conducted. Materials that were used to obtain the acquired information were in the forms of scholarly articles, journals, and books. For the primary data collection, a quantitative research design was used, with a non-experimental research method, questionnaire as a instrument for collecting the data for the analysis. Quantitative method was chosen as it allows the author to conduct a more extensive study by gathering more data, compared to other methods.

The primary data collection was conducted by creating the questionnaire in the Google forms platform, provided by Google Inc. After the questionnaire was formed, a pilot test was sent to a small pilot audience, in order to test how the data collection process will work in the real study. By pretesting the questionnaire, it was possible to minimize possible problems which may arise during the data collection beforehand. When the validity of the questionnaire was ensured, the questionnaire was shared on different online platforms, such as LinkedIn and Facebook, from which it was further distributed by the respondents. To also reach out to the older generations of respondents, the questionnaire link was also distributed by mail in a few neighbourhood areas in southern Finland.

The questionnaire was open for five days during April 2021. In the questionnaire, 20 questions were asked from the participants regarding their demographics and opinions towards neuromarketing related questions, in order to measure their attitudes. When forming the questions, the ABC model was used as a help in order to analyse the data afterwards within the framework of the model. The questions included open-ended and single response questions, as well as Likert scales, which offered a chance to gain a deeper inside the attitudes and opinions of the participants.

The online questionnaire that was used in the data collection is represented in appendix 1. and the division of responses of the online questionnaire with respective graphics are presented in appendix 2.

Since the objective of the research is to measure the consumer attitudes towards neuromarketing, the questionnaire was conducted by using the five-point Likert scale for measuring the psychometric responses of the participants. Respondents were asked to indicate their degree of agreement with the statements; 1 indicating strong disagreement and 5 indicating strong agreement. A higher score indicating a positive attitude and a lower score in turns indicating an unfavourable attitude towards the statement, the midpoint being a neutral item (Sullivan, Artino 2013). The statements were designed to be both in negative and positive frames in order to avoid biases, overly agreeing or disagreeing from the respondents in order to represent themselves in a better light.

2.2. Sampling and sample

The target population for the data collection was Finnish consumers between the ages of 18-90 years old. Such a wide range regarding the target audience ages was selected in order to get a better understanding on the differences of attitudes on neuromarketing practices, which might differentiate between different generations.

In order to get a comprehensive representation of the 10% of the total population, a sample size from the population was narrowed down to be 139 or more respondents respectively with subgroups, with a confidence level of 95% and margin error of 5%. The respondents of the survey were selected by using non-probability convenience sample, where the participants are selected based on availability and willingness to participate. To avoid some biases and especially an underrepresentation of older generations (ages between of 70 to 90), snowball sampling was used to help recruit more respondents from the population group of interest.

The data analysis relied on the data gathered from the online questionnaire, which had 166 respondents in total. The author analyses the data from the perspective of consumers' attitudes and neuromarketing discussed in the theory. For this data-analysis, the author will cover the questionnaire sections by respect of their original order; demographics of the respondents, general opinions and attitude measurement.

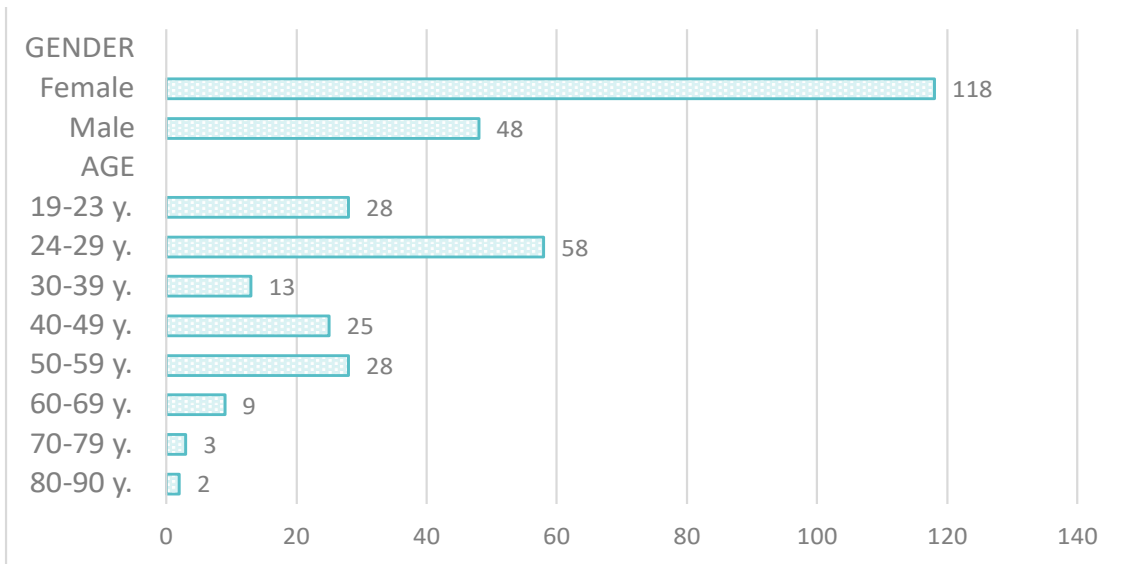


Figure 2. Socio-demographics among respondents, $n=166$
 Source: Raitanen (April, 2021) author's calculations

The socio-demographic profile of respondents is shown in above in Figure 2. Majority of the respondents 71% were women and 29% were men, so the representation of each gender was slightly uneven. 35% of these respondents were young adults, between 24 and 29 years of age. In addition, middle-aged and people under 24 years of age were comprehensively represented. In the group of older generations, as the age of the respondents increased the number of respondents decreased. This was to be expected due to the used format, an online survey, and the access of older individuals to it.

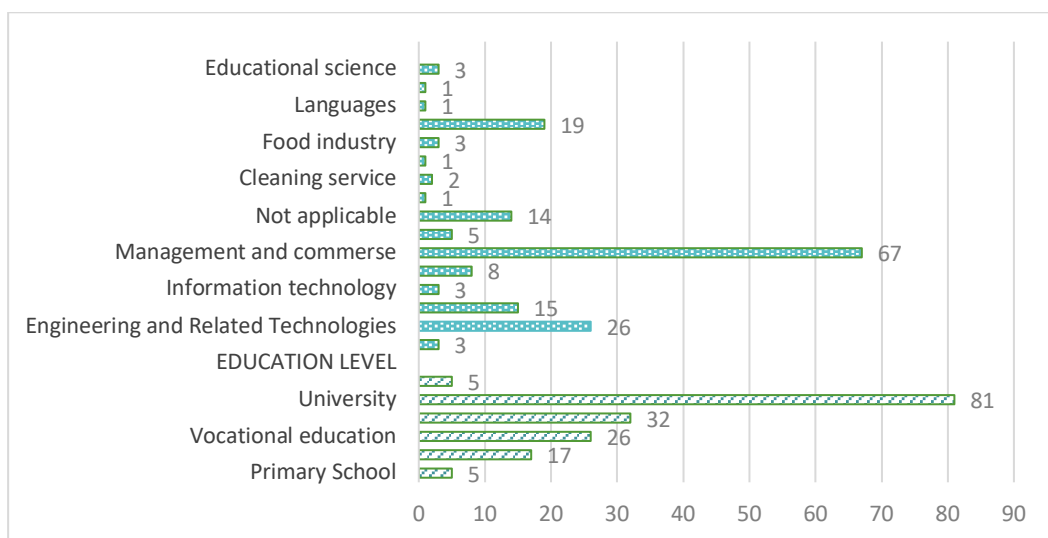


Figure 3. The level of education of the respondents, $n=166$
 Source: Raitanen (April, 2021) author's calculations

In Figure 3, the level and distribution of education fields among the respondents are represented. It can be seen that the total level of education among the respondents was relatively high, as 52% of the respondents were educated at university or at a higher level. Studies in economics (*management and commerce*) also proved to be the main education field among the respondents with a 39% answer rate, engineering, and related technologies were second with 15% of the answer rate.

