

Fearing the unfamiliar bean
*How priming the healthiness and familiarity of different soy products affects
product acceptance amongst neophobics and neophilics*

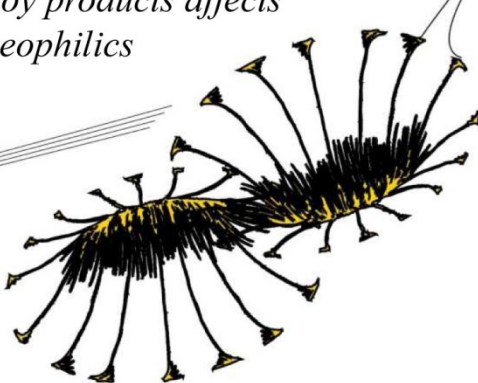
Birte W. Backhaus
Faculty of Behavioral Sciences, University of Twente
Master Thesis Communication Studies
Dr. Anna Fenko
Dr. Joris J. van Hoof
July 29th, 2013



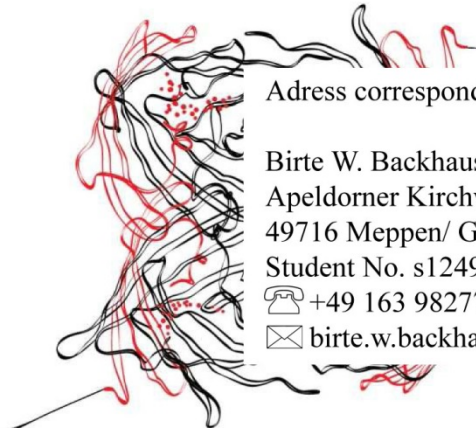


Fearing the unfamiliar bean

How priming the healthiness and familiarity of different soy products affects product acceptance amongst neophobics and neophilics

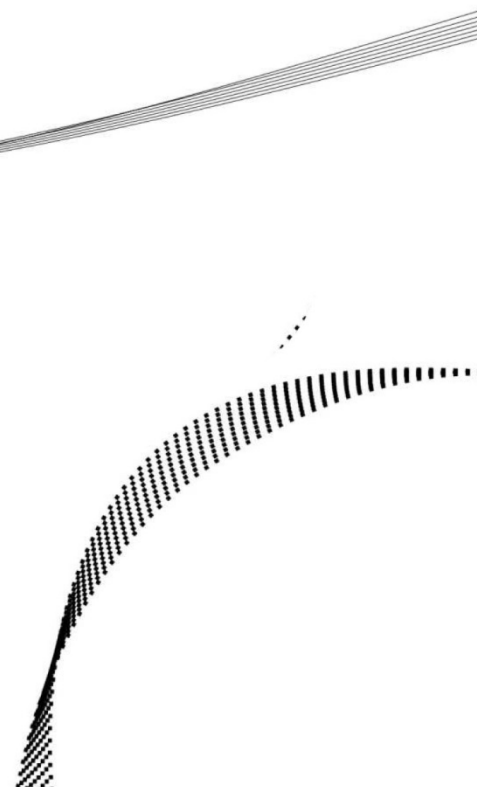


Birte W. Backhaus
Faculty of Behavioral Sciences, University of Twente
Master Thesis Communication Studies
Dr. Anna Fenko
Dr. Joris J. van Hoof
July 29th, 2013



Adress correspondence to:

Birte W. Backhaus
Apeldorner Kirchweg 14
49716 Meppen/ Germany
Student No. s1249126
☎ +49 163 9827733
✉ birte.w.backhaus@gmail.com



Abstract

Purpose ~ Health attributes of soy-based food products are increasingly considered in consumption decisions in Western countries. However, several barriers prevent full consumer acceptance of the bean. Considering findings of current soy discourse and giving it a new twist, this study aims at investigating how priming the healthiness and familiarity of different soy products affects product acceptance amongst neophobics and neophilics. It is further assumed that the effects are moderated by general health interest.

Design ~ Two pre-studies were conducted to get deeper insight in associations with soy products and to get an overview of the most familiar soy foods. Based on the findings, an experiment ($n = 327$) was conducted with the help of an online questionnaire showing soy advertisings. A 2 (food neophobia: neophobics vs. neophilics) x 2 (familiarity manipulation: familiar vs. unfamiliar) x 2 (healthiness manipulation: healthy vs. tasty) between-subjects design was used with soy acceptance as dependent variable and general health interest as covariate.

Findings ~ The study showed that neophobic consumers are considerably influenced by the level of perceived familiarity with soy products, whereas neophilics do not show a reaction to a soy product's perceived familiarity. Overall, neophilics show a higher soy acceptance than neophobics. However, influences of the level of expected healthiness of soy products on product acceptance could not be found during the experiment. The findings suggest that successful marketing strategies for soy products should target neophobics by increasing the level of familiarity of soy foods. Above this, a public information campaign could be beneficial to increase overall soy acceptance for both neophobics and neophilics by sharpening consumers' attitude towards healthy lifestyles.

Originality/value ~ Research on soy food acceptance with a special focus on food neophobia is non-existing. This paper sets up a platform to discuss food neophobia in the light of soy acceptance. From a theoretical standpoint, this research extends knowledge on consumer behavior in the food sector.

Keywords: food neophobia, soy-based food products, product acceptance, general health interest

List of Contents

Abstract	3
1. Introduction.....	5
2. Theoretical Framework.....	7
2.1. Soy Reputation	7
2.2. Soy's perceived Lack of Familiarity	8
2.3. Food Neophobia	9
2.4. Food Neophobia in Relation to Soy	13
2.5. General Health Interest.....	14
2.6. Slogans and Priming.....	17
2.7. The Scope of the Study	18
3. Methods.....	22
3.1. Pre-study 1: Semi-structured Interviews	22
3.1.1. Participants and Study Design.....	22
3.1.2. Procedure.....	23
3.1.3. Data analysis.....	23
3.1.4. Results	24
3.1.5. Discussion	26
3.2. Pre-study 2: Product Selection	28
3.2.1. Participants and Study Design.....	28
3.2.2. Procedure.....	28
3.2.3. Data Analysis	29
3.2.4. Results	29
3.2.5. Discussion	31
3.3. Main Study: Experiment.....	32
3.3.1. Participants and Study Design.....	32
3.3.2. Procedure.....	33
3.3.3. Stimulus Materials and Measures.....	33
3.3.4. Data Analysis	37
3.3.5. Results	39
3.3.6. Discussion of the main study.....	47
4. General Discussion.....	50
4.1. Marketing Implications	55
4.2. Limitations and further research.....	56
4.3. Conclusions	60
5. References	61
Appendix A. Questionnaire of the Main Study (Condition 'Miso')	66

1. Introduction

Soy beans are traditionally used for food production in many East and South-East Asian countries, where they are popular and valued for their taste and health benefits (Tu, Husson, Sutan, Ha & Valentin, 2012). It is exactly due to these health benefits that soy has been introduced as food ingredient to the Western market by food manufacturers (Schyver & Smith, 2005). Trying to jump on the ongoing health trend in Western society, food producers massively promoted soy products as healthy ingredient during the last decade (Genta, Genta, Álvarez & Santana, 2002). Despite of extended marketing campaigns, however, the consumption of soy-based products in Western countries remains marginal (Tu et al., 2012). In general, a negative image dominates soy consumption triggered by several barriers influencing the bean's rejection (Chang, Moon & Balasubramanian, 2012). A deepened knowledge about the factors influencing soy acceptance could be used to improve the integration of soy products into human consumption in the Western world, leading to a better usage of vegetable protein while taking advantage of soy's health attributes.

In Western countries, soy beans do not belong to the list of traditional food ingredients and are therefore often perceived as unfamiliar (Bäckström, Pirttilä-Backman & Tuorila, 2003). In contrast, Asian consumers know soy products from childhood on and consume soy daily. Foods such as soy which are unfamiliar to individuals of a certain culture but traditional in other cultures, can be defined as ethnic food products (Martins & Pliner, 2005). The reluctance to try ethnic foods has been found to considerably differ between individuals, influenced by a factor called 'food neophobia' (Choe & Cho, 2011). Food neophobia is the tendency to avoid unfamiliar foods without even tasting them (Heath, Houston-Price & Kennedy, 2011). Individuals can be divided according to their level of food neophobia: neophilics constantly seek out new and unknown foods, whereas neophobics show a high reluctance to consume unfamiliar products (Pliner & Hobden, 1992). Although soy products can be categorized as ethnic food products, research about the influence of food neophobia on soy acceptance has not been carried out yet.

The current soy research focuses on factors which influence consumers' attitudes and beliefs towards the bean and its products. In the light of a booming health awareness in Western society, it has been found that consumers are recognizing the healthfulness of soy-based products and take soy's health attributes increasingly into consideration in their food choices (Chang et al., 2012). Although the perception of soy being a healthy food choice improves continuously (Wansink, Park, Sonka & Morganosky, 2000), a negative taste

perception particularly acts as barrier in soy acceptance (Tu et al., 2012). It has been found that expected taste is the dominating attribute driving soy acceptance, directly followed by health attributes (Chang et al., 2012). Therefore, these two factors need to be taken into consideration when investigating influences on soy acceptance, due to their obvious importance.

The goal of the study at hand is to shed light on the factor food neophobia in soy acceptance because, until now, it has been ignored in scientific research. To include the latest findings of soy research, a factor called general health interest is expected to act as moderator on the influence of food neophobia in soy acceptance. General health interest determines an individual's preference for either taste or health attributes of a food product. Therefore, the primary objective of the present paper is to investigate to what extent food neophobia needs to be taken into account as possible barrier in the process of soy acceptance when moderated by general health interest. More specifically, it is researched how priming the healthiness and familiarity of different soy products affects the product acceptance amongst neophobics and neophilics when the results are controlled for general health interest. The findings will be of considerable assistance for food manufacturers and public health agencies in developing marketing strategies for soy products. The specific objectives of the research at hand include (i) investigating consumers' associations with soy and soy-based food products, (ii) assessing the extent to which consumers accept soy in their diet and (iii) differentiating the role of food neophobia in the acceptance of soy-based food products in relation to general health interest.

2. Theoretical Framework

In this chapter, the theoretical background of the study is discussed. To begin with, chapter 2.1. gives an overview of the image attached to soy, whereas chapter 2.2. describes the perceived unfamiliarity with soy products in Western countries. The concept of food neophobia is discussed in chapter 2.3., followed by chapter 2.4. which is about the relationship between soy acceptance and food neophobia. Chapter 2.5. explains the trade-off between health and taste in relation to soy acceptance. Chapter 2.6. discusses slogans in the context of priming, whereas chapter 2.7. describes the scope of the study at hand.

2.1. Soy Reputation

The soy bean is traditionally used for food production in many East and South-East Asian countries including Japan, China and Indonesia (Tu et al., 2012). In these countries, soy products are well-known and valued for their taste and health benefits. Consumers in Asian countries habitually consume soy foods from childhood on and, therefore, combine the consumption of soy with memories, emotions and pleasure (Tu et al., 2012). In contrast, most consumers in Western countries still have a negative perception about foods made out of soy. Although soy products have been massively promoted during the last decade, soy consumption in Western countries is still quite low in comparison to countries in which the bean is part of the common nutrition (Rah, Hasler, Painter & Chapman-Novakofski, 2004).

The health benefits of soy beans have been known to Asian consumers for centuries. In contrast, soy foods just recently received attention in Western countries due to its healthful attributes (Chang et al., 2012). Soy is rich in vegetable protein, essential amino acids, iron, phosphorus, several vitamins and calcium, making the bean nutrient- and vitamin-dense (Genta et al., 2002). Due to its nutritional components and especially its high protein content of 40% (Wansink, 2003), soy is prominent for its particular health advantages including the prevention of osteoporosis, lowering of menopausal symptoms, reduction of cancer risk as well as interference with the cancer process, fighting of heart diseases and reduction of harmful cholesterol (Chang et al., 2012; Genta et al., 2002). More specifically, blood cholesterol and the risk of heart disease have been found to be lowered by a daily consumption of 25 grams of soy protein (Moon, Balasubramanian & Rimal, 2005; Schyver & Smith, 2005). Due to these health benefits, Western consumers are increasingly encouraged to eat more soy products to improve personal health (Wansink, 2003).

Soy's health attributes not only attract the food industry but also researchers worldwide who pay more and more attention to soy's high quality protein (Granato, Branco, Nazzaro, Cruz & Faria, 2010). Nutrition science is steadily on the search for food attributes which support the population's health. Evolutionary, human diet played a role in survival and the satiation of hunger. However, nowadays, the perception about a proper diet has shifted to the idea that nutrition should mainly promote well-being, health and prevention of diseases. This new awareness becomes even stronger in the light of increasing health care costs paired with increasing life expectancies as well as the desire of elderly to improve their life quality (Granato et al., 2010). In the light of the booming health trend, consumers recognize the healthfulness of soy-based products and take soy's health attributes into consideration in food choice (Chang et al., 2012). According to Granato et al. (2010), 84% of all Western consumers perceive soy-based products as healthy foods. However, it has also been found that the belief that soy is healthy is not directly translatable into actual soy consumption (Tu et al., 2012). In other words, the consumption rate of soy-based products is not increasing at the same speed as the health awareness related to soy foods (Rah et al., 2004).

Research showed that Western consumers value soy products as part of Asian cuisine (Tu et al., 2012). However, for continuous consumption in the own diet, several barriers prevent an absolute acceptance of soy products explaining the slow increase in consumption rate (Tu et al., 2012). According to Roininen (2001), taste has been found to be an important factor influencing the acceptance of food products. While perceived health benefits positively influence the likelihood and frequency of soy consumption (Chang et al., 2012), a negative expected taste of soy products is the dominating barrier in soy acceptance (Yeu, Lee & Lee, 2008). Soy-based food products, like many healthy food choices, are often perceived as having a bad taste (Wansink et al., 2000). Asked about the sensory properties, consumers associate soy-based foods with a beany and bitter aroma as well as an unattractive texture (Yeu et al., 2008). Negative taste expectations and perceived health benefits have been shown to be the most influential factors in food choice related to soy (Chang et al., 2012). However, other factors also influence soy acceptance even though to a smaller degree. These factors are described in the following chapter.

