UNIVERSITY OF LJUBLJANA
SCHOOL OF ECONOMICS AND BUSINESS

MASTER'S THESIS

MANAGING CONSUMERS' ATTENTION USING COGNITIVE HEURISTICS

Ljubljana, September 2024 ŠPELA KAVČIČ

AUTORSHIP STATEMENT

The undersigned Špela Kavčič, a student at the University of Ljubljana, School of Economics and Business, (hereafter: SEB LU), author of this written final work of studies with the title Managing consumers' attention using cognitive heuristics, prepared under supervision of prof. dr. Mateja Kos Koklič

DECLARE

1. this written final work of studies to be based on the results of my own research;

2. the printed form of this written final work of studies to be identical to its electronic form;

3. the text of this written final work of studies to be language-edited and technically in adherence with the SEB LU's Technical Guidelines for Written Works, which means that I cited and / or quoted works and opinions of other authors in this written final work of studies in accordance with the SEB LU's Technical Guidelines for Written Works;

4. to be aware of the fact that plagiarism (in written or graphical form) is a criminal offence and can be prosecuted in accordance with the Criminal Code of the Republic of Slovenia;

5. to be aware of the consequences a proven plagiarism charge based on the this written final work could have for my status at the SEB LU in accordance with the relevant SEB LU Rules;

6. to have obtained all the necessary permits to use the data and works of other authors which are (in written or graphical form) referred to in this written final work of studies and to have clearly marked them;

7. to have acted in accordance with ethical principles during the preparation of this written final work of studies and to have, where necessary, obtained permission of the Ethics Committee;

8. my consent to use the electronic form of this written final work of studies for the detection of content similarity with other written works, using similarity detection software that is connected with the SEB LU Study Information System;

9. to transfer to the University of Ljubljana free of charge, non-exclusively, geographically and time-wise unlimited the right of saving this written final work of studies in the electronic form, the right of its reproduction, as well as the right of making this written final work of studies available to the public on the World Wide Web via the Repository of the University of Ljubljana;

10. my consent to publication of my personal data that are included in this written final work of studies and in this declaration, when this written final work of studies is published;

11. that I have verified the authenticity of the information derived from the records using artificial intelligence tools.

Ljubljana, September 2024 Author's signature: _____

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

ANI – Attention to negative information
AOI – Area of interest
API – Attention to positive information
BMI – Body mass index
BOLD fMRI – Blood oxygenation level dependent functional magnetic resonance imaging
CPM – Cost per mille
CPT – Conners continuous performance test
CTR – Click-through rate
EEG – Electroencephalogram
ET – Eye tracker
FMCG – Fast-moving consumer goods

fMRI – Functional magnetic resonance imaging
FOMO – Fear of missing out
GDA – Guideline daily amounts
KPI – Key performance indicators
PET – Positron emission tomography
ROC – Receiver operating characteristic
SART – Sustained attention to response task
SPECT – Single-photon emission computed tomography
UGC – User-generated content
ZMET – Zaltman metaphor elicitation technique

1 INTRODUCTION

Attention is a human process, observed by different scientific fields. It is especially interesting for psychologists, marketers, neuroscientists, and experts in machine learning (Cho et al., 2015). It is a highly intangible concept, definitions of which vary regarding the field of study, however, when mentioned, every layperson knows what it is about. Its center originates from brain, nevertheless many factors can have an influence over it. Some factors can come from brain as well as other individual human processes and characteristics, while other factors are the product of the external world and can impact several individuals simultaneously (Lindsay, 2020). When it comes to attention in marketing, we talk about consumer attention. The matter with consumer attention is that it has become an increasingly scarce commodity on behalf of consumers experiencing several hundreds of triggers daily, placed by marketers competing for their attention. Especially tough competition is fought for consumers' visual attention (Wedel & Pieters, 2008).

Considering consumers are more and more engaged in social media and online ecosystems (Cherry, 2022b), visual attention will be explored in this thesis. As many of the studies with the focus on attention resort to neuroscientific methods, the field of neuromarketing will be exploited in this study as well. Neuromarketing approach will enable a modern outlook and enhanced analysis of consumer attention (Rawnaque et al., 2020).

The purpose of this thesis is to examine the level to which consumers can be biased with the help of marketers' nudging towards an entity or characteristic within communication. With that purpose, an empirical study will be carried out using synthesis and analysis method in order to find out how marketers can manage end consumers' attention in marketing communications by placing cognitive heuristics in it. What the study will try to show is that consumers' attention can be routed to the preferences of the client in marketing agency by exposing consumers to certain triggers in a form of cognitive heuristics. Thus, the thesis aims to prove that consumers are susceptible to heuristics, they can perceive marketing communication differently due to cognitive biases and maybe even behave in a different manner because of it. The key premise is that the consumers' brain can be redirected, and a given place of focus can thus be provoked to a certain extent. The goal of the study is to prove that applying cognitive heuristics and evoking cognitive biases in consumers can be a convenient manner for marketers to redirect consumer attention where they desire to.

This master's thesis will have its basis on the primary as well as the secondary data. Within the theoretical part, primarily consumer attention will be placed on the area of behavioural marketing and then defined. Various types of attention will be discussed as well as utilities used for measuring attention. As a special phenomenon, attention fatigue will be analysed. To end the chapter on consumer attention, examples of measuring attention in marketing

will be listed and elaborated. The following chapter will present the analysis of secondary data on cognitive heuristics, starting with the definition of cognitive heuristics. Further, the origin of heuristics will be explained, and their types discussed. For a practical view on the topic, the occurrence of cognitive heuristics in marketing will be described. Further on, the field of neuromarketing will be examined, including its definition, history, and comparison to traditional marketing. The thesis continues with neuromarketing tools and the description of the most commonly used ones, whereas the chapter will conclude with applied neuromarketing studies from the business and academic field. Once the basic definitions and theoretical concepts will be presented, the practical part of the thesis will have its foundation in a form of a descriptive research. As for the second part of the thesis, empirical study will be carried out, where primary data will be collected. Assemblage of the primary data will be implemented with the help of the neuromarketing tool called eye tracker, which will offer an insight into consumers' attention patterns. Finally, primary data will be analysed through the metrics, provided by the tool, combined with a follow-up survey. Both analyses will be presented in a thorough and comprehensive manner with the purpose of being useful to further research in this area.

2 CONSUMER ATTENTION

When an individual or a group concentrates on or pays attention to a certain object or activity, it is known as consumer attention. Today's multifaceted and dynamic environment makes it more crucial than ever to dedicate efforts to consumer attention. In order to stand out from the competition, brands need to capture and hold customers' attention amidst a plethora of alternatives and activities available to them. For digital marketing teams, grabbing people's attention with pertinent messaging, advertisements, and content is paramount. It all comes down to grabbing and retaining the interest of target market long enough to foster interaction and, eventually, generate revenue (Villegas, n.d.).

2.1 Behavioural marketing

To be able to capture consumers' attention to the highest degree possible, knowledge of consumer behaviour is obligatory. According to Bhat (n.d.), consumer behaviour is a very complex process and thus hardly predictable. It includes various factors, such as a factor of the moment, psychological factor, individual factor, and collective factor. This means that every act a consumer performs can be examined through all the factors above, however those factors are intangible and not at all quantifiable. Notwithstanding, the fact that consumer behaviour sometimes appears completely irrational, Ariely (2009) argues that these human irrationalities are in fact systematic and frequently predictable. There are certain behavioural and thinking patterns which tend to be recurrent due to the nature of the human brain and its characteristics. Some behaviours could be provoked up to a point where emotions dominate reasoning. Ariely and his research colleagues (2009) have

proven, using numerous empirical experiments, that human brain is a very complex entity, however some narrower concepts, such as consumer attention, could be predicted and in those terms manipulated as well.

With the purpose of finding patterns in human behaviour, a special scientific area has been developed, called behavioural science. Behavioural science is a rather late scientific branch which opposes traditional approaches to scientific matters. While traditional science of economics dictates that consumers make rational and analyses-based decisions, behavioural science explores the incentives and patterns for the actual behaviour, and further on tries to predict it based on the past experience (Campbell, 2023). There are several categories that have developed from behavioural science, such as behavioural economics, cognitive psychology, social psychology, anthropology, and behavioural marketing (Chicago Booth, n.d.).

Behavioural marketing derives from behavioural economics, which is an approach to economics, contrasting with the neoclassical proposition. In neoclassical view, people always make the most optimal decision, taking into account all the information available (Witynski n.d.). The view on behavioural economics has come to a plot as Herbert A. Simon and his speculations on financial dynamic tested old style monetary reasoning, including the thoughts of levelheaded way of behaving and the monetary man's independence. Instead of buying into the possibility that financial way of behaving was normal and that an individual tried to reach the most ideal option with an overview of all suitable possibilities, Simon accepted that navigation was tied in with accomplishing results that were "sufficient" considering their restricted data and adjusting the interests of others. Simon referred to this as "satisficing," which consists of words "satisfy" and "suffice" (Frankenfield, 2022).

2.2 Consumer attention

2.2.1 Definition of attention

Based on The Universal Marketing Dictionary (n.d.), attention marks the point at which a consumer becomes attentive or observant of specific cues in their surroundings. Further, it is a process in which a consumer chooses triggers in their surroundings for comprehension. Consumers are constantly flooded with sensory data, however, they often do not focus on each and every one of those sensations. Rather, they focus their attention on some significant aspects of their surroundings while ignoring or blending other items into the background. Attention has its restrictions in terms of scope and duration, meaning one is able to target their focus on a limited number of things for a limited amount of time (Cherry, 2022b). To be able to pay attention to one thing, one has to eliminate other factors that also have potential to reach one’s attention (James, 1890). Humans are mostly visual

creatures, therefore over centuries we have adjusted our visual organs towards sensing signals from our visual environment (Orquin et al., 2020).

Thus, humans have developed a tendency to be especially sensitive to entities which stand out from their own kind (Hiramatsu et al., 2008). Visibility of certain entities depends on numerous factors which attract human attention. The most explored among those factors, i.e. bottom-up factors, is saliency. It includes colour differentiation as well as orientation and contrast towards their neighbourhood. The more the entity differs in comparison to their surroundings, the more it is salient and the more probably it will be noticed. Second factor affecting consumer attention is the size of the entity in comparison to others. The third one represents the location of the entity. The location of the entity is divided into two areas: one-dimensional and two-dimensional space. Whether the case is in one-dimensional position (rows and columns), consumers most commonly pay attention to the upper or the leftmost position – depending on the orientation and the society rules regarding writing and reading (Chen & Pu, 2010). However, when it comes to two-dimensional positions, focus generally goes towards the centre while the corners receive less attention (Atalay et al., 2012).

2.2.2 Types of attention

There are certain regularities when it comes to targeting human attention. If our brains try to focus on one subject, they simultaneously disregard a lot of conflicting information and sensations. Attention permits one to “tune out” information, sensations, and perceptions that are not relevant right now and instead focus one's concentration on the important stimuli (Cherry, 2022c). There are various kinds of attention, as analysed below:

Selective attention. It depends on the consumers, how precisely they choose what information to focus on and what to disregard. To do that, they have to select and filter out all outer triggers. This type of attention is called selective attention (Cherry, 2022b).

There are two main theories that explain the functioning of selective visual attention. First, the “spotlight” model suggests that visual attention functions similarly to a spotlight. Psychologists propose that this spotlight has a distinct focus point where objects can be observed. The fringe, or region surrounding this focal point, is still visible, but obscured. Lastly, the margin is the region outside the spotlight's edge area. The “zoom-lens” model is the name given to the second strategy. Although it has all the same components as the spotlight model, it also implies that we can change the focus's size, much like the zoom lens of a camera. However, because a wider focus region requires the limited attentional resources to be spread across a larger area and contains more information, it also results in slower processing (Cherry, 2022b).

Sustained Attention. This type of attention is also known as concentration, i.e. the ability to focus on something for an extended amount of time. During this time, people maintain

their focus on the job at hand and continue participating in a behaviour until it is completed, or a set amount of time has passed (Cherry, 2022c).

Alternating Attention. This sort of attention entails a seamlessly changing attention between two or more things with distinct cognitive demands. It's not about focusing on multiple things at once, but rather about ceasing the execution of the activity and moving on to the next one (Cherry, 2022c).

Focused Attention. This sort of attention includes the ability to be pulled to a specific hearing, sight, or touch stimulus, such as a loud noise or a flash of light. It is a method of reacting quickly to external stimuli, which is especially useful in situations requiring rapid focus and response (Cherry, 2022c).

Limited Attention. Limited or divided attention is a type of attention that includes multitasking. In this instance, attention is divided across several tasks. Rather than altering focus, people respond to several stimuli at the same time (Cherry, 2022c).

2.2.3 Measuring attention

In order to know what entities attract more attention, experts make use of several tools and techniques to measure attention. In fact, it can be quantified by observing the length of time spent staring at, considering, or discussing a specific object (Villegas, n.d.). According to the Janne Beke 's article (2023), there are two main approaches to measuring attention. The first one is called camera-based attention, which means that it is based on experiments with consumer panels that monitor eye movements and watch facial expressions. The main benefit of this approach is that one's effective eye movements are quantified, eliminating the need for estimates. This also helps marketers better understand consumers' subliminal actions. The primary drawback is that this data is not available in real time, it may prove expensive to gather, and it is also more difficult to convert into media analytics. Further, the method or panel size may vary between providers, making comparisons more difficult. The tools used in this approach are most commonly EEG (Tseng & Chen, 2018), eye tracker (Robal et al., 2018), infra-red online camera (Park & Whang, 2018) or web camera on digital device (Schulc et al., 2019).

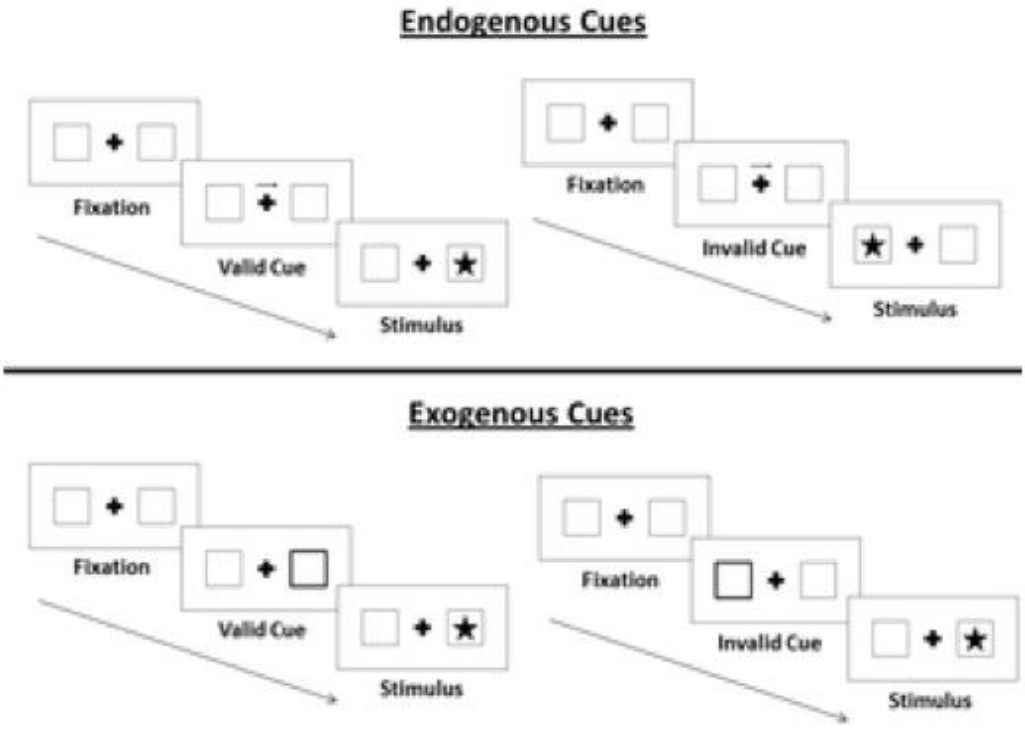
The second approach is referred to as advanced viewability and it captures the way researchers are attempting to approach attention using existing media measurements. These estimations can be diverse and are often known under the term “attentive CPM (attentive cost per mille)”. They include various online communications, KPIs, including party size, screen time, audibility, and view rate. What is perceived an upside of this approach is their convenience, as they are easily accessible in marketing systems. That makes them easy to compare to different systems and makes the analysis relatively cost-efficient. The apparent downside of this is that there is still a lot of uncertainty regarding how much attention has been properly received. Therefore, pursuing pure view time as the key metric for

communication efficacy is not recommended. Consequently, these parameters should be used in conjunction with other indicators and with a degree of a cautious mind (Beke, 2023).

Measuring attention requires certain tools, however due to attention's plentiful angles, such as seeking, maintaining, splitting, shifting, navigating, and choosing attention, particular methodological tasks are necessary (Newson, 2018). Below are analysed five of the most frequently used ones in pursuing attention data, which, in combination with EEG, may be useful for attaining wider insight on brain activity and implication into practice.

- The Posner task: The most basic and the most well-known attention task is the Posner task, also known as spatial orientation. The purpose of this task is to track one's reaction in a context when being exposed to a trigger. Usually, two variations of this task can be performed, as seen in the picture below. The endogenous task provides cues in the midpoint of the screen, whereas the exogenous one serves with cues peripherally. It is up to a participant to react to the stimulus, following the cue, as quickly a possible and click on the area where the stimulus appears. Sometimes cues are invalid and thus directed to the wrong side or the cue is not displayed at all, which may alter the reaction time of the participant (Newson, 2018). The Posner task procedure can be seen in Figure 1 below.

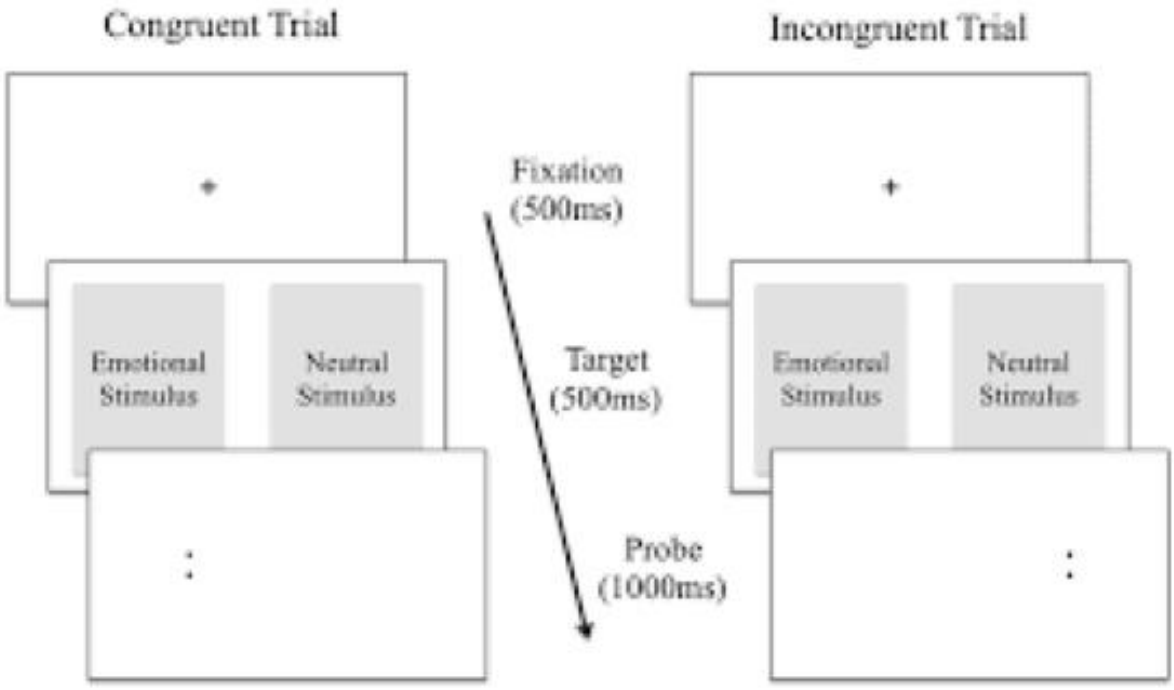
Figure 1: The Posner task



Source: Newson (2018).

- Attention Network Task (ANT): The attention network task in its essence is an upgrade to the basic task, which combines the Posner approach with the addition of either congruent or incongruent arrows for a more refined decision-making process, which is applicable for assessing, notifying, navigating, and executing forms of attentional control (Newson, 2018)
- Tasks for sustained attention: There is a number of tasks to evaluate vigilance, however the most common two are the Conners continuous performance test (CPT) and the Sustained Attention to Response Task (SART). With both tasks the methodology works in a way that the individuals are asked to hit a button as soon as they notice an agreed number, a letter, or a picture within a random set of signs displayed in front of them. The task engages the participants to be aware of the agreed sign and simultaneously hold back their reaction to other signs (Newson, 2018).
- Visual Search Task: Visual search, often referred to as "the odd one out" pattern, employs a variety of stimuli ranging from single characters to complex sceneries. Individuals are asked to explore each set or scenario for a particular signal and in the meantime try to disregard unrelated interruptions (Newson, 2018).
- Dot Probing Task: This task serves as a test to how emotional inputs influence attention with, for example, alarming information. Using words or faces an examiner is able to determine how quickly an individual pays attention to it. Nevertheless, it is important that one approaches this task with a degree of consideration since the reliability of the test is not always guaranteed. The model of the procedure for this task can be found in Figure 2 below (Newson, 2018).

