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Influence of packaging cues on product perception and goal activation

Master Thesis

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Abstract

Consumers' shopping decisions are highly influenced by salient cues and by the way these are perceived and interpreted. Previous research has shown that such cues can unconsciously activate related constructs or goals (Loerch and Payne, 2011). A situation might occur when two competing goals are activated which can lead to goal conflict and decreased consumption (Belei et al. 2012). The long-standing exploration of consumers' goals conducted by J.A. Bargh (e.g. Bargh and Chartrand, (2000); Bargh et al. (2001); Bargh (2006)) served as a backbone for the theoretical chapter of this paper. Regarding both theory and methodology, we were inspired by Belei et al. (2012) and their Study 2, in which they successfully activated health goal by letting a sample of 63 participants evaluate product packs with functional health claims. In another paper, Wilcox et al. (2009) used 183 students in an experiment in which they primed their health goals using a choice set containing healthy food. The aim of the theoretical part of this thesis is to investigate how cues interact with goals and perception. In own research we attempted to unconsciously manipulate (prime) goal activation and product perception and used implicit measures, specifically the lexical decision task, to measure possible effects. Despite some limitations, the results of our study demonstrate that priming goals and constructs is indeed possible. As consequences of not always satisfactory results, we offer detailed discussion of the outcomes and implications for further research.

Keywords: cues, goals, goal activation, goal conflict, product perception, priming, implicit measures, lexical decision task

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1 Introduction

Consumer goals have big impact on shopping behaviour. They are multidimensional aspects which can be achieved in few moments or last for a lifetime. As desired end-states (Chartrand, Dalton, and Cheng, 2008), goals help consumers to realize what do they want and find a way to reach it. Many scientific papers show that significant part of consumer behaviour is goal driven (Chartrand et al., 2008). Coming from both top-down and bottom-up perception processes, goals influence the way how consumers perceive products. These desired end-states can be activated both consciously and unconsciously (Bargh et al., 2001). While shopping, consumers are confronted with many cues and information that tries to catch their attention and persuade them to buy specific products. Environmental and packaging cues can activate the knowledge already stored in consumers' brain. This process often happens at lower levels of consciousness and consumers are not aware of such development. Unconsciously activated information further drives the behaviour. Recent paper by Loersch and Payne (2011) elaborates on what kind of processes the activated information influences: product perception, goal activation or behaviour? According to the authors, it depends on the questions afforded by the environment. If a question like 'what is this?' is raised, the product perception should be affected. If consumer encounters a question like 'what do I want?', it should activate certain goals. Goals which are made temporarily salient by cues have direct impact on behaviour.

Goals, just as other mental concepts can be activated by various priming methods. The purpose of priming is to activate a concept in long-term memory without consumers being aware of this activation (Belei et al. 2012). Marketers regularly use packaging or environmental cues to activate consumers' goals and persuade them to buy their products. Today's consumers try to eat healthier because it is generally understood that the right diet is a key to a healthy life. As a reaction, marketers upgraded product packaging with various health claims and health symbols, trying to promote the 'healthy' parts of products. However, as shown by Belei and her colleagues (2012), inferences based on these health cues do not necessarily lead to endorsed health perception, but on the contrary, some of them can endorse indulgence.

As Wittenbrink and Schwarz (2007) point out, various attitude-measuring experiments have shown that people are not always willing and/or able to report the true nature of their feelings, attitudes or habits. That is why implicit measures were developed. These methods use processes during which the participants are not aware of what is actually being measured. To get the most exact results, my methodology takes advantage of such implicit measures – particularly the lexical decision task.

The aim of this thesis is to investigate how cues influence consumers' perception processes and mainly what is their impact on goal activation and product perception. The theoretical part contains detailed literature-based insight into the issue of perception processes and all relevant concepts. Based on the theory, suitable methodology was developed to measure the effects of cues on goal activation and product perception. Set of pictures was used as cues for goal priming and manipulated product packs containing cues (health claims, colours, symbols, etc.) were prepared for the construal priming. Two small scale consecutive experiments were designed, taking advantage of priming methods and lexical decision tasks. Results section contains thorough analysis of gathered data and in Discussion part, all conclusions and recommendations are discussed. The following two research questions were chosen to be answered in the research:

RQ1: *Are cues able to influence the process of goal activation in an unconscious manner?*

RQ2: *Are cues able to influence the process of product perception in an unconscious manner?*

Finding answers to these research questions might shed some light on what kind of cues are able to influence the consumers' perception processes the most and to what is their effect on activation of goals and constructs.

2 Theoretical Background

2.1 Desired End-States

Goals are mental representations of desired end-states (Huffman, Ratneshwar and Mick, 2000; Bargh et al., 2001; Förster, Liberman and Friedman, 2007; Chartrand, Dalton, and Cheng, 2008; Loersch and Payne, 2011). Chartrand et al. (2008) add that goals are mentally represented in the same way as other constructs like stereotypes, attitudes, or traits. Just as other form of knowledge structures, these representations of desired end-states are capable of automatic (unconscious) activation (Bargh et al., 2001). Goals provide consumers with a sense of direction and clarity for their actions and influence the way they think and behave (Lee and Ariely, 2006). Goals are one of the key motivations guiding the consumer decision making (Chartrand et al., 2008). Van Osselaer and Janiszewski (2012) define goals as motivational, cognitive concepts that encourage behaviour. Same authors imply that there are two kinds of 'forces' motivating our goals. First, goals represent desirable outcomes that can be achieved through certain behaviour. Second force driving our goals is the deprivation of resources that can result in a deficit state and create a discrepancy between current state and desired-end state. For example, the lack of resources required to fulfil a need (salad to satisfy the need for a healthy snack) increases the motivation to satisfy the particular goal.

2.2 Goals as Multidimensional Aspects

Consumers usually have multiple goals activated at the same time. Such goals can be complementary, mutually exclusive, and/or consist of several sub-goals. This diploma thesis is focused on two goal types only – health and indulgence goals are considered as the main focus. It is important to understand that the goal importance differs from consumer to consumer. One may be chronically more health oriented while another one is more focused on taste. There are several theories explaining goal complexity and importance. A means-end chain model introduced in an influential paper by Gutman (1982) explains the connection between product attributes, physical and psychological consequences and values (which are among others represented by desired end states – goals). Gutman's theory helped the scholars to understand why individuals consume certain products and what intangible values can be connected to products. Consumers shop because they want to eliminate the discrepancy between the actual self and the ideal self. Products help the individuals to realize their goals and reach the ideal selves.

There are goals that last for just a brief moment and goals that span though the whole life. Hierarchical model of consumer goals introduced by Huffman, Ratneshwar and Mick (2000) explores

the consumer goals from the lowest specific product preferences to life-lasting themes and values. With this model, authors connect the lower-level goals of 'having' and 'doing' themes with the higher-level goals from 'being' theme. 'Having' goals are feature preferences and benefits sought; 'doing' goals are consumption intentions and current concerns and finally the 'being' goals are life projects and life themes & values. Applying this model on our dimension of health and indulgence goals, feature preferences would be good taste or healthy contents of a product. Benefits sought from consuming a product would be 'enjoy the fine taste' or the 'healthiness' of a product. Consumption intentions of health or indulgence oriented individuals are the desire to eat healthy or desire to enjoy the taste. Current concern of a health oriented consumer can be for example losing some weight. Taste oriented consumer's current concern can be purchase the limited edition of new Nutella. Life projects serve as the maintenance of life themes and values. Health oriented person's life project is logically 'to be a healthy person'. Taste oriented consumer's life project can be 'to enjoy life through fine taste'. Finally, the life theme & value of health or taste oriented consumers is simply 'longevity' and 'life enjoyment'. Such end state values are preferable to other possible values.

Means-end chain model and hierarchical model of consumer goals clearly explain that health and taste goals can be only short-term goals that drive the current behaviour as well as terminal life values that span over the whole life of an individual. Thus, the particular goal relevant information can be rooted deeply in consumer's brain and influence his or her behaviour.

2.3 Chronic and Temporary Goal Salience

Numerous decisions undertaken during the consumers' shopping behaviour are in a goal-driven, top-down fashion (Chartrand et al., 2008). This happens particularly if over-arching goals like maintaining a strong health are salient. In top-down processing, goals can enhance our sensitivity to goal-relevant environmental features and drive subsequent behaviour (Chartrand, Dalton, and Cheng, 2008). Much of consumer behaviour comes from a rational decision making perspective which assumes that goals are salient, and that information search serves a as function in goal completion. Goals then lead to selective attention and drives further behaviour. Consumer choice as a top-down process has been described and used many times – e.g. in paper by Pham and Higgins (2005). This well-known model features a) problem recognition (e.g. goal activation – I want to eat healthy), b) information search (internal – memory; external – e.g. product packaging), c) formation of a consideration set (answering the afforded questions – Is this product really healthy?), d) evaluation of alternatives, e) choice, and finally f) post-choice processes. If a consumer feels a desire to eat something tasty, the appropriate goal becomes salient and drives his further behaviour. Information stored in the brain

that is connected with this goal also becomes salient and focuses the attention to particular cues in the environment. Thanks to the self-knowledge (information stored in the brain); individuals already know a way how to satisfy particular goals based on previous experiences (Park and Smith, 1989). For the product perception this means that there is a well-defined description of a product that could fulfil such goal and that description drives further behaviour (Kroeze, 2012).

Consumer behaviour literature focused mainly on such top-down processes with assumptions of chronic goal salience – consumers (as well as participants figuring in various researches) were strictly divided into health-oriented or taste-oriented categories. Chronic goals represent a comprehensive and relatively stable feature of consumers' motivation. They are usually based deep in our consciousness and are prone to remain the same for a long period of time. Chronic goals are influenced by the individual's background, culture, education, social status, and many more. They are resistant to changes and usually cannot be manipulated with (Van Osselaer and Janiszewski, 2012). However, it is possible to make them temporarily more (or less) salient. Recently, the focus in the consumer behaviour literature has moved from chronic goal salience to goals that can be made salient temporary. Temporary goals are not as powerful as chronic goals and cannot influence our behaviour that much as chronic goals can. Temporary goals (as well as situational goals) can be manipulated via priming (Van Osselaer and Janiszewski, 2012). Temporary goal can be made salient e.g. during special occasions like Christmas, Valentine's Day or a friend's birthday. At this point, consumers want to satisfy somebody and such temporal goal can become more important (or salient) than a chronic, long-term goal to save money. One of the biggest influences on temporary goal activation is probably held by product/packaging features.

