Consumer food choice – How, Why and When?

The importance of attitudes, preferences, information, alarm and other factors influencing food choice situations

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Introduction

Eating, drinking and deciding what to eat are amongst the most regular human behaviors. Meanwhile, decision making and human food choice behavior is mainly a learned behavior (Köster, 2003) even though the need for nutrients is innately. Food choice behavior is mostly based on incidental learning and implicit memory, meaning that people do not always know what they know or why they act or behave in a particular way. An average person makes about 200 food-related decisions each day (Wansink, 2006). Perhaps more decisions than people believe they do or actively reflect on. Human food choices are however far from only a strictly rational process (Adaval, 2001). The decisions to buy certain food products are rather to be seen as a total of many different factors depending on diverse effects; memories, emotions and situations, different impulses, the impact and properties of the product, social aspects and much more. To investigate and map food choice behavior, decision making processes and the factors contributing to human eating have to be considered as a complex field to enter, but likewise important for a deeper and wider understanding about present and future consumer actions, which in turn might be essential for the success regarding development of both new products and a more sustainable society.

When understanding how, why and when people make their choices or decisions, in what situations people might change their behavior or how they are affected by internal and external factors, food industries have more availability to impact such processes and perhaps easier understand future consumer behavior.

The attempt with following review is to present aspects of the individual consumer, different product properties and various contexts, as well as how these aspects interact in food choice behavior. The challenge is not only the attempt to make a division between the three aspects, since they most certainly interact and correlate to each other but to delimit and embrace the complex field of human food choice behavior.

Background

Why do we need to know more about consumer food choice behavior?

Food choice and decisions about what to eat and drink not only affect the individual nutritional status and body but make influences on the food production and food industries (Furst et al., 1996). Food choice is the basis for the formation of food habits and behavior, behavior and habits further on contribute to worldwide consumption considerations. The modernization and social development towards more women working outside home is one development factor that have made it less possible to prepare family meals for several hours and is part of a changed human food choice behavior.

Most new food products launched on the market fail (Stewart-Knox & Mitchell, 2003) and are withdrawn within a year of time. Product boredom and bad marketing might be some explanations but inadequate consumer research, lack of understanding regarding
food choices also contributes to this fact. Most new food products are likewise often incremental developments or improvements perhaps explained by a fear of business failure. Consumers, however, might find it difficult to know what to wish or desire from the food industry and new flavored yoghurt is at least something concrete (for both consumers and industries). New product development is a costly process in concerns of time and economics, and when frequently developing new products the business will be unfavorable in the long run.

The complexity

Rozin (1998) argues that our food choices very much depend on where we live. Even though international trade makes it possible to eat almost everything all year around, people do eat differently in different parts of the world, because of cultivation and cultural variances. Not only is the context and situation important, but it might also be relevant to reflect on different food products’ contribution to certain mood states. Is food consumed because of its saturation effect on hunger, the sensory pleasantness, nutritional issues/quality, commensality and friendship, moral/ethical considerations, health or …? And what is actually considered proper food to eat? This is very much a cultural issue and therefore might food in some countries be considered luxury but the opposite in other societies. The potential success or failure for a product thereby depends very much on overall circumstances.

Köster (2009) states the “W”- words below (figure 1) which shows all questions included in the attempt to answer questions regarding food choice behavior. Different professions and areas of research must be considered involved in the answering of such questions; biology, physiology, motivation and decision psychology, sociology, differential and developmental psychology, sensory science, consumer and food science, marketing, perception, memory and learning, economy, emotions etc. all involved at different stages in the process and potential professions to consider when trying to map food behavior.

![Figure 1](image)

Consumer and sensory science is to be considered a young research field compared to other well-established scientific disciplines (Köster, 2003). When using results from other sciences and applying them to consumer science it neither should nor cannot be made without some reflections and criticism. One frequent fallacy or mistake is to believe that people are uniform, and that people do not change, but people do change, perhaps especially when it comes to food and drinks. It is also incorrect to think that people always make rational choices and decisions or that consumer perception is more important than the memory of the sensory properties of the products.

Consumer behavior in different situations can hardly be characterized by context variables either objectively measured or given subjectively by descriptions from individuals. Consumer and sensory science is in collaboration between several other disciplines such as food technology and chemistry, nutrition physiology and psychology.
in the search for an understanding regarding consumer eating and drinking behavior. People tend to experience products differently, the questions is just why, and why in what way. Sometimes products are even experienced differently by the same person, depending on different days or in different surroundings. Figure 2 is an attempt to show an individual with several products (the different figures) presented in surrounding contexts (the squared frames). However, different contexts and situations are sometimes present at the same time, where products might be experienced differently depending on the situation, or other people involved.

![Figure 2. Different products presented in different contexts/situations.](image)

Because of the implicit memory, it is hard to capture a real behavior when asking consumers about their food behavior. Sometimes mapping of previous behavior is far more efficient than asking questions which consumers maybe never have thought about and therefore perhaps answers in a way they believe the researcher wants, or incorrect in relation to reality. It is of course how people act and what they do that count, not what people say they do, but do not do. Since food choices mostly are automatic and unconscious actions the answers to food behavioral questions are hard to capture and some food behavioral habits might be hard for people to admit or even remember. This consideration needs to be kept in mind when investigating consumer food choices and behavioral decision making. Sensory and consumer science is further often based on the theory regarding what is perceived by consumers will be remembered (Köster, 2003). But this reasoning is far from always true since in many cases, just a few attributes or properties is remembered in connection to a particular product. Anyhow, it could perhaps at least be concluded that what is not perceived will not be remembered.

The food industry has a significant importance when it comes to product development and the production of food, not least because food products preferably should be consistent to consumer preferences. Thereby, it is of course hard work to map and explain consumer food choices, foremost because of the already mentioned fact that consumers seldom are aware regarding the reasons to why they make certain decisions or consume a particular food product, but also because of the several numbers of food related decisions made each and every day. Many previous studies in the field have focused on rational and conscious decision making of food consumption. Some scientists have however parallel to the rational and conscious actions discussed the limitation of human rational decision making of food, even when the attempt is to act in a rational manner.
The connection between consumer, product and environment/setting/situation might be seen as a simple interaction of factors but is instead to be considered as rather complex, where rational and emotional thoughts interact (Köster, 2009) involving several factors and impulses (Zajonc & Markus, 1982). Because attitudes to food and the actual food choices sometimes can be difficult and strain, humans instead tend to use simplified rules or processes for decision making. Consumers then might rely on information available instead of using a rational behavior weighing all advantages/disadvantages against each other (Slovic et al., 2002). Emotional reactions might instead contribute to certain decisions in some situations. A positive reaction and emotion to a specific food product is however not to consider as an irrational way of making a decision, but can be seen as an efficient method in the navigation among information and the excessive number of products available today.

Food choice and consumption is to be considered implicit learning partly habitual and impulsive (Zajonc & Markus, 1982). An evident argument for such reasoning can be that consumers might state a desire for certain food products but not continuously act and consume the products they report as desirable. Food decisions need to be made numerous times, spread throughout the day, sometimes subconsciously taking place while busy doing/thinking about something else.

Food choice is a variable behavior, not only differ between people, changing over time but vary from situation to situation (Köster & Mojet, 2007b). Food choice is an individual mixture of cognitive and emotional aspects from past experiences, present needs/desires, values and feelings (Franchi, 2012).

It is important to state that short term investigations about consumer hedonic ratings on new products will never answer to long-term appreciation and thereby its success or failure on the market. In food consumption many food products are consumed in combination with other food items or products which might make them live longer (there is a complexity added). One consideration should perhaps be to discuss what products tested in which consumer testing settings and what proper sensory methods to use, but this reasoning is most probably a review of its own.
The consumer

Internal aspects by the individual consumer contribute, limit and make certain food choices possible. Not only do individuals have biological physiological considerations such as hunger, satiety and the need for nutritional intake but individuals have different psychological considerations as well; attitudes, beliefs, emotions and values are important factors when it comes to the field of food choice behavior.