3. FINDINGS AND DISCUSSION

3.1. Findings

Before continuing to the next section of the questionnaire, the level of knowledge on neuromarketing among the respondents was measured. This information is shown in Figure 4. And as can be seen from the results, the awareness of neuromarketing was rather low among the Finnish consumers. Up to 64% of the survey participants had never heard of neuromarketing, 31% said that they have heard about it and only 5% of the respondents also knew what it is.

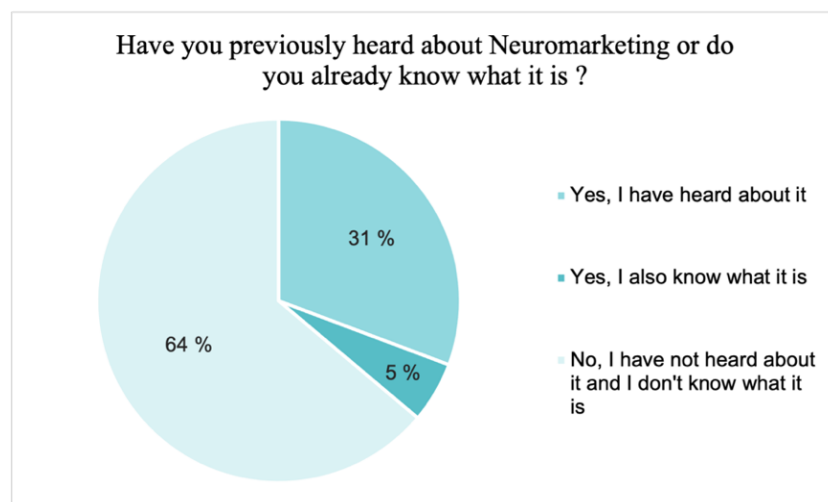


Figure 4. The level of awareness about neuromarketing, , $n=166$

Source: Raitanen (April, 2021) author's calculations

Although the awareness of neuromarketing was rather low, in the next section (Figure 5) where general opinions of the respondents were measured, 48 % of the respondents indicated that they were interested to learn more about neuromarketing. While 35% answered maybe and only 17% didn't care to learn more about it. From this it can be interpreted that consumers in general would probably also want to know more about the methods used to make marketing more effective, as

roughly half of the respondents of this study indicated that they were interested in learning more about neuromarketing.

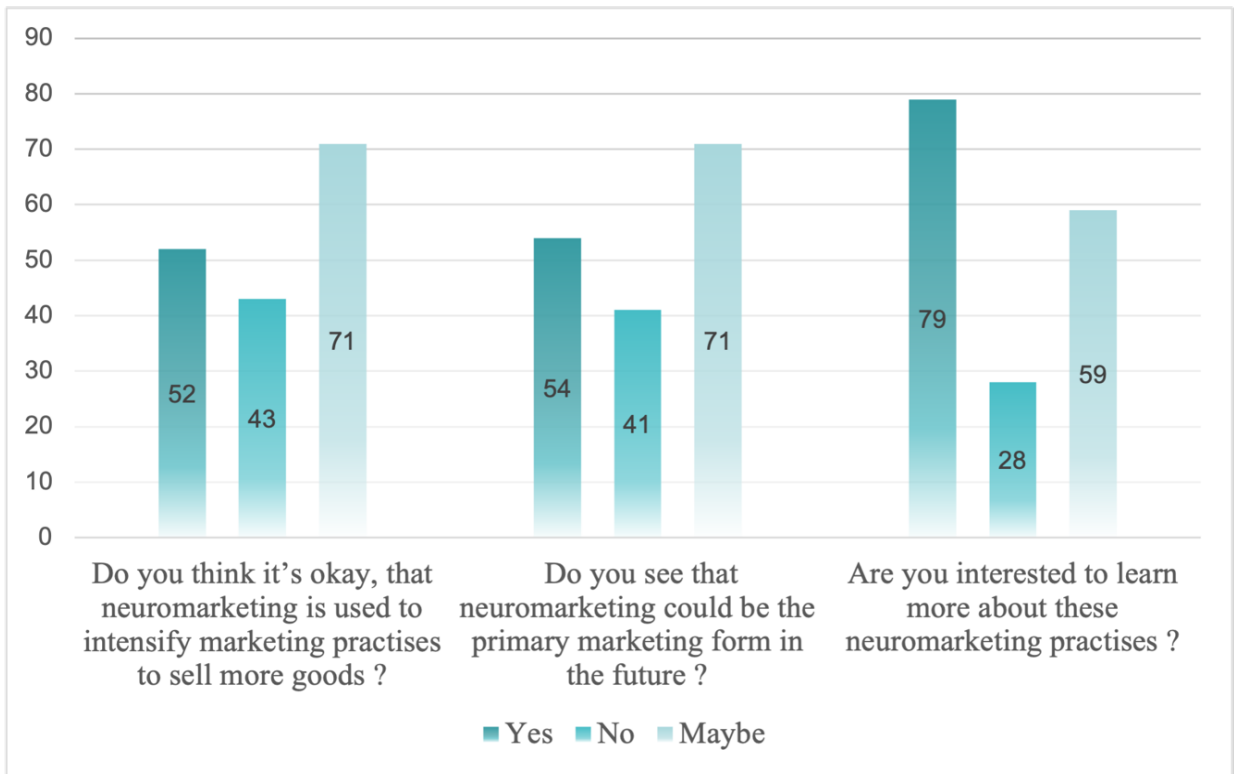


Figure 5. General opinions of the respondents on the usage of neuromarketing, $n=166$
 Source: Raitanen (April, 2021) author's calculations

In section two (Figure 5), respondents were also asked to answer multiple choice questions after reading a short description on what neuromarketing is and then answer with yes or no answers. Respondents were also given the option to leave an open answer to the questions, where a few of the respondents left open answers on their opinion of the question *Do you think it's okay, that neuromarketing is used to intensify marketing practices to sell more goods?*. People who left an open answer to this question were all educated at university level and either middle-aged around 50 years of age or very young adults between 20 to 22 years of age

The open answers showed a cognitive component of attitudes with a quite concerned tone and pointed out the benefits, as well the disadvantages, that they saw in neuromarketing. Answers mainly indicated that, from the consumer's point of view, if neuromarketing is used to intensify marketing practices it only should be allowed if it leads to improving the products. But using it to improve the selling of goods should be prohibited as it was seen to be able to take advantage of shortcomings in human psychology. On the contrary, from the companies' perspective, it was

understood to be a good option to utilize neuromarketing to intensify marketing practices to sell more goods and increase their sales. As the respondents also indicated their concern on the overconsumption matter, the responses revealed their desire to utilize neuromarketing practices to help consumers buy smarter, rather than tailoring marketing to consumers' needs, as needs are rather conceptual.