2.4 Bottom-up processes leading to product perception and goal activation

An easy way how to make goals temporarily more salient or activate goals in general leads through smart usage of product packaging and shopping environment. Packaging or environmental cues consumers are confronted with every day serve as sparks that are able to start various bottom-up processes taking place in the individuals' brains. Bottom-up processes work differently than top-down processes. Instead of being driven by active goals while going through the choice set, it is the actual choice set and the input it provides that influences the consumer choice. Simply put, product features activate information and goals which further guides the consumer behaviour. The overall process of consumer choice is then a combination of top-down and bottom-up processes. Bottom-up processes alert us to salient cues in the environment around us and top-down processes modulate

bottom-up information when we need to look for something specific (Connor, Egeth and Yantis, 2004).

2.5 Research Model

Based on the above discussion, the following research model was created to understand the way how bottom-up processes influence the product perception and goal activation (via construal priming and goal priming). The consequent text is structured according to this model and the individual boxes are discussed separately.

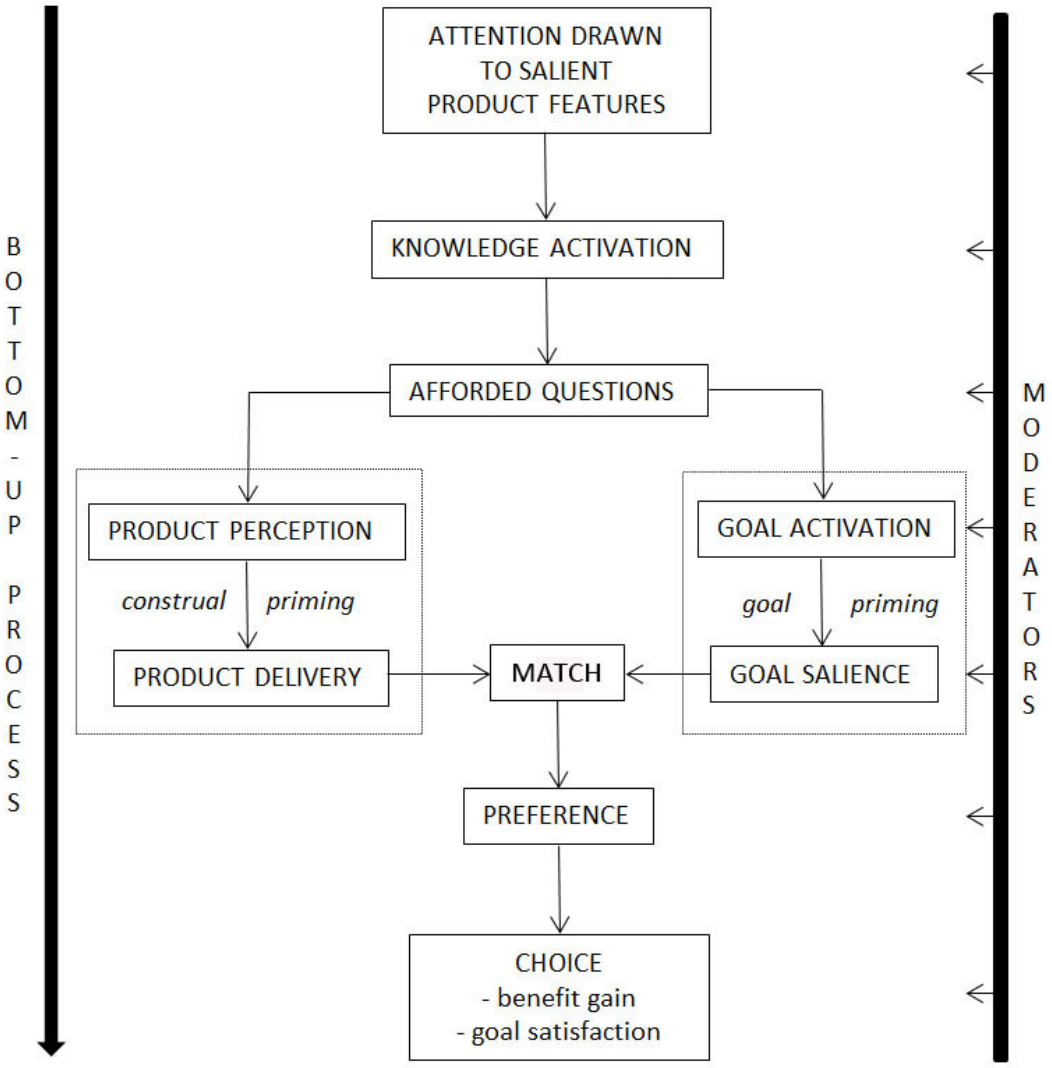


Figure 1: Proposed research model

2.5.1 Salient Cues (Features) as Primes

Every single day, consumers are affected by various cues that influence both conscious and unconscious behaviour. It is estimated that over 70% of purchase decisions are made at the point of

purchase (Rettie and Brewer, 2000; Silayoi and Speece, 2007). While scanning the products in the stores, human perception is fast and quick thinking and decision making is important for making the correct choice (Rettie and Brewer, 2000). Consumer moving through the environment is confronted with many options for judgement, interpretation and behaviour. Attention is drawn to countless objects in the environment which serve as guidelines or cues to shopping behaviour (Loersch and Payne, 2011). Cues are able to prime our decisions, thinking, or goals. Whether we are aware of this influence or not, they help us to decide if we want to purchase i.e. something healthy or tasty. Choices like this often involve goal conflict (pursue a goal to eat healthy or a goal to enjoy a fine taste) (Laran and Janiszewski, 2009).

Cues presented in the environment have a significant influence on consumers' shopping behaviour. Environmental cues fall into the category of external (bottom-up) sources of stimulation. Goals, as mental representations of desired end state can be activated also by internal (i.e., endogenous, or top-down) sources of stimulation (Bargh, 2006). Consumers ordinarily think that their judgments and behaviours are freely chosen, reflecting personal concerns and preferences (Loersch and Payne, 2011). For many years, deliberate choice and conscious guidance were thought to be the key drivers of goal pursuit (Bargh et al., 2001; Chartrand, Dalton, and Cheng, 2008). Bargh et at. (2001) adds that at the same point it was shown that great part of human functioning is happening outside our own awareness. Often, consumer behaviour is not driven by active thinking and reasoning but instead it is set in motion by seemingly irrelevant cues or primes. Information extracted from the environment can be either processed consciously (when presented supraminally) or unconsciously (subliminal presentation) (Kruglanski et al., 2002). Loersch and Payne (2011) claim that next to affective and cognitive processes, primes also seem to influence higher-level processes, e.g. impression people form about other individuals (priming a hostility stereotype can force people to think about others as more hostile – Bargh, 2006). People surrounding us can serve as primes as well (Chartrand, Dalton, and Cheng, 2008). Research mentioned by Loersch and Payne (2011) showed that participants adopted new goals when primed by a relationship partner (e.g. 'I want to be nice in order to please my mother.' Or 'I want to stop drinking to make my wife happy.'). On the other hand, another research mentioned by the same authors accepted opposite goals that a relationship partner represented (e.g. 'I will keep drinking just because my mother wants me to stop.'). This fact may support the general saying 'forbidden fruits taste the sweetest'. The ability to feel empathy enables us to adapt other people's goals (Laran and Janiszewski, 2009) – the process Chartrand, Dalton, and Cheng (2008) call goal contagion.

Packaging cues offer loads of information about the products to consider but consumers do not have cognitive resources big enough to consider all of them. That is why the attention is selectively drawn to a small subset of these cues. Selected cues then serve as a basis for the overall product evaluation (Ratneshwar et al., 1997). Consumers tend to look at and remember only the things they are interested in or consider relevant – these 'things' are usually connected with benefits they seek or goals they want to accomplish. Ratneshwar and his colleagues (1997) defined two variables which influence the cue perception process. 'Habitual benefit salience' represents the enduring readiness with which specific benefits are brought to mind when confronted with packaging cues. If there is a consumer who is frequently seeking some healthy snacks and he is presented with a chocolate bar with a functional health claim (referring to work of Belei et al., 2012), this benefit represented by this particular cue will be highly salient for this individual because he habitually sought this benefit during past choice processes. On the other hand, another consumer may find this cue irrelevant. Additional influence on perception of cues described by Ratneshwar et al. (1997) is 'situational benefit salience'. This process temporarily increases the mental salience of particular product benefit when the product is considered in a particular usage situation. For example, certain information and benefits can become salient when consumer is confronted with product packaging containing a picture of people enjoying a pack of ice-lollies (benefits like enjoyment, pleasure, fun, etc. may be activated in this case).

In case of information overload, attention will be drawn to cues which are connected with information or goals that are currently salient. Salient cues will then receive attention and other cues will be 'filtered out' (Ratneshwar et al., 1997).

2.5.2 Knowledge Activation

When attention is drawn to salient cues and consumer's eyes fall upon them, countless processes start to function in the brain. People are aware of some of these processes, but most of them are happening in lower levels of awareness and consumers are not able to register them. Salient cues are picked up by sensory register via sensory receptors. Short-term working memory takes this information from sensory register and connects it with knowledge already present in the brain (located in long-term memory) (Kroeze, 2012). Confrontation with cues causes activation of information concepts relevant to the cues involved. For example, checking out a snack with a functional health claim (i.e. 'high omega 3', or 'extra antioxidants') on the packaging can cause the activation of information about the health; it can remind the consumer about trying to stay fit and healthy. Further on, this information activates product perception (i.e. 'This product will do well to

my health.') and goals (i.e. 'I want to lose weight.'). These two processes will be discussed later on. One note on product categorization between functional and hedonic categories – in many scientific papers, increasing degree of functionality (safety, health) is associated with a decrease in hedonic potential (pleasure, fun) (Belei et al., 2012). I assume that consumer goals operate on multidimensional level and more of them can be activated at the same time. Even seemingly mutually exclusive goals like health and indulgence can be satisfied by the same product.

Which kind of information will be activated in particular depends on many factors (type of person, categorization, amount of available cognitive resource, etc.) (Loersch and Payne, 2011). Although environmental cues can activate the same concepts in most consumers (Chartrand, Dalton, and Cheng, 2008), they can also activate totally different concepts with different consumers. For one consumer, a red heart symbol can mean love, passion, and family; and for other consumer it can represent a warning and a notion that he should consider his health. The connections between cues and activated information can be weak sometimes and need some time to grow. One person buys a particular brand of rice because he knows that the rice is tasty. After some time he realizes that this rice is really easy to cook and new connection between this product and its benefits emerges. Then this person notices this rice is actually organic – there comes another new connection between the product and the person's goal to eat healthy products. Such connections are getting stronger with every confrontation with this particular product. Accessibility of goal-related construct is increased when the goal is activated and it decreases when the goal has been fulfilled (Chartrand et al., 2008).