2.2. Soy's perceived Lack of Familiarity

Next to negative taste expectations and perceived health benefits, soy acceptance is influenced by several promoters and barriers. Promoters of soy acceptance include food intolerances or the adoption of a restrictive diet, e.g., vegetarianism or veganism (Schyver &

Smith, 2005). On the other hand, barriers of soy consumption have been found to be soy's negative image, consumers' perception that soy foods unsuccessfully try to substitute animal products or a lack of familiarity with soy foods as well as their preparation process in Western countries (Schyver & Smith, 2005). The latter barrier, the perceived unfamiliarity with soy, is dependent on the bean being an ethnic food product (Bäckström et al., 2003).

Ethnic food products are defined as foods that are unfamiliar to individuals of a certain culture but traditional in other cultures. What is perceived as being disgusting is therefore dependent on culture. In other words, a specific food can be considered delicious and desirable in one culture, whereas it is considered to be unappetizing in another culture (Martins & Pliner, 2005). An example of such an ethnic food is soy (Bäckström et al., 2003), as was proven in a research carried out by Tu, Husson, Sutan, Ha and Valentin (2012). The researchers investigated cultural influences on beliefs and attitudes regarding soy-based foods. To assess cultural differences, Tu et al. (2012) compared data between French and Vietnamese participants. The latter perceived soy as a traditional food product in their diet, whereas the bean was relatively unknown in French dietary routines. French respondents had an overall negative attitude towards soy-based food products, as opposed to the Vietnamese consumers who liked the taste and had a certain emotional bond to soy foods due to the habitual consumption from an early age on. For French participants, soy is still an unfamiliar diet component and is therefore approached with a certain degree of mistrust (Tu et al., 2012).

Concluding, soy-based food products are an unfamiliar diet component in Western countries since soy is not a common food ingredient. The perceived unfamiliarity translates into negative attitudes towards the bean's image as well as negative perceptions of soy's sensory properties. The reluctance of or unwillingness to consume an unfamiliar food product can be related to a specific factor which has also been found to predict the willingness to try ethnic foods. This factor is called 'food neophobia' (Choe & Cho, 2011).

2.3. Food Neophobia

Common experience teaches that the acceptance of novel foods differs between individuals. Some people would never try unknown food products. Likewise, other individuals seek out the most unfamiliar foods to experience new tastes and textures (Pliner & Hobden, 1992). Research showed that a person's willingness to try a novel food product is the most crucial prerequisite for the first time trial of that particular food. The first exposure followed by a first trial of a novel food influences product acceptance which might lead to an

integration of the product into an individual's continuous diet (Schickenberg, 2010).

According to Schickenberg (2010), a person's reluctance to try a new food product is dependent on a factor called 'food neophobia'.

Food neophobia is defined as an individual's reluctance of or unwillingness to consume a novel food product (Schickenberg, 2010). It is the tendency to avoid unfamiliar foods without even tasting them or, in other words, the distrust of novel foods (Heath et al., 2011). Pliner and Hobden (1992) developed a scale to reliably measure an individual's level of food neophobia, the Food Neophobia Scale (FNS). The FNS is a 10-item questionnaire divided into five positive and five negative statements which have to be answered on a 7-point Likert scale ranging from strongly disagree to strongly agree. Higher scores on the FNS reflect a higher degree of food neophobia. People on this side of the scale are called 'neophobics'. These individuals reject and avoid novel foods, whereas people with low FNS scores, called 'neophilics', enjoy to approach foods which they don't know (Henriques, King & Meiselman, 2009; Schickenberg, 2010). The validity of the FNS has been proven in several studies conducted in different countries including France, Vietnam (Tu et al., 2012), Sweden, Australia, Finland, Belgium and the USA (Schickenberg, 2010). In addition, several authors successfully used shortened versions of the FNS. A six-item version of the scale has been shown valid by Knaapila et al. (2007), whereas Henriques, King and Meiselman (2009) used four items.

Food neophobia originates from the so-called 'omnivore's paradox'. This paradox supposes that the survival of humans depends on a dilemma between the natural distrust of unfamiliar foods in order to protect against harmful and toxic food substances (neophobia) and the necessity to seek variety in the diet in order to receive sufficient vitamins and nutrients (neophilia) (Flight, Leppard & Cox, 2003; Veeck, 2010). By reducing the possibility of poisoning, food neophobia has evolutionarily been useful in the consumption decision of unfamiliar foods (Mustonen & Tuorila, 2010). In modern days, however, in which an environment of safe foods is usually guaranteed, food neophobia has negative effects by restricting the dietary variety (Mustonen & Tuorila, 2010; Pliner & Melo, 1997). The negative influences of food neophobia on food choice can lead to a reduced intake of fruits and vegetables and by this of healthy fibers, vitamins and nutrients (Cooke, Haworth & Wardle, 2007). A general willingness to try unfamiliar foods would lead to an easier change of eating habits so that personal health and well-being could be promoted. Logically, the rejection of the novel foods does not happen during tasting but before, within the visual domain, to

prevent poisoning. Based exclusively on vision, individuals develop an image about how a food product should look and smell. If these expectations are not met, the food will be rejected (Dovey, Staples, Gibson & Halford, 2008).

Since food neophobia restricts individuals' ability to try novel foods, the marketability of unfamiliar flavors or ingredients can be difficult (Johns, Edwards & Hartwell, 2011). The level of food neophobia is noticeable in differences of anticipated hedonic responses to novel food products (Knaapila et al., 2007; Pliner & Hobden, 1992). Based on lower expected-liking ratings, neophobics tend to be more pessimistic concerning the evaluation of how they would like an unfamiliar food (Henriques et al., 2009). Therefore, the product is avoided without even trying it, leading to the impossibility of correcting the (mistaken) taste perception (Pliner & Hobden, 1992). Henriques et al. (2009) confirm that food neophobia generally influences the level to which a consumer dislikes an unfamiliar food, explaining the high or low product acceptability of some foods. Product disliking is therefore strongly associated with food neophobia (Henriques et al., 2009).

When manipulated, some situational factors are able to induce temporary changes in neophobic behavior (Dovey et al., 2008). Research showed different ways to overcome food neophobic behavior to a novel food. Dovey, Staples, Gibson and Halford (2008) argued that the concept of food neophobia ends as soon as a novel food is put into the mouth. At this point the neophobia against unfamiliar food products is overcome. The (forced) consumption of the novel food might lead to the integration of the particular food product to the consumer's personal diet (Tu et al., 2012). Other researchers explained the conquest of food neophobia by a certain "learned safety" (Heath et al., 2011, p. 833) which occurs when the novel food is consumed without negative consequences. This safety helps consumers to accept the novel food product and to unlearn the food neophobic behavior towards the novel food (Heath et al., 2011). Heath, Houston-Price and Kennedy (2011) also argued that the mere exposure to the food in question helps overcoming food neophobia. The repeated encounters resulting from mere exposure effect a more positive attitude towards the novel product due to an increased level of familiarity (Heath et al., 2011). Furthermore, the level of food neophobia has been found to decrease by adding familiarity to otherwise unfamiliar foods (Pliner & Hobden, 1992).

A lack of food familiarity is a key factor in food neophobia. More specifically, it has been found that food neophobia is related to novel foods but not to familiar ones (Henriques et al., 2009). Put differently, food neophobic behavior influences the primary tasting of an

unfamiliar food product. However, the repeated consumption following this primary tasting is determined by other factors (Knaapila et al., 2007). The familiarity with novel foods can greatly influence food acceptance of a neophobic individual and should therefore be seen as possible promoter of a successful introduction of novel foods in the market (de Barcellos, Aguiar, Ferreira & Vieira, 2009). Scientific literature shows that, next to *perceived familiarity* (Flight et al., 2003; van Kleef, van Trijp, Luning & Jongen, 2002), food acceptance related to food neophobia is composed of several sub-scales. Having an overview of the scores on these sub-scales gives a general insight in the factors which have to be improved for a better product acceptance. These sub-scales are *rated pleasantness* (Fotopoulos, Krystallis, Vassallo & Pagiaslis, 2009; Kähkönen, 2000), *taste expectations* (Raghunathan, Naylor & Hoyer, 2006; Schickenberg, 2010), *attitude towards a soy product* and *willingness to try* (Tuorila, Lähteenmäki, Pohjalainen & Lotti, 2001; van Kleef et al., 2002).

Research on food neophobia is mostly based on situational determinants which influence neophobic behavior. Pliner and Hobden (1992) found that food neophobia is among others correlated with trait anxiety, age, experience seeking, general neophobia and experience with unusual foods. In scientific literature, there is a disagreement about the factor food neophobia being either a character trait or a situation-dependent factor. Seeing food neophobia as personality trait means that individuals have a stable propensity to seek out or to avoid novel, unknown food products (Pliner & Hobden, 1992). In this case, food neophobia is described as enduring part of personality which is not likely to change in time (Henriques et al., 2009). A research among a family and a twin sample even found that food neophobia can be described as a heritable trait and is strongly genetic (Knaapila et al., 2007). Another research confirms this assumption but adds for consideration that almost one quarter of variation in food neophobia is influenced by non-shared environmental factors (Cooke et al., 2007).

As opposed to the research of food neophobia being a heritable trait, the influence of age on the supposedly stable personality trait of food neophobia leads Dovey et al. (2008) to the assumption that it is a situation-dependent factor rather than a trait. They describe it as an age-dependent state which even could be overcome during childhood if proper instructions would be offered (Dovey et al., 2008). Researchers reported different developments of food neophobia from childhood to adulthood. However, the most popular assumption is that food neophobia increases drastically as soon as children become mobile and reaches a peak between two and six years. After that, food neophobia decreases continuously through

childhood, adolescence and finally adulthood until it increases again for elderly people in the age group of 66±88 years (Dovey et al., 2008; Mustonen & Tuorila, 2010; Schickenberg, 2010). The controversial opinions about food neophobia as character trait or dependent factor lead to the believe that food neophobia should be seen as a mix of both (Pliner & Hobden, 1992). For the study at hand, food neophobia is seen as character trait and is therefore utilized as means to divide individuals according to their propensity to either accept or reject novel food products (Pliner & Hobden, 1992).

2.4. Food Neophobia in Relation to Soy

New food products can be divided into five categories: functional, genetically modified, nutritionally modified, organic and ethnic foods (Bäckström et al., 2003). Research on food neophobia has shown that FNS scores significantly predict the willingness to try ethnic foods, whereas no influences on the other categories could be found (Schickenberg, 2010). This result can also be explained by having a closer look at the items of the FNS. The scale includes the items '*ethnic food looks too weird to eat*' and '*I like to try new ethnic restaurants*' (Pliner & Hobden, 1992) which are directly related to the respondent's attitude towards ethnic foods. However, the FNS does not include any items about the other four food categories (Kim, Suh & Eves, 2010).

Research shows that the willingness to try ethnic foods considerably differs between individuals and that this difference can be related to food neophobia (Choe & Cho, 2011). Consequently, soy acceptance should be related to food neophobia since soy is an ethnic food product. However, the available literature about soy-based foods is limited to studies about attitudes and beliefs that might influence soy consumption, focusing on the importance of taste and health expectations (Schickenberg, 2010). In contrast, the relationship between soy products and food neophobia has not been studied yet. Put differently, it is unknown whether an individual's level of food neophobia needs to be taken into account as a critical barrier in the acceptance of soy foods (Palacios, Badran, Drake, Reisner & Moskowitz, 2009). However, the influence of taste and health expectations should not be left out of research studies because of its importance for soy acceptance.

Many food producers rely on health claims in order to differentiate the own product from competitors in the fast changing health food market (Granato et al., 2010). In Europe, the market for food products with special health attributes is drastically increasing, especially in France, the UK, the Netherlands and Germany (Granato et al., 2010). Shedding light onto

food neophobia in soy acceptance should therefore also include the trade-off between taste and health to investigate the effectiveness of health and taste claims in food marketing.

2.5. General Health Interest

The ongoing research about soy foods tries to investigate the diverse influences on soy food choice with the goal to better predict consumer behavior and to better position soy products according to consumer needs (Tu et al., 2012). To reach this goal, researchers use different models which focus on the connection between consumers' beliefs and attitudes with their consumption behavior. These models argue that individuals' attitudes and beliefs towards a specific food product mediate actual food choice (Tu et al., 2012). More specifically, beliefs about soy's sensory attributes as well as beliefs about nutritional and health benefits can influence the preferences for a soy product and by this food choice. Soy research draws on the well-known 'Theory of Reasoned Action' (TRA) and its successor the 'Theory of Planned Behavior' (TPB). These models are applied by researchers in the attempt to predict behavioral intentions of a person, i.e., a person's perceived likelihood to engage in a certain consumption behavior, in this case soy consumption (Tu et al., 2012). For this purpose, attitudes and beliefs regarding soy products have been investigated by several researchers, leading to the insight that expected taste is the dominating attribute driving soy acceptance, directly followed by health attributes (Chang et al., 2012).

Soy's health attributes are increasingly recognized by consumers who, therefore, take the health benefits of soy products more and more into consideration while making food choice decisions (Chang et al., 2012). The recognition that soy foods have health-promoting attributes can be found cross-culturally (Tu et al., 2012). The perceived health benefits significantly influence the likelihood and frequency of soy consumption. However, consumers do not recognize the link between soy protein and the healthiness of soy products. Hence, this information cannot be used for the positioning of soy products (Chang et al., 2012). In addition, the specific health benefits of soy products are generally unknown by consumers. Consumers who have a more elaborate opinion about the reasons for soy's healthiness, perceive soy to be healthy in relation to weight management, the reduction of heart diseases and the fight against some types of cancer (Granato et al., 2010). Consequently, a general high level of nutritional knowledge is beneficial for the acceptance of soy products because it improves understanding of health benefits and has been found to even be associated with improved taste perceptions (Chang et al., 2012; Wansink et al., 2000). However, research

showed that the only factor which is more important in the acceptance of soy than its healthiness, is perceived taste (Roininen, 2001).