Looking at the same questions as in Figure 5, from another perspective and taking into account only the respondents who indicated that they know what neuromarketing are or at least are aware of it. This way only 59 responses from the total of 166 could be considered and the results show more significant difference in questions 6 and 8. This difference can be seen in Figure 6 below. It could be said that from the people that were aware of neuromarketing the responses were less negative, in the use of neuromarketing as intensifying factor on marketing practices as well as the interest for knowing more about it, in a relation to when the people who didn't know about it where also counted in.

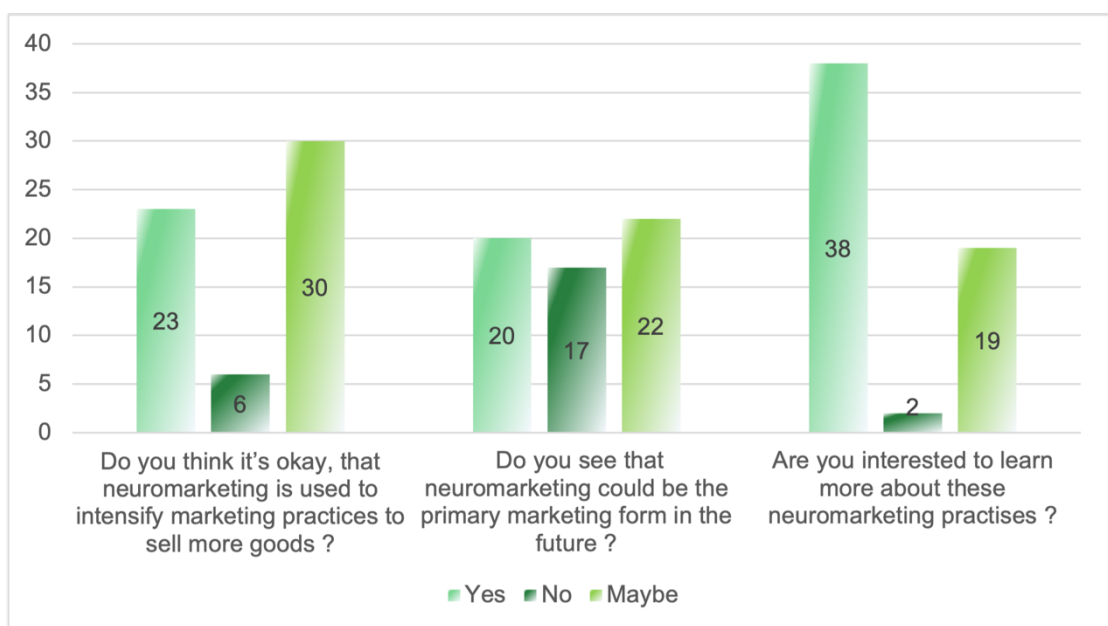


Figure 6. General opinions of the respondents of whom answered yes in questions on Figure 4, $n=59$ Source: Raitanen (April, 2021) author's calculations

In the last part of the questionnaire, respondents were asked to indicate their level of agreement or disagreement with a Likert scale. Interestingly, 46% of the respondents agreed and 13% strongly agreed with their willingness to receive information about products that are tailored to their needs

and most of the respondents also saw it as a positive thing that the newest advantages in scientific methodology are used in marketing.

More than two-thirds of the respondents who expressed a positive attitude also agreed that, from a company’s perspective, neuromarketing is a beneficiary for marketing strategies and that it is also an instrument that exposes vulnerable people to manipulation.

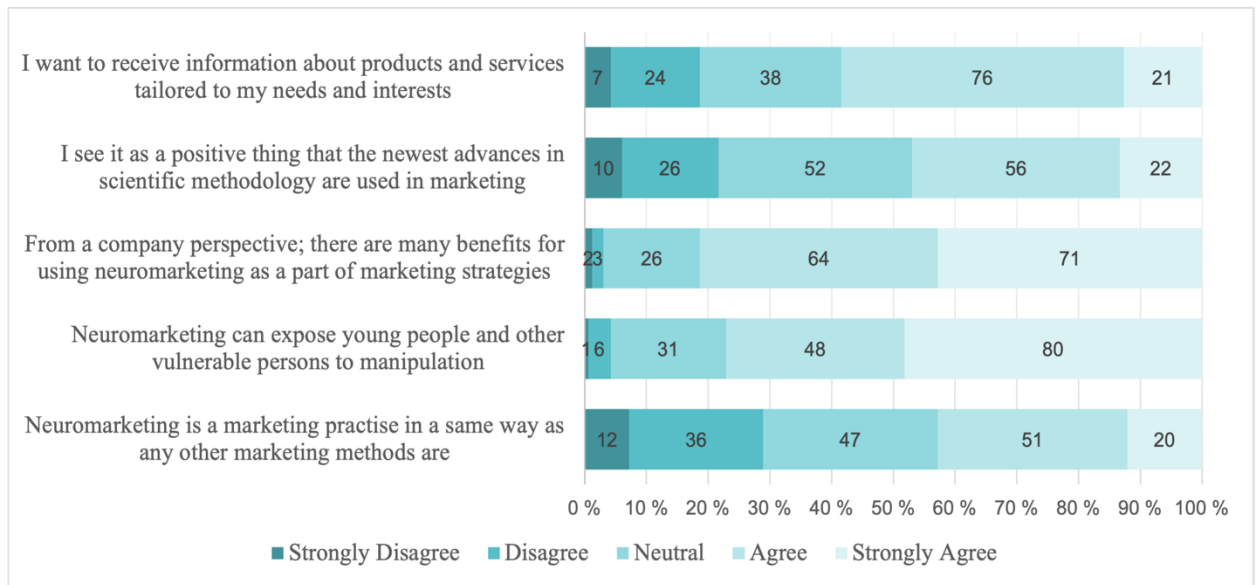


Figure 7. Respondents attitude on neuromarketing practices, $n = 166$
 Source: Raitanen (April, 2021) author’s calculations

Also if examining just the age factor influencing the attitudes and perceptions of the respondents. From the age of 60 to 90, the questionnaire got total of 14 respondents, from which 3 persons with an university degree had heard about it but didn’t know exactly what it was. From this group the general attitude was that they do not prefer neuromarketing practices as they can influence consumers buying behaviour and it is not the same as the more traditional marketing practices. But at the same time it was seen as a very good thing for companies to have and not violating of consumers privacy. At the same time looking at the responses from people under the age of 25, which were in total 62 respondents. From these respondents 27 had heard about neuromarketing and 1 of them also knew what it is and also this time around too all of the respondents that indicated hearing from neuromarketing were university students. The use of neuromarketing practices were seen as a really positive thing from both consumers and companies point of view. With a younger generation it could also be seen that the overall atmosphere for neuromarketing was indicating more of a positive attitude association.