2.5.3 Afforded Questions

Consumer moving through the environment is being constantly confronted with many cues to judge or evaluate. Each of the cues can prime different information. The important question is, what process are the individual cues going to influence – whether the product perception which can be driven by construal priming or the goal activation driven by goal priming. Loersch and Payne point out that exactly under what condition one of these effects (goal, construal, or behavioural or other priming) will emerge as opposed to other, remains unknown. It was observed that a single prime can turn on multiple effects and more primes can turn on the same effect. Effects of construal, goal or other priming were demonstrated using identical methodologies. However, Bargh et al. (2001) explained one difference between goal and construal priming. After activation, goal directed behaviour increases in strength over time, pressing for realization, and reaches the lowest level of activation right after the goal is attained. On the other hand, primed constructs remain at the same activation level or decrease in activation over time. Loearch and Payne (2011) try to be more a bit

more specific about the differences between construal and goal priming. If the situation forces the consumer to judge an object in the environment and afford a simple question like 'What is this?', the information and knowledge made salient by cues will serve as a base for answering such question and results of construal priming should occur (Loersch and Payne, 2011). When consumers consider their current desires, questions like 'What do I want?' are afforded. Answering this type of questions, the goal priming should take place. 'Is this sandwich healthy?' 'What kind of product category this snack bar belongs to?' 'Do I want to eat that salad?' Questions such as these are afforded to consumers by the surrounding environment on a daily basis.

2.5.4 Goal Activation

Goals can be activated, pursued, and satisfied both consciously and unconsciously (Chartrand et al., 2008). Non-consciously activated goals require the same amount of cognitive effort and show the same qualities of persistence over time just as consciously activated goals (Bargh et al., 2001). Both chronic and temporal goals can be activated by cues in the environment and consumers automatically engage in behaviour related to particular goals (Chartrand, Dalton, and Cheng, 2008). Goals activated by environmental cues should operate as efficiently as if voluntarily chosen (Bargh et al., 2001). Goal activation can happen in multiple ways. The most common way is when a consumer consciously decides to pursuit a goal and engages in associated behaviour (Chartrand et al., 2008). But recent research on goal activation (including this thesis) is more interested in goal activation outside of consumers' awareness.

Whether the activation levels are high or low is an important factor for goal activation. Goals with higher levels of activation are weighted more heavily in the evaluation and choice of a product means (Laran and Janiszewski, 2009). Same authors elaborate on goal competitiveness. They claim that goal activation leads to valuation of means that are related to the goal and devaluation of means that are not related to the goal. Goal activation has mostly been considered as a determinant of goal accessibility in memory (Van Osselaer and Janiszewski, 2012). When a particular mental representation is activated, its associated actions will be triggered and performed (Chartrand et al., 2008). For example, being reminded of a goal to stay healthy should activate the linked behaviour and further drive the consumer decision process. Chartrand et al. (2008) stress out the importance of positive valence. In order for the whole goal activation process to start, consumer must have positive feelings towards the desired end state. Once a goal is activated, non-conscious activation of particular behavioural strategies used previously to attain the goal takes place (Chartrand et al., 2008).

Laran and Janiszewski (2009) set out the differences between chronic and temporary goal activation. Chronic goal activation represents a longer-term, relatively stable component of goal activation. It represents the stable differences across goals and individuals in the importance weights and accessibility of particular goals. These higher-order goals can be influenced by personal background, culture, and social class. Temporary goal activation may be a consequence of priming a goal and it encodes temporary differences in goal activation. One possible source of temporary goal activation is direct exposure to stimuli (or cue) that represents a goal. Let us consider a health goal. Regarding the product packaging features, like colours (e.g. green, a colour that is constantly understood as a representation of nature or health) (Aslam, 2006), symbols (people work-outing, health symbols, etc.), logos and brands (VitaminWater) and other packaging features can help to make a goal like this salient. Smart assortment is another means for a goal to stand out. If is a product that is considered healthy placed among products designed as hedonic, the health cues will be more apparent and easy to spot by the consumers.

Active goals manipulate our behaviour and we evaluate products based on currently salient information activated by goals. For example, if I am short of money and my financial goal is activated, my attention will be probably drawn to low-priced products which I can afford rather than to high-priced products which are currently out of my reach. Getting back to the health-indulgence theme, once a hedonic goal is activated (e.g. by indulgent snacks) it makes health goals less accessible (Belei et al,. 2012). This process also works the other way around. So if we are trying to increase the sales of hedonic snacks, it is probably not the best idea to place them right next to a salad bar. The salad bar would activate the health goals which are negatively correlated with the hedonic goals and thus the willingness to purchase indulgent snacks would be low. In another example, consumer rushing through the supermarket with a goal to buy roast beef for upcoming family dinner can be easily distracted by salient cues in the environment which activate other goals. If this consumer sees a brand BBQ grill on sale, it activates his up to this moment inactive goal to have family BBQs in the garden and he can easily forget about the previous goal to buy groceries for dinner.

2.5.4.1 Measuring Goal Activation

Goal activation can be measured by explicit (subjective) and implicit (objective) measures. Commonly used explicit measures are rating tasks or goal-listing tasks. Implicit measures are quantitative and mostly done by observing experiment participants and their behaviour. The major disadvantage of explicit measures is the fact that we cannot be sure whether the participants are telling the truth. The may feel ashamed of their opinions and cannot report the actual truth in unbiased manner. This is the reason for using indirect or implicit measure, where participants are not aware of what is

actually being measured or studied. Wittenbrink and Schwarz (2007) explained basic types of implicit measures. Paper-and-pencil measures are low-tech and sort of insufficient for this thesis. On the opposite there are high-tech physiological responses and brain activity measurements which are not really suitable for our methodology either. The best option lies between those two: response time measures. These methods rely i.e. on exposure to a stimulus which facilitates subsequent responses to related stimuli. One of the most commonly used response time techniques is priming. Priming words related to the goal construct and then test the effects on behaviour (Chartrand et al., 2008) is one of the most commonly used methods. The aim of priming is to activate a concept in long-term memory without consumers being aware of this activation (Belei et al. 2012). Priming makes certain information in human brain temporarily more accessible (Bargh and Chartrand, 2000). Priming procedures can act as subtle activation of knowledge structures at the goal level and product perception level. It is also interesting because it can temporarily activate goals that can affect the behaviour without people being aware.

2.5.4.2 Goal Priming

With proper usage of packaging and environmental cues, marketers are able to manipulate consumers' goal activation. Förster, Liberman and Friedman (2007) mention one important fact – goal-relevant primes may enhance the accessibility of goal-related knowledge stored in long-term memory (Laran and Janiszewski, 2009). That is in line with one of the assumptions used in this thesis – consumer behaviour is goal-driven. Whether consciously or unconsciously activated, goals render goal-related information salient and highly accessible (Förester, Liberman and Friedman, 2007). Van Osselaer and Janiszewski (2012) stress out an important moderator – goal activation resources (just as our cognitive resources) are limited and trade-offs are made between goals. When one goal becomes salient, other goals fade away and become less salient. This is even more obvious when the goals are competing (hedonic vs. health). If a health goal is activated, it renders information connected to indulgent less relevant and logically makes information about health more salient. Goals can also serve as distractions from other goals (Förster, Liberman and Friedman, 2007).

Goal priming affords questions like 'What do I want?'. Answers are the goals which are being activated by trying to answer such questions. A consumer walks down an aisle in the supermarket and sees a vegetable mix on sale. This contact makes his long-term health goal accessible and next to that, it also makes his short-term financial goal accessible. So, the answers to the 'what do I want?' question in this case is: I want to stay fit and healthy and I also want to save some money.

Understanding that this product is both cheap and healthy, the purchase will lead both to benefit gain and goal satisfaction.

2.5.4.3 Goal Conflict

Dynamics and complexity of goal systems often lead to goal conflict (Huffman, Ratneshwar and Mick, 2000) – a situation when two or more competitive goals are activated at the same time. Goal conflict is an aversive state that consumers usually try to resolve by dissociating themselves from the object causing the conflict (Belei et al., 2012). To resolve a conflict between goals, some decision making and cognitive effort is required (Ratneshwar, Pechmann and Shocker, 1996). In case of a goal conflict, one goal needs to be postponed and the other made more salient in order to resolve the conflict and move to the choice. Ratneshwar and his colleagues (1996) claim that when consumers have multiple salient goals and the choice environment is known to be negatively correlated, consumers will activate multiple goal-derived categories in working memory. Then, they will construct consideration sets on the basis of the matches they detect between these multiple goal-derived categories and the product categories actually available to them in the choice environment (Ratneshwar, Pechmann and Shocker, 1996). Consumers can also decide not to resolve a goal conflict. This often results in non-compensatory strategies for choice (Huffman, Ratneshwar and Mick, 2000).

2.5.5 Product Perception

Cues and information they activate have strong impact on product perception. Product perception depends on the subset of information that is most salient and accessible (and not by the total amount of information available in the memory). Salient benefits we associate with certain products influence how we perceive products (Ratneshwar et al., 1997). Cues = primes influence our product perception as well (Loersch and Payne, 2011). They raise questions similar to 'What is this?'. Answers to such questions usually represent the benefits that particular products can deliver. 'What is this?' – 'This is a chocolate bar' – 'If I buy this one, it will guarantee me the benefit of great taste.'

2.5.5.1 Construal Priming

Influencing the product perception without consumers being aware of the influence is called construal priming. Priming procedures like this enable marketers to shape the ideas that consumers create about products. Environmental, packaging, and other cues have considerable effect on how people perceive products and their benefits. The processes surrounding construal priming and cues' influence on product perception are in many ways similar to those regarding goal priming and goal activation.

2.5.6 Match

Positive evaluation of a product, choice, and purchase decision can only happen if the results of construal and goal priming are positively correlated. If there is a match between these two priming procedures, consumer is not confused and knows that a product will bring him benefits and satisfy his goals. If he sees a product that he knows to be delicious and tasty and that will also satisfy his goal to eat something enjoyable, it means that marketers have done their job correctly and this product communicates its features properly. The importance of match between construal and goal priming is well described in the paper by Belei et al. (2012). Their study proves that if consumers perceive a hedonic product which is also able to activate hedonic goals, the consumption of such product increases.

2.5.7 Preference & Choice

When there is a match between construal and goal priming, the preferences for such product increase and it is chosen for purchase. If I know that particular snack will satisfy my goal to eat something tasty, such connection will become stronger and the next time that similar goal becomes salient, this connection will emerge easily. In general, if a goal was satisfied with certain stimulus, such connection strengthens the link between this particular goal and stimulus (Chartrand et al., 2008). Repetitive choice then reinforces the processes leading to fit and preference. Goal achievement will result in release of a target goal (goal deactivation) and rebound (i.e., activation) of recently inhibited goals (Laran and Janiszewski, 2009). Once a goal is satisfied, it should decrease in strength and influence.