Figure 2: The dot probing task



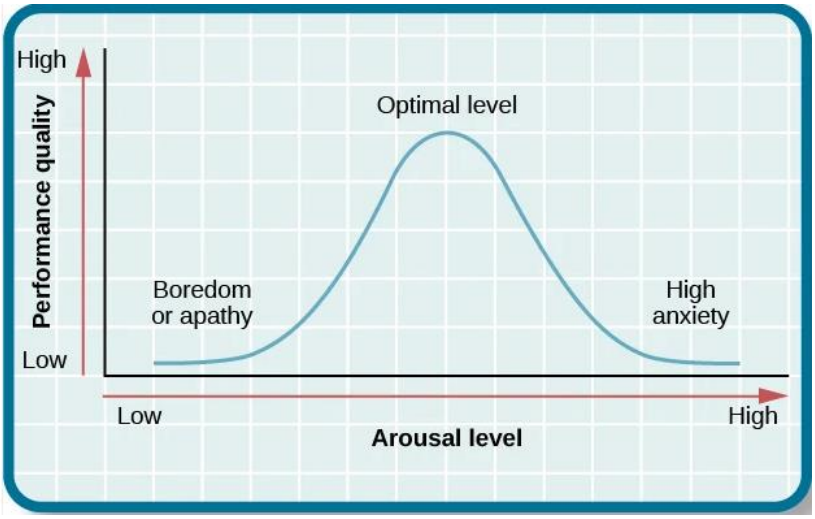
Source: Newson (2018).

2.2.4 Attention fatigue

Mental fatigue is a type of exhaustion caused by persistent execution of assignments. Mentally fatigued persons frequently express difficulty focusing their attention and being easily diverted. Faber et al. (2019) conclude, as mental weariness increases, irrelevant information interfere more significantly with reaction decision-making. The fact that these alterations are only observed for accuracy measurements rather than reaction times suggests that fatigue-induced attentional variations have to do mainly with the reduction of irrelevant stimuli and the avoidance of inaccuracies.

The Yerkes-Dodson curve below displays performance as a function of awareness on adequately demanding tasks: at low levels of alertness performance is poor, at medium levels it is good, and at high levels it deteriorates again (Diamond, 2005). This translates in the field of acquiring consumer attention in a manner that too many triggers can be harmful in gaining consumer attention, whereas too few triggers may not be effective as well (Nickersen, 2023). The pattern of the curve can be seen in Figure 3 below.

Figure 3: The Yerkes-Dodson curve



Source: Nickerson (2023).

2.3 Examples of measuring consumer attention in marketing field

Research in the business field has recognised the value of evaluating attention soon after the tools and methods had emerged. Over the years, the number of studies exploring consumer attention has increased and contributed to the current expertise in managing attention in business (Digiday, 2023). When it comes to capturing consumer attention, advertisers tend to seek for three different forms of attention. Firstly, there is active

attention, which means that an individual actively focuses on the ad in front of them. Secondly, passive attention is less desired as an individual is near the ad but not paying direct attention to it, however it is still better for marketers than no attention – absence of an individual when displaying an ad (Amplified Intelligence, n.d.). To determine the form of attention, one of the following three approaches to measuring attention in marketing is to be used (Feger, 2023).

- Biometric data, which include neurological and physiological measurements, such as facial recognition, brain scanning, heart rate, eye gaze and blood pressure. This type of data can serve with more in-depth analysis of an individual's attention, nonetheless, cannot be generalised onto population from the chosen sample.
- Data signals, where the most common are conversion rate, cursor position, pace of scrolling and retention duration.
- Cognitive and emotional data, which acknowledge the level of an individual's affection or consideration based on various consumer surveys and interviews. With the development of neuromarketing tools, this type of data can be captured by biometric approach as well.

Using one of the listed approaches for measuring attention in marketing, below is a brief review of the illustrated studies.

There was a study carried out in 2013 by Bialkova et al., which analysed how information cluttering, proximity and congruency on food labels affect consumer visual attention. For the purposes of the study a visual search paradigm was employed, which, based on Hsieh and Allport (1994) involves participants shifting their semantic criteria while observing an instantaneous stream of displayed words. As a signal for attentional shift of criteria a slight spatial relocation of the stimuli was used. The findings of the study suggest that the level of attention consumers pay to food labels lowers by applying increasing amount of information on the label (Bialkova et al., 2013).

As food industry belongs to the FMCG (fast-moving consumer goods) market, where purchase decisions are repeatedly made right in front of the product itself, attention analysis is particularly crucial. In that manner, Bialkova et al. (2020) have dived into consumers' attention and decision making when it comes to nutritional products and their labels. Using the eye-tracking tool two analyses were carried out, one in a laboratory and one in an actual store. In the controlled circumstances (laboratory) participants were asked to choose the products based on their preference or based on the most favourable nutritional composition, whereas in store they were asked to choose the one they liked best. The study concludes that what affects consumer attention and purchase decision most are brand and product in a combination with placement, and not necessarily nutritional composition. In spite of this, food labels can attract more attention if multicoloured and with GDA (Guideline Daily Amounts).

Early in 2023, an Italian-Spanish group of researchers, including Elena Barbierato, finalised the study on consumers' visual attention and preferences of wine packaging. They used eye tracker to investigate how three variations of wine labels differed and, subsequently, searched for a correlation between eye movements (i.e. visual attention) with personal preferences. Based on the data collected with eye tracker and the expressed preferences of the participants, attention heatmaps were made for each of the three variations of wine labels, where one is able to see the areas that grabbed the most attention. Afterwards, ROC curves (graphical evaluations of the performance of the binary diagnostic classification method) for each of the variations were made as well as for the whole database. Results, based on the general linear model, showed positive associations between fixation point to a certain label and a preference for the same wine label later on (Barbierato et al., 2023).

3 COGNITIVE HEURISTICS

Consumer attention is a valuable entity that is fought over by the entire advertising and communications world. Sometimes, certain incentives are used to encourage consumers' brains to shift their attention where marketers want them to be shifted. They often want to encourage consumers' brains to take shortcuts, i.e. cognitive heuristics, which can result in cognitively biased decisions (Laissue & Kovic, 2016).

3.1 Definition of cognitive heuristics

Cognitive heuristics refer to decisions not fully supported by logical thinking. According to Laissue and Kovic (2016), cognitive heuristics are the ”instruments“ we use to think quickly, the cues and shortcuts we use when drawing conclusions. The concept of heuristics describes our thinking process when we are using our fast and automatic cognitive functions. Cognitive heuristics are typically quite helpful since they result in judgements that are adequate in most circumstances. Therefore, cognitive heuristics maximize cognitive value, but only in two directions. On the one hand, cognitive heuristics are efficient time- and effort-wise when it comes to making conclusions, since not a lot of resources need to be used in order to come to the most relevant decision. In addition, this concept also works in favour of making the highest number of right inferences in a given amount of time.

On the other hand, heuristics do not contribute to the quality of the decision made, as they are based on a “rule of a thumb” without deeply considering the pros and cons. In this case, cognitive heuristics can act as a barrier rather than a tool in making meaningful and effective decisions. The decisions, adopted in a fast and automated mode undergoing a heuristic that can help one save time and cognitive effort, generate low-quality judgement, and induce biased decision-making. This is not fully supported by logical and rational

thinking and therefore lowers the quality of one's inferences and perhaps results in making an unfavourable mistake (Laissue & Kovic, 2016).

These restrictions drive us to use mental shortcuts in order to assist us make sense of the world. Although Tversky and Kahneman's work (1974) introduced the study of heuristics and the particular methods of thinking that people rely on to simplify the decision-making process, Simon's research showed that humans were restricted in their capacity to make rational decisions (Frankenfield, 2022). Due to the reliance on a limited number of cognitive principles, it was only natural that the goal would be to explain them. The most popular judgment and decision mechanisms proposed were:

- representativeness (a judgment is based on how much the hypothesis resembles available data),
- availability (a judgment is based on how easily an example can be brought to mind), and
- anchoring-and-adjustment (a judgment is based on a specific value or anchor and then adjusted to account for other factors), among others (Cherry, 2022a).

Heuristics are useful in both problem-solving and decision-making since we frequently use them when we need an immediate answer. Below are a few psychological approaches explaining why we use heuristics (Cherry, 2022a):

- Attribute substitution: They occur when simpler but related questions are used in place of more challenging and complex ones.
- Effort reduction: Heuristics are a form of cognitive laziness that people utilize to decrease the mental effort necessary to make judgments and decisions.
- Quick and precise: Heuristics are used by individuals as they can be quick and precise in specific situations. According to certain views, heuristics are more accurate than they are prejudiced.

Despite the fact that the terms are frequently mixed up, heuristics and algorithms are two different concepts in psychology. Heuristics are mental shortcuts that are essentially best guesses, whereas algorithms are detailed instructions that provide predictable, trustworthy results. Heuristics do not always produce accurate results; algorithms do (Cherry, 2022b). As purposeful and programmed utilizations of heuristics are considered valuable, there are two options of their utilizations: intentional or subliminal. While one can follow the possibility of heuristics through hundreds of years and numerous fields of utilization, we centre around the advancement of the cutting edge thought of heuristics through three rushes of exploration, beginning with Herbert Simon during the 1950s. He was the first who presented the idea of limited soundness and recommended the utilization of heuristics in man-made consciousness, consequently laying the foundations for all subsequent studies on heuristics. An advancement accompanied Daniel Kahneman and Amos Tversky during the 1970s, who investigated the predispositions emerging from utilizing heuristics. Within

the subsequent exploration followed the findings of Gerd Gigerenzer during the 1990s, who contends that a decision process comprising of 'quick and-economical' heuristics can yield ”ecologically rational“ choices (Hjeij & Vilks, 2023).

3.2 Cognitive heuristics origin

Throughout the evolution the patterns of animal behaviour have advanced by certain evolutionary powers, which had been happening way ahead the development of the human species. Therefore, heuristics, in a sense of behavioural pattern, have existed before people started systematically analysing them. With evolution, human species has developed cerebrum, which authorizes them to pursue choices in manners that differ from those of animals (Hjeij & Vilks, 2023). In a 2007 article, Gibsons elaborates that the starting point of the development of the brain occurred several thousand years ago with the invention of fire and therefore heat-treated food, which decreased the amount of energy required for digestion. Due to more modest digestive system the surplus of energy allowed the improvement of bigger tissues and consequently bigger cerebrum. Bigger capacities made room for the evolution of this organ, which throughout the time permitted Homo Sapiens to team up and shape connections that different species at that time could not coordinate (Hjeij & Vilks, 2023). Indeed those additional capacities took human species from the centre of the natural pecking order to the primary position (Dunbar, 1998).

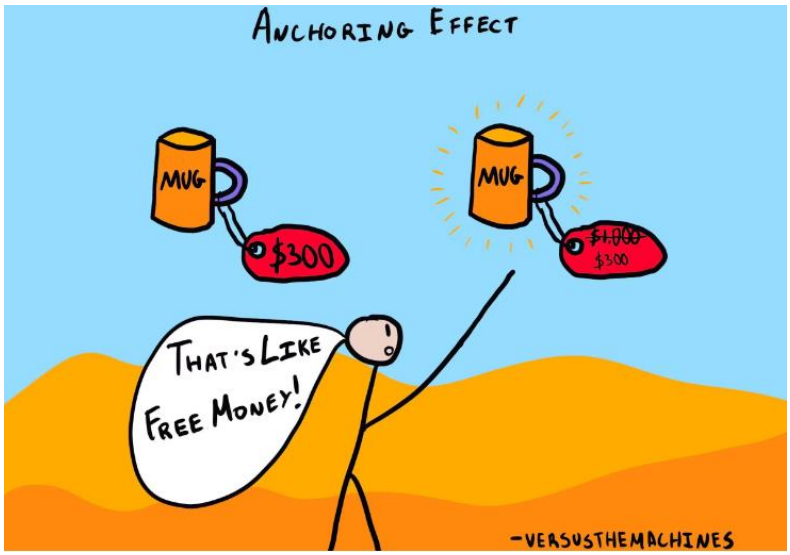
Information about when and how the human mind fostered the capacity to consider choices made deliberately is not acknowledged. Yet it is presently generally perceived that, notwithstanding the quick, programmed, and regularly subconscious sort of dynamic that is like animal conduct, people additionally utilize another, fairly an alternate kind of dynamic that can be portrayed as unhurried, conscious, guarded, and intelligent. The first kind is known as 'Framework 1' or 'the old brain', and the second option as 'Framework 2' or 'the new brain' (Kahneman, 2011). It is evident that both systems have evolved concurrently throughout the human cerebrum's evolution. As per Gigerenzer (2021), people as well as different life forms advanced to gain the so-called ”embodied heuristics” that can be both natural or learnt basic guidelines, which thus supply the deftness to answer the absence of data by quick reasoning. The function of those heuristics is utilization of intellectual ability that incorporates the sensory and motor skills, which begin to advance from birth.

3.3 Types of cognitive heuristics

As cognitive heuristics accompany our everyday thinking, decision-making and behaving, there are numerous types of heuristics that we deal with in the marketing field as well. There are over 95 cognitive heuristics known and researched so far, including the ones below. Those that appear most frequently in marketing will be analysed in chapter 3.4.

Anchoring Bias. We eventually find ourselves evaluating all incoming information via the mental framework we first created when we grow attached to a particular figure or course of action, which distorts our vision. This makes us hesitant to modify our plans, even when circumstances demand it. For example, when we go furniture shopping, we see a sofa that is exactly as we wanted it to be, however it exceeds our budget by 50%. We go to the next store, and we see a similar one to the first one, only that this one exceeds our budget by 30%. We decide for the second one despite the high price, as it is still cheaper than the first one. But instead of the budget we anchor the amount of money to the price of the first ideal sofa (The Decision Lab, 2023). Another example of the anchoring bias is presented in Figure 4 below.

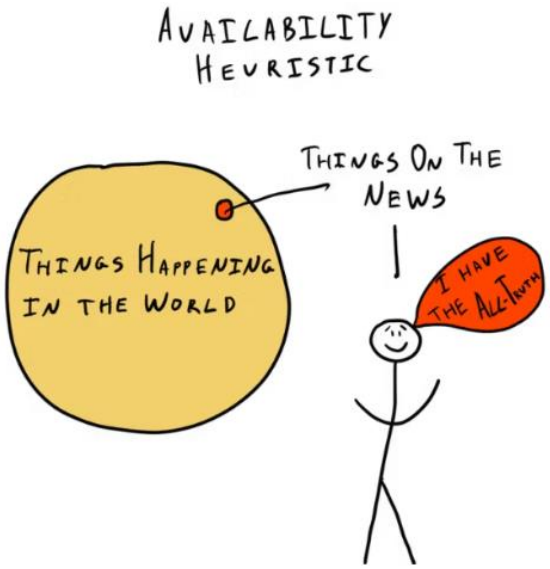
Figure 4: Anchoring effect



Source: Decision Lab (2023).

Attentional Bias. There are boundaries to the amount of attention we can spare even though we like to think the opposite. We tend to consume a lot of information in order to analyse it all and make the best decision possible. However, when attentional bias manifests, we find ourselves giving a single option or stimulus a far greater proportion of our attention than we would otherwise, which is detrimental to other options, which can be seen in Figure 5 below. Additionally, it may make it more difficult for us to let go of harmful or distracting thoughts, leading us to obsess over particular topics. This bias often emerges when we go to a grocery store hungry while on a calorie-restricted diet. In those cases, we tend to purchase more carbohydrates- and fats-based food as this would satisfy our current hunger and not so much follow our general diet. This is because in that moment we put more weight to the stimulus of hunger over our desire to lose a few kilograms (The Decision Lab, 2023).

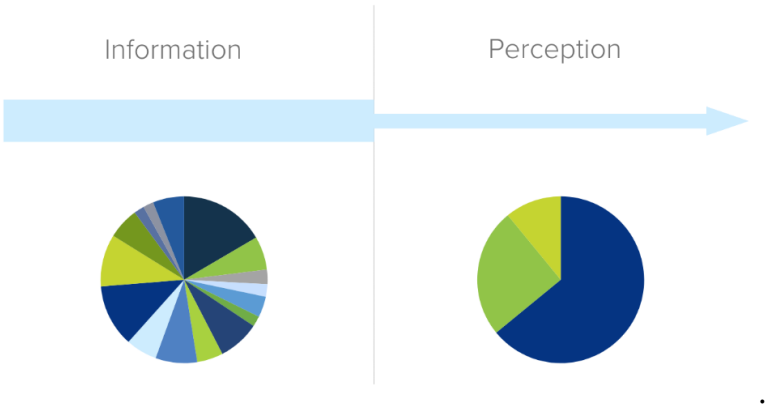
Figure 5: Attentional bias



Source: Convertize (n.d.).

Availability Heuristics. The availability heuristics can result in poor decision-making since easily recalled memories are frequently insufficient to determine the likelihood that certain events will happen again. In the end, our overestimation gives us poor-quality data as a basis for decision making, however less notable occurrences that have higher-quality data supporting our predictions go unnoticed. For instance, a common misconception is that driving is safer than flying since it is simpler to remember graphic images of fatal airline catastrophes than of automobile crashes (The Decision Lab, 2023). Another practical example of everyday availability heuristics is presented below in Figure 6.

Figure 6: Availability heuristic



Source: Decision Lab (2023).

Bandwagon Effect. The bandwagon effect uncovers how the herd instinct may overrule the independent critical thinking, which is frequently required to arrive at wise conclusions.

Regretfully, we are not always the beneficiaries of decisions that benefit others. A telling example is what marketers call ”social proof”, which is used on almost every well-designed company website, presenting existing customers’ top experiences or customer reviews to get the newcomers to feel more socially accepted if they decide for their product or service. Human brain is programmed in a way that tends to purchase products which they have heard positive reviews of, as this lowers the risk and makes the purchase decision more secure. An illustrative example of the bandwagon effect can be seen in Figure 7 (The Decision Lab, 2023).

Figure 7: Bandwagon effect

Source: Decision Lab (2023).

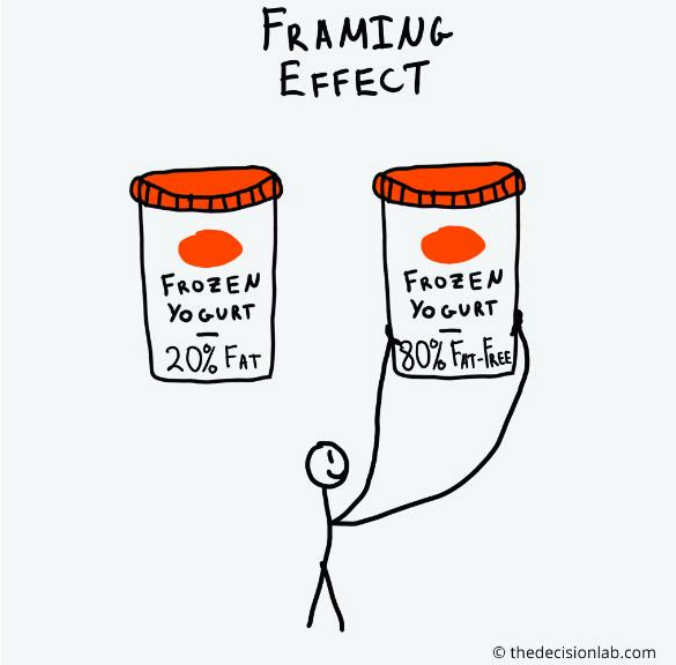
Loss aversion. Loss aversion is the phenomenon explaining why people experience the feeling of loss twice as strong as the feeling of gain. Further, it is the tendency of an individual to prefer avoiding losses to acquiring equivalent gains. This means that an individual perceives a loss of monetary or nonmonetary objects way more intensely than a gain of those same objects. Loss aversion is derived from three concurring parts: our neurological system, financial variables, and social foundation. The real-life case of this bias can be pictured in a way one feels when they lose a 10€ banknote in comparison to when they find the same one on the floor (as presented in Figure 8). The joy of finding it will never be near the disappointment over the loss (The Decision Lab, 2023).

Figure 8: Loss aversion

Source: Decision Lab (2023).

Framing effect. When the way certain information about a product or idea is displayed affects the way we perceive it, it is called framing. This means that even though one may have the same product or idea in front of them, they may prefer one over the other because of how they are both presented. This effect causes one's brain to rely on the given information to create a picture in one's brain, disregarding the fact that presentation may be bounded for the same entity. Nutritional products' labels often make use of this effect. For example, customers' preference regarding two similar cups of yoghurt with the same characteristics, volume, content, and design may differ because the first label bears the text "20% fat" while the other reads "80% fat-free" (Figure 9). Majority of consumers would choose the second one, as it appears more appealing to their brain (The Decision Lab, 2023).

Figure 9: Framing effect



Source: Decision Lab (2023).