Hunger, satiety and appetite

Physiological effects such as hunger, satiety and appetite are mechanisms contributing to eating behavior, perhaps foremost in relation to frequency and amount consumed. Even though hunger perhaps should be a controlling factor for eating it is far from always the only contributor to food intake. Likewise is satiety not exclusively the factor for when individuals stop eating. Naturally do humans experience a greater appetite when hungry but appetite is also partly regulated by the surroundings and situation, the properties of a product and the individual’s emotional status.

Preference and preference learning

Humans are born with the preference for sweet taste and the aversion for bitter (Shepherd & Sparks, 1994). The preference for other sensory aspects is generally food specific and most likely learned by experience over time. Even the very few inborn aversions can be overcome by learning (Köster & Mojet, 2007b); food choice is by this considered a learned behavior throughout life.

The mere exposure theory presented by Zajonc (1968) (in Köster, 2003) state that the more a person is exposed to a new stimuli (food, flavor) the more the person will like it. And there might be individual optimal levels of where specific stimuli are more or less liked. When individuals are repeatedly exposed to stimuli slightly above a particular optimal level the individual will shift towards a higher complexity and optimal level. This is an explanation to why we throughout life learn to enjoy food, drinks and other things that for instance have a bitter taste such as coffee/beer/wines.

Anyhow, in order to like something, you have to know what it is (Zajonc & Markus, 1982). Before knowing what it is, you have to learn what you like, and how you will recognize it when seeing (hearing, meeting, eating, tasting) it. Generally, people experience more positive feelings of food that is recognized and regularly consumed. Research has shown that stimuli presented to individuals for a second time are judged as more familiar or more liked, even when stimulus are not consciously recognized by the individual from the first exposure. Even though the effect of mere exposure is well-known facts these days, the reason to its effect is actually less understood. Assumptions have been made regarding the emotions people feel when presented to a familiar stimulus or object. People often get a feeling of confidence and warmth which has to be considered as a positive mood state directly connected to a particular product. By this, mere exposure becomes a basic process for the formation and change of attitudes and preferences. Perhaps has nature given people the ability to develop preferences for the
food presented to us over and over again, conveniently the food available where we live. Preference learning becomes a basis for survival when moving to new locations, where the ability to change preference is correlated to present surroundings.

*Product boredom* might however happen when exposed to a stimuli or a taste/flavor too many times in a row. Stimuli will namely be less complex the more we are exposed to it as discussed by Walker 1980 (in Köster, 2003). A pleasure of novelty might be one (out of several) explanations to why many liked products in consumer testing flops when launched on the market, they are perhaps not complex enough to keep the consumers interested for a longer time period, but instead leads to product boredom.

Food behavior is also to a very high extent related to specific food products, where preferences for stable foods such as bread, potatoes, pasta and rice tend to be less sensitive than other parts of our food. Vegetables, spices and different meats vary much more between individuals and days. Food related behavior can also be influenced by a more conscious level where for instance healthier [or unhealthy] choices are made after reasoning (Köster & Mojet, 2007b).

The preference for ready meals and easier, prepared foods, have increased and the amount of outdoor eaten meals have increased as well, which gives a dimension to the aspect of preference, not only including intrinsic sensory properties but the usage of the product (Franchi, 2012). People might vary their preference for food throughout the day too, and some people perhaps prefer a larger lunch and a lighter evening meal (or vice versa), as a way to control their calorie intake.

Early childhood might be the most important period for food and preference learning. But, parents should be aware not to learn children by rewarding them with palatable foods, that will not make children enjoy healthy food more (Köster & Mojet, 2007b). Even though food preference is a lifelong learning process and the shaping and creation of food preferences are made throughout life, it is favorable to start already in early childhood, mostly because the number of needed exposures to new food tends to increase in adulthood.

Human experiences and memories are used for preference learning. One particular preference learning effect is what consequences a particular food gives, what post-intestinal (physical) effect it has on the body. This is seen as a major mechanism regarding how to develop preference [or aversion] for different foods. Many people definitely have strong memories from a particular food they got ill from or the other way around; really enjoy a specific food because their stomach handles it very well (Shepherd & Sparks, 1994).

Another preference for food might be the belief about its nutritional quality/value and health effects regardless to if the food actually is of any high quality/value or has any significant effects on health. More knowledge about food might of course change an attitude, belief or preference for food, because more information is added.

People learn by imitating and repeated behavior. Children learn to eat by influence from parents and other adults. Children also affect parents and friends affect each other in the formation and learning about food.
Sensory experience

The aspect of preference and preference formation is to be considered as rather complex including influences from our senses regarding flavor, odor, texture, temperature, product information, brand, experiences and memories. When a product tastes “good” (is “tasty”) the sensory experience is individually experienced, evaluated and in the same time connected to an individual’s culture and thereby communicable (Franchi, 2012) and possible to express. Sensory experience and preference for some products are both an individual choice and the social construction, formed to a habitual behavior. The preference and experience of a “tasty” product is much more than the actual flavor experience. The sensory experience is related to learning and the expectations and habits people have towards the product. The price, label, brand and packaging communicate properties which will influence the perceived experience. The term preference is just a word for one product being chosen over another, not an answer to why that product is chosen, the reasons might differ and is far from always correlated to only aspects of liking.

Sensory specific satiety

The definition of the phenomena sensory specific satiety is that if you eat a food to satiety your preference for that particular food will decrease. The term might be one explanation to why consumers get tired of some products or particular dishes; since the human senses are satiated from the specific property/product.

Research on sensory specific satiety has been made on for instance sandwiches and yoghurt of different flavor and color (Rolls et al., 1980). Research has shown that people presented to a variety of food soon after each other during a meal will enhance the total intake of food. However, taste/flavor alone is not responsible for this satiety but color/vision and/or odor (while chewing but spitting) also contribute to such phenomena but not as obvious as when a food is eaten to satiety (Rolls & Rolls, 1996). Concluding that all intrinsic sensory properties of food most likely contribute, and are important, in the experience of the product. The phenomena can be explained by that you get tired of a specific sensory aspect not the volume or amount of food/energy content, and food with intense flavor tends to be consumed in a smaller volume.

The sensory specific satiety can also explain why people tend to always have room for dessert; it is another sensory property or aspect added to the meal/eating experience. Sensory specific satiety can not only reduce the pleasantness of similar foods but increase the pleasantness for dissimilar foods (Rolls & Rolls, 1997), which might explain peoples’ actions on buffets too.

Emotion and mood

Even though previous research has concluded that more studies are needed on the investigation between food choice and mood, it can be stated that food choices can be (and most likely are) influenced by emotions and our mood. Feelings can change our appetite or other behaviors which influence our food choice behavior (Gibson, 2006). Meanwhile some foods might give us certain feelings, either a good/improved or bad/worse emotional status. Stimuli and situations might give a certain emotion, and feelings on the other side can result in a particular mood.

Mood is set by a range of affective factors and might very well influence consumer behavior in many situations, for instance when it comes to choosing a particular brand.
or through advertisement and marketing exposure (Gardners, 1985). Mood is also an individual status sometimes influenced by quite little and sensitive to minor changes. But mood and emotions are not quite the same. Emotions are more intense and more attached to a behavior. Mood is defined as a state that lasts at least several minutes (Gibson, 2006). Mood states and its relation to behavioral effect might be referred to the effect on expectations, evaluations and judgments. Mood states are not thought to always affect behavior but instead vary between different situations and circumstances and the effect is not long lasting. Mood states could influence e.g. brand evaluation and purchase behavior. It is stated that advertisement and marketing do affect consumer mood.