2.6 Recapitulation & Hypotheses

In the theoretical section I described consumers' bottom-up perception processes and the way how packaging or environmental cues unconsciously activate related information clusters in human brain. This activation leads to questions that are afforded for answering. The questions and the relevant answers influence the way how consumers perceive products and what goals get activated to further influence their behaviour. Understanding all the processes and concepts described in the theoretical section, several hypotheses were developed to a) test the effects of priming on goal activation and product perception, b) attempt to create a goal conflict, and c) find out whether the priming effects accumulate.

Hypothesis 1: *Participants primed with health-related pictures will have health goal activated to a larger degree than participants primed with control pictures.*

Hypothesis 2: *Participants primed with health-related pictures and health products will have health constructs activated to a larger degree than participants primed with control pictures and health products.*

Hypothesis 3: *Participants primed with control pictures and indulgence products will have indulgence-related constructs activated to a larger degree than participants primed with health-related pictures and indulgence products.*

Hypothesis 4: *Participants primed with health-related pictures and indulgence products should experience goal conflict.*

Hypothesis 5: *Participants primed with health-related pictures and health products will have the overall health concept activated to an extremely large degree.*

Lexical decision tasks were used to test the hypotheses (Belei et al. 2012). The level of goal and construct activation was demonstrated by faster response latency to target words (health and indulgence) (Geyskens et al. 2008; Fishbach, Kruglanski, and Friedman, 2003). Response latency is defined as the time that elapses between the onset of the target and the overt response (Wittenbrink and Schwarz, 2007).

3 Methodology

Two experiments were designed to measure the effects of priming on goal activation and product perception. While evaluation and comparison tasks were used as priming tools, implicit measures (lexical decision tasks) were used to measure the priming effects. The methodology was developed in accordance with prior research assessing automatic goal activation (Belei et al. 2012; Wilcox et al. 2009; Geyskens et al. 2008; Fishbach, Kruglanski and Friedman, 2003) and theory on afforded questions by Loersch and Payne (2011).

3.1 Participants

131 participants (mostly Dutch and international undergraduate students, average age 24, 64% female) were recruited at Wagenigen University and Research Centre. As the priming measures assessed differences in response latencies which are small in magnitude (app. between 20 and 50 msec) and the stimuli were visible for a short period of time only, it was crucial to minimize all possible distractions (Wittenbrink and Schwarz, 2007). That is why the participants were seated individually in cubicles with personal computers. The procedure was run in groups of maximum of 5 participants at a time to eliminate the disturbance effects of people randomly entering and leaving the room. The experiment was conducted in consumer behaviour research room below Leeuwenborch; a room with no windows and minimal possibilities to distract the participants.

3.2 Design

A 2 x 2 research design with two manipulated concepts – goal and construal priming - was chosen to test the hypotheses.

		1. Goal priming	
		Health pictures	Control pictures
2. Construal priming	Health products	H1 H2	C1 H2
	Indulgence products	H1 I2	C1 I2

Figure 2: 2x2 research design

Goal priming will take advantage of 5 health-related and 5 control (food unrelated) pictures. Construal priming will consist of 4 paired product comparisons (health products vs. control products and indulgence products vs. control products)

3.3 Stimuli

Goal priming (Experiment 1). Five health-related and five control pictures (Appendix 1 & 2) were selected for the goal priming. Five is considered a sufficient number according to Wittenbrink and Schwarz (2007). The researchers claim that stimulus sets of 5 or 25 items produce results of equal magnitude. The same material also suggests that these stimuli should clearly express the phenomenon they are supposed to represent. To be certain that our stimuli would communicate what they were supposed to communicate, a stimuli material pre-test was conducted. Description and results of this pre-test can be found as Appendix 6.

Construal priming (Experiment 2). Four sets of health, indulgence, and control products (Appendix 3, 4, and 5) were manipulated to fit the requirements of construal priming. Paired product comparisons were designed to activate health or indulgence constructs. All products were tested in the same pre-test as the goal priming stimuli.

Lexical decision task (Experiments 1 & 2). The purpose of this task was to prove that the pictures and products activated the relevant goals/constructs. In the lexical decision task, 64 letter strings were used – 32 words (8 health-related words, 8 indulgence-related words, 16 control words) and 32 non-words (Belei et al., 2012). All words were in English, as this language is commonly used among the recruited sample. The words used in the lexical decision task can be found in following table:

Health words	vitamins, healthful, exercise, sports, vegetables, fitness, nutrition, fruit
Indulgence words	tasty, wanting, sweet, desire, delicious, pleasure, enjoyable, yummy
Control words	plant, letter, car, quiet, window, whistle, robot, garage, font, internal, match, pants, waltz, shallow, device, phone
Non-words	photar, lasrin, mindas, derzan, kopteg, stillo, yellom, smosk, sain, nops, wird, bletta, furty, favan, mire, riment, dotay, scepial, gailer, turpic, strupe, retell, clarm, phamp, ballot, stawng, daien, gaarnik, nebov, wilspor, bozan, pamtop

Table 1: Words used in lexical decision task

3.4 Procedure

Experiment 1. Participants were randomly assigned to one of the two groups (Health goal activation = H1, Control = C1). They were informed that they were about to take part in a research assessing perception processes and ways how human brain functions. Each participant was seated individually in cubicles with personal computers. They were instructed to focus on their own computers, carefully read all instructions, concentrate on the tasks, and ask the experimenter for any help if necessary. Based on the group allocation (Health goal activation vs Control), participants saw a set of five pictures on the computer screen in front of them. The order of the pictures was randomized. With

every picture, participants had to answer question 'What are the people on the picture trying to achieve?' According to Loersch and Payne's (2011) theory on afforded questions, this question was supposed to set off the goal priming. Answers ranged from one word to several words or whole sentences. Each picture stayed on the screen until the answer was written and participant clicked on the 'Next' button. After answering all five pictures, the lexical decision task took place. Participants were informed that this assignment was aimed to investigate their language skills. They were instructed to answer as quickly and as accurately as possible. In this task, participants had to indicate whether a string of letters was a word (by pressing the 'A' key on the keyboard) or a non-word (by pressing the 'L' key on the keyboard). The 'A' and 'L' keys to be pressed were counterbalanced across participants in order to avoid its effect on the measurement. Participants were asked to focus on a fixation point (+++) which remained in the middle of their foveal area for two seconds. Immediately after that, a letter string (either a word or a non-word) followed. Task started with 16 practise trials featuring 8 control words and 8 non-words. When the practise trials finished, the main test block began (8 health-related words, 8 indulgence related words, 16 control words and 32 non-words). During each trial, a letter string (font Calibri, size 22) was present in the middle of foveal area and remained until a response was made. Two seconds after the response (presence of fixation point), the next letter string appeared.

Experiment 2. The second experiment took place right after Experiment 1. Participants from previous experiment (groups Health goal activation = H1 and Control = C1) were randomly assigned to new groups (Health products = H2 or Indulgence products = I2). They had to compare four pairs of products and with every pair indicate which product they preferred by clicking on that product. The order of product pairs was randomized. In Health products group, four health packs were paired with four control packs. In Indulgence products condition, four indulgence packs were paired with four control packs. After the comparison and selection was finished, another lexical decision task took place. Participants were again instructed to respond as quickly and as accurately as possible. The description and procedure of this task was identical to the lexical decision task used in Experiment 1. After the second lexical decision task, participants had to indicate their age and gender, and post any comments they had about the research procedure.

The flow of the whole research (Experiment 1 and Experiment 2) is presented in the scheme on the next page.

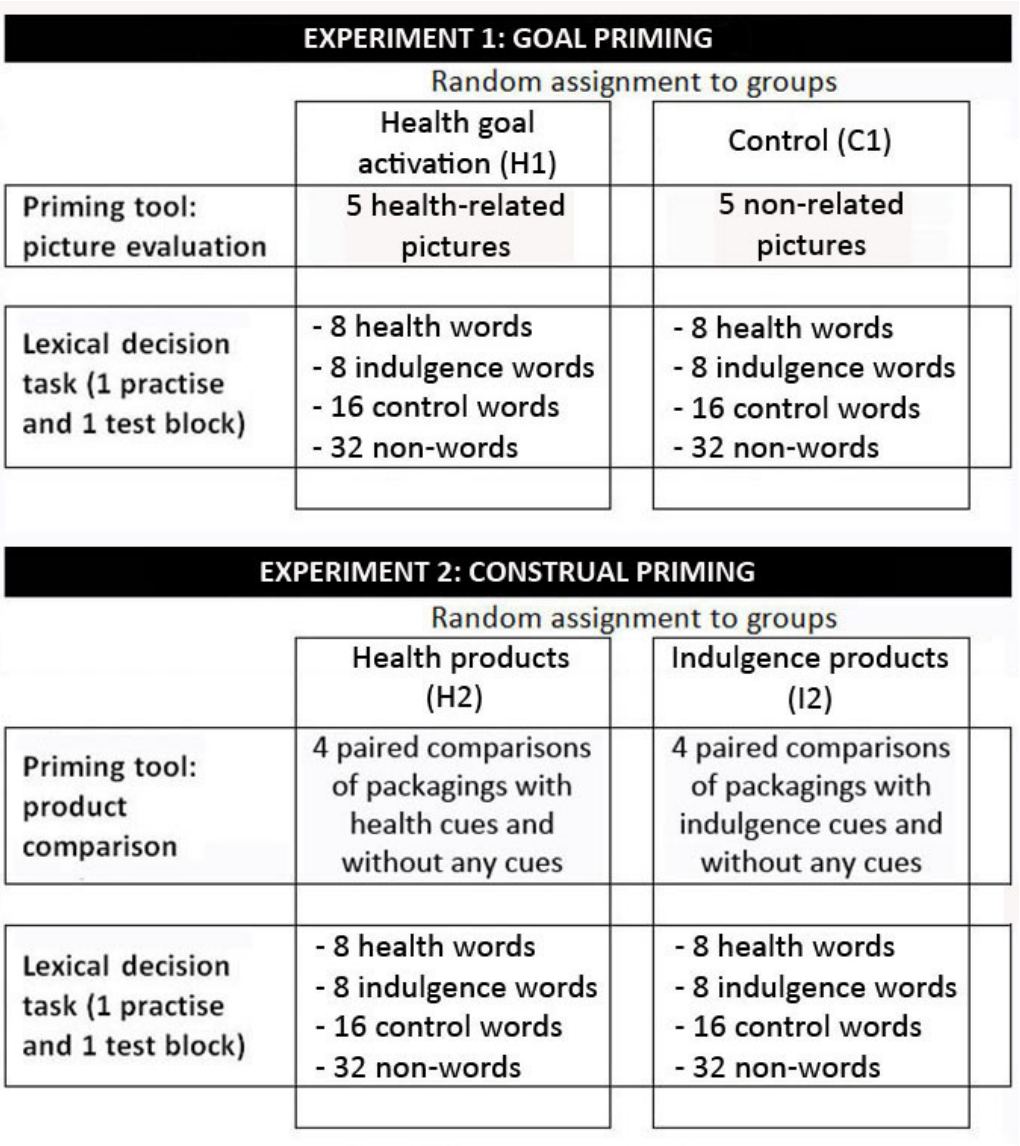


Figure 3: Flow of the research.