3.4 Cognitive heuristics in marketing

The previous subsection involved the most common heuristics, appearing in everyday life. The following one will serve with an overview of the ones that most often appear in the marketing world. Starting with anchoring, which is frequently used in retail within various product categories. It is established, for instance, by creating a contrast between an initial and discounted price, which gives consumers the impression that the deal they are looking at is more worthwhile than the competitors' view. It leads to that even if the initial price of a competitive product is the same as the discounted one of the original products and the consumers would hypothetically purchase both for the same price. Another heuristic frequently implemented by marketers is the "brand familiarity heuristic", which implies that the more times consumers are exposed to a brand the better the preference to it. It has its roots in building trust and decreasing risk when deciding for a well-known and established brand in the eyes of a consumer. Furthermore, the "price-equals-quality" is a heuristic, which explains that consumers tend to consider the brands or products of a higher price to be superior to the ones with a lower price. Therefore, some brands use positioning as high-end players in order to give impression on the market that they bring higher quality (GGI Insights, 2024).

Moreover, the "scarcity heuristic" applies the feeling of urgency to a purchase as a product, service or other entity is not available in unlimited amounts or for an unlimited time period. This pushes consumers to buy as soon as they can, otherwise they could be left out,

which can have social consequences as well as material ones (GGI Insights, 2024). Experiencing the "scarcity heuristic" can result in FOMO (fear of missing out), which is a peculiarity, first detected in 2004 on various social media channels or online communication pages (Li et al., 2023). FOMO incorporates two cycles: first and foremost, an attitude towards passing up a major opportunity, circled back to a habitual way of behaving to keep up with these social associations (Gupta & Sharma, 2021). Li et al. (2017) establishes that attention to negative information (ANI) and attention to positive information (API) are, each in its own ways, associated to attentional control and the need to belong, which are then, further on, associated with FOMO. Attentional control is negatively correlated to FOMO, whereas the need to belong is positively correlated to FOMO (Li et al., 2023).

Further on, Ariely (2009) explains the power of the reciprocity effect, which is a consequence of biased thinking and acting. Reciprocity effect implies the tendency of giving back to someone who previously gave you something either material or service-wise with no expectation of payment. Thus, in one of their campaigns Amazon offered free shipping with ordering additional book, which indeed contributed to the boost of sales in every country involved – except for France. After examining why the French consumers did not take advantage of the campaign and eliminating potential cultural differences, Amazon staff figured that in France the campaign was designed differently. In fact, the statement was that with the purchase of an additional book, the shipping is only around 0.2€ – which is an extremely insignificant amount, however, it is not free. And this small difference may be the reason why French consumers did not feel obligated to purchase an additional item, while consumers from other markets did.

Apart from feeling like owning someone due to getting free things, giving out samples or offering try-ons or probationary periods may have another function, which is called the endowment effect. It is a phenomenon commonly used by marketers, where consumers have a possibility of testing something before purchasing it. The psychological trigger behind it is that the moment people touch something and get a feeling of possessing it, they get more attached to it. For marketers this means that there is a higher probability of purchasing as the final step (Wintermeier, 2019). Together with the endowment effect works loss aversion. Knutson et al. (2008) explored that when expressing preference about a product and when expecting that product's loss different brain regions were activated, where the feeling of anticipated loss was experienced more intensively than the preference (i.e. its acquisition), which supports the Kahneman's and Tversky' prospect theory. The theory states that if one experiences a gain and a loss, both in the same amount or quantity, the loss will be perceived three times worse or more intensively than the gain (Barberis, 2013).

Similarly to heuristics, connected to product ownership, works the IKEA effect. As the former ones, it supports the part of the brain responsible for decision-making, the main feature of which is egocentrism (Renvoisé & Morin, 2007). The logic behind is that if one

does or builds something on their own, it has a greater value in their eyes in comparison to a comparable product made without their interference. The effect is named after the company that first used this technique in order to increase the consumer preference for their products – IKEA has been known to offer furniture and home accessories that have to be assembled at home by the customers themselves. As this may represent an additional effort from customers, it in fact increases their fondness for the composite pieces (Norton et al., 2012).

Finally, of the high importance is the bandwagon effect, preferably known as social proof. Individual's purchase is more probable if one gets a feeling that the society or one's social circle will approve one's decision. One of the most recent proofs of that is the rise of user-generated content (UGC), which makes the products or services they advertise more credible and trustworthy to the consumers. Consequently, they are more willing to make a purchase when they see someone else using it and getting approval of the society. Additionally, comments, reviews and other public feedback matter a lot as they serve as ultimately objective pre-purchase information on what is and is not desirable in society (Lua, 2021). This oftentimes goes conjointly with the "authority heuristic", where individuals with some level of social power, frequently referred to as endorsers or influencers, express their opinions on a certain product or service publicly. Consumers may lean towards their opinions and purchasing behaviour, since they trust and believe their experience (GGI Insights, 2024).

4 NEUROMARKETING

To be able to analyse, forecast and possibly even influence the points and directions of consumer attention, certain tools and approaches are necessary which go beyond traditional marketing principles. Generally, the origins of attention can be discovered in human brain and the most appropriate science branch to investigate it is the section of marketing called neuromarketing (Neurons, n.d.).

4.1 Definition of neuromarketing

Neuromarketing is often mixed up with the term "cognitive neuroscience". As cognitive neuroscience examines the nervous system with the purpose of gaining knowledge about biological background to human behaviour (Iloka & Onyeke, 2020), neuromarketing is, on the other hand, an applicable field of study, which includes various scientific areas: economics, cognitive neuroscience, and psychology. Neuromarketing research tools provide measurements of different elements of the nervous system, originating from neural and biological states. Those indicators facilitate learning about consumer intentions, thoughts, insights, and behavioural patterns. There are various parameters originating from psychological realm that come useful in evaluating human reactions in their rational and

emotional sphere (Neurons, n.d.). Among the most frequently observed are the following (Neurons, n.d.):

- Heart rate: showing a degree of stress and emotional arousal.
- Galvanic skin response: recording the intensity of one's emotions using electrodermal activity.
- Respiration: indicating physiological arousal and reactions to emotions.
- Pupil dilation: mirroring the level of emotional excitement and cognitive participation.

Neuromarketing represents one of the latest developed forms of examining consumers. With its research methods and techniques, it differs to a certain degree from traditional style. Traditional marketing mostly consists of talking to consumers in different manners – such as through surveys, interviews, focus groups or self-reporting. As opposed to that, neuromarketing offers insight into circumstances when consumers claim to want one thing but act (i.e. purchase) in a different way, which can fill in the gaps left by conventional marketing strategies (Eminent SEO, 2017). This allows neuromarketing to go beyond superficial awareness of consumers and penetrate the subconscious level of communication. As traditional approach to marketing focuses on self-reporting of research participants, neuromarketing does not rely on what consumers claim about themselves. Instead, it takes into account that the lever driving the consumer decision-making process is not accessible via conscious sphere. Thus, the managerial mechanisms can be uncovered by tapping into the consumer brain using various neuromarketing tools (Neurons, n.d.).

4.2 Neuromarketing history

The history of studying human brain has started approximately four hundred years BC, when Plato was starting to consider whether feelings and emotions indeed are two differentiated concepts (Gatterer, 2012). On one hand, emotions are triggered by external stimuli and arise almost immediately, whereas feelings are in fact how people translate the emotions to themselves and how that resembles in a response (Spencer, 2022). In Plato's time no neurological abilities were examined, however the enthusiasm for this field was publicly spread.

When it comes to later and more targeted researchers, Hugo Münsterberg, one of the strongest names in the field of psychology of organisations, paved the way to later periods of neuro research (Chi, 2022). Starting in 1913, he believed that mind and body are inseparable entities, which means that body activities are always conjoint with brain functions, but his studies also focused on attention and attentional fatigue. His contribution to the development of neuromarketing is acknowledged especially in applied experiments (Hall, n.d.).

In the last decade of the 20th century, American marketing expert and professor Gerald Zaltman has shaken the field of neuro research in marketing (Chi, 2022). His academic

interest extended to the area of how the thought of various specimens is displayed. For the purpose of studying this field, he developed Zaltman Metaphor Elicitation Technique (ZMET) (Wilson, n.d.). This is a mechanism which combines expertise within various fields for analysing people's attentive and unconscious logic. It involves showing images to individuals by well-competent ZMET interviewers in order to decode people's perceptions, emotions and understanding. Even though the invention of this technique dates to 1990's, it is still a very popular technique among modern managers and researchers. Although this technique is not easy and cheap to carry out, it serves with in-depth understanding of customer mind, which previous methods had not enabled (Olson Zaltman, n.d.).

Dutch Professor Ale Smidts primarily used the term "neuromarketing" in 2002 as he was defining application of research approaches from neuroscience into the marketing territory (Smidts, 2002). The following year an experiment took place which was believed to be the first neuromarketing experiment in history. Baylor College of Medicine in Texas, USA, was the place where professor Read Montague recreated the 1975's research where the participants tried Pepsi and Coca Cola not knowing which one they drank. Montagne has upgraded the experiment using fMRI, which shed light on the fact that activity took place in different brain regions (Morin, 2011; Chi, 2022).

Neuromarketing, which was until recently considered an extravagant "frontier science", has been strengthened over the recent decade by several ground-breaking studies that show it has the ability to benefit marketers (Harrell, 2019). In 2015, Boksem and Smidts carried out a research that examined brain feedback to movie trailers and whether it can forecast personal preferences to movies. What the study has proven is that human thought of what they are going to do has most often no connection to what they are actually doing afterwards. This is an important milestone proving that traditional marketing research techniques, such as surveying and interviewing, do not necessarily serve with hands-on information and realistic predictions, whereas neuromarketing approaches are able to dig deeper into the human consciousness and find better approximations to the actual behaviour.

4.3 Neuromarketing tools

The field of neuromarketing delivers certain devices and techniques, which assist with unfolding activities in customers' brain in a manner that hasn't been seen within traditional marketing studies (Neurons, n.d.).

4.3.1 Eye tracking (ET)

The most widely employed and easily reachable neuromarketing tool is eye tracking. It is also the tool to be used in this study. Typically, it is used to test attention, which is related

to how effectively users are able to sustain their focus on a particular stimulus within their viewing range. With eye-tracking devices, it is possible to track pupillary variations, gaze fixation locations, time to first fixation, fixation duration, fixation count, and other eye movements. For marketers, an especially helpful outcome of the eye-tracking measurements is attention heatmaps, which are graphical representations of attention distribution, displaying the locations of where the consumers' gaze was targeted at the most and where the least (Neurons, n.d.).

Eye tracking allows for the measurement of unconscious perception processes as well as the distribution of visual attention (Solomon et al., 2002). According to Piqueras-Fiszman et al. (2013), the majority of eye-tracking studies in the marketing field employ this method to assess and gauge customer preferences for food information labels. Pieters et al. (1999), for instance, use eye tracking to investigate the function of visual attention in a decision-making process. They have established that when consumers are under pressure, they focus more on the visual elements than the verbal ones, and vice versa, when high task motivation is evident.

4.3.2 Electroencephalography (EEG)

EEG is one of the main tools for scanning the brain and it is used for assessing brain activity by identifying electrical impulses as a response to various external triggers (Neurons, n.d.). The tool is used to continuously record data over time in order to follow changes in blood flow across the brain. Using sensors, attached to the subject's scalp (Figure 10), EEG can follow variations in activity or measure it in deep, subcortical parts of the brain (Harrell, 2019). Generally, processes in the brain are studied using distinctive frequency zones and their presence within the cerebellum. Thus, cognitive and emotional mechanisms are explored. "Event-Related Potentials" is an alternative method where the points are accumulated based on continuous exposures. Furthermore, some later methods include studying relatedness among different brain regions and brain entropy within relaxed and active states. Moreover, EEG can be a useful tool for tracking human emotions, and oftentimes EEG is employed together with ET research in order to gain a better insight of the customers' subconscious (Neurons, n.d.).

Figure 10: EEG measurement in practice

Source: Goulburn Health Hub (n.d.).

4.3.3 Functional magnetic resonance imaging (fMRI)

In addition to EEG, fMRI (functional magnetic resonance imaging) is also used to scan the brain and its activity (Harrell, 2019). fMRI is especially helpful in investigating activity in certain parts of the brain. The basic form or MRI scan adopts a very strong magnetic field, radio waves and computer-based data management, without the risk of exposure to radiation. An output of a standard MRI is a 3D image of the brain (Cleveland Clinic, 2023). On the other hand, most commonly used form of magnetic resonance imaging in fMRI is called BOLD fMRI (Blood Oxygenation Level Dependent). The latter is used for determining the brain areas with oxygen-rich blood, as increased oxygen in the blood means incremented activity in that brain area (Neurons, n.d.). More oxygen in the blood results in brighter areas of an fMRI image (Cleveland Clinic, 2023). Its function is to look deeply inside the brain, but it is laborious and only records activity over a period of few seconds, so it can miss transient neuronal occurrences (Harrell, 2019).

4.3.4 PET and SPECT scan

PET is an abbreviation for Positron Emission Tompography, which translates real-time functioning of the human tissue and is able to detect brain irregularities in earlier phases than other brain-scanning tools. It includes injecting a safe radioactive matter into human body and a belonging PET hardware (Cleveland Clinic, 2022). Moreover, SPECT scan works in a similar manner. It stands for Single Photon Emission Computed Tomography. It also includes injecting a safe radioactive chemical into the body and then display the real-time situation, however it comes at a way more accessible price but offers a poorer image quality (Raji & Henderson, 2018).

4.4 Examples of neuromarketing studies

Neuromarketing methods and tools have been gaining popularity since their arrival. Many academic as well as commercial studies have been using them in order to uncover consumers' motives of behaviour. Below is a brief overview of some of the most relevant studies in the area under consideration, firstly within an academic field, followed by the commercial ones.

Eye tracker has proved to be a cost-effective and simultaneously reliable tool for gaining consumer insights, therefore it is the most frequent one within the reviewed range of studies. The authors of the first one to be highlighted are Peker, Menekse Dalveren and Inal (2021). It applies an eye-tracking analysis with the purpose of exploring the impact of visual content elements of online ads on one's attention. Participants were exposed to eight types of online advertisements with three elements – image, brand and discount rate – while their gaze was being tracked. The findings of the study say that the image was the most attractive element of all three and that higher discount rates attracted more attention than lower ones. What is more, those individuals to whom the brand was already recognisable, stopped their gaze more on the discounts, while those unfamiliar with the brand paid more attention to the brand itself (Peker et al., 2021).

Further, in 2016 a pilot study of attention and recall of tobacco advertising during in-store shopping was carried out. The experiment included 25 individuals, where 13 of them were smokers and 12 of them were occasional smokers. With the use of mobile eye-tracking, the study explored how attentive they were to the ads displayed on the area behind the sales counter, where tobacco products are stored, and tobacco advertisements displayed. The parameters observed were the locations of the attention fixations, fixation duration and the follow-up recall. The conclusions of the study point to the fact that results between the smokers and non-smokers group did not differ, however 96% of participants have noted a cigarette brand on the designated area. 64 % of them remember at least a part of the ad. This served as an indicator that both, smokers and non-smokers, receive triggers from the tobacco advertising industry (Bansal-Travers et al., 2016).

As most academic studies using eye-tracking technology to investigate attention are done in the retail sector, the highest number of studies uses food industry. The same goes for Binder et al. (2020), who have conducted a research of children's attitude to candy advertisements. The observed parameters were fixation duration and pupil dilation – to acquire insights on attention and emotion while exposed. One group of children was exposed to fruits, while the other one was exposed to candy. Simultaneously observing children's BMI and the prohibition to eating candy at home, the conclusion of the study implies that the children who are not allowed to eat candy at home expressed more intensive emotions (their pupils dilated more and the dwell time was longer) when exposed to candy compared to those who are allowed to eat candy. The division into groups with

candy or fruit as triggers showed no differentiation regarding attention or emotional response (Binder et al., 2020).

Many large and influential worldwide companies have already adopted the idea that only continuously investing in neuromarketing research can offer a realistic insight into consumer mind, which can assist them in influencing consumer behaviour and reach their goals. For instance, IKEA, the international furniture retailer from Sweden, has used neuromarketing techniques to inspect how consumers feel about their new business models. Employing EEG in a combination with eye-tracking machines they were able to enrich their assortment with more sustainable home solutions and appliances and thus achieve the desired brand image within their public (Neurons, n.d.).

What is more, the technological giant Google has applied a neuromarketing study to test diversified link colours. The experiment called "50 shades of blue" involved 40 shades of blue in A/B testing and the results have showed that the blue that goes towards purple was able to reach a higher CTR than the one which goes toward green. According to Google, they generated $200 million due to the link colour shift. The research was carried out by measuring online metrics, provided by Google's own sites, featuring real-life consumer behaviour (Hern, 2014).

Another technological industry leader – Meta, has successfully adopted neuromarketing techniques for various market researches. They decided to test individuals' responses during a conversation with their Oculus VR glasses. Cognitive and emotional reactions of such a conversation were compared to those of an ordinary conversation, and the results show that during a conversation with Oculus the level of participants' engagement was almost as high as during a personal conversation (Neurons, n.d.).

Lastly, professor Montague's experiment from 1975 recreating Coca Cola vs. Pepsi blind taste testing and employing fMRI was able to uncover that there was a difference with the participants regarding whether they know which brand they drank or not. For example, the study showed that once the participants knew which one they are consuming, the activity took place in medial prefrontal cortex, where the center for thinking and short-term memory is. Meanwhile, when not aware which brand they consume, participants preferred Pepsi to Coca Cola, however this time the brain activated in the centre for reward perception (Morin, 2011; Chi, 2022).

5 EMPIRICAL STUDY OF MEASURING ATTENTION USING EYE TRACKER AND SURVEY

Expert studies and commercial sources have revealed an eye tracker to be an effective tool for measuring consumer attention, since it offers insights that may exceed the value of consumer self-evaluation in terms of objectivity an accuracy (Solomon et al., 2002). Thus, for the purpose of this study an eye tracker will be used in a combination with survey. The

occurrence of cognitive heuristics in marketing communication materials will be studied, and, specifically, their place in altering consumer perception, attitudes or behaviour will be analysed.

5.1 Definition of research questions

The purpose of this study was to examine whether creators of visual marketing communication could manage consumer attention by applying triggers to cognitive heuristics in communication. More precisely, the idea was to explore whether their placing could have an impact on where consumers direct their attention and, furthermore, how that influences their product preferences, attitudes, and purchase orientation. Hence, the goals of the empirical study are the following:

- To examine whether placing cognitive heuristics in communication materials changes the focus location of the consumers while exposed to them.
- To examine whether placing cognitive heuristics in communication materials can influence the consumers' view of the brand.
- To examine whether placing cognitive heuristics in communication materials can influence purchase orientation of consumers.

Established on the grounds of the secondary data review and the participating agency's practical field examples, the research questions for the study were developed. They were derived from the purpose and the goals of the empirical study and are therefore listed below.

1. Can the use of the bandwagon effect incentivise consumers to increase the memorability of communication materials?
2. Can the use of loss aversion incentivise consumers to change the perception of the product deal?
3. Can the use of framing in communication materials incentivise consumers to perceive a brand differently?
4. Can the use of FOMO in communication materials incentivise consumers to increase the level of their purchase intent?
5. Do the cognitive heuristics applied into the communication materials achieve their goal in targeting consumers' attention to a certain signal within the materials?

5.2 Methodology

The research plan for this study was based on literary sources and secondary data review of the topics of interest. The methodology mimics a combination of methods used in previous researches on consumer attention and using eye-tracking techniques. The visual elements for the empirical experiment were developed solely for the purpose of this study by a

Slovenian-based marketing agency and have served as a hands-on tool to bring theoretical findings closer to practical examples.

Considering the research to date, an empirical study was carried out in a form of an experiment. The methodology of the experiment was based on Ariely's experiments, described in Predictably Irrational (2009), publication from Bialkova et al. (2013), and a chapter in a book Financial Literacy and the Limits of Financial Decision-Making (Hüsser & Wirth, 2016). 29 participants took part in a laboratory between-subjects experiment where an eye tracker was used as a research tool. The participants were chosen based on ad hoc sampling, within a group of acquaintances, peers, family, and friends of the author. Inclusion criteria were 30-minute availability (estimated duration of the experiment) and own transportation to the laboratory where the experiment took place. Exclusion criterion was blindness or visual impairment. Beforehand, an approval of the Ethics Committee of SEBLU was acquired and, in accordance with their requirements, all participants signed consent to participate in research.

Of the participants, 76% were women and 24% were men. Two thirds of the participants were aged 24 to and including 40, 14% were between the ages of 40 and 55, and 21% of them were aged 15 to and including 24. 70% of the participants have completed university or college degree (VI/2), 14% of them have completed secondary education and the same share of the participants have completed master's degree (VII). 3% of the participants have completed elementary school. Visual representation of the demographics can be found in Appendix 2.

The research process started with the selection of individuals by assigning one consecutive number to each participant. Based on their numbers, the participants were divided into two groups, where one was exposed to dedicated signals with cognitive heuristics' elements and the other was exposed to the control version without the heuristics' elements. Then, the differences between the two groups were measured and analysed.

As the eye tracking experiment began, the participants were present in the lab individually with a screen in front of them and each of them had a version of the ad campaign displayed in front of them. There was no limited time in terms of how many minutes a participant would spend in front of the display. While the participants were looking at the screen, eye tracker was set to track their eye trace, offering information on what attracts the participants on the screen, where the gaze travels, what amount of time participants gaze at a certain object, etc. Afterwards, a quantitative survey was carried out with follow-up questions. The purpose of the questions was to ascertain their focus of attention and memorability of the displayed topics as well as their preference and attitude towards the brand shown. At the end, where possible, they were also asked about the purchase intention, which allowed reserachers to explore whether different versions of campaigns had different impact on the purchase orientation of the participants.