Comparing the both ends of the respondents age group the results clearly indicate that, with a younger generation the attitudes towards marketing and specially neuromarketing practices are seen as a positive helpful thing and with a older generation it is seen more as a pointless thing from a consumer perspective. But what is common with both age groups is that people attending higher education have heard about.

As can be seen below (Figure 8). 85 % of the respondents agreed or strongly agreed on the fact that neuromarketing can affect unconsciously consumers behaviour. Although, at the same time, only 60 % of the respondents agreed or agreed strongly on the fact that the practices could influence their own final decisions to purchase something.

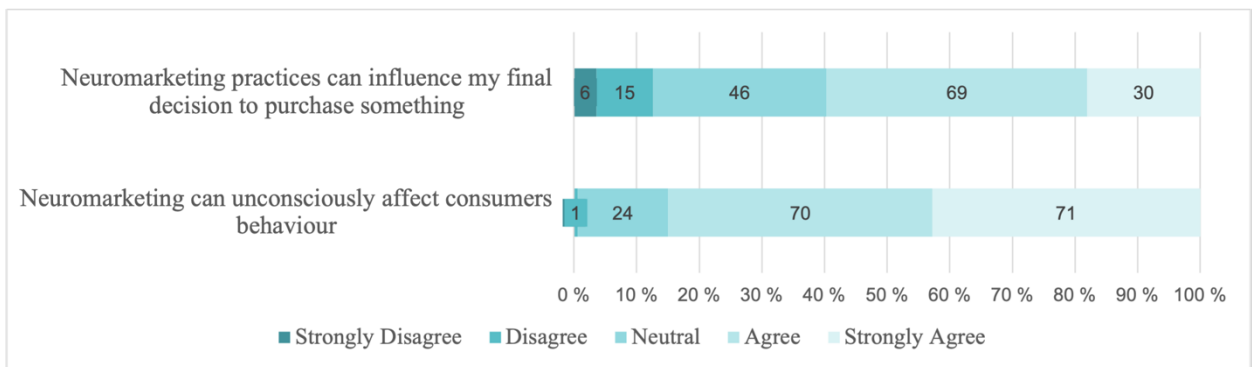


Figure 8. Attitudes on neuromarketing’s effectiveness to the subconscious, $n = 166$
 Source: Raitanen (April, 2021) author’s calculations

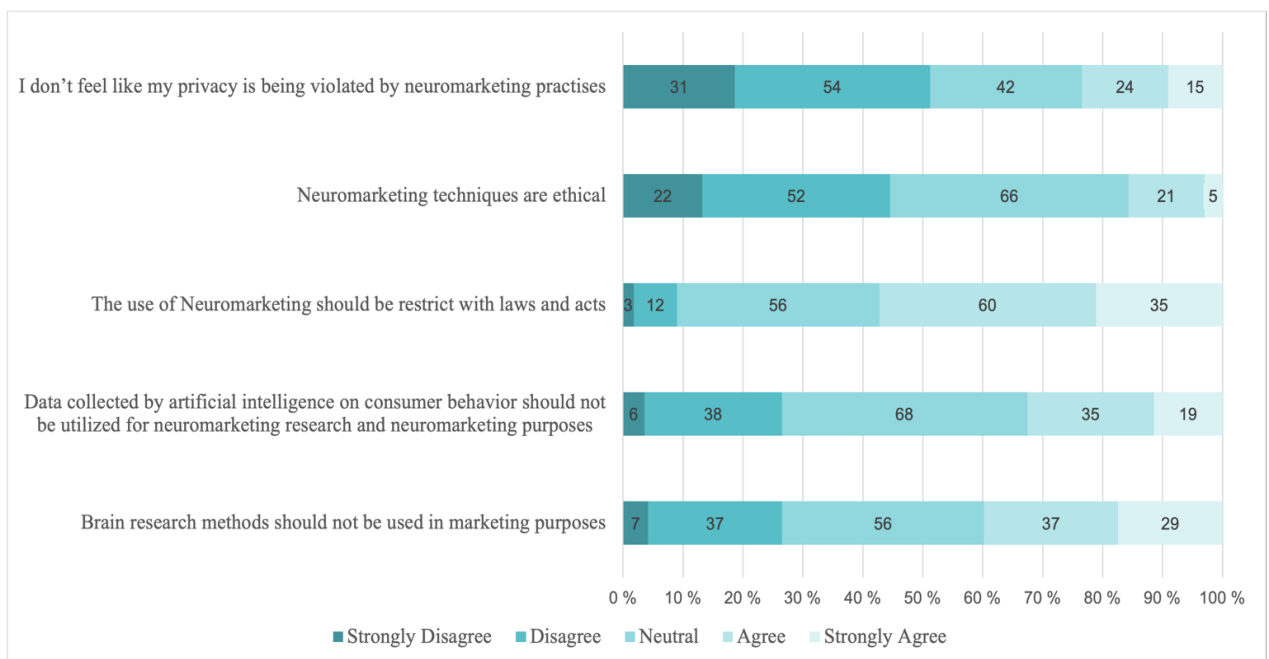


Figure 9. Attitudes to privacy and restrictions of neuromarketing, $n = 166$
Source: Raitanen (April, 2021) author's calculations

Continuing to measure the respondents' attitudes on Likert scale, in Figure 9. The same amount of respondents agreed and disagreed on whether brain research methods should be used in marketing purposes or not. But with strong agreements calculated, 47% of the respondents indicated a positive attitude for the statement that brain research methods should not be used in marketing purposes with 57% of the responses indicating that neuromarketing practices should also be restricted by laws and acts. 52 % of the respondents expressed negatively that they feel like their privacy is being violated by neuromarketing practices.

3.2 Discussion

Since neuromarketing is such a recently emerged field, there is still a lot of questions on the matter on what it is, how it is actually applied and what contributions and limitations does it have etc. The general awareness of neuromarketing among the respondents was very low, without even taking into account the people who have heard of the subject and also know what it is.

Many of the questioning attitudes on neuromarketing practices that arise on this research can be explained on the fact that as our attitudes are developed as a result of previous experiences (Mooij, 1998), it is harder to show excitement and positive attitudes on some matter that you do not know anything about.

The results from the conducted questionnaire mostly indicate cognitive components of attitudes. They also revealed that the respondents' attitudes to the strength of neuromarketing practices are stronger when it doesn't apply to them, which can be seen from Figure 8. Neuromarketing was seen as an effective way to engage other consumers but the attitudes showed, however, that these practises would not work as well for the respondents.