The perception of taste is dependent on individuals' beliefs about what they will taste (Wansink, 2003). Chang, Moon and Balasubramanian (2012) argued that taste is the dominating attribute that drives soy acceptance. In addition, other researchers highlighted that taste is often considered as main driver of healthy food choice (Wansink & Chan, 2004). The research by Wansink, Park, Sonka and Morganosky (2000) showed that the mere mentioning of soy on a product package influences taste perceptions negatively in Western societies. The result is that people dislike the taste of products containing soy even if no actual soy is processed in the product (Wansink, 2003). However, despite the negative influences, soy labels also seem to decrease skepticism related to health-related claims. In other words, by using soy labels in combination with health claims, negative perceptions that might result from using the claims separately could be neutralized (Wansink et al., 2000). The researchers also found that soy labels negatively influence taste-oriented consumers. In contrast, the labels have a positive impact on health-oriented consumers (Wansink et al., 2000). Concerning sensory reactions, individuals can therefore be divided into two profiles, taste- and health-consciousness (Wansink, 2003). Chang et al. (2012) confirmed the division of consumers into health and taste segments by arguing that an overall negative perception of soy foods can be found among the US population. However, exceptions could be found among specific consumer segments which were particularly attracted by the health benefits provided by soy (Chang et al., 2012).

Current research shows that healthy foods are overall expected to have an unpleasant taste (Wansink & Chan, 2004). This finding can be explained with the so-called 'unhealthy = tasty intuition' (Raghunathan et al., 2006). A research among US American consumers about their taste perceptions concerning healthy food products has been conducted. It has been found that consumers consider unhealthy foods which are high in sugar, fat and therefore also in calories to taste better than healthy food products (Raghunathan et al., 2006). As a result, it can be argued that the 'unhealthy = tasty intuition' is able to influence taste perceptions. In other words, the healthier a food is portrayed, the more negative its inferred taste is perceived (Raghunathan et al., 2006). Raghunathan, Naylor and Hoyer (2006) also argued that the negative correlation between the perceived healthiness and the taste of a product is not only present among consumers who state that they believe in this correlation but also, to a lesser extent, among consumers who report not to believe in it. Consequently, the 'unhealthy = tasty

intuition' influences actual food enjoyment and even food choice (Raghunathan et al., 2006). The result is a large amount of consumers considering tastiness and healthiness as not being compatible (Keller, Sternthal & Tybout, 2002).

The 'unhealthy = tasty intuition' among US American consumers is attributable to a high level of anxiety and dissatisfaction related to nutrition. The negative perceptions related to dietary decisions are a consequence of an utilitarian approach of eating, rooted in the Protestant work ethic (Werle, Trendel & Ardito, 2012). This ethic represents the idea that the right to indulge has to be earned, leading to the assumption that work and pleasure never fall into the same category. In relation to food, the Protestant work ethic translates into the opinion that food is either healthy or tasty but not both at the same time (Raghunathan et al., 2006). Another assumption about the origin of the 'unhealthy = tasty intuition' is that external sources such as parents or advertising propagate messages which encourage the consumption of hedonically unpleasant foods due to their health attributes and discourage the consumption of hedonically pleasant foods due to their potentially harmful health consequences (Raghunathan et al., 2006). Both origins of the 'unhealthy = tasty intuition', however, suggest an inverse relationship between tastiness and healthiness.

Based on the arguments discussed before, the research at hand assumes that consumers can be divided into taste- or health-conscious individuals, seeing these two profiles as the two extremes of one scale. To measure individuals' direction of health/taste preference, a factor called 'general health interest' can be measured. General health interest is part of the '*Health and Taste Attitudes Questionnaire*' as developed by Roininen, Lähteenmäki and Tuorila (1999). Persons with high scores on this scale can be considered as health-conscious, whereas individuals with low scores can be considered as taste-conscious. It is necessary to investigate the extent to which general health interest influences soy acceptance. Since current research stresses the importance of expected taste and health in soy acceptance, it is obvious that this factor needs to be included in the study at hand. However, it is supposed that food neophobia is the dominant factor in soy acceptance due to the bean being an ethnic food ingredient. Therefore, it is logical to assume that general health interest moderates the influence of food neophobia on soy acceptance.

2.6. Slogans and Priming

The policy sector increasingly advises consumers to adopt a healthier diet which is low in fat, sugar and salt (Tu et al., 2012). Instead, people are directed to eat a diet full of fiber, fresh fruits and vegetables. In the case of soy, the US Food and Drug Administration (FDA) approved the usage of health claims on soy products which contain at least 6.25 grams of soy protein per serving. This amount is one-fourth of the recommended daily soy protein intake of 25 grams (Moon et al., 2005). However, individual food behavior is difficult to manipulate due to habits which were built up over the course of life (Tu et al., 2012). Food manufacturers are therefore continuously challenged to design new healthful food products to attract consumers. A better understanding of manipulation stimuli to influence food behavior would be beneficial for a better product acceptance of healthy foods by consumers (Hoek et al., 2011).

Different manipulation stimuli have been researched to check their efficiency to influence consumer behavior over time. Next to the distribution of health information (Moon et al., 2005), the labeling of specific ingredients (Wansink & Park, 2002) or the presentation of health claims (Wansink & Park, 2002), priming has been closely investigated as manipulation stimulus (Boush, 1993). Priming is based on the idea that individuals' motivated behavior is in many circumstances unconsciously provoked by underlying processes (Aarts, 2007). Therefore, consumer behavior might occur automatically without direct control of the particular individual, originating in the nonconscious (Dijksterhuis, Smith, van Baaren & Wigboldus, 2005). In addition, it has been found that subtle environmental cues which act out of awareness are able to trigger goal pursuit (Aarts, 2007). In the context of consumer behavior, it can therefore be argued that choice decisions often occur unconsciously, triggered by the processing of subtle environmental cues (Dijksterhuis et al., 2005).

Slogans are often used by marketers as priming cues due to their capability to trigger specific goals in the mind of individuals (Pryor & Brodie, 1998). They are extensively used as compact way to send messages in the form of short sentences to the target audience. Slogans belong to the three components of brand identity, next to product names and logos (Kohli & Suri, 2002). In other words, the slogan is part of how a brand communicates with the consumers (Kohli, Leuthesser & Suri, 2007). While the name and logo of a brand should be stable to guarantee continuity, the slogan should be utilized as succinct selling statement and should therefore be adapted according to changes in brand strategy (Kohli & Suri, 2002). On today's competitive consumer market, slogans are used as priming cues to increase brand

image by supporting recall and recognition while differentiating the product in consumers' minds (Pryor & Brodie, 1998).

The efficiency of slogans in the context of priming has been examined in a consumer study carried out by Boush (1993). More precisely, the researcher tested whether slogans are able to prime certain attributes of a fictitious product brand (Boush, 1993). After being exposed to the priming cues, the participants of the study were asked to rate potential extensions of the fictitious brand. The results showed that the brand extensions including the characteristics which were primed were rated more positively than the ones without these characteristics. It was shown that slogans have an important influence on supporting or undermining a strategy for brand extensions by retaining desired characteristics in memory (Boush, 1993). The study was replicated by Pryor and Brodie (1998) several years later. The researchers provided additional evidence to Boush's (1993) findings and added that an abstract attribute, such as 'quality' is less effective in a priming condition than a tangible one, such as 'spice' (Pryor & Brodie, 1998). Concluding, both studies showed that slogans are an effective vehicle to prime certain key attributes of food products in advertisements and by this position these foods efficiently (Kohli et al., 2007).

Due to the ability of slogans to prime desired key attributes, slogans were used for the study at hand to add a certain loading of tastiness or healthiness to the soy products in the manipulation stimuli. Which attribute is attached to the soy products depends on the predisposition of that particular food. By this, the predisposed characteristics of a certain soy product can be emphasized, strengthening either the taste or health perception in the consumers' minds.

2.7. The Scope of the Study

Based on the findings of the literature review before, it is assumed that food neophobia plays a crucial role in soy acceptance. Dividing consumers according to their level of food neophobia could be beneficial in shaping subgroups in the consumer population and by this planning successful market introductions of soy food products (Roininen, Lähteenmäki & Tuorila, 1999). However, the influence of expected healthiness of soy foods as well as perceived familiarity with soy products should not be left out of consideration as current research emphasizes. Therefore, the goal of the study at hand is to start the discussion about the influence of food neophobia on soy acceptance. More specifically, it is investigated to what extent the level of food neophobia influences the perception of familiarity with and

healthiness of soy products in the context of soy acceptance when moderated by general health interest.

To get a deeper insight in the research problem, several hypotheses were formulated. First, it is supposed that soy products, due to their status as ethnic food products, are perceived as being unfamiliar to Western consumers. This unfamiliarity is likely to have a negative influence on the acceptance of soy products, leading to the following hypothesis:

H₁: A low level of perceived familiarity leads to a lower product acceptance of soy products compared to a high level of perceived familiarity.

Additionally, the expected healthiness and tastiness of soy products are assumed to influence soy acceptance. It has been found that taste expectations are the dominating factor in soy acceptance, whereas the perceived healthiness is only on second place concerning importance in the acceptance process. Therefore, it is hypothesized that soy products which are expected to be tasty are better accepted than healthy products:

H₂: A high level of expected tastiness leads to a higher product acceptance of soy products compared to a high level of expected healthiness.

Furthermore, it is expected that the product acceptance of soy foods differs between neophobics and neophilics since they have differing propositions towards unfamiliar food products. Due to a higher level of adventure-seeking, neophilics show positive reactions to unfamiliar foods. In contrast, neophobics feel disgusted by novel foods (Veeck, 2010). Therefore, it is hypothesized that neophobics have in general a lower product acceptance of soy products than neophilics:

H_{3a}: Neophobics show a lower product acceptance of soy foods compared to neophilics.

On the Western market, however, not all soy products have the same perceived unfamiliarity. Some soy foods were already introduced decades ago and were massively promoted by food manufacturers (Tu et al., 2012). In addition, stressing a high level of familiarity is supposed to increase product acceptance of neophobics, leading to the following hypothesis:

H_{3b}: A high level of perceived familiarity with the soy products leads to a higher product acceptance of neophobics in comparison to neophilics.

Furthermore, some soy foods are perceived to be healthier than other soy products or they are expected to be tastier than other soy foods, respectively. Having in mind the dominance of expected tastiness on soy acceptance, stressing a high level of tastiness is

supposed to reduce the disgust with soy, felt by neophobics. Therefore, the following hypothesis is formulated:

H_{3c}: A high level of expected tastiness of the soy products leads to a higher product acceptance of neophobics in comparison to neophilics.

Next to the influence of food neophobia on soy acceptance, general health interest needs to be taken into account. As discussed before, previous research shows the importance of expected tastiness and healthiness in soy acceptance. However, for the study at hand, the factor food neophobia is supposed to be dominating. In the context of the study, food neophobia is seen as character trait which is moderated by an individual's health- or taste-consciousness, respectively. Therefore, it is hypothesized that general health interest can be seen as moderator in the relationship between food neophobia and soy acceptance, leading to the following hypothesis:

H₄: General health interest moderates the effect of food neophobia on soy acceptance.

The main hypotheses that are based on the literature mentioned above and which will be tested during this research are summarized in the following model (figure 1):

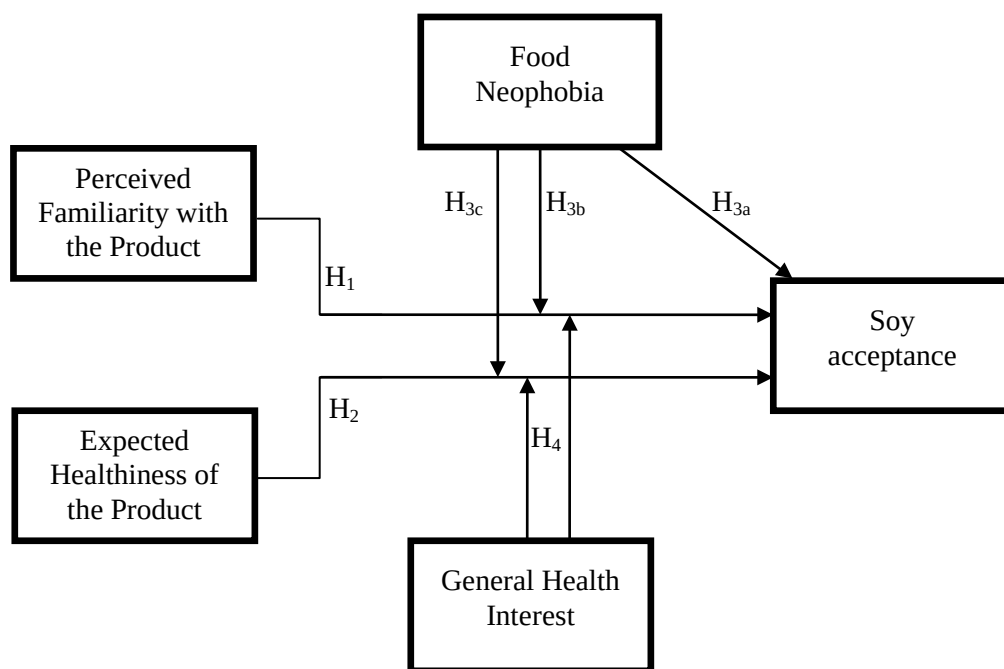


Figure 1. Hypotheses as Research Model.

To test the aforementioned hypotheses, both qualitative and quantitative (pre-)studies were carried out. The findings are beneficial for food manufacturers and marketers because they give a deeper insight into differences between consumer groups, giving the opportunity to develop efficient position strategies for soy foods. Furthermore, a better acceptance of soy foods in general food behavior in Western countries would lead to a higher profitability of soy product factories as well as to an overall improvement of public health. In addition, the results close a gap in soy research because it starts the discussion about the influences of food neophobia on soy acceptance. Additionally, current research about food neophobia mainly focuses on food neophobia among children. However, research about food neophobia among adults should be brought into focus since adults also show neophobic behavior and, in addition, represent the biggest part of the consumer population (Henriques et al., 2009). Furthermore, research about food neophobia in a product development setting is scarce (cf. Tuorila, Meiselman, Bell, Cardello & Johnson, 1994). The research at hand addresses these gaps in scientific literature by focusing on the influence of food neophobia on soy acceptance.