In order to find out to what extent the cognitive heuristics can be used to manage the attention of the participants, the below metrics were used and later on compared between the two groups:

- Attention heatmaps: : to discover areas of high and low visual attention (Bialkova et al., 2013).
- Fixation duration: to identify how long an individual pays attention to a certain area (Lee & Ahn, 2012).
- First fixation duration: to measure the time period spent on the elements that initially draw attention (Lee & Ahn, 2012).
- Time to first fixation: to track how quickly an individual pays attention to particular components (Deng & Gao, 2023).
- Advertisement effectiveness: to investigate whether the important messages are being seen.

Questions regarding the attitudes, preferences and purchase orientation were measured by the Likert scale (Kokthi et al., 2015). The table with items can be found in Appendix 3.

Besides that, there was an additional open-form question exploring recall, where only numerical values were accepted. Later on, the results of the survey were analysed and matched with the outcome of the eye tracker study analysis, bringing to light whether certain versions or elements of versions were set to be more effective in attracting and keeping consumer attention than the others.

Visuals were created by an agency team of experienced marketing specialists who used a real brand and designed imaginary materials. There were two (A/B) versions of four different static brand communication visuals (further on referred to as packages), where version A included real-life brand name, main communication message and image, and served as a control version. Meanwhile, version B included real brand name, main message, image, and applied heuristic. Each participant was exposed to 4 different brand communications, however versions A and B were distributed randomly among the participants.

Package 1 included two versions of sales-oriented ads. There were the main message communicating quantity discount, brand logo (the two of them differ in colour but mainly for the design purposes) and the image of the happy family. The look of the female figure on both versions was directed towards her family, while the main difference between the versions was in the direction of the gaze of the baby and the male figure: on version A the figures were directed towards the viewer and on version B towards the main communication message of the ad. With this package, the bandwagon effect and the participants' susceptibility to follow the models' gaze were tested. The visuals for Package testing 1 are presented in Figure 11.

Figure 11: Visuals of Package 1

Source: Own work.

Next, Package 2 explored loss aversion, as it involved two versions with different sales promotion messages, ceteris paribus, that are shown in Figure 12. Version A included words "get a free pillow…", while version B included words "get a 20% discount…". Thus, version B had a heuristic placed. Both promotions held approximately the same value, however version A offered a free material subject and implied a gain, while version B did not offer anything extra and thus implied loss aversion with the use of word "save".

Figure 12: Visuals of Package 2

Source: Own work.

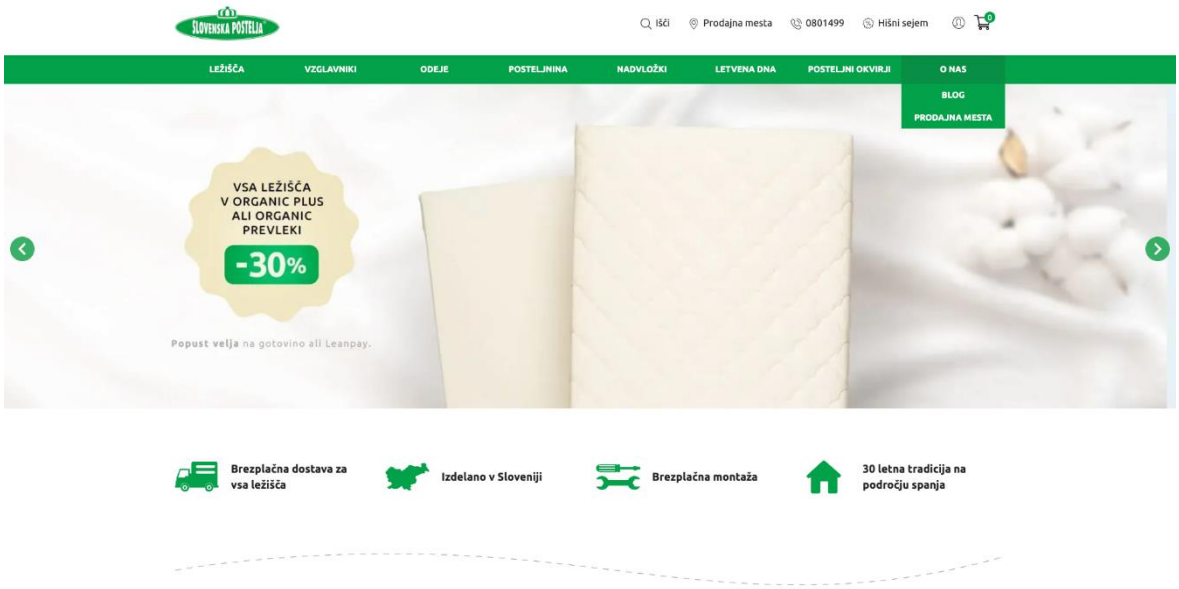
Further, Package 3 was used to test the framing effect. Both visuals included a sales promotion message, nevertheless version B included a statement "Special springsoft technology". Otherwise, both products were presented in the same way, therefore I tested whether the mention of some seemingly sophisticated technology influenced consumer attention and perception. Both visuals can be found below in Figure 13.

Figure 13: Visuals of Package 3

Source: Own work.

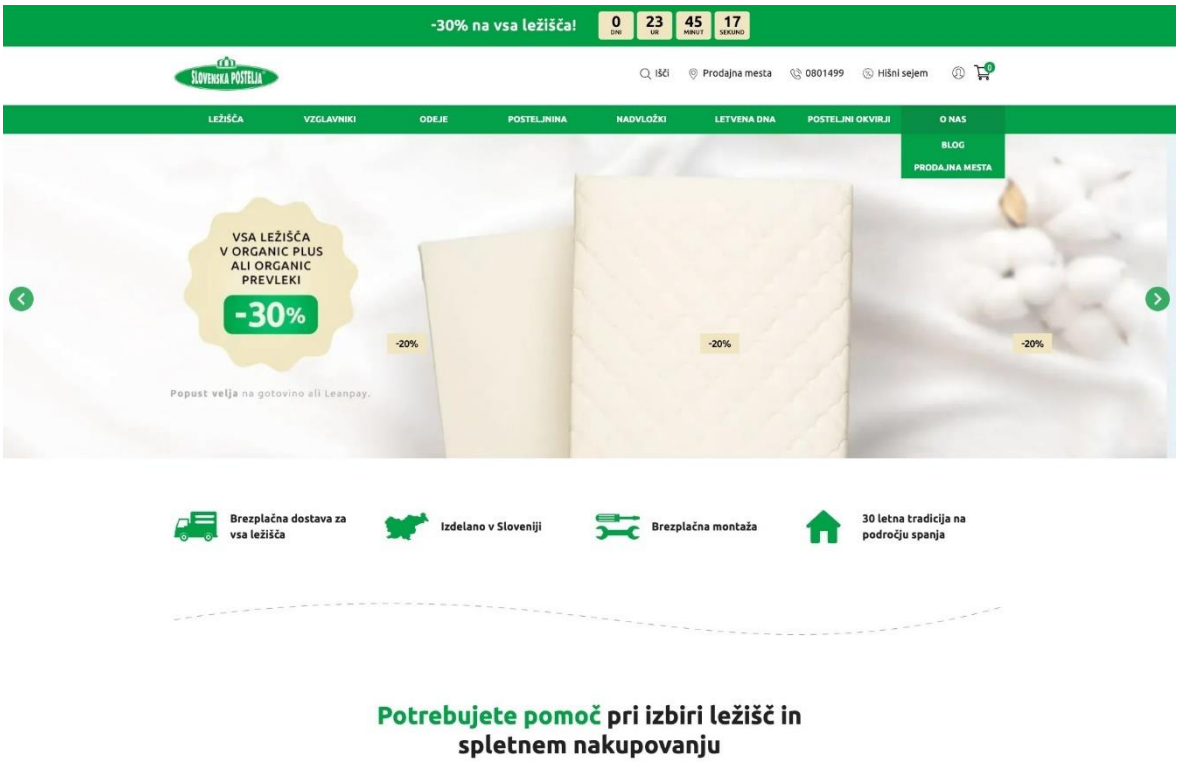
Finally, the purpose of Package 4 was to explore whether the use of timer at the top of the website guided consumer attention to different elements and whether it left them with an uncomfortable feeling of being left out (FOMO), potentially leading to stronger purchase orientation. As visuals for testing FOMO are are elongated in shape, in Figure 14 below are due to better demonstration presented only the upper parts of them. However, whole visuals can be found in Appendix 4.

Figure 14: Visual A of Package 4



Source: Own work.

Figure 15: Visual B of Package 4



Source: Own work.

5.3 Analysis of eye tracker experiment

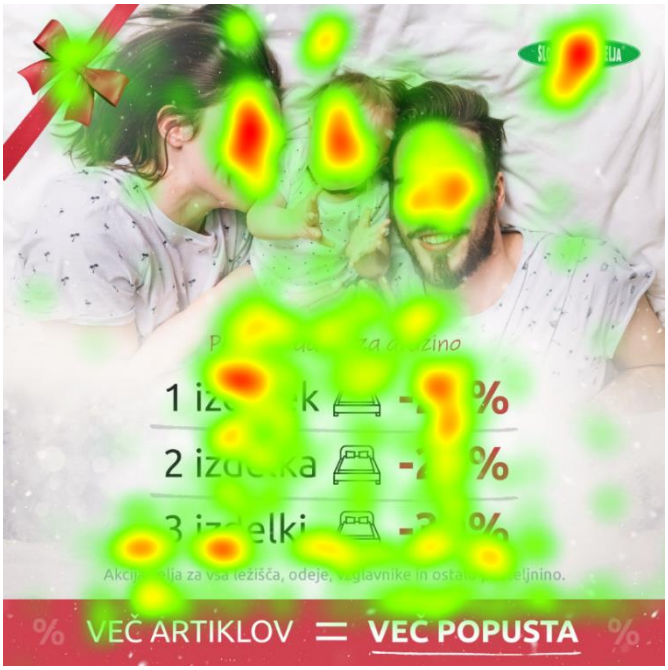
The experiment provided insights into participants' attention distribution. Below are the metrics observed during the experiment, starting with attention heatmaps. Attention was set as the main gaze filter and relative duration was applied as a type of measurement. AOIs (areas of interest) were set in advance as a basis for generating heatmaps and fixation data. The locations of AOIs can be found in Appendix 5 for Package 1, in Appendix 6 for Package 2 and in Appendix 7 for Package 3. Fixation metrics, analysed below, were established regarding the predefined AOIs for each version of each package. All metrics were measured, calculated, and analysed in seconds.

- Total TOI (time of interest) was calculated as an average from all participants that were exposed to a certain version and paid attention to at least one AOI.
- Fixation duration was calculated as an average from time spent fixating attention on all predefined AOIs from all participants that were exposed to a certain version.
- Time to first fixation was calculated as an average from time spent before fixation on either of the predefined AOIs from all participants that were exposed to a certain version.
- First fixation duration was calculated as an average fixation duration from all participants that were exposed to a certain version.

5.3.1 Analysis of eye tracker experiment for Package 1

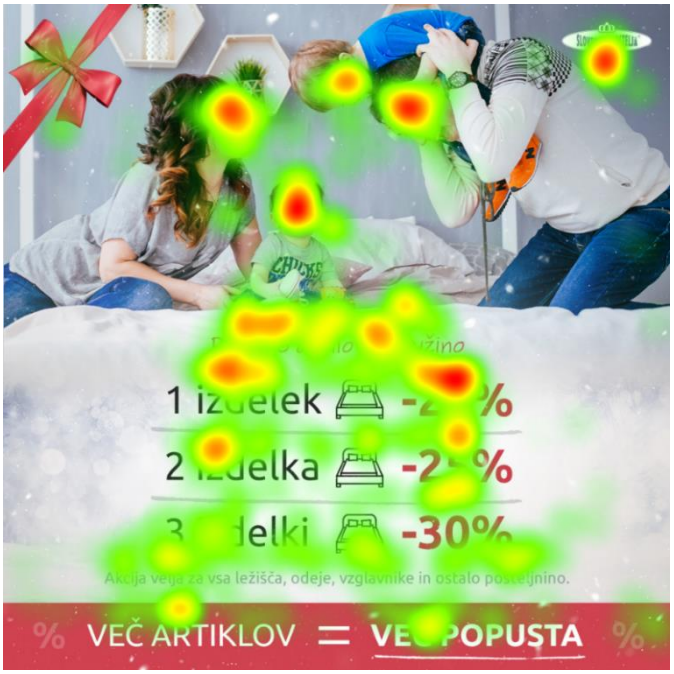
The two visuals forming Package 1 were to test the bandwagon effect on the participants. As each of the two versions were randomly distributed amongst the participants, 16 out of 29 participants were exposed to version A and the rest (13) were exposed to version B. All of them fixated their eyes at least once on either AOI. Briefly, there were two AOIs when it comes to Package 1. The first one included the offer with prices and was rectangular in shape, while the second one covered all family members and came in a form of an ellipse. Accurate representation of them can be found in Appendix 5. Figures 16 and 17 presents attention distribution heatmaps for Package 1.

Figure 17: The bandwagon effect heatmap – version A (control)



Source: Own work.

Figure 16: The bandwagon effect heatmap – version B



Source: Own work.

The heatmaps from Package 1 demonstrate cumulative attention distribution, thereby pointing out the areas at which the participants focused the most. There are three main focus areas in both versions: faces of the family, brand logo and offer with special prices.

The total TOI duration for version A of the Package 1 was 27.8s, while for version B it was 20.2s. The average fixation duration for version A reached 6.0s and for version B 3.6s. On average, within version A the participants spent approximately 50% of time on the AOI with the family and 50% of time on the AOI with the offer, while the shares for version B are less proportional – 64% of time was spent on the offer and 36% of time on the family picture. For both versions, participants needed 1.8s to make the first fixation within AOIs. What is more, comparing fixation between AOIs for version A, the AOI with offer was fixated at 3.2s and the AOI with family was fixated at 0.3s. Meanwhile, for version B, on average the first fixation on the AOI with offer was made at 1.2s and on the AOI with family after 2.5s. Regarding the time spent on the first fixation, it amounts to 0.1s for both versions and for all AOIs within. Table 1 below shows the measured data for Package 1 by categories.

Table 1: Measured data for Package 1

	Version A	Version B
Total TOI duration	27.8s	20.2s
Fixation duration	6.0s	3.6s
Time to first fixation	1.8s	1.8s
First fixation duration	0.1s	0.1s

Source: Own work.

Besides the differences between versions A and B of Package 1, there were some differences detected between different AOIs of the two versions. The data is presented in Table 2 below, where fixation duration is excluded, as the ratio of the data is the same as for the total TOI duration.

Table 2: Measured data for Package 1 by AOIs

		Offer	Family picture
Total TOI duration	Package 1A	48.5%	51.5%
	Package 1B	63.6%	36.4%
Time to first fixation	Package 1 A	3.22s	0.32s
	Package 1B	1.21s	2.46s
First fixation duration	Package 1 A	0.14s	0.15s
	Package 1B	0.10s	0.14s

Source: Own work.

Attention heatmaps showed that in the control version, more attention was distributed over the family picture and brand logo, while in version B more attention was distributed over the offer, which was the main message. Even though on average consumers needed the same amount of time before making the first fixation, it was clear that in version B the first fixation to the main message was made faster. Despite the fact that the total attention duration spent on version B was shorter than in the control version, its distribution seemed to be more effective in version B.

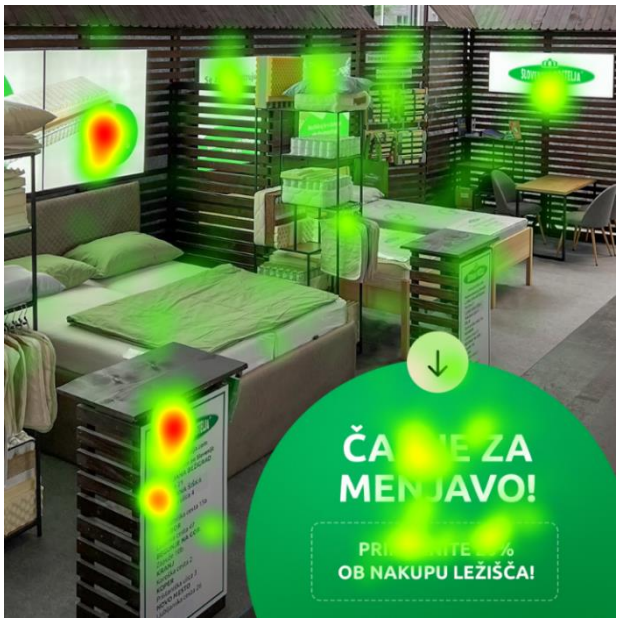
5.3.2 Analysis of eye tracker experiment for Package 2

As Package 2 served as a test for loss aversion of participants, the two versions were randomly assigned to participants. 12 out of 29 participants were exposed to version A of Package 2, and B version was displayed to 17 of them. One of the participants seeing version B did not fixate their focus on either of the predicted AOI areas, thus the analysis of the eye-tracking experiment for Package 2 was carried out without this participant. Figures 18 and Figure 19 present attention distribution heatmaps for Package 2.

Figure 18: Loss aversion heatmap - version A (control)

Source: Own work.

Figure 19: Loss aversion heatmap - version B



Source: Own work.

Similarly to Package 1, two AOIs were predetermined on Package 2 as well. The first, the rectangular one, was placed over the offer text in the lower right corner and the second one was in a form of an ellipse and it was set over the text on a wall under the picture of a mattress. Displayed AOIs for Package 2 can be found in Appendix 6.

Different total TOI duration was recorded for both versions of Package 2. For version A, 25.2s were noted and for version B there were 20.6s. When it comes to average total TOI duration distribution between the AOIs, it was distributed approximately equally for both versions – 50% for the AOI of the wall caption and 50% for the offer text.

The average fixation duration was 2.0s for version A and 1.5s for version B. The average time to first fixation was shorter for version B – it amounted to 4.0s, while for version A it was 5.3s. Within the AOIs on version A, it took participants 5.2s to make the first fixation on the wall caption, while it took them 5.9s to fixate on the offer. In comparison, for version B they needed 3.4s to make the first fixation on the wall caption and 4.9s to fixate on the offer. On average, the first fixation lasted longer on version A – 0.4s, whereas on version B it lasted 0.2s. The first fixation of participants exposed to version A lasted 0.6s for the wall caption AOI, and 0.2s for the offer AOI. Regarding version B of Package 2, the first fixation on the wall caption and on the offer text was 0.3s and 0.2s long, respectively. Table 3 categorically presents the measured data for Package 2.

Table 3: Measured data for Package 2

	Version A	Version B
Total TOI duration	25.2s	20.6s
Fixation duration	2.0s	1.5s
Time to first fixation	5.3s	4.0s
First fixation duration	0.4s	0.2s

Source: Own work.

Further on, Table 4 displays measured data for package 2 by predetermined AOIs.

Table 4: Measured data for Package 2 by AOIs

		Wall caption	Offer
Total TOI duration	Package 2A	50.1%	49.9%
	Package 2B	50.8%	49.2%
Time to first fixation	Package 2A	5.2s	5.9s
	Package 2B	3.4s	4.9s
First fixation duration	Package 2A	0.6s	0.2s
	Package 2B	0.3s	0.2s

Source: Own work.

Based on the measured data, none of the versions is effective in gaining attention with regard to the offer part. In version B, attention is distributed over the third element as well, not essential for the communication, rather than on the key two. Participants needed more time to make the first fixation, which then lasted less. Overall, the results are better for version B, however the wall caption still gets more attention than the offer.

5.3.3 Analysis of eye tracker experiment for Package 3

Package 3 was dedicated to exploring the framing effect in communication materials. As within all other packages, versions A and B were randomly distributed amongst the 29 participants. 18 of them were exposed to the version A and 11 of them were exposed to version B of Package 3. Heatmaps for attention distribution on both versions of Package 3 are presented below (Figures 20 and 21).

Figure 20: Framing effect heatmap - version A (control)

Source: Own work.

Figure 21: Framing effect heatmap - version B

Source: Own work.

The two versions of Package 3 differentiate from the versions of the other packages regarding the number of AOIs of a certain version. Version A has only one AOI – the main caption including the offer (rectangle), while for version B two AOIs were determined, the offer (rectangle) and the sign for special technology (ellipse). All AOIs within Package 3 are in an elliptical form and can be found in Appendix 7.

On average, the total time spent on either of the AOIs was 14.3s for version A and 16.5s for version B. In version A, 100% of participants' attention was focused on the text with the offer (as this was the only AOI), however on version B, on average 82% of the time spent on the AOIs was spent on the offer, the other 18% of the time was spent on the technology caption. The average duration of the fixation on either of the AOIs was therefore 5.4s and 3.10s for version A and version B, respectively. Participants spent on average 0.03s before fixating on version A and 1.4s for fixating on version B. Regarding version B with separate AOIs, it took participants 0.1s to fixate their gaze at the offer text and 3.3s to fixate it at the technology sign. The first fixation on average took 0.2s and 0.1s for version A and version B, respectively. Within version B, the first fixation on the offer caption lasted 0.1s and fixation on the AOI with technology caption lasted 0.2s. In Table 5 measured data for Package 3 is presented categorically.