Consumers are likely to accept [or reject] an object/alternative that is connected to the most positive [or negative] outcome/effect (Shiv & Fedorikhin, 1999). But at the same time, consumers often make decisions mindlessly rather than exclusively mindful choices, whereby more consumer choices need to be investigated and examined particularly in various contexts. The connection and translation between impulsive behavior and impulsive buying is for instance still a question mark. Studies indicate that consumers do not find impulsive behavior inappropriate, at least not directly after the behavior occurs (Shiv & Fedorikhin, 1999).

**Positive and/or negative emotions**

A particular food might affect a behavior (calming, stressing) and there is often a changed mood status related to before and after a meal. Most people tend to be more short-tempered when hungry, but the status of being saturated is often a pleasing and positive feeling. Feelings and mood can change food choice and food choice can adjust mood. Feelings and food choice are connected for many different reasons. The pleasantness and rewarding feeling of eating when hungry is just one example. Stress is another mood which might influence our food choice, perhaps resulting in less rational decisions. Some foods might act calming or enhance our emotional status when feeling down or sad; sweet taste for babies is one biological example which tends to decrease when growing older. Chocolate could be an example of a palliative food with hedonic properties that gives a calming effect for some people.

Research on mood and food choice has been made through for instance questionnaires (King & Meiselman, 2010). Measurement of emotions in relation to food gives a much deeper understanding of consumer acceptance and the two terms are interesting to connect. The terms, mood and acceptance are not always correlated though, because mood can both be negative and positive although still intense in a similar way. Acceptance is instead often just high or low, but highly accepted products might provide very different intensity in emotions. For instance, regular users with a natural consumption behavior have different emotional response to those particular products than non-users who tend to have more negative feelings towards those products.

When people receive information about an object or food it will affect them and contribute to the judgment made about the item. The judgment contributes to a potential decision or evaluation (if needed) regarding the product (Adaval, 2001). The affect from the product might be the most important aspect for some people while making a decision. The product that makes an individual feel the happiest will be most liked (in general) independently of what information one has about the product. As a consequence, people’s affection or emotions might in the next stage influence their perceptions of how they feel about information regarding products, with the assumption that people evaluate product information based on their affective reactions to the
information. The theories about using affection on information are rather well-established. But in reality some evaluations of information might be based on affect, while others are not. However, it is relevant to keep in mind that some people might evaluate results and information more favorable when feeling good/being in a good mood regardless to the information given. In other words, individuals who feel happy most often want to stay that way, and people feeling unhappy instead want to change it. Mood and emotions have thereby an impact on choice because of the affective reactions that are associated with a potential outcome, objects and/or situations (Västfjäll et al., 2004). Another potential explanation of emotional influence and mood state in decision making processes is the emotional like/dislike or preference for the particular emotional reaction to the outcome. This emotional like/dislike or preference will influence the actual decision made.

Consumers who are in a good mood tend to make more rational and thoughtful decisions because a higher number of attributes are considered and evaluated (both positive and negative) (Hoyer & MacInnis, 2008). Time pressure affect consumers to process information and make decisions faster, consumers are more likely to make impulsive purchases and emotional decisions. Consumers also tend to evaluate products differently depending on present or future consumption of the food, because the emotional status might differ depending on how and where the food will be consumed (now, during weekend, next week etc.).

**Emotional eating**

Emotions evoked by a food stimuli lead to food choice. Intense emotions suppress eating and result in a decreased intake. Emotions low in intensity is not expected to have an impact on eating. Eating and tasting sweet (safe) foods result in a positive response to the body whereas bitter taste instead is biologically referring to toxins (danger) and thereby evokes negative emotional responses. Emotional eaters are defined as people eating a high amount of snacks and meals based on the managing of negative feelings. Emotional eating increases the intake of high-fat and sweet food when having negative feelings. Emotional eating theory suggests that some individuals eat in order to manage stress and negative emotions and thereby have risk of becoming obese (Macht, 2008). Figure 3 shows a flow chart on emotions contributing to changed food choice/intake and eating behavior.
Some people find themselves affected by for instance stress in their eating behavior with either increased or decreased appetite or total food intake. Changes in appetite can also be shown in connection to feelings of boredom and sadness. The review written by Macht (2008), discuss result from studies with indication on restrained/controlled eaters increasing food intake when having negative emotions (figure 3). Negative emotions, such as anger, fear, sadness and so forth was shown to increase impulsive eating, choosing whatever available and also increase the amount of unhealthy food while the pleasantness of food decreased. The other way around, a positive mood instead increases food pleasantness and the amount of healthy foods chosen. Intense emotions (positive and/or negative) suppress eating (figure 3), and food intake can either increase or decrease when having negative emotions. So far, limited research is done on positive feelings and appetite as well as the difference between diverse negative feelings.

**Memories and previous experiences**

The efficient way to make decisions is to rely on your memory. The memory can guide you from past experiences and ease decisions by relying on previous thoughts regarding products, brands or certain flavors. When getting in touch with stimuli, an internal search for such stimuli will start in your body. Consumers search in their memory for past experiences and information, feelings and/or sensory evaluations to solve the decision (Hoyer & MacInnis, 2008). The information stored and the memory used is limited and selective because the capacity of the human brain is not endless. However, consumers tend to recall more information in those cases they feel involved or a potential risk with making one or another decision.
Internal information can of course only be used if stored in a memory, which not all information is. Consumers with a greater experience and knowledge do have more resources to make an internal search and might be helped from their memory. However, much knowledge regarding food is considered implicit knowledge, meaning that people do not always “know” what they actually “know”. Different distractions and time pressure will limit the ability to search internally. The recall of familiar brands is one efficient way of using internal assets and acting from memory and already known information. Since all information cannot be stored and memorized, especially memory regarding details decrease over time and specific factors about a certain product are less memorable. Sometimes just a few details or minor information is needed and collected through an internal search and the memory is still efficient in the decision making process. Because available information is easier to use, one simplification is to keep the memory in product specific attributes based on like/dislike judgments which eases the usage of the information. A risk by using information stored in the memory is however that people tend to recall information that is positive rather than to all beliefs in a certain decision making situation, making judgments perhaps more positive than they really are. Individuals tend to see what they want to see or hear what they want to hear, a concept of selective perception and strive to be in consistency with once beliefs and acting (Hoyer & MacInnis, 2008). A real life example might be that consumers choose well-known products that are connected to recognized and remembered positive feelings.

Slovic et al. (2007) describes the decision making process as an “elimination of aspects” as a simplified strategy to make choices. When emotionally responding to an object or situation, the memory is automatically searched through for similar past experiences. If the memory makes the person feel good and receiving pleasant memories the actions will most probably be to relive and experience the same feeling once again. If instead unpleasant feelings arise, the human action will be motivated in the opposite direction. When trying to answer or make a decision regarding “what”, more rational thinking is activated. Thoughts are mainly built from pictures or images learned through life from sounds, odors, imagined or real visual impressions, words and ideas. And throughout life, learned images are connected to either pleasant or unpleasant feelings of varied intensity. The memories become a way of predicting the future of certain situations. When judging and making decisions, people verify the situation through the bank of memories, this might happen both consciously and unconsciously. The action might be disturbed by for instance time constraints where the feeling of potential gain or risk is more relevant to the individual.

In those situations where less information is found from an internal search more focus is put on external search for information such as requesting friends, relatives, reading published information, marketing/advertisement, Internet and packaging of products. External aspects become more important sources for information concerning unknown (maybe new) products. A particular product name (labeling such as “Italian”) might be the single most important part of the process where unknown food becomes familiar and e.g. food neophobic tendencies can be reduced (Meiselman & Bell, 1991/2).

**Human identity**

Our basic behavior is very much driven and run on emotional motivation and controlled by feelings (Macht, 2008). The motivation to eat will affect the response from the food and in the long run becomes the basis for what food choices we make because of stored memory and experiences. Food and eating is one of the fundamental sources of hedonic experience in human life (Luomala, 2005). Food consumption studies have been made
on different factors with different focuses where emotions and attitudes towards health, pleasure, economy, culture, lifestyle, social environment, demographics, food quality etc. have been investigated with the conclusion that most research is done on individual and cognitive influences of food consumption. Emotional and affective aspects are also rather common on the individual basis but socio-cultural factors are unfortunately more seldom investigated even though it has to be expected to have influence on behavior.