3.5 Measures

Response latency. Wittenbrink and Schwarz (2007) define response latency as the time that elapses between the onset of the target and the overt response. In our study it means the time between the moment when a target word appears on the screen and participant's answer. Response latency to health, indulgence and control words was the main measure of interest in both experiments. It indicated the level of goal activation in Experiment 1 and the level of construct activation in Experiment 2.

Respondent exclusion. At the very end of the research, participants were asked to type in any comments they had about the research procedure. This was designed to identify individuals who could have any knowledge about implicit measures and priming. Data from participants that realized the true purpose of the study weren't used in the data analysis.

4 Results

Data were gathered in Inquisit 3.0.5 and processed in MS Excel 2010 and IBM SPSS Statistic 20. Out of the 131 recruited individuals, two participants demonstrated knowledge about implicit measures and priming and their data were excluded from the analysis. In the sum of the remaining answers, 6% were incorrect and not used in further analysis (Belei et al. 2012; Wilcox et al. 2009; Wittenbrink and Schwarz, 2007; Fishbach, Kruglanski and Friedman, 2003). 0,5% of correct answers were marked as outliers (response latencies higher than 2 seconds) and excluded as well (Belei et al. 2012; Geyskens et al. 2008; Witenbrink and Schwarz, 2007; Fishbach, Kruglanski and Friedman, 2003. The responses for health, indulgence, and control words were averaged per individual. As the data wasn't normally distributed (for a normality check, see Appendix 7), a log transformation was used to transform the data in a form suitable for the ANCOVA and ANOVA testing (Belei et al. 2012; Wilcox et al. 2009; Cesario et al. 2006; Fishbach, Kruglanski and Friedman, 2003; Fazio, 1990). However, for the ease of interpretation, all the following tables and graphs contain regular response latencies in milliseconds. Original SPSS output can be found as Appendix 8.

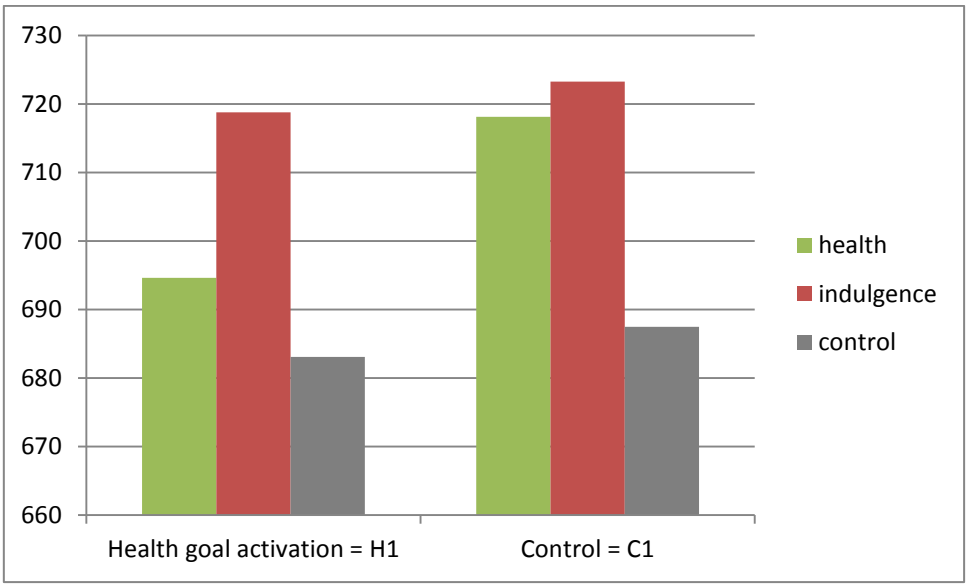
4.1 Experiment 1: Goal priming

Two groups (Health goal activation = H1, n=66, vs. Control = C1, n=63) were compared in Experiment 1. The following table contains means and standard deviations per each group:

	Health goal activation H1 (n=66)		**Control C1 (n=63)**	
	mean	**st. dev.**	**mean**	**st. dev.**
Health words latency	695	131	718	167
Indulgence words latency	719	139	723	168
Control words latency	683	115	687	123

Table 2: Average response times, Experiment 1

For a better visual comparison, see the subsequent graph:



Graph 1: Average response times for individual word categories, Experiment 1

Hypothesis 1: *Participants primed with health-related pictures will have health goal activated to a larger degree than participants primed with control pictures.*

To test Hypothesis 1, Analysis of Covariance (ANCOVA) with log transformed health words latency as the dependent variable and log transformed control words latency as the covariant with groups (Health goal activation vs. Control) as the fixed factor was used.

	Health goal activation = H1	**Control = C1**	**F test**	**p-value**
Health words latency	694,61	718,12	,975	,325
Control words latency (covariant)	683,09	687,48	187,120	,000

Table 3: ANCOVA results for Hypothesis 1

The main effect of the groups was not significant, F (1,126) = ,975 with p-value = ,325, which means no statistically significant differences between the two groups, thus **rejecting Hypothesis 1**. We do not show evidence that health goal activation increases response latency to health words. The effect of control words latency was significant, F (1,126) = 187,12, p-value = ,000, which means that participants who responded faster to control words also responded faster to health words, irrespective of the condition.

As a part of Hypothesis 1, an assumption was held that there will be no differences between response latencies for control words in Health goal activation group and Control group. This assumption was tested with an ANOVA, with log transformed control words latency as the independent variable.

	Health goal activation = H1	**Control = C1**	**F test**	**p-value**
Control words latency	683,09	687,48	,026	,873

Table 4: ANOVA results for Control words assumption

The F-test was not significant, F (1,128) = ,026 with p-value = ,873, which demonstrates no significant differences between the two groups and supporting the assumption of no differences in control words latencies between the two groups.

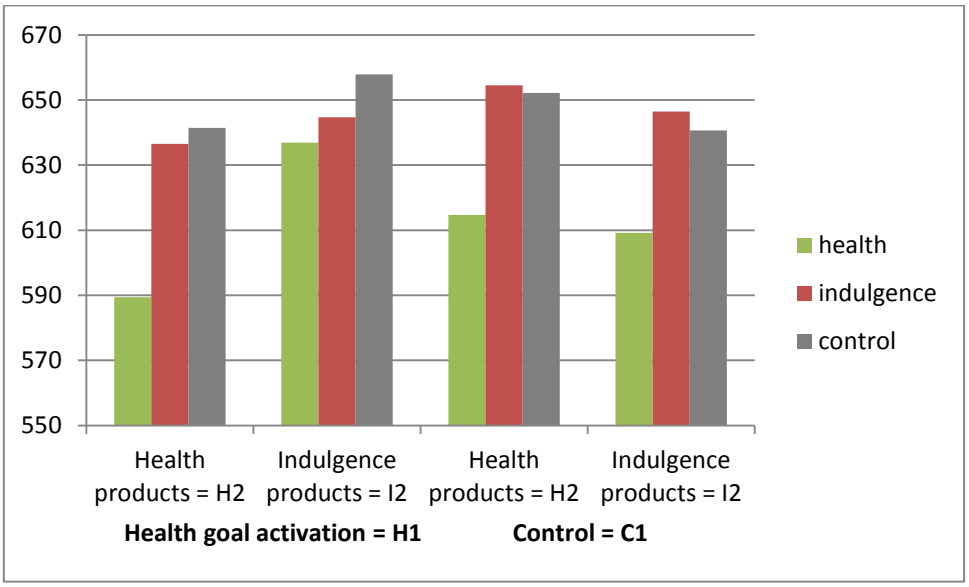
4.2 Experiment 2: Construal priming

To test the hypotheses related to Experiment 2, four groups (H1 H2 with n=34, H1 I2 with n=32, C1 H2 with n=31, C1 I2 with n=32) were compared. The following table contains means and standard deviations per each group:

	Health goal & health product **H1 H2 (n=34)**		Health goal & indulgence product **H1 I2 (n=32)**		No goal & health product **C1 H2 (n=31)**		No goal & indulgence product **C1 I2 (n=32)**	
	mean	**st. dev.**	**mean**	**st. dev.**	**mean**	**st. dev.**	**mean**	**st. dev.**
Health words latency	589	75	637	103	615	104	609	101
Indulgence words latency	637	97	645	104	654	115	646	122
Control words latency	641	105	658	86	652	97	641	96

Table 5: Average response times, Experiment 2

For a better visual comparison, see the subsequent graph:



Graph 2: Average response times for individual word categories, Experiment 2

Hypothesis 2: *Participants primed with health-related pictures and health products will have health constructs activated to a larger degree than participants primed with control pictures and health products.*

	H1 H2	C1 H2	F test	p-value
Health words latency	589,45	614,72	1,014	,318
Control words latency (covariant)	641,48	652,12	92,067	,000

Table 6: ANCOVA results for Hypothesis 2

The main F test was not significant, F (1,62) = 1,014 with p-value = ,318, meaning no statistically significant differences between the two groups which leads to **rejection of Hypothesis 2.** We do not show evidence that health goal activation in combination with health constructs activation causes faster response latency for health words in comparison with health construct activation only. The effect of control words latency was significant, F (1,62) = 92,067, p-value = ,000, which means that participants who responded faster to control words also responded faster to health words, irrespective of the condition.

Hypothesis 3: *Participants primed with control pictures and indulgence products will have indulgence-related constructs activated to a larger degree than participants primed with health-related pictures and indulgence products.*

	H1 I2	C1 I2	F test	p-value
Indulgence words latency	644,71	646,48	1,130	,292
Control words latency (covariant)	657,89	640,65	120,544	,000

Table 7: ANCOVA results for Hypothesis 3

The F test was not significant, F (1,61) = 1,13 with p-value = ,292, meaning no statistically significant differences between the two groups which leads to **rejection of Hypothesis 3.** We do not show evidence that health constructs activation causes faster response latency for health words in comparison with health goal activation in combination with indulgence constructs activation (combination which leads to goal conflict). The effect of control words latency was significant, F (1,61) = 120,544, p-value = ,000, which means that participants who responded faster to control words also responded faster to health words, irrespective of the condition.