3. Methods

To prepare the main study, two pre-studies were carried out. The first pre-study used semi-structured interviews to investigate consumers' associations with soy products, whereas the second pre-study used an online questionnaire to find the appropriate soy products to use in the main study. The findings of the two pre-studies served as background information to design the main research which was an experiment carried out by an online questionnaire using a 3 factors between-subjects design to test the research hypotheses.

3.1. Pre-study 1: Semi-structured Interviews

A first preliminary study was conducted to identify participants' key associations with soy beans and soy-based food products. The purpose of the first pre-study was to collect consumers' views and opinions about different aspects of soy beans and soy-based food products and to investigate whether any cross-cultural, gender or age differences as well as differences in personal lifestyle belief could be found. For this purpose, respondents from different countries answered a semi-structured interview. Previous studies were conducted, among others, in the United States (Chang et al., 2012), France (Tu et al., 2012), Vietnam (Tu et al., 2012) and New Zealand (Jones, Drake, Harding & Kuhn-Sherlock, 2008) but not in Germany, where the main study was carried out. Therefore, the first pre-study aimed at shedding light upon soy associations in Germany in cross-cultural comparison.

3.1.1. Participants and Study Design

From a convenience sample, 23 respondents consisting of 8 males (35%) and 15 females (65%), as well as of 2 vegetarians (9%) and 2 vegans (9%) were drawn. The participants were between 21 and 70 years old ($M = 33.91$, $SD = 14.98$) and came from Germany ($n = 15$), the Netherlands ($n = 5$), China ($n = 1$), Bolivia ($n = 1$) and Indonesia ($n = 1$). None of the respondents had food intolerances. Each respondent was interviewed in a semi-structured manner using an interview guide based on the '*Health and Taste Attitudes Questionnaire (HTAS)*' (Roininen, 2001) and the '*Food Choice Questionnaire (FCQ)*' (Stephoe, Pollard & Wardle, 1995) to support the interviews with a profound theoretical background. The research method was chosen because interviews are of an exploratory nature (Costell, Tárrega & Bayarri, 2010) and are not subject to group's pressure as opposed to focus groups (Downs & Adrian, 2004). Therefore, interviews are the best fitting way to attain a detailed discussion of the soy discourse (Downs & Adrian, 2004).

3.1.2. Procedure

The interviewer arranged a meeting with the respondents at a place of their choice. After being welcomed and thanked for their participation, the respondents were informed about the recording of the interview and they were assured that their answers will be handled confidentially and anonymously. The interviewer stated that the purpose of the study is a brainstorming about soy foods. The respondents were asked open-ended questions about their associations with and general knowledge about soy and soy-based food products as well as about expected positive and negative outcomes of soy consumption. The interviewer guided the respondents through the interview by asking questions concerning health, taste and environmental issues related to soy as well as perceptions about familiarity, naturalness and sensory properties of soy products. At the end, some demographic background variables were enquired including age, gender, country of origin, possible food intolerances and personal lifestyle beliefs (i.e., vegetarianism/veganism). The interviews were recorded and the researcher noted down noteworthy parts on an answer sheet to facilitate the transcription.

3.1.3. Data analysis

To analyze the interviews, the constant comparative method was used. According to this method, the qualitative data were coded and then delineated into categories (Boeije, 2002). More precisely, the data of the interview were coded on the basis of similarities and the frequency of repetitions was counted. Answers were seen as similar when they covered the same idea (Rah et al., 2004). Afterwards, generalizations were formulated to form overarching categories (Downs & Adrian, 2004).

3.1.4. Results

After grouping the responses according to their similarities and counting the frequency of their repetitions, the associations could be categorized into the groups ‘vegetarianism’, ‘sensory properties’, ‘health aspects’ and ‘ecological aspects’. An overview of the associations most often mentioned can be found in table 1. In addition, the category ‘familiarity’ arose from the answers of the open questions.

Table 1
List of Associations most often named by the Respondents

Category	Association	Repetition
Vegetarianism	Meat replacement product	7
	Vegetarian diet	3
	Total	10
Sensory properties	Asian cuisine	6
	Tasty	6
	Tasteless	5
	Sweet	3
	Total	20
Health aspects	Healthy	6
	Soy allergy	3
	Genetic manipulated	4
	Total	13
Ecological aspects	Deforestation	4
	Third World countries	3
	Fodder for mass husbandry	2
	Big plantations	2
	Total	11

As to the known soy products which were named by the respondents, soy milk was the most frequently named, followed by soybean sprouts and soy sauce. With some distance from soy milk, meat replacement products such as soy sausages were mentioned, followed by tofu. An overview of the named soy products can be found in table 2.

Table 2
List of the Soy Products most often named by the Respondents

Product	Repetition	Product	Repetition
Soy milk	17	Soy oil/ wok oil	3
Soybean sprouts	12	Tempeh	3
Soy sauce	10	Soy pudding	3
Meat replacement products	9	Soy spread	2
Tofu	7	Soy margarine	2
Soy granulate	5	Ketjap manis	2
Soy yoghurt	4	Soy flour	2

From the open-ended questions, some key findings could be derived. In the following, the results which are important for the main study are summarized according to their category. Note that the findings about ecological aspects are not described because a discussion of these aspects would go beyond the scope of this research.

Vegetarianism. Concerning importance, the association '*meat replacement product*', belonging to the vegetarianism category, was mentioned most often (cf. table 1). Therefore, it can be concluded that soy-based food products are generally associated with the replacement of meat. However, the usage of soy to replace meat was generally perceived negatively. Some respondents thought that soy pretends to be meat but is an *inadequate taste and texture replacement*. Most respondents agreed that soy should not be marketed as meat substitute but as independent product with own taste and texture. However, soy products were seen as a *good compromise* for vegans, vegetarians and people with food intolerances (e.g., lactose intolerance).

Sensory properties. Associations belonging to the category of sensory properties were mentioned very frequently and in more diverse formulations than the vegetarian associations. Summing up the repetitions of all associations showed that sensory properties are the most important category (cf. table 1). In general, the *sensory properties* of soy products were perceived as *low*. The majority of respondents mentioned that soy products have a *bad, unpleasing taste*. Some of the commentaries about the taste included notions that soy is tasteless, boring and has no taste of its own. Same perceptions existed about the *smell* and *texture* of soy. Consequently, many respondents agreed on the importance of soy *preparation* for good taste.

Health aspects. Health associations follow sensory properties concerning importance (cf. table 1). The majority of the respondents perceived soy products as healthy. Soy as a *vegetal protein source* was perceived as a healthy alternative to animal protein. Interestingly, most of the respondents who perceived soy products as healthy did not know the *reason* for it and also did not *connect soy protein* to soy's health benefits. Two respondents argued that Asians are overall healthier than Europeans and that regular soy consumption could be the reason. In addition, two respondents stated that soy is healthy because it is a low caloric product and low in fat. Only few people knew about the concrete health advantages of soy, such as help against *menopausal syndromes* and *prevention of heart diseases* as well as *diseases of blood vessels*. Other commentaries about the health benefits of soy included its *nutritiousness*, *high vitamin contents* and its ability to *substitute dairy products* for lactose

intolerant persons. Negative commentaries included notions that soy is *bad for the digestive system, genetically manipulated* and can trigger *allergies*.

Familiarity. One of the open-ended questions asked about the familiarity associated to soy products. Overall, soy products were *not perceived as familiar or traditional* by the respondents because they were neither known nor used in domestic cuisine. The respondents who stated to be familiar with soy products *followed a restricted diet*, such as vegetarianism, veganism or lactose-free. Soy was in general perceived as a traditional product of *Asian cuisine* and had a positive image in this context. When soy was perceived as ingredient of Asian cuisine, it was perceived more positively than when it was perceived as ingredient in European cuisine.

Comparisons. Comparisons between different variables showed that the *younger* the respondents, the more ideas they had about soy. To the contrary, no big differences between *genders* could be found. The women in the study were slightly better informed which could be due to their higher involvement in food preparation compared to men. Noticeable differences could be detected between respondents following a normal diet and those following a *restricted diet* such as vegetarianism and veganism. The latter group had a considerably more specific opinion about soy and its products across different topics. The cross-cultural differences are also noteworthy. Cultures in which *soy consumption is not common*, i.e., Germany, the Netherlands and Bolivia, generally had a *negative perception* about soy products, in contrast to cultures in which *soy is common*, i.e., China and Indonesia, where soy is perceived *positively*. Interestingly, the latter cultures did not have better knowledge about soy's specific health attributes than Western cultures.

3.1.5. Discussion

The first pre-study showed that there is still an undereducated population which does not know about the particular health attributes of soy and which is not familiar with soy products. There is a lack of nutritional knowledge which is likely to influence the rejection of soy products (Schyver & Smith, 2005). In accordance with research conducted by Wansink et al. (2000), the interviewees perceived soy products as a healthy food choice but disliked the sensory attributes. Taste was found to be a dominating association. Perceived taste seems to have a negative influence on soy acceptance (Chang et al., 2012). In general, German, Dutch and Bolivian respondents did not like the taste of soy products when different from the refined usage in Asian cuisine. The Chinese and Indonesian respondents, however, loved soy's

sensory attributes conditioned by their habitual consumption from a very early age on. All cultures agreed upon the necessity of a proper preparation to enhance soy's sensory attributes. These cross-cultural differences are generally consistent with those found in research conducted by Tu et al. (2012), Wansink (2003) and Johns, Edwards and Hartwell (2011). These researchers showed the relationship between food neophobia and culture and agreed that the most significant differences can be found between European and East Asian consumers regarding food neophobia (Johns et al., 2011).

Concerning health attributes, soy protein was not recognized as the healthy component of soy which is in accordance with research conducted by Chang et al. (2012). No respondent connected soy protein to any health attributes. To the contrary, soy beans in general were perceived to have a certain healthiness. Overall, concrete nutritional knowledge about soy including healthful consequences of soy consumption could be attributed to persons following a restricted diet, such as vegetarianism or veganism. This leads to the assumption that these persons are more likely to consume soy products due to their higher nutritional knowledge which can be associated with a better soy acceptance (Chang et al., 2012). Additionally, the general perception of soy products being related to veganism or vegetarianism has been found. Several respondents mentioned that soy products are mainly used by persons who restrict meat in their diet. In case of meat restriction, the interviewees overall agreed that soy products are an acceptable alternative. However, it was also discussed that soy is not able to imitate the taste and texture of meat and is therefore not an acceptable alternative for meat-eaters. This finding was also confirmed by Schyver and Smith (2005) who argued that consumers perceive soy to be an inadequate flavor replacement for animal products.

Concluding, the findings of the first pre-study showed that there is a lack of nutritional knowledge concerning soy's health benefits, a low familiarity with soy-based food products as well as a general bad reputation of soy's sensory attributes. These findings confirm the assertions from the theoretical background that soy products are generally unfamiliar in Western countries and that soy acceptance is dominantly influenced by taste expectations and expected health attributes. In accordance with Wansink (2003), the interviews showed that there are cross-cultural differences between countries in which soy is traditional and those countries in which it is not familiar. The same result was found for differences between meat-eaters and restricted eaters. The latter consumer group as well as traditional soy-eaters differ significantly from the average meat-eater.

3.2. Pre-study 2: Product Selection

Soy-based food products can be found as a traditional part of daily diet in several East and South-Asian countries such as Indonesia, China, Japan, etc. (Tu et al., 2012). In contrast, soy foods are still unfamiliar to consumers in Europe (Tu et al., 2012). For some soy products, however, the degree of familiarity is increasing because of massive promotion, whereas other products are still not introduced properly and can only be found in Asian specialty stores. According to Tu et al. (2012), the three most known soy products on the European market are soy milk, yoghurt-like soy desserts and soy steaks (Tu et al., 2012). The first pre-study, probably contingent on the cross-cultural answers, showed a slightly different result with soy milk, soybean sprouts and soy sauce as most known soy products. No matter which result to trust, it can be concluded that different soy products have a different perceived familiarity.

The goal of the second pre-study is to find the most appropriate soy products for the main study. Therefore, an online questionnaire was used to estimate the '*perceived familiarity*' of 21 soy products to find the two most unfamiliar and two most familiar soy-based food products on the German market. To also include the health and taste aspects of soy acceptance, the second pre-study investigated the '*expected healthiness*' and '*expected tastiness*' of these products. The pre-study aimed at finding four soy products which significantly differ in perceived familiarity, expected health and expected taste. In the end, the pre-study was supposed to deliver two familiar and two unfamiliar soy products which differ in expected health and expected taste amongst themselves.

3.2.1. Participants and Study Design

A convenience sample of 48 German participants was recruited by social media, e-mail and snowballing. The sample consisted of 16 males (33%) and 32 (67%) females, as well as of 10 vegetarians (21%) and 3 vegans (6%). None of the participants had food intolerances. The respondents were between the ages of 21 and 70 ($M = 27.56$, $SD = 7.45$). Each respondent answered an online questionnaire about the '*perceived familiarity*', '*expected healthiness*' and '*expected tastiness*' of 21 soy products.

3.2.2. Procedure

The respondents were provided with an URL leading to an online survey developed with the software 'thesistools.com'. At the beginning, the participants were welcomed and the purpose of the study was shortly introduced. General instructions were given as to how to

answer the questionnaire. The respondents were confronted with 21 names of soy-based food products which were derived from the first pre-study and complemented with additional soy products expected to be unfamiliar to the respondents. In case that the names of the products were not self-explaining, a short description was given. The respondents were asked to rate the soy products on three 9-point Likert scales. The first scale ranged from 1 (*not at all familiar*) to 9 (*very familiar*) to measure the perceived familiarity with the products. The expected healthiness of the products was measured with a scale ranging from 1 (*not at all healthy*) to 9 (*very healthy*). The third scale ranged from 1 (*not at all tasty*) to 9 (*very tasty*) to measure the expected tastiness of the products. At the end, some demographic background variables were enquired including age, gender, country of origin, possible food intolerances and personal lifestyle beliefs (i.e., vegetarianism/veganism).