Also, if the insights that neuromarketing techniques offer were used more already at the product design stage to find out what consumers really need and want, companies could do more than just persuade consumers to buy more products. Utilizing the information to also make the products better will increase their quality and through it increase sales and company's profitability. Offering consumers more needed quality products is also connected to a lower risk of generating waste and

products been tossed away. By doing so and not limiting the advantages only for neuromarketing purposes there could be possibility to contribute also on the environment issues and saving resources by avoiding overproduction and flop products.

Also, the author agrees with many other researchers on the fact that there are no real reasons for why the marketing field should not benefit from neuroscientific tools and that neuromarketing should be seen as a new emerging field with many benefits, and feels that it is very unlikely that neuromarketing can influence consumers in such an extent that there would be a so called “buy button” on consumers’ brains. But to avoid uncertainty among the people, common regulations and laws should be defined for neuromarketing practises. By setting down real legislation on the matter, it could help the sceptics to calm down and the ethical discussion on the matter to subside, also giving room for positive discussions on the benefits of neuromarketing. What the author would also suggest for further studies would be to utilizes neuromarketing’s own research methods to study consumer perceptions of neuromarketing. By doing so, more in-depth information could be obtained, and the subconscious responses of the consumers could be revealed.

Summing up the detailed recommendations for industry and further research;

- A common definition of the term should be defined
- Real regulations for the use of neuroimaging practises should be put in place
- Utilize the neuromarketing research methods in future research in addition to literature
- Exploring additional opportunities for neuromarketing practices also in other fields

CONCLUSION

The research problem of this thesis was stated as the *limited knowledge in the attitudes of Finnish consumers towards neuromarketing*. To find out answers for this problem, this research aimed to provide a deeper knowledge on what attitudes Finnish consumers hold towards neuromarketing practises and their implementations on marketing, based on quantitative analysis of a primary data collection which was carried out through an online questionnaire on Google Forms. The questionnaire included 20 questions regarding the participants demographics, general opinions as well as their attitudes measured with questions on the Likert scale. The questionnaire had a total of 166 respondents, of which only 59 of them had some level of knowledge about neuromarketing.

To support the research problem, three research questions were set for this thesis. The first research question was '*how do consumers perceive neuromarketing?*' The results from the data analysis indicate that the respondents perceived neuromarketing to be marketing practice in a same way as any other marketing methods are and saw it mainly as a positive thing that the newest advantages of research and technology development are also utilized in marketing.

As an answer to the second research question, "*are there differences in the attitudes between different age groups or generations?*". Yes, there are differences in the attitudes between different generations. The results show that older generations of 65 or more years of age are rather indifferent to neuromarketing practises, as well as to marketing in general. Their responses indicated more the fact that they don't want individually targeted marketing used for them and neuromarketing in general is not a positive thing.

For the third and last research question, "*what are the shared beliefs and knowledge about neuromarketing among the target audience?*". Through the research, it was found out that neuromarketing was believed to expose young and other vulnerable persons to manipulation if exposed to the practices. But, at the same time, it was also seen as a marketing practice in a same way that any other marketing method would be.

Although the researchers and practise audiences still have different perceptions about neuromarketing development and applications of knowledge in it (Butler, 2008) neuromarketing has been found out to have many positive and promotional effects on the marketing industry. It has the means to provide quantitative data back to the marketer and, most importantly, it can bring a change in the quality of advertisements and marketing strategies that are implemented.

Neuromarketing will also allow researchers to, furthermore, improve the existing consumer behaviour theories, without the impact of consumers' unconscious matters affecting the theories. However, the scope to which it is ethically justified to use this technique is hard to determine. The ethics in this case do not only deal with the ethics of neuromarketing, but with the ethics of marketing in general. Neuromarketing is not a completely separate field, but more like one division of the entire field of marketing.

To better understand the implications of these results of the study, future studies could address consumers attitudes towards neuromarketing on a broader scale, by performing a larger study which was not possible due to time limitations in this bachelor's thesis. Also more use of neuromarketing research methods could be made in order to get responses to subconscious results in order to obtain objective answers. The author would also suggest that a uniform definition for neuromarketing should be defined to facilitate disagreements and, in particular, to reduce misunderstandings about the term and, thus, the content of the field.

As neuromarketing can offer us answers on matters like how consumers react to a product; its design, colour, idea etc. The new information on consumer behaviour provided by neuromarketing research applications can be helpful for marketing experts in order to create more effective products and services. Neuromarketing research findings also show that it is a revolutionary area of marketing, but it is not going to replace the common marketing mix. Based on these conclusions, practitioners should consider implementing neuromarketing practises in their marketing strategies confidently and being open about it to consumers.

At the end of the day, it is almost impossible for consumers to escape the hundreds and thousands of advertisements that we see every day in the influx of ads. In the past, companies had to rely mostly on luck for their ad campaigns to succeed. Now, with neuromarketing, companies can better understand their consumers and predict exactly why they make the purchases that they make and, therefore, in the future of marketing, neuromarketing will keep rising. Companies will continue to employ research techniques to help market their products in a way that they catch the consumer

and, at the same time, continue to utilize neuromarketing research in order to get to the root of why humans behave in the way that they do.

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APPENDICES

Appendix 1. The online questionnaire



Section 1 of 4

Consumer Attitudes Towards Neuromarketing

Hello,

This survey is conducted as a primary data collection method for a Spring 2021 Bachelor's thesis in Tallinn University of Technology, department of International Business Administration.

The objective of this questionnaire is to gain a more in-depth understanding on how consumers from different age groups see neuromarketing practices and what attitudes they have towards it.

Filling out this questionnaire will take approximately 4 to 7 minutes of your time. Please try to answer the questions as truthfully as you can. All the answers will be stored anonymously and treated with confidentiality.

Thank you for taking the time to fill out this survey. 😊

1. Age *

Short answer text

.....

2. *

Male

Female

Other...

3. Education *

- Primary School
- High School
- Vocational education
- University of Applied Sciences
- University
- Postgraduate degree in science (doctor, licentiate etc.)
- Other...

4. Primary education *

- Engineering and Related Technologies
- Health
- Information Technology
- Law
- Management and commerce
- Natural and Physical Sciences
- Society and culture
- Not applicable
- Other...

5. Have you previously heard about Neuromarketing or do you already know *

- Yes, I have heard about it
- Yes, I also know what it is
- No, I have not heard about it and I don't know what it is
- Other...

Neuromarketing



Shortly described;

Neuromarketing is a relatively new field of marketing research that examines the emotional responses of unconscious and conscious parts of consumers' brains to stimuli by applying tools, methods, and knowledge in psychology, economics, and neuroscience.

Neuromarketing research is mainly carried out by imaging the brain, using a variety of techniques such as eye movement monitoring and functional magnetic resonance imaging.

Analysis of the research results collected by these methods has revealed more reliable information than traditional market research on how the human subconscious responds to what it perceives with the senses and thus influences human behavior.