Hypothesis 4: *Participants primed with health-related pictures and indulgence products should experience goal conflict.*

	Health words latency	Indulgence words latency	t-test	p-value
H1→I2	636,86	644,71	-,650	,520

Table 8: Paired t-test results for Hypothesis 4

Here we compared two sets of responses within one group. From that reason we could not use control words latency as a covariant and Hypothesis 4 was tested with paired t-test. The t-test is not significant, F(1,63) = ,093 with p-value = ,761, which means no statistically significant differences between the two groups. We cannot reject the null hypothesis and as a result, we have to **accept Hypothesis 4**. We demonstrate evidence that the combination of health goal activation and indulgence constructs activation leads to goal conflict.

Hypothesis 5: *Participants primed with health-related pictures and health products will have the overall health concept activated to an extremely large degree.*

	H1 H2 Experiment 1	H1 H2 Experiment 2	F test	p-value
Health words latency	676,54	589,45	15,201	,000
Control words latency (covariant)	653,76	641,48	63,644	,000

Table 9: ANCOVA results for Hypothesis 5

The F test was significant, F (1,65) = 15,201 with p-value = ,000, which means statistically significant differences between the two groups and thus **accepting Hypothesis 5.** We demonstrate that the combination of health goal activation and health constructs activation leads to high accessibility of the overall health concept. The effect of control words latency was significant as well, F (1,65) = 63,644 with p-value = ,000, meaning that participants who responded faster to control words also responded faster to health words, irrespective of the condition.

5 Discussion

The aim of this study was to activate a health goal (Experiment 1) and health or indulgence related constructs (Experiment 2) and then use lexical decision tasks to measure the effects of such goal and construal priming. It was expected that participants primed with health goal-related pictures will respond to health words faster when compared to participants primed with unrelated pictures (Hypothesis 1). Although not statistically significant, the results confirm this assumption. It is suitable to check Graph 1 (p. 28) again. There it is visible that the latencies for indulgence and control words are the same across the two conditions, but in the case of response time for health words, we can spot visible difference between the two conditions. It is then safe to say that we were able to demonstrate some difference but this difference is small and unfortunately not meaningful. Logically we had to question the research due to possible power issues. Outcomes of previously conducted studies show that it is possible to reach satisfactory results even with significantly less participants than we used (Vanderwart (1984), Study 1 – 35 participants; Petty et al. (2008), Study 2 – 42 participants; Belei et al. (2012), Study 2 – 63 participants). In the light of these numbers we conclude that our unsatisfactory results were presumably caused by methodology flaws rather than power issues. In Hypothesis 2 it was assumed that individuals primed with health goal in Experiment 1 and health products in Experiment 2 would respond to health words faster than individuals primed with no goal in Experiment 1 and health products in Experiment 2. At the end, the difference between those two groups was app. 20ms in favour of the hypothesis. The results were unfortunately not statistically significant because the 20ms difference wasn't big enough. Hypothesis 3 aimed to prove that people primed with no goal in Experiment 1 and indulgence products in Experiment 2 would react faster to indulgence words than participants primed with health goal in Experiment 1 and indulgence products in Experiment 2. Not only the results came out statistically insignificant, they were almost identical. This means that we were not able to demonstrate differences in response latencies for health words between participants primed with indulgence constructs and participants primed with health goal and indulgence constructs (thus experiencing goal conflict.

Goal conflict is a phenomenon quite important for the consumers' goals domain. The idea of activating two competing goals (or concepts) was tested with Hypothesis 4. Here it was assumed that activation of health goal in Experiment 1 and activation of indulgence constructs in Experiment 2 will result in confusion and goal conflict; meaning that the response latencies for health and indulgence words should be equal. Test confirmed no statistically significant differences between the health and indulgence latencies. The goal conflict was so distinctive that it resulted in the slowest response latency for health words when compared to the other 3 groups in Experiment 2 (see Graph 2, p. 31).

Hypothesis 5 assessed the possibility of combining the priming effects in order to reach extremely high concept activation. Results from people primed with health goal in Experiment 1 were compared with results from the same people after being primed with health constructs in Experiment 2. Their response latency for health words dropped down significantly between Experiment 1 and 2. It was successfully confirmed that the priming effects can indeed conjoin and lead to higher goal or construct accessibility.

As a reflexion of rejected hypotheses and unexpected or unexplainable results, the following suggestions were drawn to stress out what could have been done better:

The Language. For a non-Dutch speaking researcher it is of course more convenient to do the research in English, as he needs no help with translating the instructions, words for lexical decision task, or package manipulation. However, approximately half of the participants were Dutch. In case there will be similar research in the Leeuwenborch, it might be a good idea to run the experiment in Dutch and not in English. This decision should be taken because the associative networks which hold relevant information together in the human brain are stronger in the mother tongue. High numbers of incorrect answers and outliers in case of some participants demonstrate that the level of English varied. Many of them expressed insecurity about the level of their English and said that it probably negatively influenced their responses in lexical decision tasks. Some participants mastered the language better than others and as a result, the difference between participants mastering the words was bigger than the difference between manipulations. It was not possible to control for the nationality or mother tongue during the data analysis, as all the results were anonymous.

Pre-test of words for LDT. In order to replicate the satisfying results of Belei et al. (2012), the identical words from their Study 2 were used in our experiments. Some of the words proved to be a challenge for certain number of participants; especially ‘wanting’, ‘yummy’, or ‘waltz’ were many times identified as non-words. List of all incorrect responses can be found as Appendix 9. A pre-test undertaken on a sample drawn from the target population should eliminate unknown words and bring the commonly-known ones on top. The most problematic words did not have a big effect on the research as most of them turned out with very high latencies and were therefore eliminated as outliers.

Randomization. Probably the biggest issue that occurred during the research and was discovered during the data analysis was randomization. Although the participants were randomly assigned to the groups, and the groups were equally represented on every computer, every day of the research,

significant differences were found between groups of participants which went through the same procedure, except for different keys they used to identify words and non-words (some participants identified words with 'A' key and non-words with 'L' key and others identified words with 'L' key and non-words with 'A' key). No justification of the differences between supposedly identical groups was found during the analysis. It is important to say that the differences were more apparent in data from Experiment 1 than in Experiment 2, meaning that the time spent in the research room might have played a role in this issue. For a comparison of the groups mentioned, see Appendix 10.

Learning process. Wittenbrink and Schwarz (2007) report that there should be no differences in effect between a set of 5 stimuli and a set of 25 stimuli. So the idea of having 5 pictures in Experiment 1 or 4 pairs of products in Experiment 2 was not incorrect. The mean response latency (considering all responses together) went from 704 in Experiment 1 to 634 in Experiment 2. The same happened with the standard deviation (144 in Experiment 1 to 103 in Experiment 2). These numbers clearly demonstrate that the learning process happened during the procedure, whereas ideally it should happen prior the procedure. More practise rounds in the first lexical decision task could solve this issue. Letting the participants solve more elaborate and longer-lasting priming tasks could also help to increase their concentration. Wilcox et al. (2009) used another procedure. The order of their Study 3 was 1) lexical decision task practise block, 2) priming task, and 3) lexical decision task main block. Having the practise block as the first task probably helped to increase participants' concentration and speed up the learning process.

What is healthy and what is tasty. Based on used literature and common consumption patterns it was expected that (during the construal priming) extra vitamins, fibre, and other nutrients, low fat and various fruit flavours would make the products look healthy in the eyes of participants. Yet already during the stimuli material pre-test and later while analysing the final data it became obvious that this doesn't work for all the people. During Experiment 2, many participants chose neutral products over the healthy ones because of their belief, 'less artificial ingredients means more natural and healthier product'. Similar thing goes for indulgent, tasty products. Not everybody considers chocolate or salty chips as tasty or enjoyable, for some people it is healthy = tasty. As a proof, here is a comment by one of the participants: 'What makes you assume that everyone would see chocolate and crisps as tasty food? I enjoy tasty food which is also healthy.' Tables containing data about what products were preferred in Experiment 2 can be found as Appendix 11. Just as with the LDT words, interviewing people from the target population about what do they consider healthy or tasty might get more accurate data. Wittenbrink and Schwarz (2007) stress out the importance of having precisely defined constructs of interest. Although a stimuli pre-test was done prior this research, it

was probably the possibility of choice between health (or indulgence) and control products that decreased the effects of priming. Asking the participants which products were healthier or tastier instead of asking for preference might have been a better option. Another possibility would be to let the participants simply evaluate or rate health and indulgence products. This would direct them to manipulated cues which could lead to better priming effects.

Speed and accuracy. Fazio (1990) vigorously reminds of the necessity to inform all the participants to respond as fast and as accurate as they can. In this research, participants were instructed personally at the beginning and then via instructions presented on the screen before every lexical decision task. As the difference between the general response latency in Experiment 1 and Experiment 2 suggests, it wasn't enough. Getting the participants focused and concentrated on the task should be a crucial thing to do.

Taking all these suggestions into consideration should result in better and more influential prime exposure. With pre-checked stimuli presented in mother tongue, the priming should work better and with focused participants result in more accurate response latencies.

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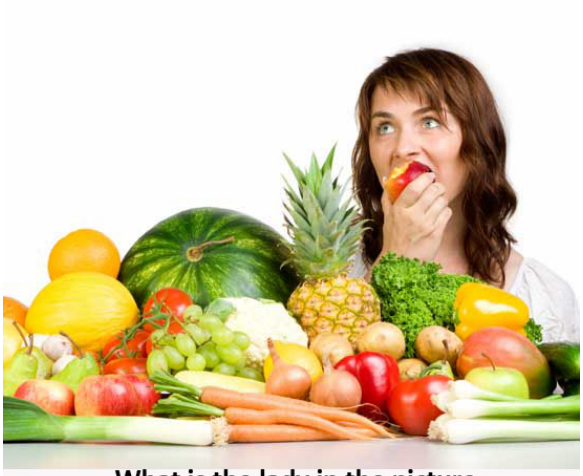
7 Appendix

1. Goal priming – health pictures

Health picture 1



What is the lady in the picture trying to achieve?

Health picture 2

What is the lady in the picture trying to achieve?

Health picture 3

What is the lady in the picture trying to achieve?

Health picture 4

What are the people in this picture trying to achieve?

Health picture 5

What is the woman in this picture trying to achieve?