Table 5: Measured data for Package 3

	Version A	Version B
Total TOI duration	14.3s	16.5s
Fixation duration	5.4s	3.1s
Time to first fixation	0.0s	1.4s
First fixation duration	0.2s	0.1s

Source: Own work.

For the purpose of a more detailed analysis, the measured data for Package 3 by AOIs is demonstrated below.

Table 6: Measured data for Package 3 by AOIs

		Offer	Technology caption
Total TOI duration	Package 3A	100%	
	Package 3B	82.3%	17.7%
Time to first fixation	Package 3A	0.0s	
	Package 3B	0.1s	3.3s
First fixation duration	Package 3A	0.2s	
	Package 3B	0.1s	0.2s

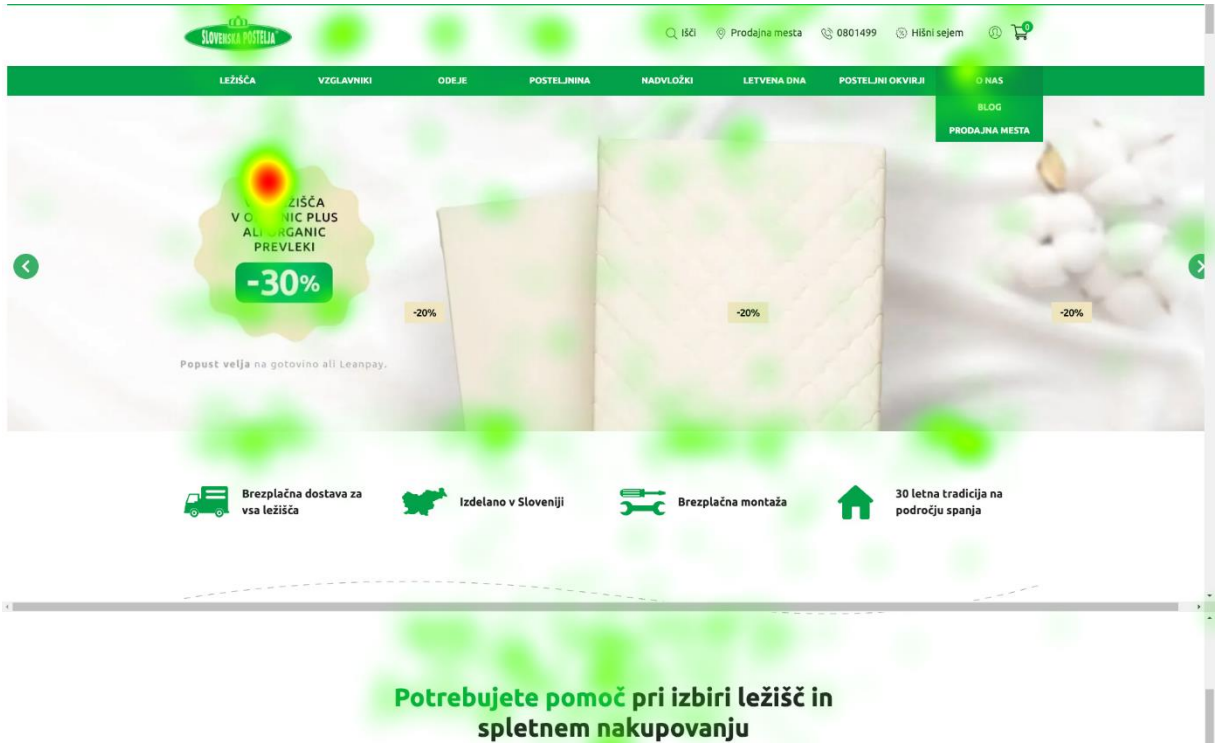
Source: Own work.

Higher total attention span on version B may be due to the additional element (technology caption), however other metrics show inefficiency in gaining attention by adding the framing element. There was more attention detected on the offer sign of version B, which may contribute to memorability of the offer itself, yet not to reframing the brand perception.

5.3.4 Analysis of eye tracker experiment for Package 4

Package 4, examining the role of FOMO in communication materials, was analysed differently than the other three packages. As a non-clickable website was exhibited, the metrics, such as total TOI duration, fixation duration, time to first fixation and first fixation duration, were not analysed. As the website included various elements, it was possible to analyse the heatmap together with customer perception and their purchase intention, given in a follow-up survey, presented in the next subsection. 18 out of 29 participants were exposed to version A and 11 of them were exposed to version B. Attention distribution heatmaps for upper parts of Package 4 visuals are presented in Figures 22 and 23 for both versions of Package 4. Whole attention distribution visuals can be found in Appendix 8.

Figure 22: FOMO heatmap - version A (control)



Source: Own work.

Figure 23: FOMO heatmap - version B

Source: Own work.

Attention heatmaps showed that approximately two times more attention was sustained around the main banner when FOMO element was present (version B), otherwise attention distribution over the whole website was similar in both versions. Timer itself did not get a lot of attention.

5.4 Analysis of follow-up survey

A survey questionnaire was used as a second step in the empirical part of this study to complement the results from the eye-tracking part. Participants' attitudes, preferences and feelings were explored. Complete questionnaire can be found in Appendix 9. Below are presented the results of the follow-up survey by individual Packages.

5.4.1 Analysis of follow-up survey for Package 1

With the help of the follow-up questions in the first part of the survey, susceptibility for the bandwagon effect was tested. Participants had to indicate their level of agreement with the statements provided on a 6-point Likert scale, where value 1 meant *"Completely disagree"* and value 6 stood for "*Completely agree"*. All items of Likert-scale questions from the questionnaire can be found in Appendix 3.

The first statement of Package 1 was *"When I saw the offer with the family picture, I felt under pressure from others to buy."* The analysis was carried out with a non-parametric test – the Mann-Whitney U test, as not all the assumptions necessary for an independent t-test were met. The data was not normally distributed according to the Shapiro-Wilk test. Results of the Mann-Whitney U test showed that based on the sample data there was no statistically significant difference between the distributions of the two groups ($p > 0.05$), which also means that there was no significant difference between the mean values of the two groups. This implies that the group exposed to a cognitive heuristic – the bandwagon effect did not feel the pressure from others to buy differently than the control group.

The second statement referring to Package 2 was *"Promotional prices caught my attention."* Based on the Shapiro-Wilk test, the data was not normally distributed, therefore the Mann-Whitney U test was run. P value exceeded 0.05, meaning that based on the sample data the distributions of both groups were not statistically significantly different and neither can be said for the mean values of both groups. Thus, promotional prices, displayed on the media did not catch attention of either group more intensively than of the other.

The third question within Package 1 helped with understanding the participants' ability to recall one of the percentage discounts in the offer. They were asked *"What percentage (%) discount would the customer receive when buying 3 products?"* To establish the share of the participants answering correctly, the Two-Proportion Z-Test was run. The analysis uncovered the p-value of 0.062, which led to the conclusion that, based on the sample data, the shares of participants exposed to version A and version B that got the answer wrong were not statistically significantly different. However, the p-value approached the threshold value 0.05, which should serve as a basis for additional research with a larger sample.

5.4.2 Analysis of follow-up survey for Package 2

In the second part of the survey, loss aversion and reciprocity effect were explored. The first statement participants had to express their agreement with was *"If I had chosen to buy a mattress, I would have saved money with this offer"*. Again, the difference between the mean values was analysed and, in order to carry out the right test statistics, the Levene's test and the Shapiro-Wilk test were performed. They showed that data are not suitable for the parametric test, therefore the Mann-Whitney U test was performed. The test indicated p-value of 0.429 ($p > 0.05$), showing no statistically significant difference between the distributions of the A and B group. Consequently, no significant difference between the mean values of the groups was shown. Also, this revealed that no group perceived the offer differently regarding whether they would save money taking this offer.

The second statement concerning Package 2 was the following *"Looking at the offer, I get the feeling I have more to gain than to lose"*. After testing initial assumptions about

adequacy of data to perform the parametric test, they proved to be unsuitable for parametric testing, and that is why the Mann-Whitney U test was run. Based on the sample data, as the output p-value of 0.539 uncovered that no statistically significant difference between the two groups' distribution was detected and neither could be stated that the groups significantly differ regarding their mean values. Therefore, participants, regardless of which group they belonged to, did not differ much as regards the feeling that they had more to gain than to lose with the presented offer.

5.4.3 Analysis of follow-up survey for Package 3

Package 3 was employed to discover the susceptibility of participants to the framing effect. The first statement that has been looked into was *"The brand seems to me to be highly developed technologically"*. After testing the basic assumptions for the independent t-test and finding them to be insufficient, the Mann-Whitney U test was performed to discover potential differences in distributions of each group. The p-value that came out was relatively high ($p = 0.817$), and because it exceeded the test value ($p > 0.05$) by far, it indicated that there was no statistically significant difference between both groups' distributions. On the basis of that, we could not conclude that there was a significant difference between the mean values of the groups. What this meant was that neither of the groups perceived the brand to be more highly technological than the other.

The second statement, dedicated to examining the framing effect, was *"I trust the brand to offer quality products"*. The assumptions, necessary for parametric testing were not met, which is why the Mann-Whitney U test was employed. The p-value exceeded threshold of 0.05 (it amounted to 0.159), and so it could not be stated that there was a statistically significant difference between the distributions of groups exposed to versions A and B. In that manner, it could not be concluded that there is a significant difference between the mean values of the two groups. Contextually, this meant that no group thought of the brand as being more trustworthy than the other.

5.4.4 Analysis of follow-up survey for Package 4

Package 4 was set to delve into the FOMO effect of the participants. For that purpose, they were asked to indicate the extent to which they agree with the following statement *"I felt under time pressure to buy when I saw it"* – referring to either version A or B of Package 4. The data collected from both groups were not normally distributed, which led to the Mann-Whitney U test. The p-value of this test reached the value of 0.150, which meant exceeding the threshold value ($p > 0.05$) and not showing a significant difference between the distributions of the two groups. This, further on, meant that no statistically significant difference between the mean values of the groups was shown. This suggests that the group exposed to the FOMO element did not feel under pressure to buy any differently than the group which was not exposed to the FOMO element.

For the last contextual statement of the survey, the following statement was applied *"If a good friend of mine was going to buy a mattress or other product offered by a brand, I would advise him to hurry up and buy it."* This way, a projective technique was used with the purpose of decreasing possible personal biases and taking into account that not all individuals were in the process of purchasing the products offered by the brand on their own, which could have an impact on their answer. For the data set, collected from both groups, all the assumptions for the parametric test were met (homogeneity of variances and normality test), therefore the independent t-test was carried out. The p-value amounted to 0.273, outpacing the 0.005 value, meaning that there was no statistically significant difference between the A and B mean values. This implies that the group exposed to the FOMO element would not recommend the displayed offer to their friend to a different extent than the group not exposed to the FOMO element.

5.5 Synthesis and interpretation of the results

In the following chapter, the findings from eye tracking and the survey research will be synthesized and interpreted. Also, suggestions for implicating the findings onto the practical field will be elaborated.

5.5.1 Interpretation of findings

Based on the performed analyses, no statistically significant differences between the results of control groups and groups exposed to heuristic elements were observed, however, some insights may still be retrieved from both analyses. To begin with, the most promising cognitive heuristic employed in marketing communication materials may be the bandwagon effect from Package 1. Comparing the version containing the bandwagon effect element with its control version, the participants' attention in the version with the heuristic element was directed towards the main message (prices) for a longer period of time. Based on the survey, a higher share of participants memorised the correct promotion percentage in that same version. Thus, longer gaze could potentially activate higher memorability, as was previously suggested by Andreoli et al. (2014). Even though the difference with its control group version was not statistically significant, the actual value of the test statistics was near the threshold, meaning that by increasing the sample size, the difference between the two groups could potentially become statistically significant. On the one hand, by applying the bandwagon effect element, the time to the first fixation to AOI with the main message (promotion prices) reduced by more than half, which also spoke in favour of the applicability of this component, as marketers have an interest in reducing the time needed to get attention. On the other hand, fixation duration and the total TOI duration were decreased by applying the heuristic element, which is generally not a good sign for advertisers. In addition, participants self-reported that they were not affected by the pressure from others, nor did they claim the prices caught their attention, yet the

memorability of the prices was higher in the group with heuristic compared to the control group.

Further on, trying to induce loss aversion in Package 3 with the claim “save 20%” has not proven to be a more effective option than offering a free pillow. In a version that included the loss aversion element (“save 20%”), the attention distributed from two main AOIs over the third element of interest – mini counter with information on branch locations. The omission of the third element of interest could have contributed to the fact that no statistically significant differences between the two groups were found. The fact that the third element of interest is not essential in terms of sending the desired communication message may have taken the focus off the core communication elements. We can conclude that the loss aversion element is not effective in modifying perception of a product deal, which contradicts the existing literature regarding applying loss aversion for increasing communication effectiveness (The Decision Lab, 2023).

Furthermore, placing the framing element within Package 3 into communication materials does not seem to activate change in consumer perception of the brand. Nevertheless, there are some useful insights that can be drawn from the analysis. Based on the heatmap data, the version with the framing element has directed more focus towards the main message (the offer). Attention concentration increased on both AOIs (the technology caption and the offer caption). Accordingly, the total TOI was increased in the version with the framing effect, which means the participants spent more time gazing at it than in the version without the framing effect. Longer TOI in version B could be a consequence of implementing an additional element, which was not present in the control version, while other elements stayed the same. In contrast to that, on average it took more time for consumers to fixate on the version with the heuristic, and fixation time on AOIs was shorter. As regards only the time to the first fixation on AOI with the main offer sign, on average it took consumers two times longer to fixate on that same AOI in the version with the framing effect in comparison to the control version. This goes in coherence with Yerkes-Dodson curve (Nickerson, 2023), as increasing the number of triggers (elements) up to a certain point can enhance communication performance, however, when that point is exceeded, performance diminishes.

Similarly applies to the FOMO heuristic used in Package 4. On average, participants did not demonstrate that they felt under time pressure due to the presence of the timer. Even though no statistically significant difference was shown between the control group and the group with heuristic regarding recommending the brand to friends, the average of the control group amounted to 3.5 (on a 1-6 scale) while the average of the group with heuristic reached 2.9. This result could be attributed to the different purchase phases the participants are in and the small sample size. Nevertheless, they were not affected by timer in terms of the sense of urgency and FOMO. When the timer was present, the area of attention distribution around the main offer was nearly two times bigger than when there

was no timer. Besides, the attention span was approximately equally distributed across the website in both versions.

5.5.2 Practical implications

Incorporating bandwagon effect in marketing communication may provide a quick and effective attention shift towards the desired communication message and increase its memorability on consumers' subconscious level. Even though consumers tend to think they are not affected by what others think and do, it still may be the lever to encourage desired behaviour, as this is one of the classical primal instincts, apparently still strongly entrenched (Hjeij & Vilks, 2023). The observation that consumers do not detect whether something was the primary focus of their attention underlines the importance of including neuromarketing techniques in research in the field of consumer behaviour. Neuromarketing techniques can be paired with traditional types, however, when the topic of the research concerns subconscious level of a consumer (such as attention), adopting one of neuromarketing techniques shall not be omitted (Eminent SEO, 2017). Given that the bandwagon effect element attracts attention faster and improves memorability, it retains attention for a shorter amount of time. Therefore, this implication applies for static forms of content and not necessarily for dynamic ones as well.

Activating loss aversion with consumers has not proved to be an effective technique. Too much information may stir attention away from the essential message and consequently prevent clear and thorough communication (Bialkova et al., 2013; Nickerson, 2023). What is more, "saving 20% of the purchase" as a counteroffer to a free pillow is not a strong enough incentive to cause the feeling of potential loss. When purchasing a mattress, a free pillow is indeed a complementary good and it could be of a high value to consumers. Nevertheless, a stronger feeling of a fair deal may have been achieved by placing one deal (free pillow) next to another (20% discount) and thus allowing consumers free choice. By presenting the deals in a way that enables comparison and gives consumers more control over their purchase, the loss aversion effect could have changed the perception of a deal to be seen as worth choosing or could have intensified the consumers' purchase intention (Bialkova et al., 2020).

Similarly, framing effect from Package 3 has not demonstrated to be useful when seeking for different brand perception. Placing additional element naturally increases the time spent gazing at a visual, however it also takes more time for the first gaze fixation. It directs less attention to brand logo and more attention to the main deal. Accordingly, the framing effect may not be useful for changing brand perception, but it could be useful for changing perception of the product deal. Using fast-flowing channels is especially not a suitable option for reframing the view of the brand, as this manner lacks attention-grabbing hooks and "what-is-in-it-for-me" elements, which are more likely to win attention. As they originate from "the old brain", the part of the brain fuelled by egocentrism and holding the

decision-making sector as well (Renvoisé & Morin, 2007), which, once again proves that consumer-centric approach to marketing techniques is still of a high importance.

Furthermore, FOMO element from Package 4 has not proved to be successful in increasing the level of consumer purchase intent. Insensitivity to sense-of-urgency stimulus may occur due to increasingly well-informed consumers and decreasing trust in communication claims on website banners (Chan, 2024). As this goes hand in hand with information saturation especially in business and marketing field (Bialkova et al., 2013), people are getting used to disregarding various triggers from marketing communications. Timer and similar FOMO-stimulators are becoming rather annoying elements of sales and marketing tactics since consumers are getting more and more educated and aware of their power. Correspondingly, consumers may tend to slowly drift into resistance against the elements backed by numerous cognitive heuristics. In order to pay attention to something, it has to be noticeably distinctive among its own kind – or has to hold a high value for them.

After all, not all four cognitive heuristics in topic appear to be effective in attracting consumer attention to a certain signal within marketing communication materials. Bandwagon and framing effect manage to distribute attention over the desired message, however FOMO and loss aversion elements can cause some confusion and unclear communication message. Nonetheless, capturing attention onto the right elements does not necessarily mean that communication is successful and that communication goals are met. Further on, when placing heuristic element into communication materials much consideration regarding the context the elements are placed in is needed.

6 CONCLUSION

The aim of this research was to explore the application of cognitive heuristics in the field of consumer attention. Principally, this study tried to address four specific cognitive heuristics, often involved in marketing communication, and question their relevance and effectiveness.
The focus was on the selected cognitive heuristics, often applied in marketing, especially, whether placing bandwagon effect in communication is associated with consumers' memorability of the message, how likely it is that inducing loss aversion in consumers would modify their perception of a product deal, how framing can alter consumers' perception of a brand, and the use of FOMO and its connection to consumers' level of purchase intention. On the whole, the thesis examines whether cognitive heuristics can be used in order to increase marketing communication effectiveness.

It is important to emphasize that most of the differences between the control and test groups were demonstrated as statistically insignificant. The one test holding strong potential for the differences to be shown with increasing sample size is the bandwagon effect case. It brings the most important lesson acquired from the study, i.e. that the human

species is still very susceptible to what other people think, say, and do although they are prone to deny that. Also, this result goes hand in hand with certain human instincts, such as herd instinct, still being deeply rooted in our subconscious. Despite the fact that visual attention distribution does not mark drastic changes between the two groups, it is evident from the survey data that participants tend to remember the main communication message more if all faces were oriented towards the message. This way, the purpose of communication came closer to being fulfilled.

The second case was about what is believed to be the strongest human motivator – loss aversion. In this instance it did not prove to be effective in changing consumers' perception of a deal – however this may be due to information cluttering on the ad. It has been found that a third element, which has not been part of the initial areas of interest, may have disturbed consumer attention distribution, because it received a lot of attention when adding the loss aversion element. It may have served as a distraction against the main communication message, which still got a bit more attention than its control version, however no changed perception was spotted. Therefore, information cluttering may have prevented clear communication.

The framing idea was successful to a similar extent than the loss aversion one. Application of the heuristic got some more attention on the main message, nevertheless no change in brand perception was supported. The framing visual material was, in fact, ineffective in all other metrics analysed in the study. It took participants longer to fixate their eyes on, but when they did, the fixation was shorter than with the control group. This may be attributable to unsuccessful communication of the technology element. Only stating the name of the technology may not suffice to the appetites of fully informed consumers.

Lastly, the FOMO concept involving timer was recognised as relatively fruitless in terms of evoking a sense of urgency. With employing the timer some reallocation of attention was noticed, especially to the top main banner, notwithstanding that there was no difference in participants' purchase intent. The motivation for such insensibility may be found in an era of hyper information, where consumers are generally not fond of marketing stimuli because they are too numerous. To adapt to it and prevent attention fatigue, they have developed a certain distance from them, which for advertisers may mean that it gets harder to evoke a certain perception, let alone induce action. It is possible that consumers have become immune to numerous marketing tricks that involve types of dark patterns or other silent manipulators. Functioning as disruptors for consumers they often push consumers towards making an assumption or a decision that best serves the interest of marketers and not necessarily themselves as well (Luguri & Strahilevitz, 2021). Some other causes for participants' insensitivity to consumer heuristics can be found in various psychological and sociological factors.

Based on the study some implications for marketers or, more specifically, advertisers are given. Employing cognitive heuristics in communication may not be the most efficient means of communication – at least not to generalise their performance. As the bandwagon effect showed, they can still be smoothly integrated in campaigns, however with a high degree of moderation and deliberation. Along with that, it is reasonable to study the purpose of communication and adjust the placing of cognitive heuristics accordingly. In addition, when performing research of subliminal behavioural processes, such as attention, merely traditional approaches do not suffice anymore, as results of self-reporting may contradict the actual condition.