The results of the behavior are utilized to develop and promote marketing, to achieve the goals of the commercial marketing strategy.

In essence, neuromarketing is designing the content on advertisements, websites etc. in order to evoke the consumers' neurological reactions that are associated with buying or emotions linked to it.

After reading this short definition of neuromarketing please answer the following questions according to your beliefs on the matter.

6. Do you think it's okay, that neuromarketing is used to intensify marketing practises to sell more goods ? *

- Yes
- No
- Maybe
- Other...

7. Do you see that neuromarketing could be the primary marketing form in ? *

- Yes
- No
- Maybe
- Other...

8. Are you interested to learn more about these neuromarketing *

- Yes
- No
- Maybe
- Other...

After section 2 Continue to next section

Section 3 of 4

Your attitudes

Please answer the following questions by choosing the number best describing your personal attitudes towards neuromarketing.

- 5 - Strongly agree
- 4 - Agree
- 3 - Neutral
- 2 - Disagree
- 1 - Strongly disagree

9. I want to receive information about products and services tailored to my needs *

- | | | | | | | |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------|
| | 1 | 2 | 3 | 4 | 5 | |
| Strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly agree |

10. I see it as a positive thing that the newest advances in scientific methodology are used in marketing

- | | | | | | | |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------|
| | 1 | 2 | 3 | 4 | 5 | |
| Strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly agree |

11. From a company perspective; there are many benefits for using neuromarketing as a part of marketing strategies *

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

12. Neuromarketing practices can influence my final decision to purchase *

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

13. I don't feel like my privacy is being violated by neuromarketing *

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

14. Neuromarketing techniques are *

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

15. Neuromarketing can unconsciously affect consumers *

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

16. Neuromarketing can expose young people and other vulnerable persons to *

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

17. Neuromarketing is a marketing practise in a same way as any other marketing *

1 2 3 4 5

Strongly disagree Strongly agree

18. The use of Neuromarketing should be restrict with laws *

1 2 3 4 5

Strongly disagree Strongly agree

19. Data collected by artificial intelligence on consumer behavior should not be utilized for neuromarketing research and neuromarketing purposes *

1 2 3 4 5

Strongly disagree Strongly agree

20. Brain research methods should not be used in marketing *

1 2 3 4 5

Strongly disagree Strongly agree

After section 3 Continue to next section

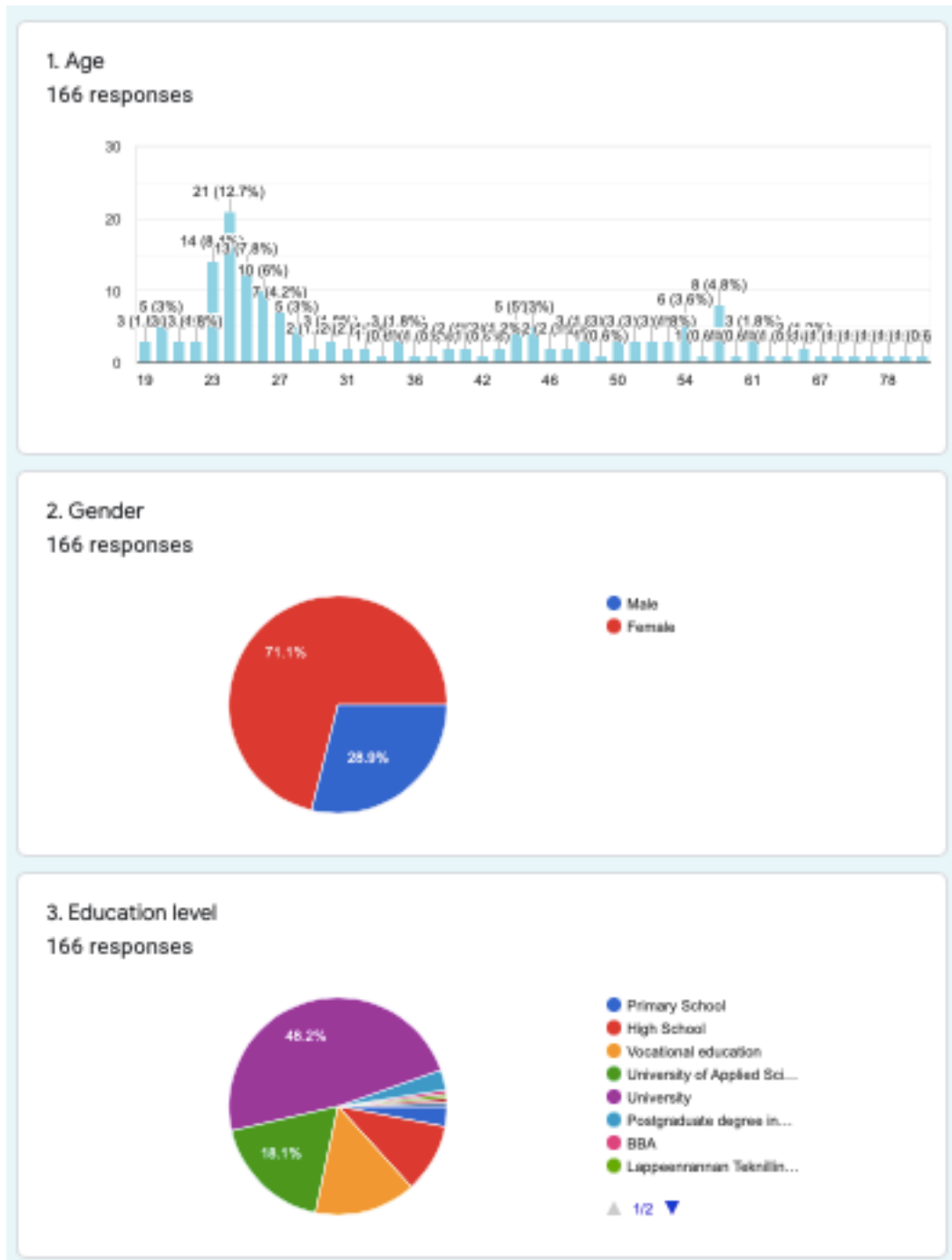
Section 4 of 4

Now is time to submit !