2. Goal priming – control pictures

Control picture 1

What is the man in the picture trying to achieve?

Control picture 2

What are the people in the picture trying to achieve?

Control picture 3

What is the kid in the picture trying to achieve?

Control picture 4

What is the man in this picture trying to achieve?

Control picture 5

What is the lady in this picture trying to achieve?

3. Construal priming – health products

Health product 1

Health product 2

Health product 3

Health product 4

4. Construal priming – indulgence products

Indulgence product 1

Indulgence product 2

Indulgence product 3

Indulgence product 4

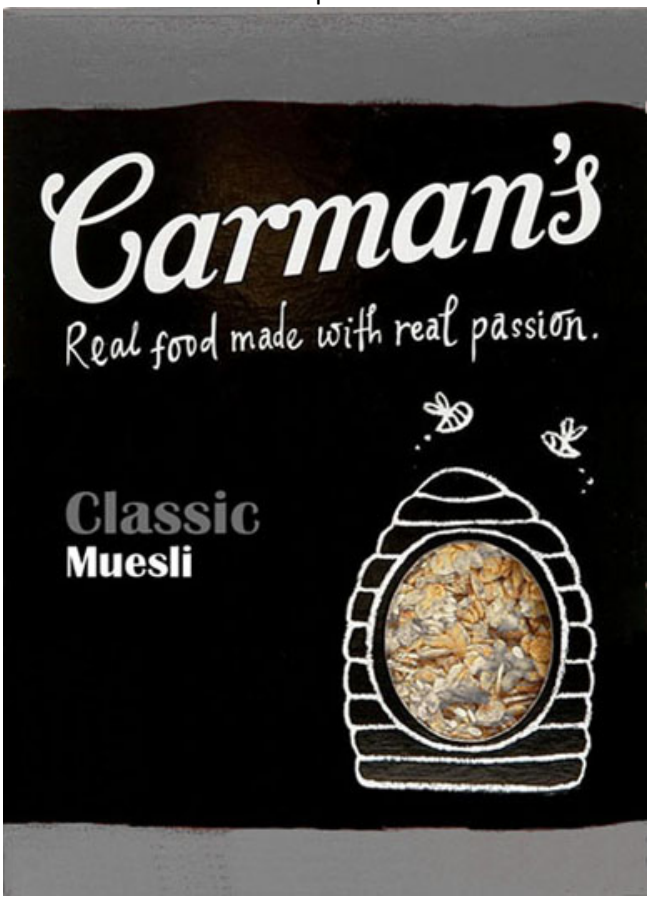
5. Construal priming – control products

Control product 1

Control product 2

Control product 3

Control product 4



6. Stimuli material pre-test

30 students were interviewed in the Forum building regarding the prepared stimuli material. The goal neutral pictures showed the expected results. Participants identified them as activities totally unrelated to health, indulgence, or food in general. Thus those pictures were evaluated as suitable for use in the experiment. Four out of five health related pictures were evaluated correctly. The most often answers to the question 'What are the people on the picture trying to achieve?' were 'be healthy', 'eat healthy', 'be fit', 'look good', 'eat a lot of vegetables and fruits', 'lose weight'. Other mentioned words were 'healthy lifestyle', 'fitness', 'sporty', and 'diet'. A picture of a family eating healthy food resulted in answers mentioning various family values rather than health related topics and was removed from the research. It was replaced by a picture of a woman enjoying fruits. This picture evoked answers related to health concepts and was accepted as a suitable replacement.

During the construal priming material pre-test, participants were presented with four sets of products (1 set of yogurts, 1 set of milk bottles and 2 sets of muesli). Each set contained 1 health-related product, 1 indulgence-related product, and 1 control product. As all the indulgence-related products were originally chocolate-flavoured, one of them (the yogurt) was replaced with a cherry cheesecake-flavoured one prior the pre-test. Most of the participants (24 out of 30) said that chocolate-flavoured products represent a tasty choice. Thus, the indulgence-related products were evaluated as suitable for the research. The health-related products were mostly evaluated as the healthy choice out of the three presented products. The most appealing cues were health claims such as 'low fat', 'lactose free', 'fat free' 'nutritious', 'extra vitamins', and 'high fibre'. The flavours (strawberry, red berries, and apples & cranberries) were defined as health indicators. The control products were evaluated as the simplest, plain, and average out of the three products. Some participants evaluated them as the healthiest choice. These few shared the same opinion – the simpler the product, the less artificial content. So for them the regular products were healthier than the health-related and indulgence-related products because these contained various flavours, colours, etc. In general, the indulgence-related products were evaluated as the tastier choice. Most of the participants said they liked to eat products containing chocolate. For one participant, the chocolate milk was appealing because (compared to the other two) it had well-designed bottle cap.

7. Normality check

The distribution of data gathered in Experiment 1 & 2 (health, indulgence, and control word latencies) was checked. In case of all data, its distribution was not normal (Shapiro-Wilk < 0.05). For this reason, a log transformation was used to further analyse the data.

Experiment 1:

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Health words latency	,148	129	,000	,915	129	,000
Indulgence words latency	,120	129	,000	,912	129	,000
Control words latency	,099	129	,004	,931	129	,000

a. Lilliefors Significance Correction

Experiment 2:

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Health words latency	,095	129	,006	,939	129	,000
Indulgence words latency	,107	129	,001	,942	129	,000
Control words latency	,085	129	,025	,971	129	,007

a. Lilliefors Significance Correction

8. SPSS output for testing hypotheses

Hypothesis 1:

Report

group		Health words latency	Control words latency
Health goal activation	Mean	694,617226	683,092937
	N	66	66
	Std. Deviation	139,9012262	115,6136529
Control	Mean	718,129289	687,480763
	N	63	63
	Std. Deviation	167,8521322	124,0970474
Total	Mean	706,099862	685,235829
	N	129	129
	Std. Deviation	154,0299949	119,3815099

Tests of Between-Subjects Effects

Dependent Variable: Health words latency (log transformed)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	,602[a]	2	,301	94,258	,000
Intercept	,002	1	,002	,552	,459
Control_words_latency_log	,598	1	,598	187,120	,000
Groups	,003	1	,003	,975	,325
Error	,403	126	,003		
Total	1041,128	129			
Corrected Total	1,005	128			

a. R Squared = ,599 (Adjusted R Squared = ,593)

ANOVA

Dependent variable: Control words latency (log transformed)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,000	1	,000	,026	,873
Within Groups	,660	127	,005		
Total	,660	128			

Hypothesis 2:

Report

group		Health words latency	Control words latency
H1H2	Mean	589,455357	641,483931
	N	34	34
	Std. Deviation	76,4053480	106,1037849
C1H2	Mean	614,725614	652,124034
	N	31	31
	Std. Deviation	105,6562317	98,9514998
Total	Mean	601,507326	646,558442
	N	65	65
	Std. Deviation	91,6769756	102,0946395

Tests of Between-Subjects Effects

Dependent Variable: Health words latency (log transformed)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	,155[a]	2	,077	47,310	,000
Intercept	,018	1	,018	11,027	,002
Control_words_latency_log	,150	1	,150	92,067	,000
Groups	,002	1	,002	1,014	,318
Error	,101	62	,002		
Total	500,649	65			
Corrected Total	,256	64			

a. R Squared = ,604 (Adjusted R Squared = ,591)

Hypothesis 3:

Report

group		Indulgence words latency	Control words latency
H1I2	Mean	644,712054	657,891391
	N	32	32
	Std. Deviation	105,7598225	87,7289747
C1I2	Mean	646,484933	640,651892
	N	32	32
	Std. Deviation	123,9357708	97,1769611
Total	Mean	645,598493	649,271641
	N	64	64
	Std. Deviation	114,2922989	92,2459603

Tests of Between-Subjects Effects

Dependent Variable: Indulgence words latency (log transformed)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	,237[a]	2	,119	60,275	,000
Intercept	8,610E-006	1	8,610E-006	,004	,947
Control_words_latency_log	,237	1	,237	120,544	,000
Groups	,002	1	,002	1,130	,292
Error	,120	61	,002		
Total	503,363	64			
Corrected Total	,357	63			

a. R Squared = ,664 (Adjusted R Squared = ,653)

Hypothesis 4:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Health_words_latency_log	2,7987	32	,06841	,01209
	Indulgence_words_latency_log	2,8039	32	,06909	,01221

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Health_words_latency_log - Indulgence_words_latency_log	-,00525	,04568	,00808	-,02172	,01122	-,650	31	,520

Hypothesis 5:

Report

group		Hyp6_main	Hyp6_cov
H1H2 Experiment 1	Mean	676,548845	653,765032
	N	34	34
	Std. Deviation	139,5717132	96,0142260
H1H2 Experiment 2	Mean	589,455357	641,483931
	N	34	34
	Std. Deviation	76,4053480	106,1037849
Total	Mean	633,002101	647,624482
	N	68	68
	Std. Deviation	119,9779218	100,6172450

Tests of Between-Subjects Effects

Dependent Variable: Health words latency (log transformed)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	,216[a]	2	,108	41,853	,000
Intercept	,016	1	,016	6,353	,014
Control_words_latency_log	,165	1	,165	63,644	,000
Groups	,039	1	,039	15,201	,000
Error	,168	65	,003		
Total	531,435	68			
Corrected Total	,384	67			

a. R Squared = ,563 (Adjusted R Squared = ,549)