3.2.3. Data Analysis

To analyze the data, a one-way repeated measures analysis of variance (ANOVA) was conducted. To further explore the measured effects, pairwise comparison tests were performed as well as t-tests.

3.2.4. Results

A complete overview of the means and standard deviations per product can be found in table 3. In the following, the main findings are discussed. Note that an alpha level of .05 was used for all statistical tests.

Perceived familiarity. The data analysis showed that soy sauce was perceived as most familiar product ($M = 7.98$, $SD = 1.64$), directly followed by soy milk ($M = 7.04$, $SD = 2.41$). The products perceived as least familiar were Taho ($M = 1.58$, $SD = 1.53$), Yuba ($M = 1.60$, $SD = 1.65$) and Natto ($M = 1.75$, $SD = 1.86$). Miso with a mean of 3.33 ($SD = 2.81$) was rated lower than the overall mean of perceived familiarity ($M = 4.12$, $SD = 1.35$).

Expected healthiness. The products with the highest expected healthiness were found to be soybean sprouts ($M = 7.08$, $SD = 1.87$) and Tofu ($M = 6.52$, $SD = 1.79$), followed by soy milk ($M = 6.42$, $SD = 1.62$), whereas Taho ($M = 3.54$, $SD = 1.54$) and soy lecithin ($M = 3.87$, $SD = 1.94$) had the lowest expected healthiness scores. Miso with a mean of 4.48 ($SD = 2.04$) has been found to be rated fairly at average on expected healthiness ($M = 5.99$, $SD = 1.15$).

Expected tastiness. Concerning tastiness, soy sauce ($M = 7.10$, $SD = 2.23$) and soybean sprouts ($M = 6.94$, $SD = 1.97$) were expected to be the tastiest products from the list,

whereas soy lecithin ($M = 2.94$, $SD = 1.93$) and Natto ($M = 3.31$, $SD = 2.21$) were expected to be the least tasty. Yuba with a mean of 4.58 ($SD = 2.34$) has been found to be expected fairly at average on tastiness ($M = 5.02$, $SD = 1.51$).

Table 3

Mean Scores and Standard Deviations of Familiarity, Healthiness and Tastiness per Product.

	Familiarity		Healthiness		Tastiness	
	Mean	SD	Mean	SD	Mean	SD
Soy milk	7.04	2.41	6.42	1.62	5.31	2.59
Soybean sprouts	5.98	2.82	7.08	1.87	6.94	1.97
Soy sauce	7.98	1.64	4.79	1.95	7.10	2.23
Tofu	6.85	2.65	6.52	1.79	6.00	2.65
Soy granulate	4.73	3.31	5.46	1.65	4.90	2.97
Soy yoghurt	5.44	2.95	6.12	1.65	5.04	2.79
Soy oil	4.19	2.56	5.87	1.69	5.12	1.93
Temphe	3.60	2.64	5.10	2.05	5.48	2.48
Soy pudding	4.60	3.26	4.19	1.79	5.19	2.83
Soy spread	4.27	2.79	5.19	1.61	5.73	2.37
Soy margarine	3.52	2.86	4.71	1.87	4.33	2.22
Ketjap Manis	4.44	3.45	3.92	1.61	6.23	2.47
Soy flour	2.90	2.48	5.29	1.68	4.13	2.10
Soy noodles	2.52	2.29	5.15	1.57	4.81	2.29
Taho	1.58	1.53	3.54	1.54	4.73	2.26
Soy lecithin	2.85	2.74	3.87	1.94	2.94	1.93
Miso	3.33	2.81	4.48	2.04	5.19	2.70
Natto	1.75	1.86	4.58	2.16	3.31	2.21
Yuba	1.60	1.65	4.08	1.66	4.58	2.34
Soy sausage	5.52	2.95	4.31	1.87	4.60	2.75
Soy coffee	1.77	1.64	4.23	1.73	3.73	2.39
Total	4.12	1.35	5.00	1.15	5.02	1.51

Pairwise comparisons. The one-way repeated measures ANOVA showed a significant effect for perceived familiarity, $F(20,28) = 15.11$, $p < 0.001$, $\eta_p^2 = .915$. Pairwise comparisons showed that soy sauce was perceived as significantly more familiar ($M = 7.98$, $SD = 1.64$) than Miso ($M = 3.33$, $SD = 2.81$, $p < .001$), and Yuba ($M = 1.60$, $SD = 1.65$, $p < .001$). Soy milk was also perceived as significantly more familiar ($M = 7.04$, $SD = 2.41$) than Miso ($M = 3.33$, $SD = 2.81$, $p < .001$) and Yuba ($M = 1.60$, $SD = 1.65$, $p < .001$). The results also showed a significant effect for expected healthiness $F(20,28) = 5.60$, $p < 0.001$, $\eta_p^2 = .800$, and expected tastiness $F(20,28) = 12.36$, $p < 0.001$, $\eta_p^2 = .898$. Pairwise comparisons showed that soy milk was expected to be significantly healthier ($M = 6.42$, $SD = 1.62$) than Miso ($M =$

4.48, $SD = 2.04$, $p = .001$) and soy sauce was expected to be significantly tastier ($M = 7.10$, $SD = 2.23$) than Yuba ($M = 4.58$, $SD = 2.34$, $p < .001$).

A t-test was conducted to compare the mean healthiness and tastiness scores of the products. The results showed that soy sauce was expected to be tasty ($M = 7.10$, $SD = 2.23$) rather than healthy ($M = 4.79$, $SD = 1.95$), $t(47) = 6.26$, $p < .001$, whereas soy milk was expected to be healthy ($M = 6.42$, $SD = 1.62$) rather than tasty ($M = 5.31$, $SD = 2.59$), $t(47) = 3.63$, $p = .001$. Miso was expected to be as healthy ($M = 4.48$, $SD = 2.04$) as tasty ($M = 5.19$, $SD = 2.70$), $t(47) = 1.85$, *ns*. Yuba was also expected to be as healthy ($M = 4.08$, $SD = 1.66$) as tasty ($M = 4.58$, $SD = 2.34$), $t(47) = 1.32$, *ns*.

3.2.5. Discussion

Based on the results, four soy products were chosen to be used in the main study. As discussed earlier, two familiar and two unfamiliar soy products which differ in expected healthiness and tastiness amongst themselves are needed for the main study. First of all, soy milk and soy sauce were selected for the main study because they were the two most familiar soy products found in the study. In addition, soy milk had high ratings on expected healthiness only topped by soybean sprouts and tofu. However, since the two latter soy products did not reach soy milk in perceived familiarity, soy milk was chosen. Soy sauce showed the highest tastiness ratings among the products. In combination with soy sauce's high rating on perceived familiarity, it represents the perfect choice for the main study.

Although other soy products have been found showing better ratings on perceived unfamiliarity as well as expected healthiness and tastiness, Miso and Yuba were chosen as unfamiliar products for the main study. The reason is that the desired ratios between the factors among all unfamiliar products were not as clear as for the familiar products. Therefore, Yuba was chosen as unfamiliar and tasty soy product since it was second on unfamiliarity and it offered the opportunity to strengthen its average rating on expected tastiness by priming its taste attribute in the main study. The presentation of Yuba as a soy cookie and headed by a tastiness slogan was expected to increase the expected tastiness ratings. Miso was chosen as unfamiliar and healthy product. Although Miso's ratings on perceived familiarity were fairly at average, the perceived familiarity nevertheless significantly differed to its familiar counterpart, soy milk. Furthermore, it offered the opportunity to strengthen its average rating on expected healthiness by priming the health

attribute in the main study. The presentation of Miso as soy soup and headed by a healthiness slogan was expected to increase the expected healthiness ratings.

3.3. Main Study: Experiment

The purpose of the main study was to investigate how priming the familiarity and healthiness of different soy products affects product acceptance amongst neophobics and neophilics when moderated by general health interest. To check the hypotheses, an experiment was carried out to investigate whether neophobics and neophilics show a different perception of the familiarity and healthiness of soy products. It was expected that the results differ between neophobics and neophilics when general health interest is statistically controlled. The aim of the main study was to shed light on the importance of the level of food neophobia on soy acceptance.

3.3.1. Participants and Study Design

For the main study, a convenience sample of 464 German respondents was recruited by social media, e-mail and snowballing. In addition, a participant pool of the University of Twente was used to recruit further respondents. All of the respondents were naïve as to the purpose of the research and participated completely voluntarily without any rewards.

After excluding incongruous data, the final data set consisted of 327 respondents (exclusion criteria in chapter 3.3.4.), of whom 104 were male (32%) and 223 were female (68%). The participants were between 16 and 57 years of age ($M = 25.48$, $SD = 5.22$). They were randomly assigned to one of four stimulus conditions (cf. table 5) and were divided according to their level of food neophobia, leading to a 2 (food neophobia: neophobics vs. neophilics) $\times$ 2 (familiarity manipulation: familiar vs. unfamiliar) $\times$ 2 (healthiness manipulation: healthy vs. tasty) between-subjects design, with soy acceptance as dependent variable and general health interest as covariate. To ensure robustness, the sample size of each cell should at least count up to 20 (Pallant, 2010). As can be seen in table 5, this requirement has been met.

Table 5
Cross-tabulation of Level of Food Neophobia, Healthiness Manipulation and Familiarity Manipulation

	Healthy		Tasty		Total
	Familiar	Unfamiliar	Familiar	Unfamiliar	
Neophilics	35	52	43	38	168
Neophobics	31	45	52	31	159
Total	66	97	95	69	327

3.3.2. Procedure

The data were collected with the help of a digital survey distributed among the sample. The survey was carried out in May 2013 and was conducted with the help of a programmed web-based questionnaire developed with the software ‘thesistool.com’. For the study, a German translation of the questionnaire was used, realized through translation by the researcher and backtranslation by two communication experts to ensure equivalence of meaning per item (Eertmans, Victoir, Vansant & Van den Bergh, 2005). The larger part of the sample was reached by inviting them to a laboratory room where the respondents were seated in front of a computer to fill in the web-based questionnaire. The setting in a laboratory room was intended to create an environment without distractions. However, to reach enough participants for the study to be reliable, the URL was also sent to participants via e-mail and social media to be completed at the participants’ homes. The software assigned the participants randomly to one of the four stimulus conditions.

After being welcomed and presented to the general structure of the survey, the respondents were confronted with one of the four stimulus materials consisting of a picture, subbed with a slogan. The participants were instructed to have a close look at the picture and to read the accompanying slogan carefully. During the further procedure, the respondents were asked to answer questions about the dependent variables as well as about their level of food neophobia and general health interest. In the next part of the questionnaire, some socio-demographic information were enquired including age, gender and country of origin next to dietary peculiarities such as possible food intolerances and allergies or the adherence of a vegetarian or vegan diet. Finally, the respondents were thanked for their participation and a short debriefing about the purpose of the questionnaire was given. As reference, the questionnaire of one of the four conditions can be found in appendix A.

3.3.3. Stimulus Materials and Measures

Product and slogan manipulation. In the second pre-study, four products were chosen of which two were perceived familiar and two unfamiliar by participants, whereas each pair differed in expected healthiness and tastiness. The four actual products chosen for the main study were (i) soy milk as familiar and healthy product, (ii) soy sauce as familiar and tasty product, (iii) Miso as unfamiliar and healthy product and (iv) Yuba as unfamiliar and tasty product. Pictures of the products were redesigned by digitally altering them with the help of an image editing program. The aim was to create the same product experience for each

product. To achieve this goal, each picture was equipped with soy beans in the background and a product name including a short product description as well as a small slogan. While choosing pictures of the products, it was made sure that the pictures did not resemble any existing brand and did not display any packaging. By this, perceptions associated with any other products or brands as well as resulting interactions between prior beliefs and the experimental manipulation could be controlled (Pryor & Brodie, 1998). The stimulus material can be found in figure 2.



Perceived familiarity $M = 2.64$, $SD = 1.147$
Expected Healthiness $M = 3.33$ $SD = .403$



Perceived familiarity $M = 2.07$, $SD = 1.059$
Expected Healthiness $M = 3.23$ $SD = .481$



Perceived familiarity $M = 3.26$, $SD = 1.179$
Expected Healthiness $M = 2.79$ $SD = .580$



Perceived familiarity $M = 1.51$, $SD = .561$
Expected Healthiness $M = 2.99$ $SD = .568$

Figure 2. Digital Stimulus Material for the four Research Conditions: familiar/healthy (top left), unfamiliar/healthy (top right), familiar/tasty (bottom left), unfamiliar/tasty (bottom right), with Manipulation Check.

To develop similar product descriptions, it was aimed to describe the soy products with unfamiliar product names followed by a short explanation of the product. It was chosen to follow this approach because the names 'Miso' and 'Yuba' were expected to be relatively unfamiliar to the majority of consumers, whereas the names 'soy sauce' (in German: 'Sojasauce') and 'soy milk' (in German: 'Sojamilch') are self-explanatory. To create a similar product experience, soy sauce was given the name 'Kecap' whereas soy milk was given the name 'Susu kadelai'. Both names are the Indonesian equivalent to their English names.

Concerning the other two products, Miso was given the product description ‘soy soup’ (in German: ‘*Sojasuppe*’) whereas Yuba was given the description ‘soy cookie’ (in German: ‘*Sojakeks*’).

In addition to the product names and short product descriptions, each picture was subbed with a small slogan. To prime the particular product attribute per soy product, the healthy soy products were subbed with the slogan ‘the healthy choice for everybody’ (in German: ‘*die gesunde Wahl für jeden*’) whereas the tasty soy products were subbed with the slogan ‘the tasty choice for everybody’ (in German: ‘*die leckere Wahl für jeden*’).