All in all, implementation of cognitive heuristics aided in distributing more attention over the main message at different efficiency levels. In spite of that, the main purpose of communication has not necessarily been met. However, to acquire more accurate and representative data, a larger and more representative sample should be established. As this study was limited time- and budget-wise, a smaller and potentially biased sample size was used. Aside from that, individual factors played an important role in the research process and may have contributed to the outcome. Participants' personality traits, mood, and the flow of the day on the testing day could steer individual results. Besides that, strong personal opinions on the brand presented or personal attitudes towards marketing techniques could drive the findings into a certain way, as well as purchase phases individuals were in at the time of testing.
For further research, I suggest iteration of the measurements with implication of results from previous measurements, in order to improve the comprehension of the way the visual elements need to be presented for maximum communication efficiency. This kind of testing could serve as a concept testing, not necessarily testing only the materials concerned. Besides, other heuristics and other marketing concepts could be examined in such way, for example purchase motivation, brand performance, recommendations, and others. In any case, all elements included in the testing should be thoughtfully implemented.

REFERENCES

1. Amplified Intelligence. (n.d.). *What are attention-based metrics?* https://www.amplifiedintelligence.com.au/explaining-attention-measurement/
2. Andreoli, T. P., Veloso, A. R., & Batista, L. L. (2014). Attention in Advertisers Brand Processing-A Theoretical Essay on the Attention Levels and its Implications in Terms of Influence on the Individual Consumer Memory. *Business and Management Review*, *4*(3), 318.
3. Ariely, D. (2009). *Predictably Irrational* (first revised and expanded edition). HarperCollins Publishers.

4. Atalay, A. S., Bodur, H. O., & Rasolofoarison, D. (2012). Shining in the center: Central gaze cascade effect on product choice. *Journal of Consumer Research*, *39*(4), 848-866.
5. Bansal-Travers, M., Adkison, S. E., O'Connor, R. J., & Thrasher, J. F. (2016). Attention and recall of point-of-sale tobacco marketing: a mobile eye-tracking pilot study. *AIMS public health*, *3*(1), 13.
6. Barberis, N. C. (2013). Thirty Years of Prospect Theory in Economics: A Review and Assessment. *Journal of Economic Perspectives*, 27(1), 173-196.
7. Barbierato, E., Berti, D., Ranfagni, S., Hernandez-Alvarez, L., &. Bernetti, I. (2023). Wine label design proposals: an eye-tracking study to analyze consumers' visual attention and preferences. *International Journal of Wine Business Research*, *35*(3), 365-289.
8. Beke, J. (2023). *How can attention be measured?* https://www.semetis.com/en/resources/articles/how-can-attention-be-measured
9. Bhat, A. (n.d.). Consumer Behaviour: *Definition, factors and methods*. https://www.questionpro.com/blog/consumer-behavior-definition/
10. Bialkova, S., Grunert, K. G., & van Trijp, H. (2013). Standing out in the crowd: The effect on information clutter on consumer attention for front-of-pack nutrition labels. *Food Policy*, 41, 65-74.
11. Bialkova, S., Grunert, K. G., & van Trijp, H. (2020). From desktop to supermarket shelf: Eye-tracking exploration on consumer attention and choice. *Food Quality and Preference*, 81(103839).
12. Binder, A., Naderer, B., & Matthes, J. (2020). A "forbidden fruit effect": An eye-tracking study on children's visual attention to food marketing. *International Journal of Environmental Research and Public Health*, *17*(6), 1859.
13. Boksem, M. A. S., & Smidts, A. (2015). Brain Responses to Movie Trailers Predict Individual Preferences for Movies and Their Population-Wide Commercial Success. *Journal of Marketing Research*, *52*(4), 482–492.
14. Campbell, E. (2023). *Three reasons why behavioural science goes beyond traditional marketing*. https://www.cowryconsulting.com/newsandviews/three-reasons-why-behavioural-science-goes-beyond-traditional-marketing
15. Chan, E.Y. (2024). Emotional Marketing. In: *Consumer Behavior in Practice*. Palgrave Macmillan, Cham, 85-103.
16. Chen, L., & Pu, P. (2010). Eye-tracking study of user behavior in recommender interfaces. *Proceedings of the 18th International Conference on User Modeling, Adaptation and Personalization*, 375–380.
17. Cherry, K. (2022a). *What Are Heuristics?* https://www.verywellmind.com/what-is-a-heuristic-2795235
18. Cherry, K. (2022b). *How We Use Selective Attention to Filter Attention and Focus*. https://www.verywellmind.com/what-is-selective-attention-2795022
19. Cherry, K. (2022c). *How Psychologists Define Attention*. https://www.verywellmind.com/what-is-attention-2795009

20. Chi, A. (2022). *A Brief History of Neuromarketing*. https://www.boonmind.com/a-brief-history-of-neuromarketing/
21. Chicago Booth. (n.d.). *The Importance of Behavioural Science*. https://www.chicagobooth.edu/mindworks/what-is-behavioral-science-research
22. Cho, K., Courville, A. & Bengio, Y. (2015). Describing multimedia content using attention-based encoder-decoder networks. *IEE Trans. Multimed*, 17, 1875-1886.
23. Cleveland Clinic. (2022). *PET Scan*. https://my.clevelandclinic.org/health/diagnostics/10123-pet-scan
24. Cleveland Clinic. (2023). *Functional MRI (fMRI)*. https://my.clevelandclinic.org/health/diagnostics/25034-functional-mri-fmri
25. Decision Lab. (2023). *Cognitive Biases*. https://thedecisionlab.com/biases
26. Deng, R., & Gao, Y. (2023). A review of eye tracking research on video-based learning. *Education and information technologies*, *28*(6), 7671–7702.
27. Diamond D. M. (2005). Cognitive, endocrine and mechanistic perspectives on non-linear relationships between arousal and brain function. *Nonlinearity in Biology, Toxicology and Medicine,* 3, 1–7.
28. Digiday. (2023). *Brands and agencies are turning to metrics to drive better business outcomes*. https://digiday.com/sponsored/brands-and-agencies-are-turning-to-attention-metrics-to-drive-better-business-outcomes/
29. Dunbar RIM. (1998). *Grooming, gossip, and the evolution of language*. Harvard University Press
30. Eminent SEO. (2017). *What Is Neuromarketing and Is It Better Than Traditional Marketing?* https://www.eminentseo.com/blog/what-is-neuromarketing-vs-traditional-marketing/
31. Faber, L. G., Maurits, N. M., & Lorist, M. M. (2012). *Mental fatigue affects visual selective attention*. *PloS one*, *7*(10).
32. Feger, A. (2023). *Why attention metrics matter and three ways to measure them*. https://www.insiderintelligence.com/content/why-attention-metrics-matter-three-ways-measure-them
33. Frankenfield, J. (2022). *Who Was Herbert A. Simon? Bounded Rationality and AI Theorist*. https://www.investopedia.com/terms/h/herbert-a-simon.asp
34. Gatterer, P. (2012). *Neuromarketing and Business Ethics: A recap of neuroscientific methods in marketing and rehash of the theoretical background for an ethical approach* (neue Ausg*)*. Saarbrücken: AV Akademiker Verlag.
35. GGI Insights. (2024). *Heuristics in Marketing: Steering Consumer Choices for SEO Success*. https://www.facebook.com/marketplace/item/411385794677768/
36. Gigerenzer, G. & Selten, R. (2001). *Bounded rationality: the adaptive toolbox*. The MIT Press.
37. Goulburn Health Hub. (n.d.). *EEG brain activity*. https://www.goulburnhealthhub.com/eeg-and-nerve-conduction-studies

38. Gupta, M., & Sharma, A. (2021). Fear of missing out: A brief overview of origin, theoretical underpinnings and relationship with mental health. *World journal of clinical cases*, *9*(19), 4881–4889.
39. Hall, W. J. (n.d.). *Hugo Münsterberg*. https://psychology.fas.harvard.edu/people/hugo-m%C3%BCnsterberg
40. Harrell, E. (2019). Harward Business review: *Neuromarketing: What You Need To Know*. https://hbr.org/2019/01/neuromarketing-what-you-need-to-know
41. Harries, T., Rettie, R., Studley, M., Burchell, K. & Chambers, S. (2013). Is social norms marketing effective? A case study in domestic electricity consumption. *European Journal of Marketing*, 47(9), 1458-1475.
42. Hern, A. (2014). *Why Google has 200m reasons to put engineers over designers*. https://www.theguardian.com/technology/2014/feb/05/why-google-engineers-designers
43. Hiramatsu, C., Melin, A. D., Aureli, F., Schaffner, C. M., Vorobyev, M., Matsumoto, Y., & Kawamura, S. (2008). Importance of achromatic contrast in short-range fruit foraging of primates. *PLoS One*, 3(10), e3356.
44. Hjeij, M. & Vilks, A. (2023). A brief history of heuristics: how did research on heuristics evolve? *Humanit Soc Sci Commun* 10, 64.
45. Hsieh, S. & Allport, A. (1994). Shifting attention in a rapid visual search paradigm. *Perceptual and Motor Skills*, 79, 315-335.
46. Hüsser, A., & Wirth, W. (2016). Do Investors Show an Attentional Bias toward Past Performance? An Eye-Tracking Experiment on Visual Attention to Mutual Fund Disclosures in Simplified Fund Prospectuses. In Tina Harrison (editor), *Financial Literacy and the Limits of Financial Decision-Making*, 77-102.
47. Iloka, C. B. & Onyeke, K. J. (2020). Neuromarketing: a historical review. *Neuroscience Research Notes*, 3(3), 35.
48. James, W: (1890). *The Principles of Psychology*. York University.
49. Kahneman D. (2011). *Thinking, fast and slow*. Farar, Straus and Giroux.
50. Knutson, B., Wimmer, G. E., Rick, S., Hollon, N. G., Prelec, D. & Loewenstein, G. (2008). Neural Antecedents of the Endowment Effect. *Neuron*, 5(8), 814-822.
51. Kokthi, E., Bermúdez, I. V., & Limón, M. G. (2015). Origin or food safety attributes? Analyzing consumer preferences using Likert Scale. Empirical evidence from Albania. *New Medit: Mediterranean Journal of Economics, Agriculture and Environment*, *14*(4), 50.
52. Laissue, N., & Kovic, M. (2016). Consuming rationally: How marketing is exploiting our cognitive biases, and what we can do about it. *Swiss Sceptics Discussion Paper Series*, 1(3).
53. Lee, J. & Ahn, J. (2012). Attention to Banner Ads and Their Effectiveness: An Eye-Tracking Approach. *International Journal of Electronic Commerce*, 17(1), 119-137.

54. Li, J., Xue, W., Zhao, J., Tan, L. (2023). Cognitive bias and fear of missing out (FoMO) among Chinese college students: the mediating effects of attentional control, need to belong and self-construal. *Current Psychology, 42*, 23123–23132.
55. Lindsay, G. W. (2020). Attention in Psychology, Neuroscience and Machine Learning. *Frontiers in Computational Neuroscience*, 14(29).
56. Lua, A. (2021). *24 Social Proof Examples From Brands That Are Doing It Right*. https://www.referralcandy.com/blog/social-proof-examples
57. Luguri, J., & Strahilevitz, L. J. (2021). Shining a light on dark patterns. *Journal of Legal Analysis*, *13*(1), 43-109.
58. Mor, S. (2020). *Six Psychological Heuristics for Marketing*. In Medium. https://medium.com/@shiramor/six-psychological-heuristics-for-marketing-29c8be44c26d
59. Morin, C. (2011). Neuromarketing: The New Science of Consumer Behavior. *Society, 48,* 131–135.
60. Neurons. (n.d.). *What is Neuromarketing & How to Use It?* https://www.neuronsinc.com/insights/neuromarketing
61. Newson, J. J. (2018). *Many ways to measure attention*. https://sapienlabs.org/lab-talk/many-ways-study-attention/
62. Nickerson, C. (2023). *The Yerkes-Dodson Law Of Arousal And Performance*. In Simply Psychology. https://www.simplypsychology.org/what-is-the-yerkes-dodson-law.html
63. Norton, M. I., Mochon, D. & Ariely, D. (2012). The IKEA effect: When labor leads to love. *Journal of Consumer Psychology,* 22(3), 453-460.
64. Olson Zaltman. (n.d.). *ZMET: Zaltman Metaphor Elicitation Technique*. https://www.hbs.edu/faculty/Pages/profile.aspx?facId=6579&view=research-summary
65. Orquin, J. L., Bagger, M. P., Lahm, E. S., Grunert, K. G., & Scholderer, J. (2020). The visual ecology of product packaging and its effects on consumer attention. *Science Direct: Journal of Business Research*, *11,* 187-195.
66. Park, S. & Whang, M. (2018). Infrared Camera-based Non-contact Measurement of Brain Activity From Pupillary Rythms Front. *Physio, 9.*
67. Peker, S., Menekse Dalveren, G. G., & İnal, Y. (2021). The effects of the content elements of online banner ads on visual attention: evidence from an-eye-tracking study. *Future Internet*, *13*(1), 18.
68. Pieters, R., Rosbergen, E., & Wedel, M. (1999). Visual attention to repeated print advertising: a test of scanpath theory. *Journal of Marketing Research*, *36*(4), 424-438.
69. Piqueras-Fiszman, B., Velasco, C., Salgado-Montejo, A. & Spence, C. (2013). Using combined eye tracking and word association in order to assess novel packaging solutions: a case study involving jam jars. *Food Quality and Preference*, *28*(1), 328-338.

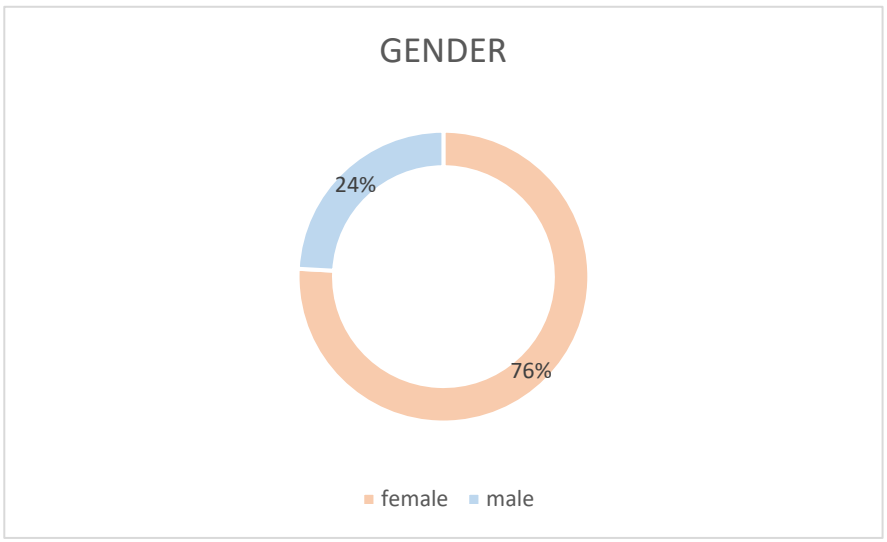
70. Raji, C. A., & Henderson, T. A. (2018). PET and Single-Photon Emission Computed Tomography in Brain Concussion. *Neuroimaging clinics of North America*, *28*(1), 67–82.
71. Rawnaque, F. S., Rahman, K. M., Anwar, S. F., Vaidyanathan, R., Chau, T., Sarker, F., & Mamun, K. A. A. (2020). Technological advancements and opportunities in Neuromarketing: a systematic review. *Brain Informatics*, *7*, 1-19.
72. Renvoisé, P. & Morin, C. (2007). *Neuromarketing: Understanding the "Buy Buttons" in Your Customer's Brain* (Rev. and updated). SalesBrain.
73. Robal, T., Zhao, Y., Lofi, C. & Hauff, C. (2018). Webcam-based Attention Tracking in Online Learning: A Feasibility Study. *The 2018 Conference*, 189-197.
74. Schulc, A., Cohn, J. F., Shen, J. & Pantic, M. (2019). Automatic Measurement of Visual Attention to Video Content using Deep Learning. *16th International Conference on Machine Vision Applications (MVA)*, Tokyo.
75. Smidts, A. (2002). *Kijken in het brein : over de mogelijkheden van neuromarketing*. Erasmus Research Institute of Management (ERIM), Erasmus University Rotterdam.
76. Solomon, P.R., Adams, F., Silver, A., Zimmer, J., & DeVeaux, R. (2002). Ginkgo for memory enhancement: a randomized controlled trial. *JAMA, 288*(7), 835-840.
77. Spencer, M. (2022). What's the difference between emotions, feelings and moods? https://dakotafamilyservices.org/resources/blog/archive/moods-feelings-emotions/
78. Spithoven, A. W. M., Bijttebier, P., & Goossens, L. (2017). It is all in their mind: A review on information processing bias in lonely individuals. *Clinical Psychology Review, 58*, 97–114.
79. Tseng, CH., Chen, YH. (2018). A camera-based attention level assessment tool designed for classroom usage. *The Journal of Supercomputing*, 4, 5889–5902.
80. Tversky, A. & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science*, New Series, *185*(4157), 1124-1131.
81. Universal Marketing Dictionary. (n.d.). *Attention*. https://marketing-dictionary.org/a/attention/
82. Villegas, F. (n.d.). *Customer Attention: What it is, Tips & Best Practices*. https://www.questionpro.com/blog/customer-attention/
83. Wedel, M. & Pieters, R. (2008). *Visual Marketing: From Attention to Action*. Taylor & Francis Group.
84. Wilson, J. C. (n.d.). *Gerald Zaltman*. https://www.hbs.edu/faculty/Pages/profile.aspx?facId=6579&view=research-summary
85. Wintermeier, N. (2019). *10 Endowment Effect Marketing Examples for Retail*. https://blog.crobox.com/article/endowment-effect-marketing-examples
86. Witynski, M. (n.d.). *Behavioural economics, explained*. https://news.uchicago.edu/explainer/what-is-behavioral-economics#behavioralecon

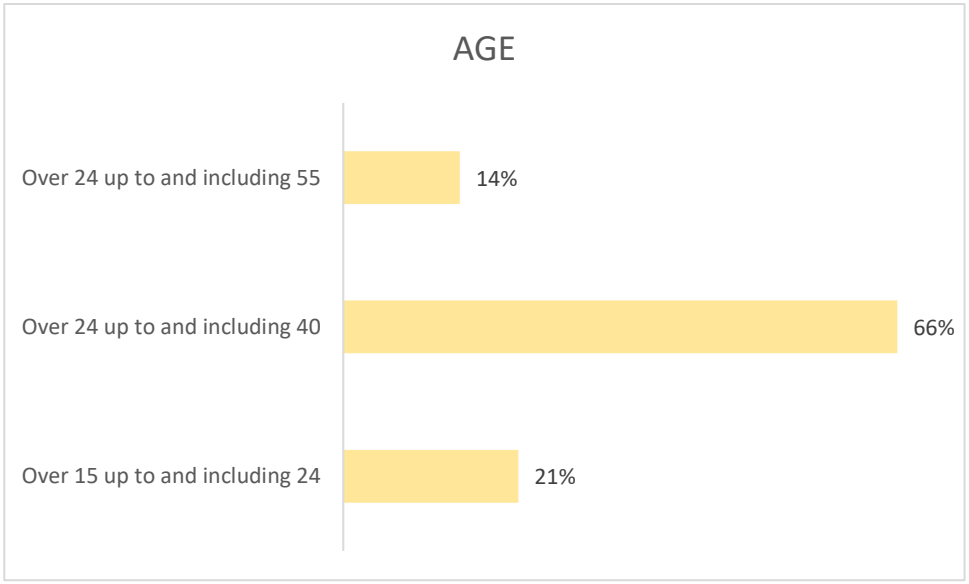
APPENDICES

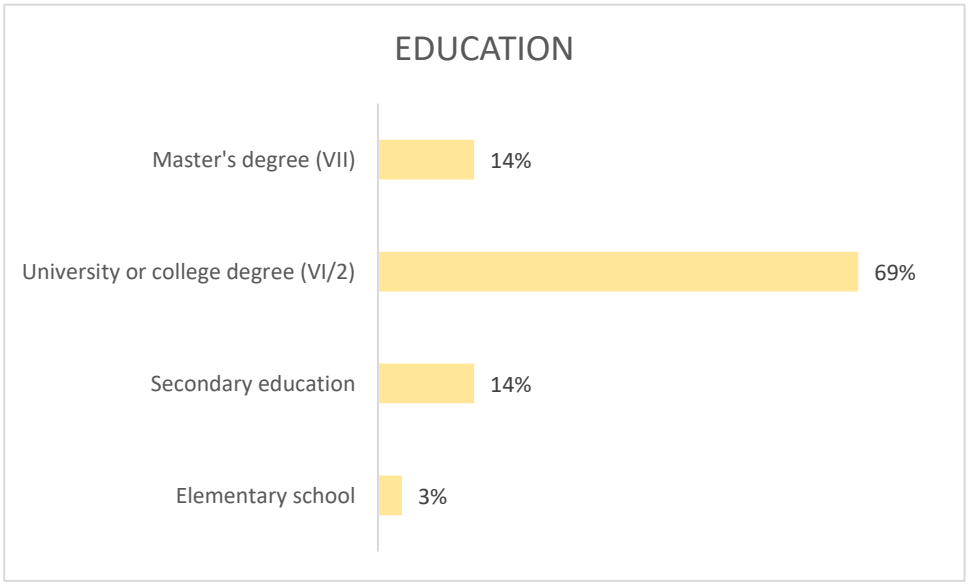
Appendix 1: Abstract in Slovene language

Pozornost porabnikov je v času nasičenosti z informacijami postala redka dobrina v trženjski stroki, zato se oglaševalci zanjo borijo na različne načine. Eden izmed njih je umeščanje kognitivnih hevristik kot potencialnih preusmeritev logičnega razmišljanja v trženjsko komunikacijske materiale. Z namenom preučevanja učinkovitosti umeščanja kognitivnih hevristik v oglaševanje pri doseganju različnih trženjskih ciljev sem združila tradicionalni in nevroznanstveni pristop k raziskovanju. Prvi del empirične raziskave je predstavljala raziskava z napravo za sledenje očem, drugega pa spletna anketa. Ugotovitve obeh delov sem analizirala z metodo sinteze in analize in na ta način odgovorila na zastavljena raziskovalna vprašanja. Od štirih kognitivnih hevristik (učinek skupine, odpor do izgube, uokvirjanje in ustvarjanje občutka nujnosti), za katere sem preverjala različne parametre pozornosti in učinkovitost komuniciranja, se je ena izkazala za učinkovito. Učinek skupine je na udeležence deloval v smeri povečane pozornosti in boljše zapomnljivosti komunikacijskih gradiv. Ostale hevristike se niso izkazale za efektivno orodje pri privabljanju in držanju pozornosti, naj bo to zaradi manjšega in nereprezentativnega vzorca ali zaradi povečanja odpornosti porabnikov na tovrstne dražljaje iz trženjskega ekosistema. Te ugotovitve gredo z roko v roki s trendom vedno boljše informiranosti porabnikov, obenem pa dopuščajo misel, da so nekateri instinktivni nagoni, kot je čredni nagon, še vedno močno zakoreninjeni v naši podzavesti. Za prihodnje raziskave predlagam vzpostavljanje večjega in bolj reprezentativnega vzorca, ki bo omogočal posplošitev rezultatov na populacijo, hkrati pa kombiniranje tradicionalnih in nevroznanstvenih tehnik za točnejše rezultate.