All food choices made have a ground in past and previous food choices and will form the basis for future decisions (Sobal & Bisgoni, 2009). Food choices can only be fully understood together with experiences from past events. What people eat (or not) form their nutritional status and contributes to a certain health status and is both indirectly and directly involved in the formation of the individual identity. Not only “what” but “when” and “where” is definitely forming the identity where food behavior often shape and create daily structure and routines. Models on food choice behavior tend to focus on individual food choices and do not take into consideration that some decisions are made collectively. The context of eating together with others should though be considered as a large contributor to food choice behavior and an important part in the formation of human identity.

Because humans are able to make food choices, people tend to have their eating behavior and food habits as a formation of an identity, towards others and oneself. Since the behavior becomes a part of a social image some products might be consumed in order to maintain a certain look or identity (Renner et al., 2012), although, people are far from always conscious about this action. Further, aspects of what food that is eatable, likes/dislikes, cooking skills, health and environment as well as a well-shaped and strong body have become reference points not only for happiness but self-control, determination and success (Bisogni et al., 2002). Some people maybe choose particular food or dishes when eating together with others, such as a salad because it communicates a healthy lifestyle (King et al., 2007). However, the formation of an identity in relation to food choice behavior might put a pressure on people in those situations where it is less easy to eat as s/he is used to. Some people even tend to feel stressed or frustrated when not able to eat or drink as usual. Sometimes work, traveling, new settings with friends or family members result in less comfortable situations regarding eating habits, meal orders and food choices, as a consequence perhaps leading to a negative emotional status towards the food eaten.

**Decision making**

A common perspective in theory is that individuals make rational decisions regarding to the potential optimization of benefits/gain and the minimization of losses/costs (Sobal & Bisogni, 2009). These thoughts are typically psychological or based on a perspective of social behavior which is not totally applicable when dealing with food/drinks since emotional and habitual action might be likewise important as rational choices.

People are often careful in terms of evaluation of information. Too much information or contributors for the outcome of each and every choice might instead be solved by making simple decisions and efficient choices on the basis of rules of thumb (Scheibehenne et al., 2007) sometimes named heuristics (Jansson-Boyd, 2010). One rule of thumb could be for a consumer to stay brand loyal, always choose the cheapest product, consequently buy organic food or the smallest package and so forth.
System 1 and system 2

According to Kahneman (2003), decision making can be split from two systems or perspectives, system 1 and system 2. Either the effortless system 1, built on intuition or a deliberate reasoning system 2, which is more rational. System 1 operates automatically, fast and effortless, sometimes mentioned as an emotionally and implicit charged mechanism. System 1 is often managed by habits and is difficult to control or change. The slower system 2 is instead effortful and more controlled in decision making situations. The two systems seem to disrupt/interrupt each other mainly because the capacity of mental power is limited.

The effortless, automatically system 1 is easy to combine with other tasks because it works by habits. System 1 can by this operate while an individual is engaged with other tasks or thoughts. Unfortunately not all food choices are connected to the system 1 even though much food choices arise from habitual action. In order to fully understand intuition and effortless decision making there has to be an understanding about why some thoughts and decisions are easier made and arise effortless while others do not. Decisions are namely also, due to Kahneman (2003), always made in a context and in availability [or absence] to other options. An individual observes or perceives what is able for that individual to see and the decisions made are often connected to thoughts of a minimal potential of risk. The decision perceived as receiving the highest outcome will be chosen since humans tend to see losses as more devastating than potential gains. The prospect theory is built on the believe that if the decision maker detect one option as dominant s/he will choose the most profitable option without consulting other options or value options separately. The prospect theory is built on the thoughts of humans being utility maximizers.

Judgments and complex preferences that come to mind quickly and effortless in an everyday setting is called intuition. Systems 1 and 2 are connected to the cognitive way of splitting the function regarding emotions and rational behavior. System 2 sometimes dominates and adjusts the operations of System 1 but the two systems are never working at the same time (Kahneman, 2003). In many daily situations, System 1 is preferably used and sufficient in making decisions (Bazerman & Moore, 2009) not least when it comes to shopping food. System 2 should instead be used in our most important decisions not to interrupt each and every small choice. Up until today not much research regarding decision making is done in the field of consumer food choice and sensory science. Scientific results are instead based on cognitive models and theories such as the theory of reasoned action and planned behavior, models based on rational and conscious thinking which have met strong criticism when it comes to the application on food choice behavior.

System 2, the reasoning system, is what makes us special as humans, dissimilar to other animals. The reasoning system is more of a conscience system, reminding people about what you should or should not do. Human behavior, acting, attitudes and emotions towards food might very well change rapidly. Sometimes our nutritional status reflects on our rational or reasonable behavior, for instance not always very rational when hungry.

One fundamental feeling about making decisions is the strength of having control in a particular situation and action/behavior (Tornell, 2011). Economics, scientists and politicians have since years stated that humans act from a comparison between the value and usefulness of an alternative in comparison to its potential risk when making decisions. Some scientists have exclusively attempted to explain consumer food choice
behavior out of human rational action and that humans have the capability to account for decisions made. But it is unfortunately not always this simple, because human decision making and the capacity of the human mind is limited. A limitation in the process might be lack of information/knowledge or the incompetence to sort between existing information. The efficient way of acting in such situations is to use emotions or habitual behavior and norms, otherwise the task will be way to frustrating and not least time-consuming. Some decisions can instead be made effortless, rapid and without a wider investigation when using emotions or memorized behavioral habits. The rational system 2 is located in prefrontal cortex while the emotional system 1 is located in the limbic system of the brain (a set of brain structures including hippocampus, amygdalae, anterior thalamic nuclei, septum, limbic cortex and fornix). Results from neuroimaging studies made on the human brain is limited in ability to make conclusions since brain activation in relevant regions show an activation, but says less regarding what that activation actually means or how it influences behavior.

To fully describe the different systems a real life example can be made in an everyday setting inside the supermarket. When entering the store with a shopping list more rational decisions are often made, but without such a list decisions will be made out of emotions, memories of old experiences and/or habits. Without a shopping list, consumers are more fragile to impulsive behavior and intuitive action. Add on an emotional state - for instance hunger, stressed and perhaps tired as well - it is rather hard to make rational decisions in such situations. If the intention was to follow a shopping list but some food products still end up in the shopping bag, system 1 has been involved in the decision making process.

The two systems interact with each other and must therefore be considered equal important but preferably used in different situations. Some studies made on humans with either only the capacity of rational or emotional behavior is neither any desirable nor a useful way to make decisions. With only rational thinking each and every decision should be hard to make, minor habitual or preferably automatically decisions in our ongoing life should be evaluated and analyzed perhaps more than once. But with just an emotional system there should most probably be difficulties to plan and decide for future activities and make long-term planning. The rational system has the potential to plan and make better choices where instead the emotional system in the end often is more powerful, not least when it comes to the choice of food. But if thinking about the number of more than 200 decisions regarding what we should eat or drink a day, the effortless and automatically emotional system comes rather well in handy if people desire to have time for more than just deciding what to have for lunch and/or dinner.

Research regarding human decision making includes more than just the theory of system 1 and system 2 although many researchers have made similar divisions of the process. But as mentioned above is the field of human decision making, and particularly food, less investigated mainly because it has historically unfortunately been considered as too basic and fundamental in our life to be interesting enough to study.