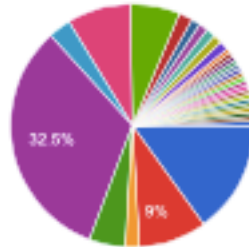
Press the submit button.
Thank you for your time :-)

Appendix 2. Division of responses of the online questionnaire



4. Primary education field

166 responses

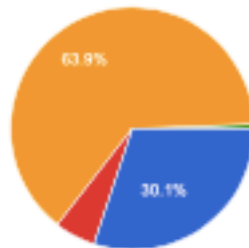


- Engineering and Related
- Health
- Information Technology
- Law
- Management and communication
- Natural and Physical Sciences
- Society and culture
- Not applicable

▲ 14 ▼

5. Have you previously heard about Neuromarketing or do you already know what it is ?

166 responses

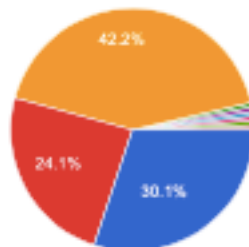


- Yes, I have heard about it
- Yes, I also know what it is
- No, I have not heard about it and I don't know what it is
- Heard about it, but not completely sure what it is

Neuromarketing

6. Do you think it's okay, that neuromarketing is used to intensify marketing practises to sell more goods ?

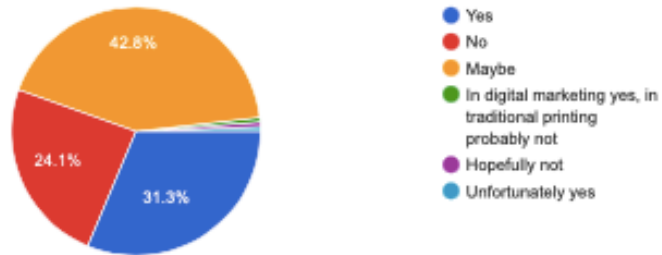
166 responses



- Yes
- No
- Maybe
- Maybe, depending how it is used. Good for the company
- not sure if it is ok to use...
- Sounds scary
- I don't think selling more goods is good
- on some level yes, how...?
- Yes and no. As long as it's not too much

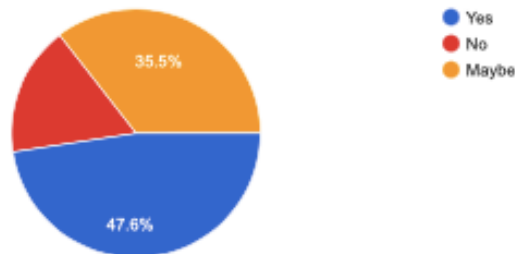
7. Do you see that neuromarketing could be the primary marketing form in the future ?

166 responses



8. Are you interested to learn more about these neuromarketing practises ?

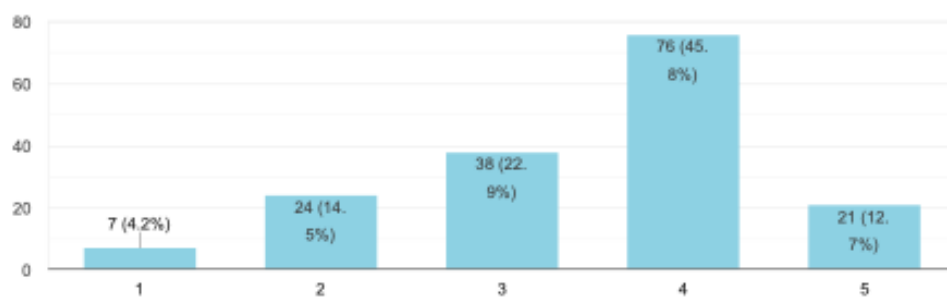
166 responses



Your attitudes

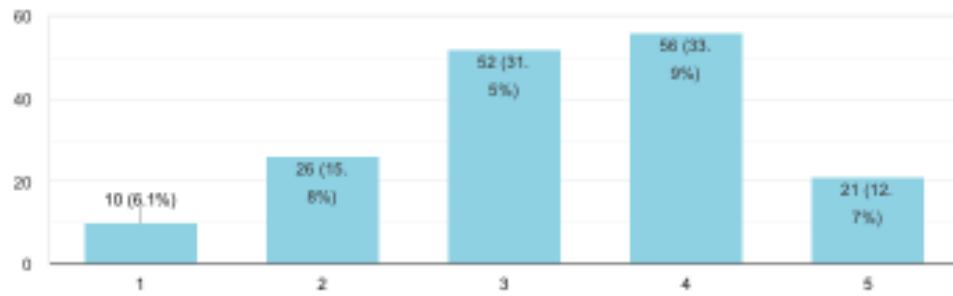
9. I want to receive information about products and services tailored to my needs and interests

166 responses



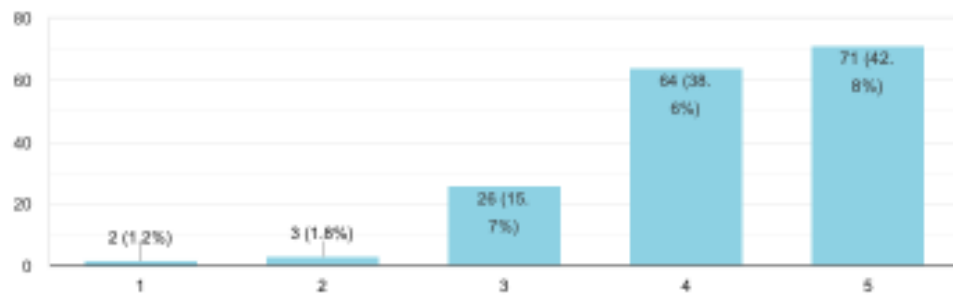
10. I see it as a positive thing that the newest advances in scientific methodology are used in marketing

165 responses



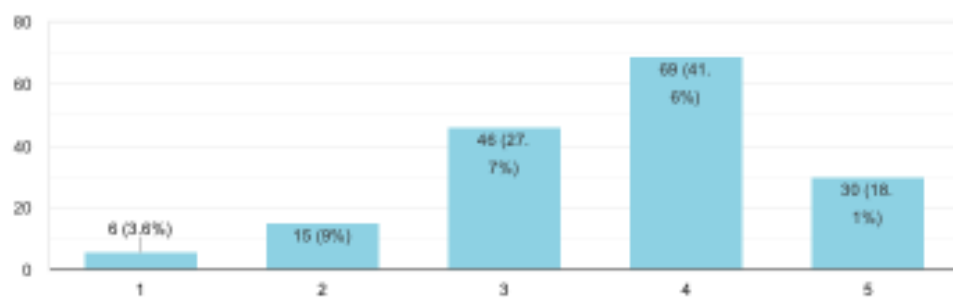
11. From a company perspective; there are many benefits for using neuromarketing as a part of marketing strategies

166 responses



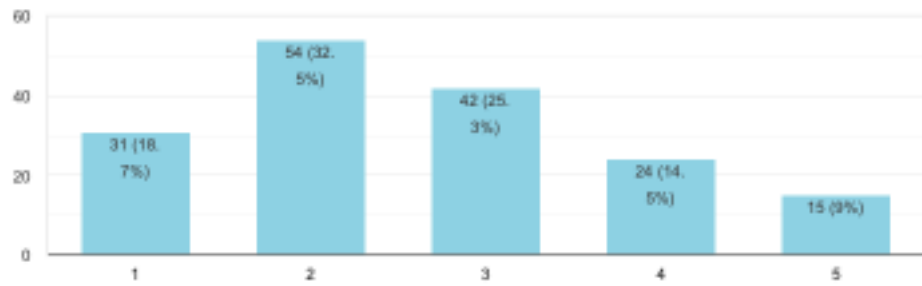
12. Neuromarketing practices can influence my final decision to purchase something