Appendix 2: Demographics of research participants



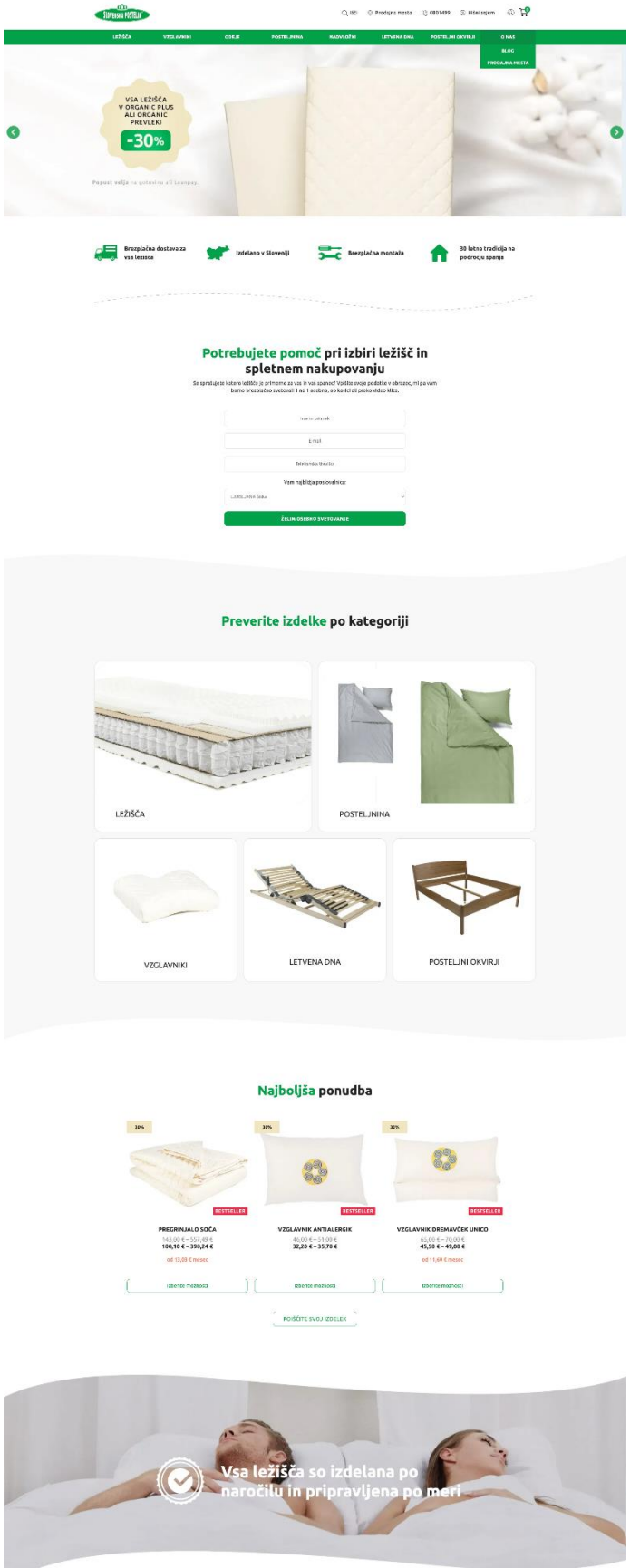


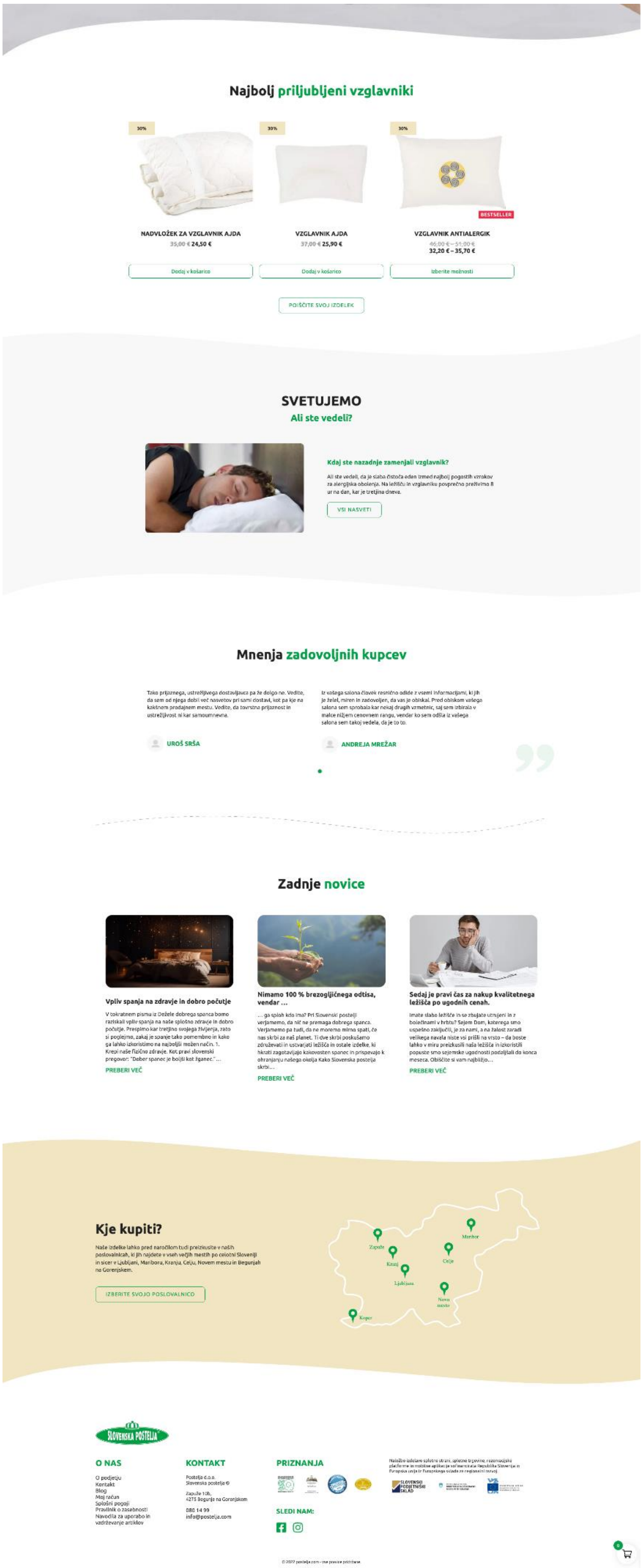


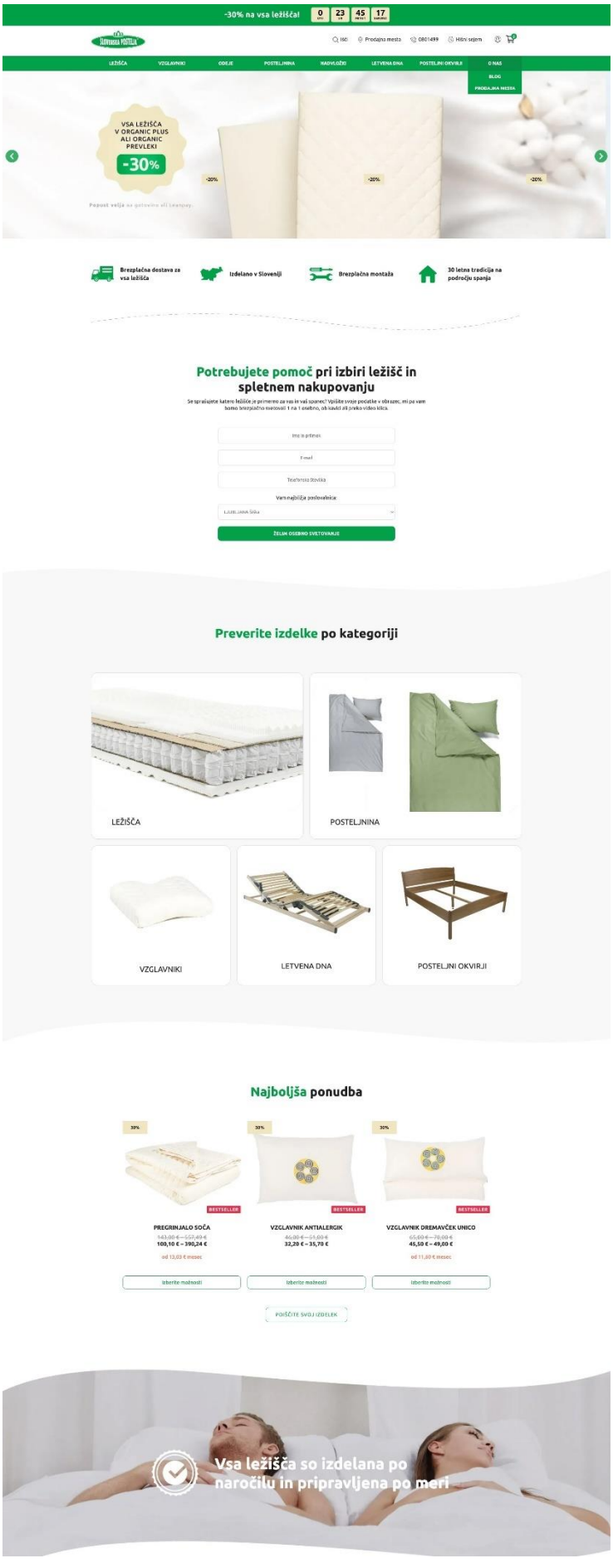
Appendix 3: Items of Likert-scale questions from questionnaire

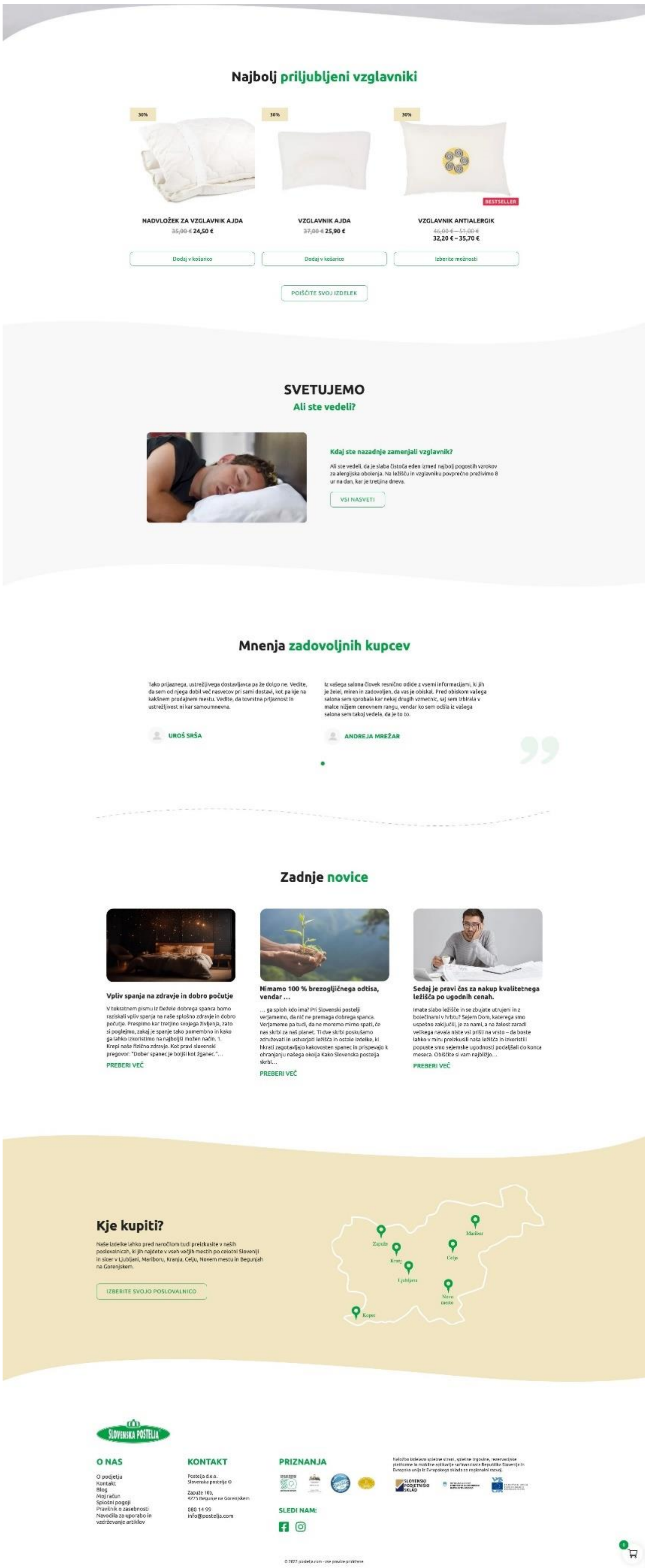
	1 – Completely disagree	2 – Strongly disagree	3 - Disagree	4 - Agree	5 – Strongly agree	6 – Completely agree
When I saw the offer with the family picture, I felt under pressure from others to buy.						
Promotional prices caught my attention						
If I had chosen to buy a mattress, I would have saved money with this offer.						
Looking at the offer, I get the feeling I have more to gain than to lose.						
The brand seems to me to be highly developed technologically.						
I trust the brand to offer quality products.						
I felt under time pressure to buy when I saw it.						
If a good friend of mine was going to buy a mattress or other product offered by a brand, I would advise him to hurry up and buy it.						

Appendix 4: Visuals of Package 4




Najbolj priljubljeni vzglavniki
30%
30%
30%
BESTSELLER
NADVLOŽEK ZA VZGLAVNIK AJDA
35,00 € 24,50 €
VZGLAVNIK AJDA
37,00 € 25,90 €
VZGLAVNIK ANTIALERGIK
46,00 € – 51,00 €
32,20 € – 35,70 €
Dodaj v košarico
Dodaj v košarico
Izberite možnosti
POIŠČITE SVOJ IZDELEK
SVETUJEMO
Ali ste vedeli?
Kdaj ste nazadnje zamenjali vzglavnik?
Ali ste vedeli, da je slaba čistoča eden izmed najbolj pogostih vzrokov za alergijska obolenja. Na ležišču in vzglavniku povprečno preživimo 8 ur na dan, kar je tretjina dneva.
VSI NASVETI
Mnenja zadovoljnih kupcev
Tako prijaznega, ustrežljivega dostavljavca pa že dolgo ne. Vedite, da sem od njega dobil več nasvetov pri sami dostavi, kot pa kje na kakšnem prodajnem mestu. Vedite, da tovrstna prijaznost in ustrežljivost ni kar samoumnevna.
UROŠ SRŠA
Iz vašega salona človek resnično odide z vsemi informacijami, ki jih je želel, miren in zadovoljen, da vas je obiskal. Pred obiskom vašega salona sem sprobala kar nekaj drugih vzmetnic, saj sem izbirala v malce nižjem cenovnem rangu, vendar ko sem odšla iz vašega salona sem takoj vedela, da je to to.
ANDREJA MREŽAR
Zadnje novice
Vpliv spanja na zdravje in dobro počutje
V tokratnem pismu iz Dežele dobrega spanca bomo raziskali vpliv spanja na naše splošno zdravje in dobro počutje. Prespimo kar tretjino svojega življenja, zato si poglejmo, zakaj je spanje tako pomembno in kako ga lahko izkoristimo na najboljši možen način. 1. Krepi naše fizično zdravje. Kot pravi slovenski pregovor: "Dober spanec je boljši kot žganec." …
PREBERI VEČ
Nimamo 100 % brezogljičnega odtisa, vendar …
… ga sploh kdo ima? Pri Slovenski postelji verjamemo, da nič ne premaga dobrega spanca. Verjamemo pa tudi, da ne moremo mirno spati, če nas skrbi za naš planet. Ti dve skrbi poskušamo združevati in ustvarjati ležišča in ostale izdelke, ki hkrati zagotavljajo kakovosten spanec in prispevajo k ohranjanju našega okolja Kako Slovenska postelja skrbi…
PREBERI VEČ
Sedaj je pravi čas za nakup kvalitetnega ležišča po ugodnih cenah.
Imate slabo ležišče in se zbujate utrujeni in z bolečinami v hrbtu? Sejem Dom, katerega smo uspešno zaključili, je za nami, a na žalost zaradi velikega navala niste vsi prišli na vrsto – da boste lahko v miru preizkusili naša ležišča in izkoristili popuste smo sejemske ugodnosti podaljšali do konca meseca. Obiščite si vam najbližjo…
PREBERI VEČ
Kje kupiti?
Naše izdelke lahko pred naročilom tudi preizkusite v naših poslovalnicah, ki jih najdete v vseh večjih mestih po celotni Sloveniji in sicer v Ljubljani, Mariboru, Kranju, Celju, Novem mestu in Begunjah na Gorenjskem.
IZBERITE SVOJO POSLOVALNICO
Zapuže
Kranj
Ljubljana
Maribor
Celje
Novo mesto
Koper
SLOVENSKA POSTELJA
O NAS
O podjetju
Kontakt
Blog
Moj račun
Splošni pogoji
Pravilnik o zasebnosti
Navodila za uporabo in vzdrževanje artiklov
KONTAKT
Postelja d.o.o.
Slovenska postelja ®
Zapuže 10b,
4275 Begunje na Gorenjskem
080 14 99
info@postelja.com
PRIZNANJA
SLEDI NAM:
SLOVENSKI PODJETNIŠKI SKLAD
© 2022 postelja.com - vse pravice pridržane.