Judgment

There is a difference between a judgment and a decision. Judgment can be a crucial input and essential part of the decision making process (Hoyer & MacInnis, 2008). But the decision making process involves making a selection between options or activities. Judgments are instead to be seen as estimations or evaluations leading to a certain decision or choice. The judgment is closely connected to a potential likelihood or a probability that something will [will not] happen, and the judgment is often anchored to
earlier experiences. Decisions are based on judgments, evaluations and estimations about the specific factors or attributes activated in the specific situation. However, once again; judgment is not the same as making a decision even though judgments are important in the process of making decisions because it involves weighing options and choosing one alternative over another.

When choosing a particular brand inside a supermarket it might be because of previous experiences, where good old memories leads to a judgment and helps when making the decision. Not only are consumers by this dependent on their level of knowledge about products, brands and overall food items but influenced by judgment in order to make the decisions.

Attitudes

Theories of decision making and cognitive models regarding attitudes have been established for quite some time. Fishbein (1963) stated a theory regarding the relationship between beliefs about an object and the attitude towards that object, the stronger belief, the stronger attitude. However, regarding research, theories and aspects, minor have thus been focused on food, eating and drinking. Research about attitudes and attitude changes is however a central part of the field of social psychology. In attitude formation, concepts of consistency theories are included which is based on strive for consistency in a behavior and the attitudes connected to a behavior (Scholderer, 2010). Among the consistency theories are the most important theories balance theory, dissonance theory and social judgment. No additional focus will be put on describing above mentioned theories but simplified can be stated that humans attempt to always be in balance and consistency between actual behavior, attitudes and feelings towards a subject or activity. In case there is an inconsistency, humans will use strategies in order to become consistent.

The social judgment theory is based on the assumptions that humans always evaluate stimuli in a relative way in relation to a reference (never in an absolute way). Not least a useful reasoning when discussing food, where hunger/satiety, sensory aspects, time/money and several other factors might limit the task and decision about what to eat or drink. The reference point in consumer research is by this regarding to the social judgment theory often anchored to consumer expectations (past or present). This might be an explanation to consumer brand loyalty (where some consumers tend to always buy the same brand).

However, theories of attitudes is limited in itself and need to be complemented with the fact that attitudes might change, people do change and attitudes are not “true” in the meaning that they are permanent (Scholderer, 2010). Based on the fact that attitudes can influence our food behavior, this detail must be kept in mind in consumer research and consumer testing.
The product and its properties

A sensory preference might be the first to come in mind as important in the choice of food and drinks. Humans have five senses which are all very much involved and important in eating and drinking where the specific properties of the products are of highest relevance. But not only do products have intrinsic sensory properties such as flavor and texture but extrinsic properties concerning price, packaging, nutrition, convenience and exposure on the market contribute to the consumer experience. What message different products communicate to consumers are of high relevance.

The term *perception* includes the information from our senses about the surroundings and is converted into signals which are sent to the brain. How an individual perceives food is thereby based on individual and internal aspects of the properties in the food (Scheibehenne et al., 2007). Even if sensory aspects such as taste/flavor, odor and so forth might be very strong, underlying factors contributing to certain food choices it is not to forget that sensory aspects sometimes are set aside because of health issues or economics. All factors leading to a particular choice or decision are of course important and do matter, the question is just what factor matters the most and becomes the definitive reason for a decision made.

Intrinsic sensory properties

**Appearance**

Food and eating is often in close connection to what our vision perceive, it is a fact that we eat also with our eyes. The product appearance tells us about the shape, color and size which thereby communicate important product properties. The appearance will also influence and be a reference for how the individual are about to experience the food, often in relation to previous experiences.

Food is often by first impression chosen from visual aspects (van der Laan et al., 2011). The expression “the first taste is always with the eyes” is not there without some relevance. The vision prepares the body physically for nutritional intake, the digestive system starts, the body produces saliva, and insulin is released. It might also provide an emotional status about wanting and desire the food. Often food gives people a feeling of pleasure. The appearance gives a reference regarding our preference for such food, a hedonic evaluation or a judgment in relation to the food. But, it is still unknown what parts of the brain that are most activated when viewing pictures of food (van der Laan et al., 2011). Generally food is considered more pleasant when hungry, and also tendencies are shown towards higher preference for energy-rich food when hungry. Some studies have shown that brain activity can response to pictures of food containing different energy content in correlation to the degree of hunger by the respondent. Some other studies have shown that other factors such as mood and gender can be shown in brain activity response. However, there is until today not enough literature to do large reviews and analysis on the subject and other sensory properties of the product is most likely parallel involved.
Color and food choice

The importance of appearance and particularly the color of how the food is visually perceived have been investigated to quite a large extent. Color of food is very much involved in the decision about what food or products to choose. This might be easiest explained when consumers choose a banana or a tomato because of its color, because it gives an indication about how it will taste, ripe or not. The color of the food can also indicate if some food is bad, for instance when cheese turns blue/green, meat is grey or vegetables brown. It prevents people from eating something that might be connected to risk/danger.

The importance of color of food is for instance investigated in liquids where yellow drinks were perceived sweeter but also sourer than green and red colored drinks (Clydesdale, 1993). Red colored liquid was considered bitterer. There were no differences for the aspect of saltiness, perhaps because salty products are normally presented in different colors. No single product in nature is consistent associated to the taste of salt. Some foods are salty but not in connection to a particular food. For instance snacks, olives, crisps, nuts, popcorn etc. are all salty but very different as products, presented in many different colors. Other studies have shown (in Clydesdale, 1993) increased perception for sweetness in drinks with a more intense color. The highest pleasantness of a food/drink was connected to samples with color most similar to what colors the products have in real life. When tasting a strawberry flavored drink, red color most similar to strawberries was generally preferred. French fries colored green or other food products of “wrong” color can instead provoke aversion.

A study (in Clydesdale, 1993) made on different flavored sherbets but without color showed that the flavor of the ice cream was hard to identify. The flavors studied were lemon, lime, orange, grape, pineapple and almond. When lime-flavored sherbet was then colored green three quarters of the judges were able to identify the lime-flavor, but when colored blue not even half of the judges were able to detect the flavor, concluding that color is important for the perception of flavor.

Taste and flavor

Taste is active out of the five basic tastes sweet, sour, salty, bitter and umami, represented in different amounts in food. Within the sensory aspect of taste, flavor is actually a much more correct, although more complex, term. Flavor includes smell and odor which enables people to experience more than just five basic tastes such as spices and also chemical irritations.

Texture

The texture of food products, its crispiness, juiciness, softness etc. is a large contributor to how food is perceived. Texture can feel different in your hand and mouth as well as sound differently when chewing, important product aspects vary with the type of product. Texture also clearly communicates the freshness of products, for instance regarding soft bread.

Odor

Smell/odor also named olfaction is not only active when it comes to the aspect and perception of flavor but of course gives people a certain preparation and expectation of food. Odor might for instance make people hungry or feeling for a certain dish when experience the smell of it. The other way around might of course products with unpleasant odors instead result in worse product experiences. Some odors might be
liked but only by people that can recognize it and place it in their memory. Odor influences food consumption to a high extent (Wansink, 2004) even if an accepted odor of a product is presented in a setting with less accepted odor, the product might be unpleasant experienced. Unpleasant smells or odors tend to shorten the meal time and less food is consumed in total. But the other way around, having a meal in a pleasant odorous environment is not fully investigated and should not be considered connected to an opposite action, meaning not necessarily either increasing food volume or meal time.

**Sensory experience and aging**

The human senses hearing and vision have for a long time been documented as declining with age. But these days it is also clear that olfactory function declines with increasing age (Wysocki & Pelchat, 1993). It is not one single function being affected but instead a natural aging seen in the whole system. Functions such as odor identification, odor classification, odor intensity and food identification assignments have been proven different between young and elderly adults. Since odor is the major component of human flavor experience, a declined olfactory function can be assumed to change food preference. Studies have shown that elderly expresses an increased liking for food with enhanced flavor (for instance when serving carrots with added carrot flavor) (Wysocki & Pelchat, 1993). But it is not easy to show a decreased pleasantness for food in general since it most probably is a slow adaption to a declined odor function and nothing happening rapidly. More complex odors are also seen as favorable with increasing age which might be an answer to the “need” for more/higher stimuli. The field is up until today incompletely investigated but might be very important when meeting a growing society with older elderly. Perhaps is odor and taste an interesting combination for investigation because of its interactions in flavor perception of products.