Manipulation check. Two variables were incorporated in the questionnaire as manipulation check to verify the actual success of the manipulations. To check the familiarity manipulation, the measure *perceived familiarity* was used. For this measure 5-items, derived from the ‘*Food Choice Questionnaire*’ (Fotopoulos et al., 2009), had to be answered on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items are “*The product represents what I usually eat*” or “*I do not recognize the food*”. The items form a reliable scale ($\alpha = .893$). The responses were summed up and divided by five to construct an average index of perceived familiarity with the soy products. Higher scores indicate an overall higher perceived familiarity with the soy products. It has to be noted that the items to measure perceived familiarity included the English word ‘familiar’ which translates into two rather different meanings in German, namely ‘*bekannt*’ and ‘*vertraut*’. More precisely, ‘*bekannt*’ means something a person knows, whereas ‘*vertraut*’ translates into something a person trusts. Both words were used in separate questions for the survey.

To check the healthiness manipulation, the measure *expected healthiness* was incorporated in the questionnaire. For this measure, 12 items had to be answered on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and derived from the ‘*Food Expectancy Questionnaire*’ (Reid, Bunting & Hammersley, 2005) and the ‘*Food Choice Questionnaire*’ (Fotopoulos et al., 2009). Example items are “*The product triggers allergic reactions*” or “*The product is nutritious*”. The items form a reliable scale ($\alpha = .819$). The mean of the items was computed and used as an overall expected healthiness score ranging from 1 to 5. Higher scores indicate an overall higher expected healthiness of the soy product.

A performed MANCOVA gave evidence for the success of the manipulation stimuli. The familiarity manipulation had a significant effect on the level of perceived familiarity,

$F(1,318) = 102.75, p < .001, \eta_p^2 = .244$, while the healthiness manipulation had a significant effect on the level of expected healthiness, $F(1,318) = 43.22, p < .001, \eta_p^2 = .120$. Likewise, the familiarity manipulation had no significant effect on the level of expected healthiness, $F(1,318) < 1, ns, \eta_p^2 = .002$, and the healthiness manipulation had no significant effect on the level of perceived familiarity, $F(1,318) < 1, ns, \eta_p^2 = .001$, with the products. Summarized, the priming slogans were a successful manipulation of the level of perceived familiarity with as well as healthiness of the soy products. Furthermore, the results show that familiarity and healthiness can actually be seen as two separate scales as was supposed prior to the study.

Food neophobia. To measure the participants' level of food neophobia, a German translation of Pliner and Hobden's (1992) original Food Neophobia Scale was used. All of the original ten items were used on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items are "*If I don't know what is in a food, I won't try it*" or "*Ethnic food looks too weird to eat*". The items form a reliable scale ($\alpha = .762$). The mean of the ten items was computed to form an overall food neophobia score ranging from 1 to 5. Higher scores indicate an overall higher degree of food neophobia, categorizing the participants as food neophobics. Lower scores, on the other hand, categorize the participants as food neophilics (Pliner & Hobden, 1992).

General Health Interest. To measure the respondents' general health interest, the questionnaire included 12 items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items are "*The healthiness of food has little impact on my food choices*" or "*I always follow a healthy and balanced diet*". The items were extracted from the '*Health and Taste Attitudes Questionnaire*' as developed by Roininen et al. (1999). The items form a reliable scale ($\alpha = .788$). The mean of the items was computed and utilized as an overall score of general health interest ranging from 1 to 5. On the one hand, higher scores indicate an overall higher degree of general health interest, categorizing the participants as health-conscious. Lower scores, on the other hand, categorize the participants as taste-conscious.

Dependent measures. After a profound consideration of the available scientific literature, four dependent measures were chosen to assess product acceptance of soy-based food products. Scientific literature provided evidence that the following sub-scales constitute product acceptance: *rated pleasantness* (Fotopoulos et al., 2009; Kähkönen, 2000), *taste expectations* (Raghunathan et al., 2006; Schickenberg, 2010) *attitude towards the soy product* and *willingness to try* (Tuorila et al., 2001; van Kleef et al., 2002).

The measures *rated pleasantness*, *taste expectations* and *willingness to try* had to be answered on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An overview of these dependent measures can be found in table 6 which shows examples of the items used in the questionnaire, the amount of items used per sub-scale and the internal consistency per sub-scale. As can be seen in this table, all three dependent measures form a reliable scale. Additionally, the item *attitude towards the soy product* had to be answered on four semantic differential scales, ranging from 1 (*unpleasant*) to 5 (*pleasant*), 1 (*bad*) to 5 (*good*), 1 (*negative*) to 5 (*positive*) and 1 (*unattractive*) to 5 (*attractive*). They form a reliable scale ($\alpha = .916$). The mean of the items per sub-scale was computed and used as general index for each measure.

Table 6
Overview of the Dependent Measures of Product Acceptance of soy-based Food Products.

<i>Dependent Measures</i>	<i>N</i>	<i>Example Item(s)</i>	<i>Used Scales</i>	<i>Authors</i>	<i>Crohnbach's α</i>
Rated pleasantness	4	"My first impression of the product is that I extremely like it"	Degree of Liking Scale	(Kähkönen, 2000)	.843
		"The product looks nice"	Food Choice Questionnaire	(Fotopoulos et al., 2009)	
Taste expectations	7	"I think the product would be very tasty"		(Schickenberg, 2010)	.843
Willingness to try	4	"I think about trying the product"		(van Kleef et al., 2002)	.880

3.3.4. Data Analysis

In the questionnaire, several qualifying criteria were used to make sure that only responses from participants belonging to the target sample were included in the final data set. The qualifying criteria included possible food intolerances and allergies which could restrain participants from eating soy-based food products. Therefore, all respondents who had an intolerance or allergy against soy foods were omitted from the data set. Furthermore, participants following a restricted diet, i.e., vegetarianism or veganism, were excluded from the data set because restricted eaters were found to significantly differ from meat-eaters concerning their soy acceptance. A detailed analysis of the differences between restricted eaters and meat-eaters can be found in chapter 3.3.5., subchapter '*Personal Lifestyle Beliefs*'. In addition, unfinished questionnaires were abandoned from the data analysis. After excluding these data, a check for outliers did not find any relevant results so that no extreme data had to

be excluded from the data set. From the gathered 464 responses, 137 had to be removed due to the qualifying criteria [unfinished ($n = 55$), restricted eaters ($n = 72$) food intolerances or allergies ($n = 10$)] resulting in a final data set of 327 respondents.

The respondents were split according to their level of food neophobia. Individuals can be put into food neophobia categories according to different approaches. A standardization cannot be found in scientific literature. Schickenberg (2010) divided his sample into neophobics and neophilics by choosing the middle of the food neophobia scale whereas other researches chose the median of the sample (Dovey et al., 2008). Henriques et al. (2009) split their sample at the mean. In contrast to specific cut-off scores designating respondents as neophobics or neophilics, other researchers used an extreme-groups design which omitted respondents with average scores from the sample. For example, Tuorila, Meiselman, Bell, Cardello and Johnson (1994) only used subjects scoring from 10 to 22 (neophilics) and from 30 to 54 (neophobics) but excluded the respondents in between. A similar approach defined all subjects scoring lower than 25 as neophilics and those scoring higher than 35 as neophobics (Henriques et al., 2009). For the study at hand, the sample was split by using a median split to ensure that both groups are big and consistent enough for scientific comparison. The median split was performed at the food neophobia score 22 and resulted in two groups which can be defined as neophilics ($n = 168$) and neophobics ($n = 159$) in relation to the whole sample.

A MANOVA was performed to check the random distribution of the sample characteristics across the four soy products. The results showed that male and female participants were equally distributed across the four products, i.e., gender did not significantly differ between the four soy products, $F(1,318) = 2.07$, ns , $\eta_p^2 = .038$. In addition, the mean age did not significantly differ between the four soy products, $F(1,318) = 2.01$, ns , $\eta_p^2 = .037$. Table 7 shows an overview of the distribution of age and gender per soy product.

Table 7
Cross-tabulation for Soy Products, Gender and Age as Randomization Check.

		Soy Products				
		Miso	Soy milk	Soy sauce	Yuba	Total
Gender	male	31 (32%)	13 (20%)	39 (41%)	21 (30%)	104 (32%)
	female	66 (68%)	53 (80%)	56 (59%)	48 (70%)	223 (68%)
Total		97 (100%)	66 (100%)	95 (100%)	69 (100%)	327 (100%)
Mean Age (SD)		25.52 (3.30)	24.99 (5.85)	26.34 (7.08)	25.42 (5.25)	25.63 (5.52)

3.3.5. Results

A 3-way multivariate analysis of covariance (MANCOVA) was conducted to investigate the effects of the familiarity manipulation, the healthiness manipulation and the level of food neophobia on soy product acceptance with general health interest as covariate. Note that an alpha level of .05 was used for all statistical tests and the partial eta-squared η_p^2 was used in the analysis as a measure of effect size.

Main effects of the familiarity manipulation. The results of the MANCOVA showed significant main effects of the familiarity manipulation on all dependent measures constituting product acceptance. More specifically, the familiarity manipulation showed significant main effects on *attitude towards the product*, $F(1,318) = 15.13$, $p < .001$, $\eta_p^2 = .045$, such that a higher attitude was attached towards the familiar soy products ($M = 3.86$, $SD = .77$) rather than to the unfamiliar ones ($M = 3.53$, $SD = .79$); on *rated pleasantness*, $F(1,318) = 5.04$, $p = .025$, $\eta_p^2 = .016$, such that the familiar soy products were rated as more pleasant ($M = 3.11$, $SD = .82$) than the unfamiliar products ($M = 2.92$, $SD = .91$); and on *taste expectations*, $F(1,318) = 4.26$, $p = .040$, $\eta_p^2 = .013$, such that higher taste expectations were attached to the familiar soy products ($M = 3.41$, $SD = .69$) than to the unfamiliar ones ($M = 3.25$, $SD = .74$). In addition, a marginally significant main effect of familiarity manipulation could be found for *willingness to try*, $F(1,318) = 3.74$, $p = .054$, $\eta_p^2 = .012$, such that, surprisingly, the participants were more willing to try the unfamiliar soy products ($M = 3.90$, $SD = .98$) than the familiar ones ($M = 3.65$, $SD = 1.05$). All mean scores of the dependent measures are presented in table 8.

Table 8
Mean scores of dependent Variables per Familiarity Manipulation for the whole Sample.

	Familiar		Unfamiliar	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attitude towards product***	3.86	.77	3.53	.79
Rated Pleasantness*	3.11	.82	2.92	.91
Taste expectations*	3.41	.69	3.25	.74
Willingness to try (<i>m.s.</i> ; $p = .054$)	3.65	1.05	3.90	.98

Note. Mean scores with standard deviations. MANCOVA analysis was performed to examine significant main effects of *familiarity manipulation*. * $p < .05$. ** $p < .01$. *** $p < .001$

Main effects of the healthiness manipulation. The results of the MANCOVA showed non-significant main effects of the healthiness manipulation on all four variables constituting product acceptance, such as *attitude towards the soy products*, $F(1,318) = .093$, ns , $\eta_p^2 < .001$, *rated pleasantness*, $F(1,318) < 1$, ns , $\eta_p^2 < .001$, *taste expectations*, $F(1,318) < 1$, ns , $\eta_p^2 = .002$, and *willingness to try*, $F(1,318) < 1$, ns , $\eta_p^2 < .001$.

Main effects of the level of food neophobia. The results of the MANCOVA indicated a significant main effect stemming from the level of food neophobia on two of the four dependent measures constituting product acceptance with all mean scores higher for neophilics than for neophobics. More specifically, main effects of food neophobia have been found for *taste expectations*, $F(1,318) = 6.64$, $p = .01$, $\eta_p^2 = .020$, such that neophilics had higher taste expectations ($M = 3.43$, $SD = .68$) than neophobics ($M = 3.22$, $SD = .75$); and for *willingness to try*, $F(1,318) = 6.85$, $p = .009$, $\eta_p^2 = .021$, such that neophilics were more willing to try the soy products ($M = 3.93$, $SD = 1.02$) than neophobics ($M = 3.62$, $SD = 1.01$). The results also indicated, however, that there are non-significant main effects for *attitude towards the soy products*, $F(1,318) < 1$, ns , $\eta_p^2 = .001$, and *rated pleasantness*, $F(1,318) = 2.73$, ns , $\eta_p^2 = .009$. All mean scores of the dependent measures are presented in table 9.

Table 9

Mean Scores of dependent Variables for Neophilics and Neophobics for both Manipulations.

	Neophilics		Neophobics	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attitude towards product	3.71	.79	3.55	.83
Rated Pleasantness	3.11	.86	2.92	.87
Taste expectations**	3.43	.68	3.22	.75
Willingness to try**	3.93	1.02	3.62	1.01

Note. Mean scores with standard deviations. MANCOVA analysis was performed to examine significant main effects of *level of food neophobia*. * $p < .05$. ** $p < .01$. *** $p < .001$

Interaction effects of the level of food neophobia and the familiarity manipulation.

The results of the MANCOVA showed significant interaction effects of food neophobia and the familiarity manipulation on three of four dependent measures constituting product acceptance, such as *attitude towards the soy products*, $F(1,318) = 5.04$, $p = .025$, $\eta_p^2 = .016$, *rated pleasantness*, $F(1,318) = 6.84$, $p = .009$, $\eta_p^2 = .021$, and *taste expectations*, $F(1,318) = 4.08$, $p = .044$, $\eta_p^2 = .013$. Non-significant interaction effects could be found on the dependent measure *willingness to try*, $F(1,318) < 1$, ns , $\eta_p^2 < .001$. The mean scores of the dependent measures are presented in table 10.

Table 10

Mean scores of dependent Variables per Familiarity Manipulation for Neophilics and Neophobics.