-30% na vsa ležišča!
0 23 45 17
LEŽIŠČA
VZGLAVNIKI
ODEJE
POSTELJNINA
NADVLOŽKI
LETVENA DNA
POSTELJNI OKVIRJI
O NAS
BLOG
PRODAJNA MESTA
VSA LEŽIŠČA V ORGANIC PLUS ALI ORGANIC PREVLEKI
-30%
Brezplačna dostava za vsa ležišča
Izdelano v Sloveniji
Brezplačna montaža
30 letna tradicija na področju spanja
Potrebujete pomoč pri izbiri ležišč in spletnem nakupovanju
ŽELIM OSEBNO SVETOVANJE
Preverite izdelke po kategoriji
LEŽIŠČA
POSTELJNINA
VZGLAVNIKI
LETVENA DNA
POSTELJNI OKVIRJI
Najboljša ponudba
PREGRINJALO SOČA
100,10 € – 390,24 €
VZGLAVNIK ANTIALERGIK
32,20 € – 35,70 €
VZGLAVNIK DREMAVČEK UNICO
45,50 € – 49,00 €
POIŠČITE SVOJ IZDELEK
Vsa ležišča so izdelana po naročilu in pripravljena po meri

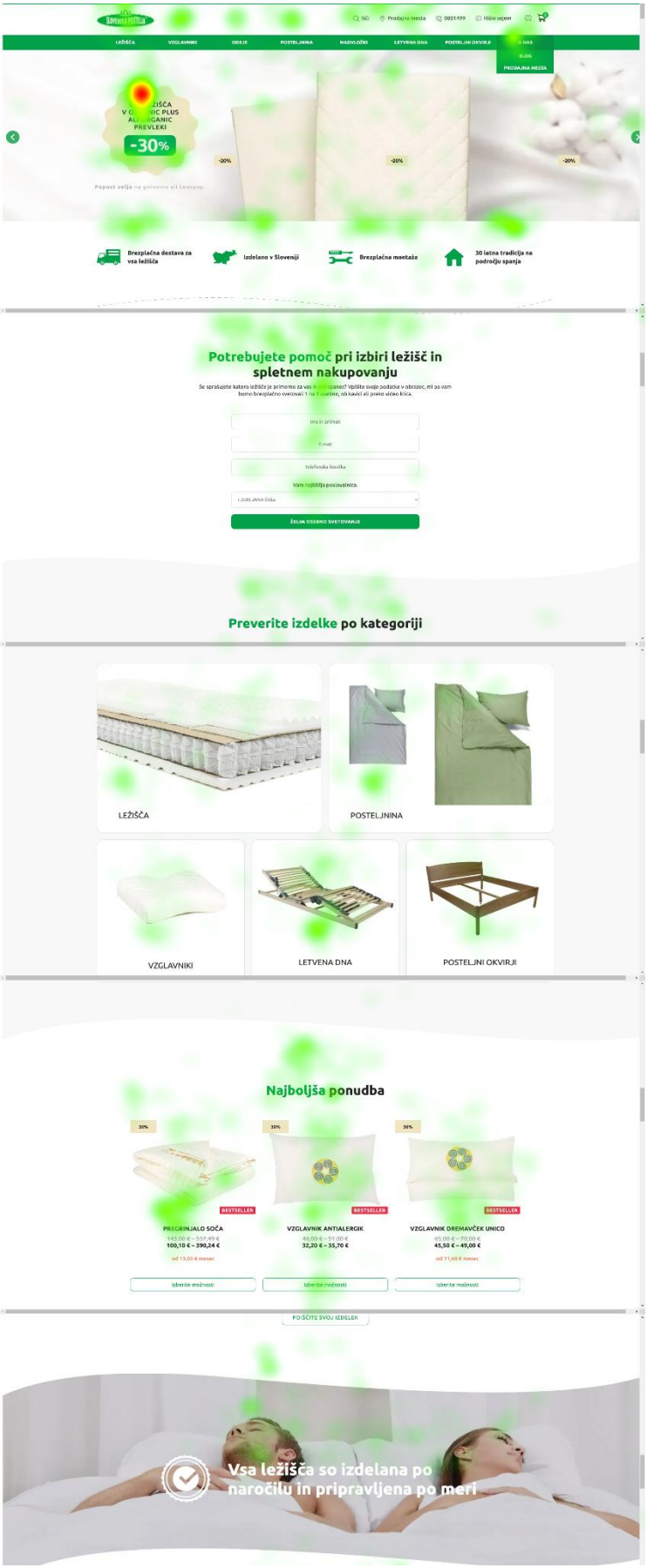

Najbolj priljubljeni vzglavniki
30%
30%
30%
BESTSELLER
NADVLOŽEK ZA VZGLAVNIK AJDA
35,00 € 24,50 €
VZGLAVNIK AJDA
37,00 € 25,90 €
VZGLAVNIK ANTIALERGIK
46,00 € – 51,00 €
32,20 € – 35,70 €
Dodaj v košarico
Dodaj v košarico
Izberite možnosti
POIŠČITE SVOJ IZDELEK
SVETUJEMO
Ali ste vedeli?
Kdaj ste nazadnje zamenjali vzglavnik?
Ali ste vedeli, da je slaba čistoča eden izmed najbolj pogostih vzrokov za alergijska obolenja. Na ležišču in vzglavniku povprečno preživimo 8 ur na dan, kar je tretjina dneva.
VSI NASVETI
Mnenja zadovoljnih kupcev
Tako prijaznega, ustrežljivega dostavljavca pa že dolgo ne. Vedite, da sem od njega dobil več nasvetov pri sami dostavi, kot pa kje na kakšnem prodajnem mestu. Vedite, da tovrstna prijaznost in ustrežljivost ni kar samoumnevna.
UROŠ SRŠA
Iz vašega salona človek resnično odide z vsemi informacijami, ki jih je želel, miren in zadovoljen, da vas je obiskal. Pred obiskom vašega salona sem sprobala kar nekaj drugih vzmetnic, saj sem izbirala v malce nižjem cenovnem rangu, vendar ko sem odšla iz vašega salona sem takoj vedela, da je to to.
ANDREJA MREŽAR
Zadnje novice
Vpliv spanja na zdravje in dobro počutje
V tokratnem pismu iz Dežele dobrega spanca bomo raziskali vpliv spanja na naše splošno zdravje in dobro počutje. Prespimo kar tretjino svojega življenja, zato si poglejmo, zakaj je spanje tako pomembno in kako ga lahko izkoristimo na najboljši možen način. 1. Krepi naše fizično zdravje. Kot pravi slovenski pregovor: "Dober spanec je boljši kot žganec."…
PREBERI VEČ
Nimamo 100 % brezogljičnega odtisa, vendar …
… ga sploh kdo ima? Pri Slovenski postelji verjamemo, da nič ne premaga dobrega spanca. Verjamemo pa tudi, da ne moremo mirno spati, če nas skrbi za naš planet. Ti dve skrbi poskušamo združevati in ustvarjati ležišča in ostale izdelke, ki hkrati zagotavljajo kakovosten spanec in prispevajo k ohranjanju našega okolja Kako Slovenska postelja skrbi…
PREBERI VEČ
Sedaj je pravi čas za nakup kvalitetnega ležišča po ugodnih cenah.
Imate slabo ležišče in se zbujate utrujeni in z bolečinami v hrbtu? Sejem Dom, katerega smo uspešno zaključili, je za nami, a na žalost zaradi velikega navala niste vsi prišli na vrsto – da boste lahko v miru preizkusili naša ležišča in izkoristili popuste smo sejemske ugodnosti podaljšali do konca meseca. Obiščite si vam najbližjo…
PREBERI VEČ
Kje kupiti?
Naše izdelke lahko pred naročilom tudi preizkusite v naših poslovalnicah, ki jih najdete v vseh večjih mestih po celotni Sloveniji in sicer v Ljubljani, Mariboru, Kranju, Celju, Novem mestu in Begunjah na Gorenjskem.
IZBERITE SVOJO POSLOVALNICO
Zapuže
Kranj
Ljubljana
Maribor
Celje
Novo mesto
Koper
SLOVENSKA POSTELJA
O NAS
O podjetju
Kontakt
Blog
Moj račun
Splošni pogoji
Pravilnik o zasebnosti
Navodila za uporabo in vzdrževanje artiklov
KONTAKT
Postelja d.o.o.
Slovenska postelja ©
Zapuže 10b,
4275 Begunje na Gorenjskem
080 14 99
info@postelja.com
PRIZNANJA
SLEDI NAM:
Naložbo izdelavo spletne strani, spletne trgovine, rezervacijske platforme in mobilne aplikacije sofinancirata Republika Slovenija in Evropska unija iz Evropskega sklada za regionalni razvoj.
SLOVENSKI PODJETNIŠKI SKLAD

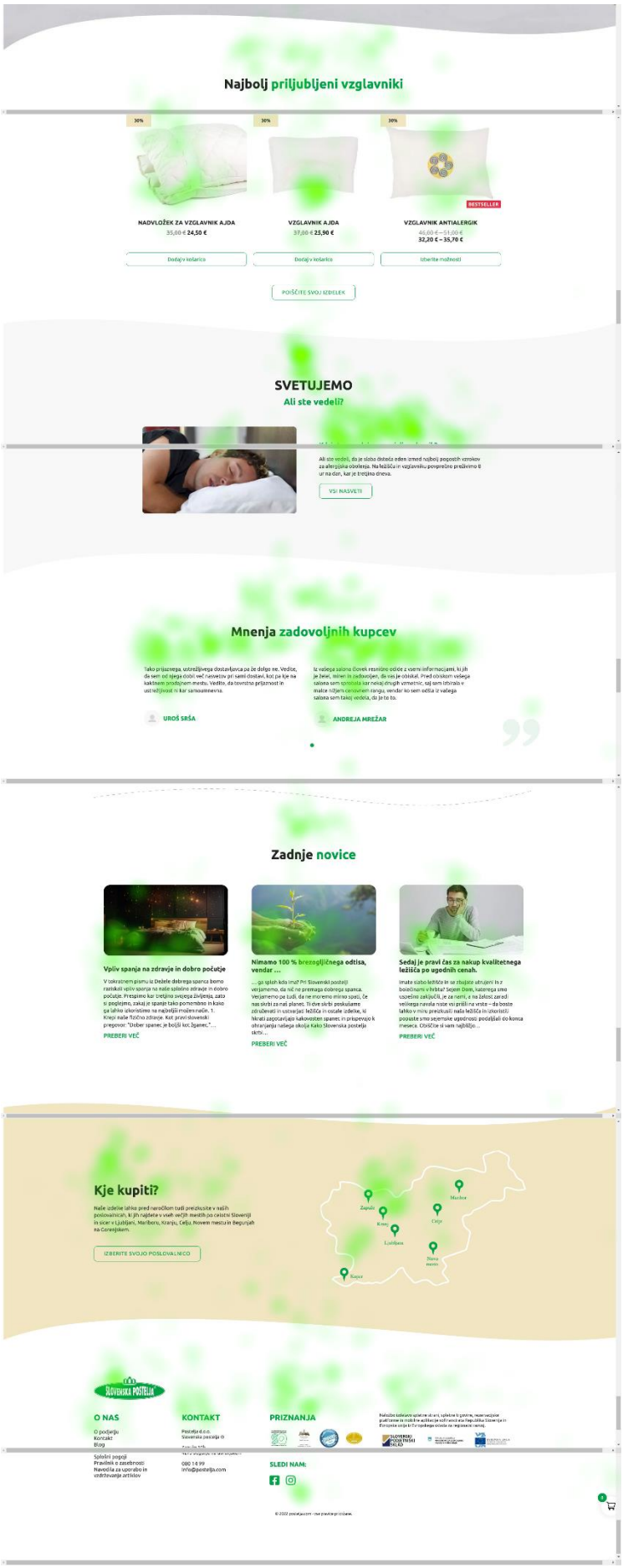
Appendix 5: AOIs for Package 1

Appendix 6: AOIs for Package 2

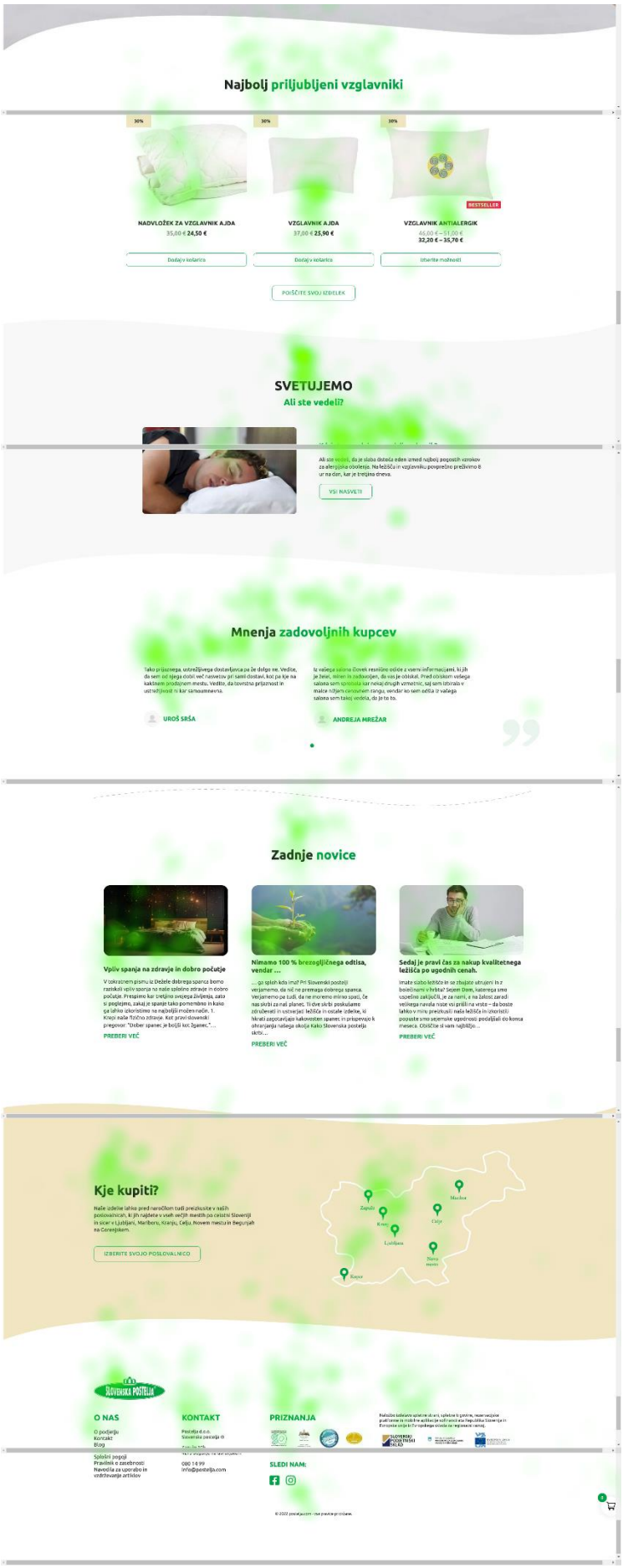
Appendix 7: AOIs for Package 3

Appendix 8: Attention distribution for Package 4




Najbolj priljubljeni vzglavniki
30%
30%
30%
NADVLOŽEK ZA VZGLAVNIK AJDA
35,00 € 24,50 €
VZGLAVNIK AJDA
37,00 € 25,90 €
VZGLAVNIK ANTIALERGIK
45,00 € – 51,00 €
32,20 € – 35,70 €
BESTSELLER
Dodaj v košarico
Dodaj v košarico
Izberite možnosti
POIŠČITE SVOJ IZDELEK
SVETUJEMO
Ali ste vedeli?
VSI NASVETI
Mnenja zadovoljnih kupcev
UROŠ SRŠA
ANDREJA MREŽAR
Zadnje novice
Vpliv spanja na zdravje in dobro počutje
PREBERI VEČ
Nimamo 100 % brezoglične odtise, vendar ...
PREBERI VEČ
Sedaj je pravi čas za nakup kvalitetnega ležišča po ugodnih cenah.
PREBERI VEČ
Kje kupiti?
IZBERITE SVOJO POSLOVALNICO
Zagreb
Maribor
Celje
Ljubljana
Novo mesto
Koper
O NAS
KONTAKT
PRIZNANJA
SLEDI NAM:


-30% na vsa ležišča!
LEŽIŠČA
VZGLAVNIKI
ODEJE
POSTELJNINA
NADVLOŽKI
LETVENA DNA
POSTELJNI OKVIRJI
PRODAJNA MESTA
-30%
Brezplačna dostava za vsa ležišča
Izdelano v Sloveniji
Brezplačna montaža
Potrebujete pomoč pri izbiri ležišč in spletnem nakupovanju
ŽELIM OSEBNO SVETOVANJE
Preverite izdelke po kategoriji
LEŽIŠČA
POSTELJNINA
VZGLAVNIKI
LETVENA DNA
POSTELJNI OKVIRJI
Najboljša ponudba
BESTSELLER
VZGLAVNIK ANTIALERGIK
32,20 € – 35,70 €
VZGLAVNIK DREMAVČEK UNICO
45,50 € – 49,00 €
PODIŠČITE SVOJ IZDELEK
Vsa ležišča so izdelana po naročilu in pripravljena po meri


Najbolj priljubljeni vzglavniki
30%
30%
30%
NADVLOŽEK ZA VZGLAVNIK AJDA
35,00 € 24,50 €
VZGLAVNIK AJDA
37,00 € 25,90 €
VZGLAVNIK ANTIALERGIK
BESTSELLER
45,00 € – 51,00 €
32,20 € – 35,70 €
Dodaj v kolarico
Dodaj v kolarico
Izberite možnosti
POIŠČITE SVOJ IZDELEK
SVETUJEMO
Ali ste vedeli?
VSI NASVETI
Mnenja zadovoljnih kupcev
UROŠ SRŠA
ANDREJA MREŽAR
Zadnje novice
Vpliv spanja na zdravje in dobro počutje
PREBERI VEČ
Nimamo 100 % brezoglične odtise, vendar ...
PREBERI VEČ
Sedaj je pravi čas za nakup kvalitetnega ležišča po ugodnih cenah.
PREBERI VEČ
Kje kupiti?
IZBERITE SVOJO POSLOVALNICO
Zagreb
Maribor
Celje
Kranj
Ljubljana
Novo mesto
Koper
SLOVENSKA POSTELJA
O NAS
KONTAKT
PRIZNANJA
SLEDI NAM:

Appendix 9: Questionnaire for follow-up survey

ID - V spodnje okence, prosim, napišite zaporedno številko, ki ste jo prejeli zapisano na listu ob vstopu v laboratorij. Ta služi kot vaša identifikacijska številka in z njo zagotavljamo anonimnost pri zbiranju in analizi podatkov. ___

Bandw1 - Pomislite na ponudbo s sliko družine in označite, v kolikšni meri se strinjate s spodnjimi trditvami.

	1 - Sploh se ne strinjam	2	3	4	5	6 - Popolnoma se strinjam
Ob pogledu na ponudbo s sliko družine sem se počutil/a pod pritiskom drugih glede nakupa.	○	○	○	○	○	○
Ponudba je pritegnila mojo pozornost.	○	○	○	○	○	○

Bandw2_2 - Pomislite na omenjeno ponudbo. Koliko odstotkov (%) popusta bi kupec prejel ob nakupu 3 izdelkov? Zapišite SAMO s številko, brez znaka za odstotke. _____

Lossav - Spomnite se na ponudbo z naslovom "Čas je za menjavo" in označite, v kolikšni meri se strinjate s spodnjimi trditvami.

	Sploh se ne strinjam	Se ne strinjam	Delno se ne strinjam	Delno se strinjam	Se strinjam	Povsem se strinjam
Če bi se odločil/a za nakup ležišča, bi s to	○	○	○	○	○	○

ponudbo prihranil/a.						
Ob pogledu na ponudbo sem dobil/a občutek, pridobim več kot izgubim.	○	○	○	○	○	○

Framing - Spomnite se na ponudbo s sliko prereza vzmetnice in označite, v kolikšni meri se strinjate s spodnjima trditvama.

	Sploh se ne strinjam	Se ne strinjam	Delno se ne strinjam	Delno se strinjam	Se strinjam	Povsem se strinjam
Znamka se mi zdi visoko tehnološko razvita.	○	○	○	○	○	○
Znamki zaupam, da ponuja visokokakovostne izdelke.	○	○	○	○	○	○

FOMO - Spomnite se na ponudbo s sliko prereza vzmetnice in označite, v kolikšni meri se strinjate s spodnjima trditvama.

	Sploh se ne strinjam	Se ne strinjam	Delno se ne strinjam	Delno se strinjam	Se strinjam	Povsem se strinjam
Ob ogledu sem se počutil/a pod časovnim pritiskom glede nakupa.	○	○	○	○	○	○
Če bi se moj dober prijatelj	○	○	○	○	○	○

odločal za
nakup ležišča
ali drugega
izdelka, ki ga
ponuja
znamka, bi mu
svetoval/a, naj
pohiti z
nakupom.

Spol - Prosim, označite vaš spol.

○ Ženski

○ Moški

Starost - Prosim, označite, v katero starostno skupino spadate.

○ Nad 15 do vključno 24

○ Nad 24 do vključno 40

○ Nad 40 do vključno 55

○ Nad 55

Izobrazba - Prosim, označite svojo najvišjo DOKONČANO stopnjo izobrazbe.

○ Osnovna šola

○ Srednja poklicna ali gimnazijska izobrazba

○ Visokošolska ali univerzitetna izobrazba (VI/2)

○ Magisterij (VII)

○ Doktorat (VIII/2)

ZAHVALA

Mojemu Kristjanu - za vso ljubezen, vedno prave besede spodbude in neprenehen občutek, da si moj glavni navijač.

Moji mami – za vse usmeritve, toplo podporo in za to, da si brezpogojno verjela vame.

Mojemu atiju – za vse spodbudne besede in odkrivanje drugega pogleda na izzive takrat, ko sem to najbolj potrebovala.

Moji Jerci – za neomajno podporo ne glede na situacijo in jutranje bombice fokusa.

Moji Manci – za največjo pozitivo, ljubezen in najboljše nasvete na svetu.

Moji Teji – za izjemno razumevanje in nešteto pogovorov, brez katerih bi mi bilo bistveno težje.

Moji Ani – za vso spodbudo in stalne opomnike, kako pomembno je ravnotežje med delom in zabavo.

Moji Meti – za več kot potrebne višinske distrakcije od dela in tvojo neverjetno podporo.

Moji Hani – za nerealno toplino in konstantno zaupanje vame.

Moji Ivani – za to, da si bila moj partner in crime.

Moji mentorici prof. dr. Mateji Kos Koklič za neverjetno odzivnost in prijaznost ter še pred tem za predstavitev sveta psihologije porabnikov.

Vsem udeležencem eksperimenta, brez katerih izvedba ne bi bila mogoča.