**Product development and sensory evaluation**

In product development processes using consumer testing compared to sensory panels for product evaluation, the rate of failure is even larger than the number presented earlier by Stewart-Knox & Mitchell (Köster, 2012). The failure rate is however too large in both cases. A less complex product will be perceived as boring after a while, even if it is initially liked (Köster & Mojet, 2007a). Walker (1980) (in Köster & Mojet, 2007b) argues for the inconvenience by using consumers in test sessions to choose the most liked product, because consumer testing is an expression of a first impression. When stimuli from food slowly become more familiar to consumers they will be less complex and thereby also less interesting, the preference for a particular food will decrease, the product will be a failure and withdrawn from the market. More complex products will instead be more successful on the market for a longer time.

A particular liking or preference for food, as mentioned, increases by mere exposure, the more you are exposed to a food you increase your liking for it. By developing and launching the initially most liked products the market will contain products that consumers get tired of. Slightly less liked products might be a better option to develop and launch. The question is then how to develop a method for such work, how do we choose the most appropriate products to launch on the market? Alternatives to traditional consumer testing, with hedonic judgments on products, are an area for investigation in itself. However might negative comments from consumers actually be far more important to map and evaluate than positive comments since consumers’ negative feelings tend to be more relevant for the outcome of the potential success/failure of the product (Köster & Mojet, 2007b).
Extrinsic product properties

Extrinsic properties as mentioned slightly above include aspects of the price, packaging/labels, product name, nutrition labeling, convenience/usage, placement and exposure. Information on packaging is for instance used by consumers to infer an expectation about the product (Lange et al., 2000). Not until the products are really consumed, intrinsic sensory properties are experienced and can be crucial for the decision made. The packaging, labels such as organic or fair trade, advertisement and market exposure are thereby important properties because it communicates what experience consumers could expect and will have. For instance, studies have shown consumers perceiving increased sensory pleasantness from organic foods, and also find organic products as healthier and of higher quality (Zagata, 2012; Hjelmar, 2011). Furst et al. (1996) discuss that sensory aspects and properties might be thought as most important in food choice situations but price actually might be a much more important reason to why a food is chosen or rejected. The relevance of product price for food choice is also mentioned by Scheibenne et al. (2007). Time is another very important aspect stated, since more people tend to spend less time on cooking these days. Less time on cooking of course modify our choices of food products towards easier preparations and food options with a more convenient usage. Labels with nutritional content on packages are used by some consumers as a strategy to find out if the food is individually eatable or not (Soederberg Miller & Cassady, 2012), extremely important for people with specific medical concerns or food allergies. However, people acting out of habitual behavior require minor information to make decisions, and less attention is put on new and existing information (van’t Riet et al., 2011).

So, when choosing food, consumers take into account many different aspects; evaluate the aspects according to their importance, individual interest and attitudes in order not to get too confused about the decision making process. And people most probably both do and should sum appropriate information and relevant aspects in order to make decisions. Likewise is the assumption that daily food choices are not made out of excessive evaluations of information over and over again. In everyday situations it is more efficient to choose from old habits or old information which assumes to be unchanged. The decisions made in these settings are satisfying enough. For instance, the status of being hungry perhaps make us choose the most palliative food, the largest dish, the dish with most calories, the highest nutritional content, aspects where you will be the most satisfied. Larger food packages increase the total intake compared to the same amount presented in several small packages. The size or amount eaten of a portion or package is often more related to perceived saturation than the actual calorie content. A person who instead is satiated might value product price more in the decision making situation, where financial capacity to spend on food products sometimes depends on time of the month/year.

Consumers tend to have a growing interest for genuine products and authentic production methods (Franchi, 2012). The fear of additives, preservatives and unnatural product contents increase consumer desire for more natural products, since those products are considered healthier, safer but also tastier.

Bonus packs and discount pricing

Research has been made and shown difference between how people tend to enjoy consuming healthy and unhealthy foods. People tend to prefer bonus packs (more of one product for the same price) regarding healthy food but price discounts (the same product but at a reduced price) regarding unhealthy foods (Mishra & Mishra 2011). The area of
investigation has to be complemented with further research before making any larger conclusions, since the evidence is limited. However, could the results indicate consumer conflict when buying products they should not actually buy (unhealthy products) with a strategy to do it anyway (reduced price). Consumers justify their decisions made. Regarding unhealthy products, price discount in that case justify more than a bonus pack, which instead could lead to an even greater conflict with the fact of buying not one but many unhealthy products.

Research has further shown that people otherwise generally tend to prefer bonus packs over price discounts because there is a feeling of “receiving” in the purchasing situation. This conclusion could perhaps be helpful when selling products of a particular brand, for instance a healthy food item where consumers not only “receive” a bonus but emotionally feel positive afterwards related to it as a healthy product and then in favorable connection to a certain brand as well.
The context and situation

In the action of controlling food choices and eating behavior the science is split between a view considering eating behavior as mainly an individual action, and scientist considering eating as a process controlled by the environment rather than consciously by each and every individual (Cohen & Farley, 2008). Some parts of the human behavior are limited or restricted by different external factors such as the social setting, culture, and context, situations where individuals act and react. Demographic factors such as age, gender, income, education, religion and geographic location as well as social conditions both limit and enable food choice behavior. Meiselman (1996) presents conclusions regarding contextual variables that influence eating behavior. The context interactions mentioned are the combination between one food item and others, culinary traditions and culture as well as the specific packaging, naming and labeling of the food (extrinsic properties). The eating situation also effects eating behavior, both the social and physical environment where the food is present and eaten. And last but not least do the individual consumer/person adjust eating behavior by own preferences and acceptance for different foods, a tendency or not a tendency of eating a variety of foods, potential neophobic attitudes, diets and past experiences. Regarding to Meiselman (1996), food choice behavior is a mix of contextual variables which are more or less actuable from an individual point of view.

Social conditions

Food choice behavior is far from always of course decided from only internal, individual preferences. Inside families there might for instance be one individual/s more [or less] responsible for what is eaten by the whole family. Food found at home inside kitchen cabinets and refrigerators influences home meals. Routines and family structure gives certain conditions for the formation of eating habits (Levin & Kirky, 2012). Generally, more meals and food items are anyhow consumed outside home today, as a result of a different way of human living. An external factor when eating more meals outside home is then instead limitations such as what is offered in a restaurant/café, personal economics, perhaps other peoples’ preferences (whom you are visiting a restaurant together with). The effect of whom you eat your dinner/snack with also have an effect on the eating situation and perhaps what decisions you make. Sometimes food eaten together with friends/family is the only reason to maintain eating routines or feel appetite for food, and what to eat often vary when eating/cooking alone or together with others. When invited for dinner, you most often eat what is served even if the dish not correlates to what you normally cook yourself.

Not least financial possibilities/limitations have an impact on food habits, but it is further likely to think that different age groups have different habitual actions. Even though some research is done on demographic factors, age is an aspect which should be combined with other factors more than just the actual age (Evans et al., 2006). Age might namely vary and differ between individuals regarding to how active you are, what cognitive development you have or where/how you live (for instance together with whom). Some generations tend to identify themselves regarding to their profession/work where younger generations instead are more likely to find definition in connection to pattern of consumption and less to a particular internal identity (Evans et al., 2006). By this, brands, trademarks and products can be very much more important for teenagers or for some generations within a society then for others. Another
development factor is of course the Internet that has made it possible to purchase (and consume) food in new ways, although not able for everyone to use since demographic factors, geographic location and technical constraints might limit the potential usage.