	Familiar				Unfamiliar			
	Neophilics		Neophobics		Neophilics		Neophobics	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attitude towards product*	3.78	.83	3.94	.70	3.65	.76	3.38	.78
Rated Pleasantness**	3.08	.85	3.15	.79	3.13	.88	2.68	.89
Taste expectations*	3.43	.69	3.39	.71	3.44	.68	3.04	.74
Willingness to try	3.79	1.05	3.52	1.04	4.05	.97	3.72	.97

Note. Mean scores with standard deviations. MANCOVA analysis was performed to examine significant interaction effects of *familiarity manipulation x level of food neophobia*. * $p < .05$. ** $p < .01$.

As can be seen in figure 3a, the level of food neophobia had a significant impact on the attitude towards the soy products under the unfamiliar product condition, $F(1,318) = 4.01$, $p = .046$, $\eta_p^2 = .012$, whereas this effect could not be found for the familiar condition, $F(1,318) < 1$, *ns*, $\eta_p^2 = .004$. Pairwise comparisons showed that neophilics had a significantly better attitude towards the unfamiliar soy products ($M = 3.65$, $SD = .76$) than neophobics ($M = 3.38$, $SD = .79$, $p = .046$). Furthermore, neophobics significantly had a higher attitude towards the familiar soy products ($M = 3.94$, $SD = .71$) than to the unfamiliar ones ($M = 3.38$, $SD = .78$, $p < .001$). However, such an effect could not be found for neophilics, $F(1,318) = 1.41$, *ns*, $\eta_p^2 = .004$.

As can be seen in figure 3b, the level of food neophobia had a significant impact on rated pleasantness under the unfamiliar product condition, $F(1,318) = 9.25$, $p = .003$, $\eta_p^2 = .028$, whereas this effect could not be found for the familiar product condition, $F(1,318) < 1$, *ns*, $\eta_p^2 = .001$. Pairwise comparisons showed that neophilics rated the unfamiliar product as significantly more pleasant ($M = 3.13$, $SD = .87$) than neophobics. ($M = 2.68$, $SD = .89$, $p = .003$). Additionally, neophobics rated the familiar product as significantly more pleasant ($M = 3.15$, $SD = .79$) than the unfamiliar product ($M = 2.68$, $SD = .89$, $p = .001$). However, there was not such an effect for neophilics, $F(1,318) < 1$, *ns*, $\eta_p^2 < .001$.

The level of food neophobia had a significant impact on taste expectations under the unfamiliar product condition (figure 3c), $F(1,318) = 10.72$, $p = .001$, $\eta_p^2 = .033$, whereas this effect could not be found for the familiar product condition, $F(1,318) < 1$, *ns*, $\eta_p^2 < .001$. Pairwise comparisons showed that neophilics had significantly higher taste expectations of the unfamiliar product ($M = 3.44$, $SD = .68$) than neophobics ($M = 3.04$, $SD = .74$, $p = .001$). Additionally, neophobics showed significantly higher taste expectations for the familiar soy products ($M = 3.39$, $SD = .71$) than for the unfamiliar ones ($M = 3.04$, $SD = .74$, $p = .005$). Such effect could not be found for neophilics, $F(1,318) < 1$, *ns*, $\eta_p^2 < .001$.

Although non-significant interaction effects could be found for food neophobia and the familiarity manipulation on willingness to try, pairwise comparisons have been carried out to investigate whether willingness to try follows the same pattern as the other dependent measures (figure 3d). The results indicated a non-significant trend in the same direction as for the other dependent measures. Pairwise comparisons showed that neophilics had a higher willingness to try the unfamiliar soy products ($M = 3.93$, $SD = 1.02$) than neophobics ($M = 3.62$, $SD = 1.01$). However, the results also showed a reverse pattern for willingness to try compared to the other dependent measures as can be seen in figure 3. Although not even marginally significant effects could be found, the pattern showed that both food neophobia groups are overall more willing to try unfamiliar soy products than familiar ones. However, these results cannot be generalized due to their insignificance.

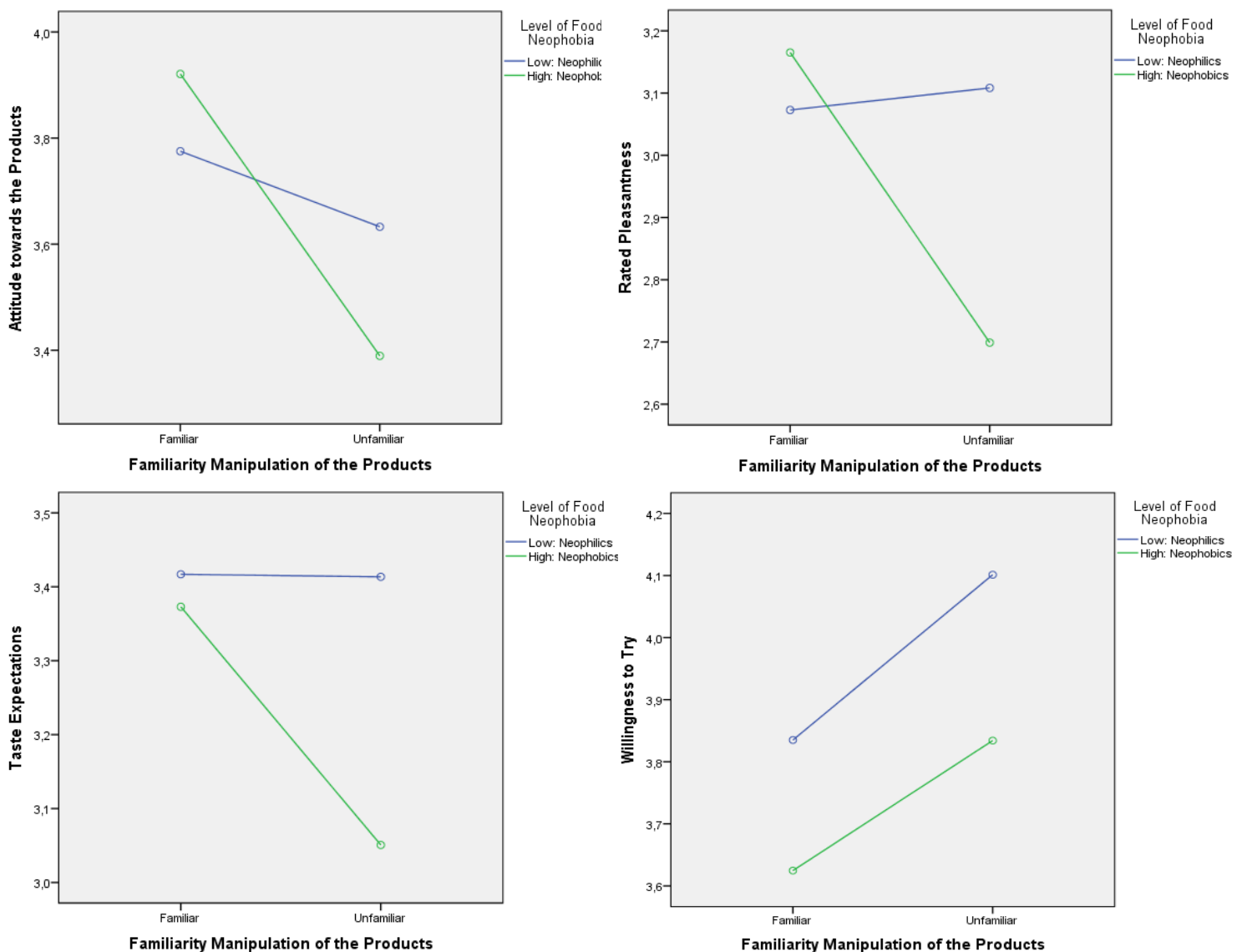


Figure 3. Interaction Effect of Level of Food Neophobia and Familiarity Manipulation on the Sub-Scales of Product Acceptance: a) Attitude towards the Product (top left) b) Rated Pleasantness (top right) c) Taste Expectations (bottom left) d) Willingness to Try (bottom right).

Interaction effects of level of food neophobia and the healthiness manipulation. The results of the MANCOVA showed no significant interaction effects of food neophobia and the healthiness manipulation on any of the dependent variables, such as *attitude towards the soy products*, $F(1,318) = 1.01$, ns , $\eta_p^2 = .003$, *perceived familiarity*, $F(1,318) < 1$, ns , $\eta_p^2 = .001$, *rated pleasantness*, $F(1,318) < 1$, ns , $\eta_p^2 = .001$, *perceived healthiness of the products*, $F(1,318) < 1$, ns , $\eta_p^2 = .001$, *taste expectations*, $F(1,318) = 1.76$, ns , $\eta_p^2 = .006$, and *willingness to try*, $F(1,318) < 1$, ns , $\eta_p^2 = .001$.

Interaction effects of the familiarity manipulation and the healthiness manipulation. The results of the MANCOVA showed non-significant interaction effects of the familiarity manipulation and the healthiness manipulation on the dependent measures *attitude towards the soy products*, $F(1,318) = 2.19$, ns , $\eta_p^2 = .007$, *rated pleasantness*, $F(1,318) < 1$, ns , $\eta_p^2 < .001$, *taste expectations*, $F(1,318) = 2.78$, ns , $\eta_p^2 = .009$, and *willingness to try*, $F(1,318) = 1.20$, ns , $\eta_p^2 = .004$.

Effects of general health interest as covariate. General health interest was chosen as covariate because the literature review had shown the possible moderating effect of this variable on the influences of the independent variables on the dependent ones. Analysis of covariance allows to analyze differences between groups while, at the same time, statistically controlling for a continuous variable, in this case general health interest (Pallant, 2010). The results of the MANCOVA indicated that the covariate had a significant effect on *willingness to try*, $F(1,318) = 11.11$, $p = .001$, $\eta_p^2 = .034$, and a marginally significant effect on the *attitude towards the soy products*, $F(1,318) = 33.61$, $p = .058$, $\eta_p^2 = .011$. However, non-significant effects could be found on *rated pleasantness*, $F(1,318) = 2.11$, ns , $\eta_p^2 = .007$, and *taste expectations*, $F(1,318) < 1$, ns , $\eta_p^2 = .001$.

To further explore the effects of general health interest on the significant dependent variables, a simple regression analysis was carried out. The results showed that *general health interest* significantly predict *willingness to try the soy products*, $b = .173$, $t(325) = 3.16$, $p = .002$. General health interest also explained a significant proportion of variance in willingness to try scores, $R^2 = .030$, $F(327,1) = 10.003$, $p = .002$. Also the MANCOVA showed a significant relationship between *general health interest* and *attitude towards the soy products*, however, the simple regression analysis did not support this result, $b = .086$, $t(325) = 1.56$, ns . The proportion of variance in attitude towards the soy products explained by general health interest was also found to be non-significant, $R^2 = .007$, $F(327,1) = 2.44$, ns . The opposed finding is probably the result of the marginal significance in the MANCOVA.

In addition to the measures conducted before, the correlation between the factor food neophobia and general health interest was investigated. The question needed to be answered whether there is a relationship between a person's level of food neophobia and the level of general health interest. It is likely that individuals with a high level of general health interest show a low level of food neophobia. Therefore, the relationship between the level of food neophobia and the level of general health interest was investigated using Pearson product-moment correlation coefficient. The results showed that there is a non-significant negative correlation between the two variables, $r = -.042$, $n = 327$, ns .

Personal lifestyle beliefs. Based on the results of the first pre-study, it is logical to discuss differences due to personal lifestyle beliefs. Personal lifestyle beliefs refer to participants' adherence to a restricted diet, i.e., vegetarianism or veganism. The first pre-study showed explicit differences in nutritional knowledge related to soy between restricted eaters and meat-eaters. The restricted eaters had more elaborate ideas about soy-based food products and, in general, knew more about soy's health benefits. Therefore, it is logical to assume that responses of participants following a restricted diet significantly differ from the responses of meat-eaters in the main study.

A performed MANOVA indeed showed a significant effect for personal lifestyle beliefs, i.e., restricted eaters vs. meat-eaters, on the four dependent measures of product acceptance, $F(6,392) = 5.03$, $p < .001$, $\eta_p^2 = .071$. More specifically, the results showed significant main effects of personal lifestyle beliefs on the *attitude towards the soy products*, $F(1,397) = 5.71$, $p = .017$, $\eta_p^2 = .014$, on *rate pleasantness*, $F(1,397) = 14.82$, $p < .001$, $\eta_p^2 = .036$, on *taste expectations*, $F(1,397) = 11.04$, $p = .001$, $\eta_p^2 = .027$, and on *willingness to try*, $F(1,397) = 9.45$, $p = .002$, $\eta_p^2 = .023$. These results indicated that there are significant effects of personal lifestyle beliefs on the acceptance of soy-based food products. The data showed that restricted eaters significantly differ from meat-eaters by having an overall higher soy acceptance rate (cf. table 11). Furthermore, significant effects of personal lifestyle beliefs on *general health interest* could be found $F(1,397) = 12.78$, $p < .001$, $\eta_p^2 = .031$, whereas non-significant effects could be found on *food neophobia* $F(1,397) < 1$, ns , $\eta_p^2 < .001$. Therefore, it can be assumed that differences in product evaluation between restricted eaters and meat-eaters are based on differences in general health interest. Restricted eaters showed an overall higher level of general health interest ($M = 3.21$, $SD = .51$) in comparison to meat-eaters ($M = 2.94$, $SD = .53$). However, restricted eaters and meat-eaters seem not to differ in their level of food neophobia.

Table 11

Mean Scores and Standard Deviations of Dependent Variables, Food Neophobia and General Health Interest per Personal Lifestyle Belief

	Restricted eaters			Meat-eaters		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Attitude towards Product*	3.95	.91	72	3.69	.79	327
Rated Pleasantness***	3.46	.93	72	3.02	.87	327
Taste Expectations**	3.65	.86	72	3.33	.72	327
Willingness to try**	4.18	.94	72	3.78	1.02	327
Food Neophobia	2.25	.55	72	2.23	.59	327
General Health Interest***	3.21	.51	72	2.94	.53	327

Note. MANOVA analysis was performed to examine significant main effects of *personal lifestyle beliefs*. * $p < .05$. ** $p < .01$. *** $p < .001$

Incorporating another factor called *restrictive eaters* in the performed MANCOVA would lead to sample sizes lower than 20 per cell and would therefore negatively affect the robustness of the design. Therefore, the responses of this group ($n = 72$) were omitted from the data set for further analysis. However, to give a deeper insight into the soy consumption of restricted eaters and meat-eaters, a 4 (product: soy milk vs. soy sauce vs. Miso vs. Yuba) $\times$ 2 (personal lifestyle belief: restricted eaters vs. meat-eaters) between-subjects design was conducted. For the purpose of comparison, the mean scores and standard deviations are presented in table 12.