166 responses



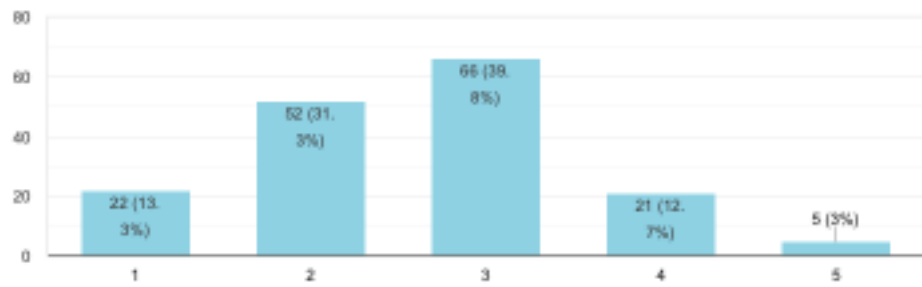
13. I don't feel like my privacy is being violated by neuromarketing practises

166 responses



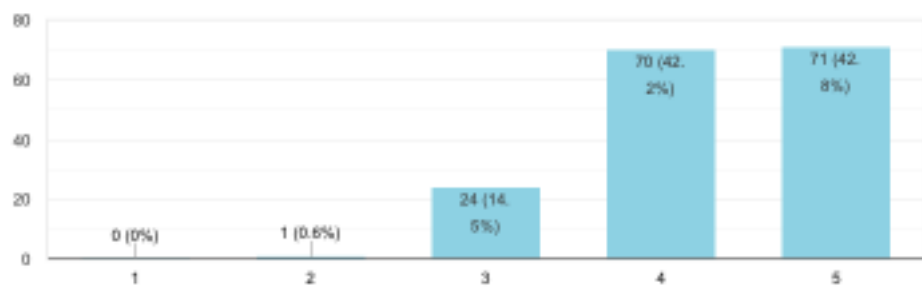
14. Neuromarketing techniques are ethical

166 responses



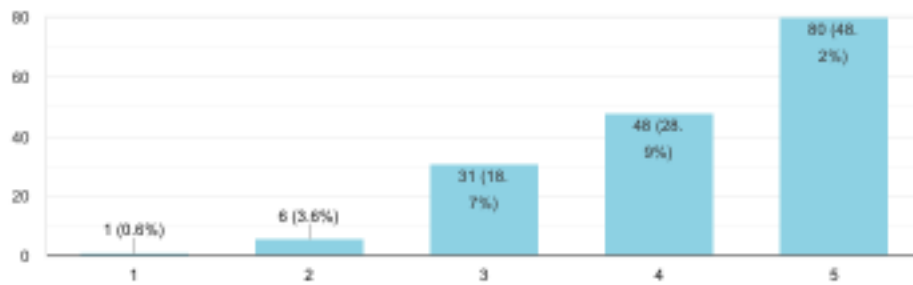
15. Neuromarketing can unconsciously affect consumers behaviour

166 responses



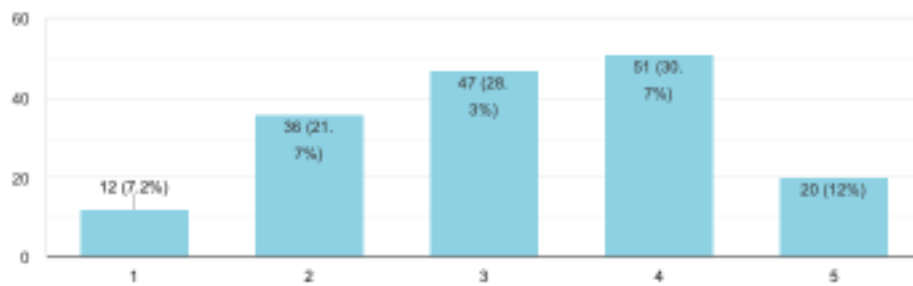
16. Neuromarketing can expose young people and other vulnerable persons to manipulation

166 responses



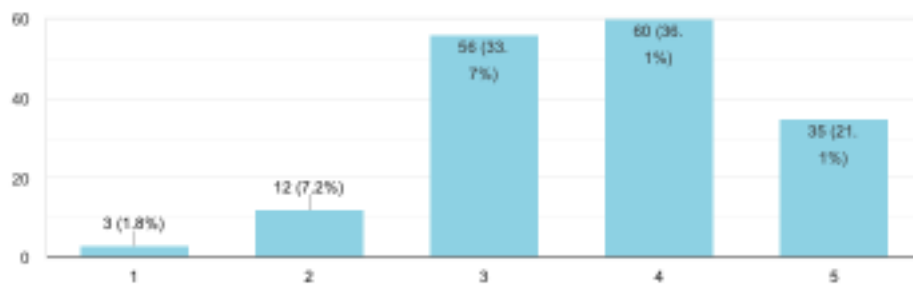
17. Neuromarketing is a marketing practise in a same way as any other marketing methods are

166 responses



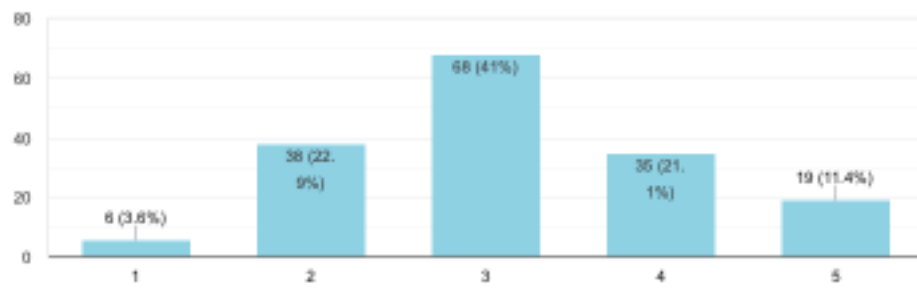
18. The use of Neuromarketing should be restrict with laws and acts

166 responses



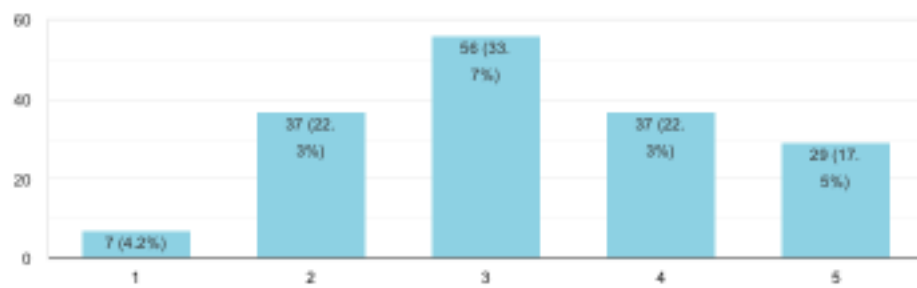
19. Data collected by artificial intelligence on consumer behavior should not be utilized for neuromarketing research and neuromarketing purposes

166 responses



20. Brain research methods should not be used in marketing purposes

166 responses



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