Demographic factors are of course individual properties very much related to the individual consumer. Demographic factors are also often of importance when it comes to marketing and the formation of different target groups. However, it is expected to think that social conditions and the setting where an individual lives and acts contribute to the potential and possibility of action, often in close connection to aspects of gender, income and age.

The meal
As much as 70-80% of all food eaten is consumed within a meal (Meiselman, 2008). But meals might vary in composition. Food choice and decisions are partly related to what food to eat but there is an additional decision to make. How much to eat? The how-question should be separated from the decision regarding what (Wansink, 2004). A key element in the decision is the consumption norm which says how much we most normally consume example wise for dinner. The amount/volume considered as a norm is to some extent flexible and might as well vary between individuals and is dependent on particular aspects. One such aspect is the eating situation and actually as well if food is served on smaller or larger plates (e.g. if the norm is to always clean the plate/bowl). Around 70% of all food consumed is in relation to a serving size, such as a cup, a bowl, half of the plate and so forth. Normally the amount eaten varies in relation to either the size of the china or the circumference and height of a glass. The volume food/drink consumed thereby varies because people not always use exactly the same plate/glass. The amount/volume eaten might also vary because of the products/components eaten together with a specific food or how the food is prepared and presented to us.

Such an aspect as the size of the plate, is a huge contributor to the total amount eaten (Wansink, 2006). This fact is not only shown in studies where people are served very large food portions but can also be seen in the food industry where larger portions sizes are more frequent nowadays, making people more used to eating a larger total quantity of food. Because more meals are eaten outside home nowadays, the aspect of larger portions is extremely relevant and might be one out of many explanations to the worldwide increased level of obesity. Larger portions and increased consumption puts a pressure on environmental assets as well.

The surrounding
Music of soft character generally results in a slower eating rate, longer meals (in time), and overall an increased intake of food and drinks (Wansink, 2004). Some research show that loud, fast music tends to keep customers shorter time in restaurants, and some studies show that fast music tend to get people to eat fast, empty their plates and not consider whether they are full or not and by that simply overeat.

A more attractive surrounding often results in a greater and more pleasant food experience. When patients find food unpleasant during their hospital stay, it does not necessarily have to depend on sickness and decreased sense or sensory experience, but the surrounding is perhaps far from pleasant and enjoyable. The other way around, decorated environments can impact consumers to an enhanced experience of food, for instance when placed in a restaurants with a particular culinary theme (Bell et al., 1994).
The closeness to foods contributes to the amount consumed. To be exposed to either better or worse food items can increase the consumption of ditto. Eating together with others might increase the total volume eaten, depending on how well you know each other and the norms within the group. Especially do the total food volume increase when sitting around the table for a longer time period. Eating together with the opposite sex generally decreases the total volume eaten. Distractions such as eating in front of the TV might increase consumption because less attention is put on hunger and satiety, or people tend to eat until the TV-program is over.

**The shopping situation**

Iyengar & Lepper (2000) state the term *choice overload* meaning that too many choices in a purchasing situation might actually lead to that nothing is chosen. Initially consumers might think that many options are desirable but can instead decrease the motivation for shopping. Studies made show an increased willingness to try products when there is a wide range of food products to choose from, but in the meanwhile, fewer options resulted in more purchases (comparing displays of either 24 or 6 different flavored jam) (Iyengar & Lepper, 2000). An interesting reflection can be made whether consumers tend to feel dissatisfaction in the presence of a large number of opportunities and potential possibilities. Extensive amount of choices might be seen as an initial attractive situation but might to a wider content give a result of people getting a feeling of being blamed for a bad decision, or actually blame themselves for a bad chosen alternative (Hutchinson, 2005). Humans tend to prefer to have some alternatives over no options, and consumers tend to feel encouraged to consume more when there is some moment of choice involved. Perhaps is the consumer feeling not really some kind of disappointment what decisions they made, but a feeling and uncertainty if the “best” decision was made. Today we face a society built on more individual consumer choices in diverse situations and also from a younger age. Although some people might feel ambivalent towards several options some people tend to always know what and how to choose. But more options, alternatives and products might lead to some consumers becoming unhappier and those consumers most probably need strategies in such situations. Notably, research has not yet shown that fewer choices are preferably, only that people find it easier to make decisions and thereby consume (Hutchinson, 2005). If the strategy is to decide what to choose or instead what options to ignore (to limit the number of options) is an interesting focus for discussion but most probably varies between individuals and most certainly between situations as well.

What food store consumers choose, a large supermarket or a local shop, of course contributes to the food possible to purchase (Krukowski *et al*., 2012). Except the fact that the range of product often are minor in smaller shops, the freshness of vegetables, fruit, meat, eggs etc. might also be less in small stores, stores which perhaps as well are located far from other shopping opportunities. Sometimes discount coupons and special offers are contributing factors to a certain store or supermarket, where other consumers maybe preferably choose to go shopping close to work or home.
The consumer and products in contexts

Choice of food is by different factors influenced by many circumstances, cultural, social and psychological considerations (Shepherd, 1999). To try to understand the impact of these factors, the approach of studying attitudes is just one way. Factors important for an individual’s food choices are the factors related to food, even though the factors might be both personal/internal and external. However, it is a split of different aspects and factors rather difficult to do, since the field of food choice behavior has to be seen as a complex area influenced by more than one aspect. The approach assumes that influences on food choice might vary between individuals depending on what values or aspects important for a particular individual. Perhaps nutritional value/quality, health effects or environmental considerations are more or less important product properties for some individuals. By this, different factors might influence consumers differently depending on marketing, economics, various social/cultural/religious and/or demographic factors perhaps ending up in changed attitudes, beliefs and behavior.

Regarding food choices moral issues might be a consideration (for instance the attitude towards GMO food) or when choosing food for others, such as our children or guests (Shepherd, 1999). Food choice is by this an area where consumers might feel ambivalence from all alternatives and aspects to consider in the decision making situation. Consumer desires are sometimes many in number and difficult to combine. A low price and high quality is one example, taste and health another, food safety, convenience, the demands from own and family members’ preferences, time, ambition, environmental friendly solutions etc., not all aspects can probably be taken care of within each and every food product. Some people might additionally find it hard to expect well-tasting food to correlate to the aspect of being a healthy alternative but instead think of it as boring and taste-less. Even though situations are discussed as an important aspects parallel to the specific attributes or properties of food, when confronted to food in a more impulsive and immediate way, sensory aspects perhaps plays the essential role for making a particular food choice (Shepherd, 1999) where situational and external factors in the decision making moment already have limited the possibility for a certain food choice behavior.

Rational and emotional behavior

Many decisions regarding food are made without reasoning or rational thinking, and it should be this way because of efficiency in human living. Sometimes food choices are made because of specific sensory aspects, the feel for a certain dish or food on a particular day. Sometimes, the chosen food is the only one present at the moment, you are more or less forced to choose a certain lunch or sandwich filling or else you will be left without food. Cultural, social, psychological or economic issues might contribute to our food choices and not least might these factors change, between different months or longer/shorter periods in life.

Research in the field and scientific results on consumer wishes and desires not always correspond to actual consumer behavior mainly because of the field’s complexity. Real consumption and human food choice might more correlate to previous behavior than to results from surveys and questionnaires concerning food, where consumers often
answer how they think they consume or how they wish to behave rather than to actual behavior. In surveys, aspects such as economics, product availability, internal beliefs and preferences for a particular brand or flavor is hard to capture in a proper way, likewise emotional status in diverse situations. Since people also tend to naturally vary in food choices and eating habits, not least because of season, answers from questionnaires have to be taken with reflection where people mostly remember behavior very close in time, perhaps only from the previous week.