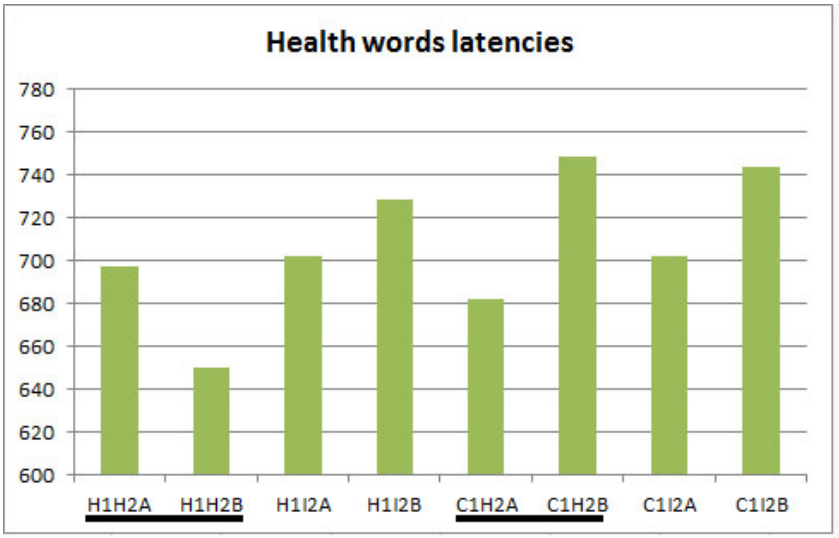
9. List of incorrect responses

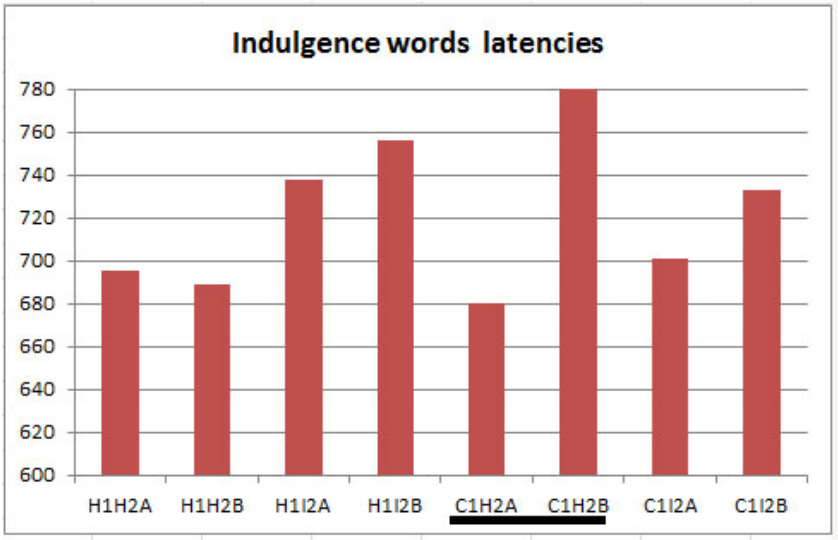
	H1 H2		H1 I2		C1 H2		C1 I2		TOTAL
	Exp 1	Exp 2	Exp 1	Exp 2	Exp 1	Exp 2	Exp 1	Exp 2	
health									
exercise					1				1
fitness			1	1				1	3
fruit	1	1		1			2	1	6
healthful	2	2			1		1	2	8
nutrition	1	1	1	1		2	2	1	9
sports	1	2						2	5
vegetables	1								1
vitamins	1	1			2	1	4		9
indulgence									
delicious							1	1	2
desire		1		2			1	1	5
enjoyable	1	1				1	3	2	8
pleasure						1			1
sweet	1				1	1	1		4
tasty				2			2	1	5
wanting	1	2	4	6	4	2	1	1	**21**
yummy	7	11	8	8	6	6	8	6	**60**
control									
car		1			1			1	3
device	3	1	1	1		1	1	1	9
font	11	11	5	4	8	6	5	8	**58**
garage				1					1
internal	1			2	2		1		6
letter		1				1		1	3
match	1	1			1				3
plant									0
pants	4	2	5	1	2	4	5	4	**27**
phone	1			1	1	1		1	5
quiet						1			1
robot	1	1	1			2	1		6
shallow	2	3	1	1	2	3	2	4	**18**
waltz	25	25	21	17	22	21	24	23	**178**
whistle	1	1		1					3
window	1								1
TOTAL	68	69	48	50	54	54	65	62	470

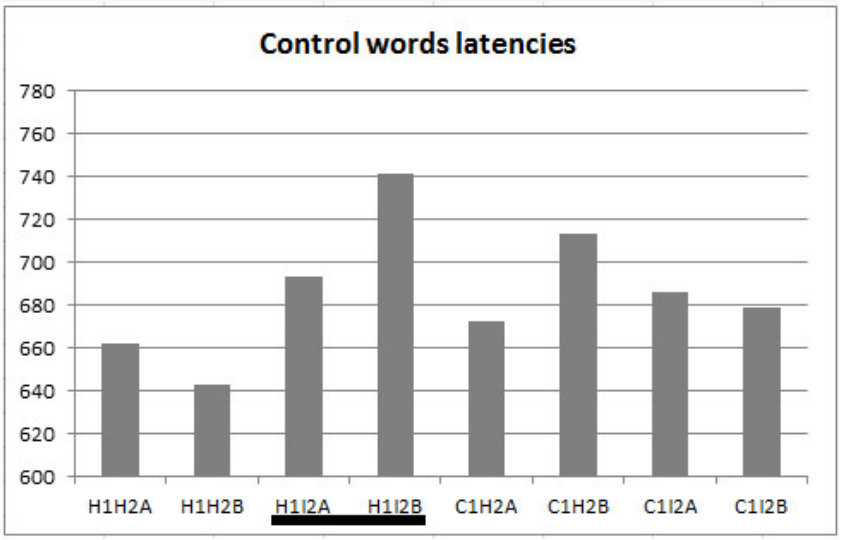
10. Randomization issues

Groups which were supposed to be identical (across both experiments): H1H2A = H1H2B, H1I2A = H1I2B, C1H2A = C1H2B, C1I2A = C1I2B. The biggest differences are underlined.

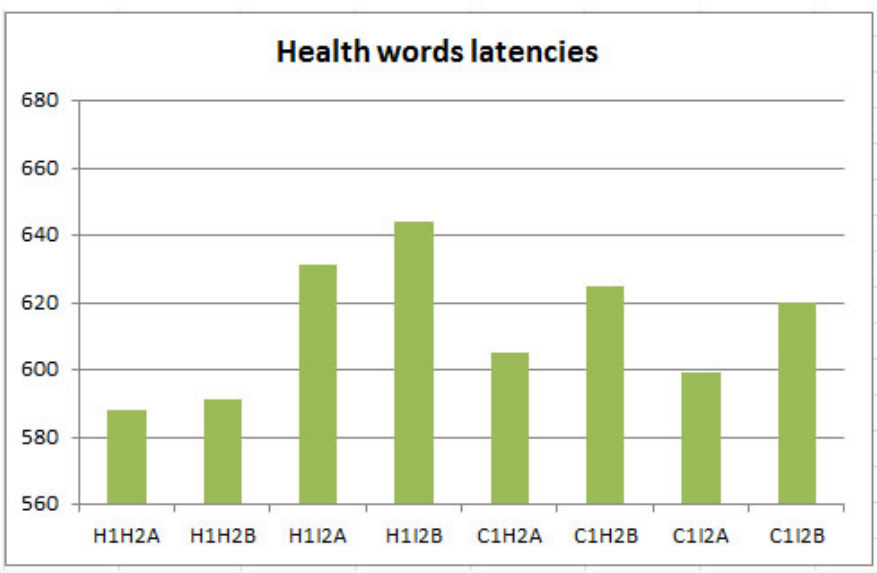
Experiment 1:

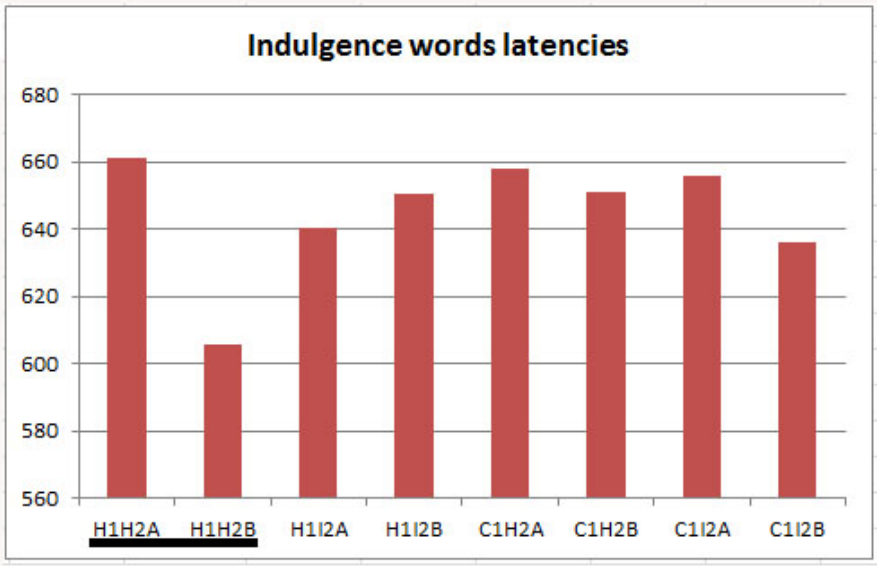


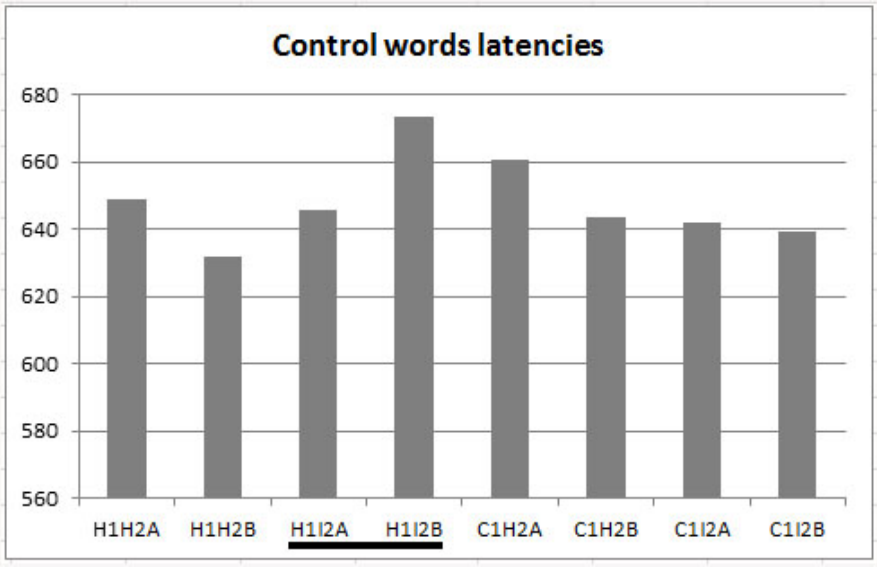




Experiment 2:







11. Product preference in Experiment 2

These tables demonstrate how many times were health or indulgence products preferred over the control ones in Experiment 2. The first number is always the amount of cases that a particular product was selected within a group, followed by its formulation in percentages.

	Health product 1		Health product 2		Health product 3		Health product 4	
								
H1 H2 (n=34)	21	62%	12	35%	23	68%	26	76%
C1 H2 (n=31)	16	52%	10	32%	23	74%	23	74%

	Indulgence product 1		Indulgence product 2		Indulgence product 3		Indulgence product 4	
								
H1 I2 (n=32)	21	66%	15	47%	20	63%	19	59%
C1 I2 (n=32)	26	81%	22	69%	26	81%	17	53%

	Control product 1		Control product 2		Control product 3		Control product 4