**The value of food**

One way to understand food choices are to understand how consumers value different products and their attributes (Combris et al., 2009; Connors et al., 2001). Values can also be defined as beliefs that guide and motivate our behavior. Values are thereby important in self-definition (human identity) and often mentioned as important regarding food choices. Evaluations of products are however made from what information available. The issue is then the fact that not all factors in the complex process of food choice can be investigated at the same time; it would be too hard for the human mind to perform. Food choices are a question about routines and habits in an everyday setting for consumers not always regarding preference, liking and rating/ranking (normally studied in consumer testing). Because consumers neither do nor should deliberate every choice throughout the day, habits and routine based behavior should be analyzed in the investigation of food choice behavior as well.

Visualized in figure 4, a model presented by Furst et al. (1996), the food choice process is pictured as a flow resulting in strategies where people use individualized rules of thumb and categorizations of evaluations for choosing different foods in different situations. The model stresses the complexity with food choice processes, its dynamics, situational and progressing aspects. Consumer research is traditionally done on rational choices and comparison between specific product properties even though studies have shown that participants tend to sough for simple solutions when food choices are perceived complex (Connors et al., 2001). Foods are valued in relation to a particular situation, always in connection to a reason. Food can, and is, chosen out of values and issues concerning health, sensory aspects, costs, time/convenience and in relation to others who might be sharing the food. Aspects of ethics, safety, quality, variety etc. are often important as well. The question about “how” is involved in the actual decision. “Who” will be affected by the decision made and will contribute to what becomes the highest critical value and focus in a particular decision. Perhaps do food choices vary for longer time periods, for instance pregnant women might choose safer food items or students value costs as the highest contributor to what food chosen.

Food is often categorized in groups in order to easier be chosen or rejected. The values or categories might be the once mentioned several times above and concern both internal and external factors/aspects/values. Food categorized close to a value (maybe fruits or vegetables as healthy) is easier to make decisions from, where instead food categorized far from an ideal are harder to make decisions from. On top of this people are not uniform; categorizations are made individually and thereby often differently. People might also find it okay to eat and choose a particular food in some situations but not in others, for instance when eating at a friends’ house or when visiting other countries/cultures.
Men compared to women seem to value location and social-relationships above other values in the food choice situation (Conners, et al., 2001). For instance, some individual’s highest value might be set aside because of other persons in the household. Sometimes households have one person more or less always contributing to the highest value and to what decisions made. The highest value might be a diet, food allergy or a certain preference.

Figure 5 is another, slightly simpler, flow chart giving a picture about the product (food), the consumer (person) and the context (economic and social). The model visualizes the product properties and its effect on consumer preference, how consumer psychological and physiological conditions contribute to attitudes where also aspects of social surroundings all together influence food choice behavior and food intake.
Figure 5. Model illustrating factors that influence consumer food choice (Shepherd, 1999).
**Summarizing reasoning**

Sometimes “the best” option in a situation or regarding an object, has to be thought as “good enough”. Not only do consumers need strategies to solve and deal with all daily decisions but humans have to always make decisions in a context, regarding to situation, time, money, other people and so forth. Food choice is a behavior too complex to either describe as exclusively dependent on product specific properties or individual preferences, because it is more or less never that easily in reality. Decision making and food choice behavior should instead preferably be seen as a way for consumers to find strategies for different situations.

The human brain is limited in its capacity to make cognitive and rational choices. Therefore, strategies are used to act and react in the environment/setting/context/situation without “thinking too much about it”. Human behavior when it comes to food and drinks is often described as primarily automatically run for most people. Rules of thumb are efficient used as measurements instead of to always reflect and evaluate each and every situation. Contextual factors such as stop eating when the plate is empty, when the lunch break is over or the TV-program is ended eases the everyday setting where biological aspects of hunger and satiety are not the only factors regulating our eating behavior today. Some people for instance eat breakfast more by habit than of hunger and serve themselves a second portion because the dish was very delicate.

But in the same sentence when saying that eating is an automatic behavior it is not said that it cannot be controlled. However, a controlled eating behavior takes more effort. The controlled eating is often a more active behavior, where people perhaps follow a certain diet, refuse a cake or a second portion. The action of such self-control is not simple and used more successfully by some personalities than others. Some people might find it easier to favor and choose foods that are more available and easily presented to them, such as prepared or readymade food. Readymade or prepared food products require less effort and are more visible, demand less time for preparation and planning even though it might be more financial expensive and rejected from that aspect by other consumers.

**Closing discussion and further research**

What can be perceived will be remembered, what is not perceived will not be remembered. In other words; what you know is what you will see. When just focusing on sensory aspects of food, the reflection of post-intestinal effects might get lost and the true picture of consumer acceptance will not be investigated. And when it comes to consumer testing which might mainly focus on sensory aspects, extrinsic factors regarding price, packaging and availability in food stores will not be evaluated. Not to forget that consumer testing sessions seldom are similar to the situation or context where consumers regularly have their dinner. It is not to forget that it is primarily only stressed scientists that have their lunch inside a laboratory, not consumers. However, laboratory environments switched into a more natural location might still communicate a feeling more similar to a laboratory than to a genuine daily context since consumer eating situations are very diverse and meanwhile hidden in the everyday living not least depending on who you share your meal with. The field for discussion regarding
consumer testing is far from covered in this review, however not supposed to be in main focus either. Although, when consumer testing is part of new product development processes it is contributing to the range of products available on the market. Product launches in turn enable [or limit] consumer food choice behavior.

Traditional research made on human decision making which are based on cognitive models such as for instance the theory of planned behavior must be seen with some doubt regarding its applicability on food choices. Food choices are far too varied and dependent on more than individual beliefs and attitudes, sometimes influenced more by other people than own values.

Research on consumer food choices is often based on questionnaires and limited results from consumer testing. Mapping of consumer past behavior is often more correlated to also present behavior. Bad formulated questionnaires might answer more to what consumer find as a desirable behavior or what information consumers think researchers want to receive. Eating varies naturally between days, time of the year, in amount and frequency. Today food choices can be made anywhere, anytime and by more or less anyone/everyone (Sobal & Bisgoni, 2009; Sobal, 1999).

One way to more successfully understand consumer action and behavior is to better understand peoples’ emotional activities and its contributions to certain decision making processes. Getting to know relevant emotions and the way one make decisions might help to understand why some individuals make impulsive and rather unhealthy choices even when they know they should not (Kidwell et al., 2008). Even when people consider themselves able to manage own emotions the capacity to regulate impulsive emotions might very well lead to choices and behavior of poor quality. Adults rarely make any large and important changes or modification in their food habits. Some smaller adjustments might be done because of situational aspects or specific time periods in life. The thing is, when a habit is established, no rational process is needed to continue the action. The habit is developed through a repeated behavior throughout life (Franchi, 2012).

Reflections regarding previous research

It should not be considered that only one single theory/model exists but instead a variety of theories about the complex decision making process (Sobal & Bisgoni, 2009). Some models and results from research, is based on studies on minor number of personal interviews, a fact to consider as a limitation for its generalizability on diverse situations with dissimilar individuals in forever evolving societies. And minor results are available on a worldwide population. Future investigations on consumer food choices need to be done regarding different socio-demographic differences, age, socio-economic class/level, geography, ethnicity, lifestyle (rapidly changing for instance parallel to technological development) and much more. Food choices have to be seen as very dependent on cultural and social aspects where studies and research based on minor results and conclusions from certain countries and/or smaller numbers of populations and individuals is limited in its value of evidence. Many studies are also based on a narrow range of products and/or food categories which is very limiting in itself not only because the variety of foodstuff naturally is large, but today also excessively growing because a considerable amount of product development in food industries and because consumers are more influenced by other cultures and traveling as well. Today much research is also focused on overeating, obesity and either healthy food such as vegetables and fruits or snacks and soft drinks. The ability to draw conclusions is thereby limited so far; however, the field of science is still, or because of this, to be seen
as inspiring enough to continuously make more studies and further research on. To this point, research on food choice behavior must be considered inadequate to apply on a wider and general perspective, but thereby interesting, inspiring and challenging for further investigations and studies.
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