Table 12

Mean Scores and Standard Deviations of Dependent Variables per Product and Personal Lifestyle Belief

		Restricted eaters			Meat-eaters		
		<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Attitude towards the Products	Miso	3.48	.96	16	3.57	.79	97
	Soy Milk*	4.23	.67	19	3.77	.79	66
	Soy Sauce	4.18	.72	23	3.92	.74	95
	Yuba	3.71	1.20	14	3.47	.77	69
Rated Pleasantness	Miso	3.22	1.04	16	2.92	.95	97
	Soy Milk**	3.71	.85	19	3.11	.81	66
	Soy Sauce*	3.55	.69	23	3.12	.83	95
	Yuba	3.23	1.19	14	2.92	.86	69
Taste Expectations	Miso	3.42	1.05	16	3.28	.76	97
	Soy Milk (<i>ms</i> , $p = .053$)	3.67	.74	19	3.30	.63	66
	Soy Sauce*	3.91	.69	23	3.49	.73	95
	Yuba	3.48	.96	14	3.21	.70	69
Willingness to Try	Miso	4.42	.39	16	3.94	.96	97
	Soy Milk	3.93	1.09	19	3.61	1.16	66
	Soy Sauce	4.10	1.12	23	3.68	.97	95
	Yuba	4.37	.83	14	3.84	1.01	69

Note. MANOVA analysis was performed to examine significant main effects of *personal lifestyle beliefs*. * $p < .05$. ** $p < .01$. *** $p < .001$

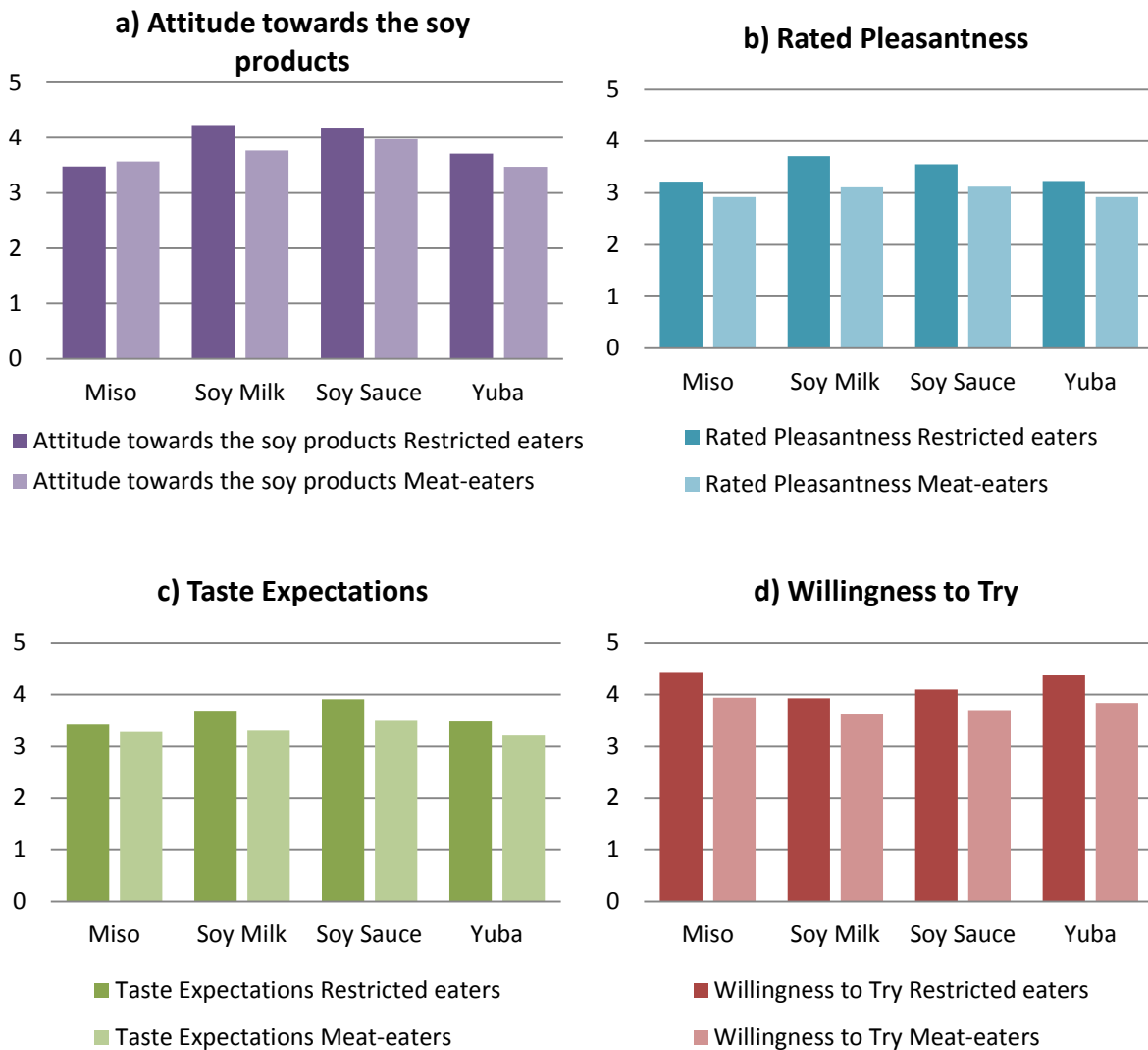


Figure 4. Bar Charts to compare Personal Lifestyle Beliefs per Soy Product for the Sub-scales of Product Acceptance.

Pairwise comparisons showed that restricted eaters had a significantly better attitude towards soy milk ($M = 4.23$, $SD = .67$) than meat-eaters ($M = 3.77$, $SD = .79$, $p = .03$). Furthermore, restricted eaters rated soy milk ($M = 3.71$, $SD = .85$) as significantly more pleasant than meat-eaters ($M = 3.11$, $SD = .81$, $p = .009$) and they rated soy sauce ($M = 3.55$, $SD = .69$) as significantly more pleasant than meat-eaters ($M = 3.12$, $SD = .83$, $p = .03$). Above that, restricted eaters showed marginally higher taste expectations of soy milk ($M = 3.67$, $SD = .74$) than meat-eaters ($M = 3.30$, $SD = .63$, $p = .05$) and they showed significantly higher taste expectations of soy sauce ($M = 3.91$, $SD = .69$) than meat-eaters ($M = 3.49$, $SD = .73$, $p = .02$). All other effects were found to be non-significant. For the non-significant effects, however, the same trend was found than for the significant effects, showing overall higher preference ratings of restricted eaters compared with meat-eaters (cf. figure 4a-d). The only deviating effect could be found for the attitude towards Miso. Restricted eaters showed a

lower attitude rating towards Miso compared to meat-eaters (cf. figure 4a). This finding drops out of the overall trend.

3.3.6. Discussion of the main study

The results of the main study supported the assumption that food neophobia influences soy consumption and showed at the same time that the level of perceived familiarity with soy products impacts soy acceptance (H_1 , H_3 and H_4). However, the findings also indicated that the level of expected healthiness of soy products does not influence soy acceptance (H_2 and H_5), whereas general health interest should be considered as possible moderator in soy acceptance (H_6).

In hypothesis 1, it was assumed that a low level of perceived familiarity with soy products influences product acceptance negatively. Indeed, a low level of perceived familiarity has been found to have a negative impact on some dependent measures constituting product acceptance regarding soy products. However, hypothesis 1 was only partially supported by the data since the mean scores for the familiar soy products were higher for only three of the four measures constituting product acceptance which was *attitude towards the soy product*, *rated pleasantness* and *taste expectations*. In contradiction to H_1 , *willingness to try* has been found to be higher for the unfamiliar products. However, this effect was only marginally.

The fourth hypothesis showed similar patterns as the first one. H_4 assumed that stressing the level of familiarity of soy products increases product acceptance particularly for neophobics in contrast to neophilics. H_4 could partially be supported. A high perceived familiarity with soy products indeed influenced neophobics' scores but only on the three measures *attitude towards the soy product*, *rated pleasantness* and *taste expectations*. Regarding these measures, neophobics rated familiar soy products higher than unfamiliar ones. In addition, neophilics showed no preference for neither familiar nor unfamiliar soy products. Overall, neophilics showed a higher preference for soy products, regardless the level of familiarity of the products, compared to neophobics. These findings indicated that the level of familiarity with soy products only has an impact on neophobics and does not affect neophilics. Neophilics showed a higher preference for soy products unaffected by their level of familiarity. Ignoring the non-significance of *willingness to try*, it is noteworthy that this variable did not even mirror the same pattern as the other dependent measures. The

participants showed a higher willingness to try of unfamiliar soy products than familiar ones as could also be found in H₁.

In hypothesis 3 it was expected that the product acceptance for the soy products is generally lower for neophobics than for neophilics. Indeed, neophobics showed lower scores on some of the measures constituting product acceptance. H₃ was only partially supported by the data since significant effects could only be found for *taste expectations* and *willingness to try*. However, these two measures can be seen as relatively important for food manufacturers. According to Verbeke (2006), *taste expectations* critically influence food choice. The researcher showed that consumers' taste expectations determine choice regarding specific food products (Verbeke, 2006). Furthermore, taste has been found to be the most important factor in food choice generally (Roininen, 2001) and in soy choice particularly (Chang et al., 2012). Regarding *willingness to try*, it is obvious that this variable is important in product acceptance. Without a certain willingness to indulge in a product, the consumption possibility diminishes. Seeing willingness to try as an intention to indulge in a food, previous research indicated that individuals form intentions which are then translated into actual behavior (Huhman et al., 2005). Although not all intentions translate into actual behavior, intentions are nevertheless a necessary first step (Petty, Brinol & Priester, 2009). Considering the importance of the significant variables, the results support the assumption that food neophobia is a crucial factor in soy acceptance and should be considered by food manufacturers.

Contrary to predictions, the healthiness manipulation did not show any significant effects leading to the rejection of hypothesis 2 and 5. H₂ proposed that product acceptance is positively influenced by a high level of expected tastiness rather than expected healthiness. On the other hand, H₅ assumed that stressing the level of tastiness in contrast to the level of healthiness increases product acceptance particularly for neophobics rather than for neophilics. The hypotheses were not supported by the data because the healthiness manipulation was found to have neither main nor interaction effects. This result leads to the conclusion that the level of perceived healthiness or the level of perceived tastiness, respectively, does not influence product acceptance of soy products.

The sixth hypothesis expected that general health interest moderates the effect of food neophobia on soy acceptance. Significant effects of general health interest have only been found for the effect of food neophobia on *willingness to try*. Therefore, the sixth hypothesis could only be partially supported. The results indicated that the effects of food neophobia on *willingness to try* can be put down to individual differences in general health interest.

Furthermore, the regression analysis showed a positive relationship of the covariate to the effect that a higher level of general health interest leads to a higher *willingness to try*. It has to be noted that contradicting results have been found for another dependent variable, *attitude towards the soy product*. In first instance, a marginally significant effect of general health interest on this dependent variable could be found. However, further investigation showed non-significant effects. It is likely that this contradiction results from the marginality of the results in first instance. Although the data only showed noteworthy effects for *willingness to try*, the moderator analysis can be seen as effective because of the importance of the particular variable as described before.

The performed manipulation check showed the effectiveness of the slogans used in the manipulation stimuli as priming cues. The slogans managed to successfully prime the healthiness or tastiness attribute of the soy products. Although, two unfamiliar soy products were chosen which did not particularly shine in neither expected tastiness nor expected healthiness, the addition of a priming slogan priming successful in increasing the products perceived familiarity or expected healthiness, respectively. Since the manipulation check was successful, the slogans can be seen as effective.

The data of the research also showed that individuals' personal lifestyle beliefs have a significant influence on soy acceptance. Restricted eaters such as vegetarians and vegans generally showed more positive preference scores for soy-based food products across all dependent measures constituting product acceptance. In addition, it has been found that restricted eaters differ from meat-eaters regarding their level of general health interest, whereas they do not show a difference regarding their level of food neophobia. These findings indicated that differences between the two consumer groups in product evaluation are based on the differences in general health interest. Restricted eaters were found to overall have a higher level of general health interest which explains the general higher acceptance ratings across all four soy products. This finding supports research carried out by Wansink and Chan (2004) who argued that a general level of health interest increases the understanding of consumption benefits of food products and likewise their acceptance.

4. General Discussion

The research at hand aimed at investigating the extent to which the level of food neophobia impacts the perception of familiarity with and healthiness of soy products in the context of soy acceptance when moderated by general health interest. In accordance with the hypotheses, the data indeed showed an influence of the level of food neophobia on soy acceptance, showing the need to divide consumers into two distinct target groups, neophobics and neophilics. While stressing the familiarity of a soy product positively influences product acceptance of neophobics, this does not influence neophilics' soy acceptance. At the same time, stressing the healthiness or tastiness of soy products does not have an impact on neither of the both consumer groups. Considering general health interest as moderator, however, should reasonably be considered by food manufacturers.

Food Neophobia and the Level of Perceived Familiarity with Soy Products. The research at hand gives evidence that the level of food neophobia plays a noteworthy role in soy acceptance. Confirming general food neophobia research (Dovey et al., 2008), neophobics have been found to show a lower level of acceptance towards soy-based food products than neophilics (H_3). This finding supports the assumption that soy is an ethnic food product. Bäckström, Pirttilä-Backman and Tuorila (2003) argued that the willingness to try ethnic foods differs between neophobics and neophilics as is supported by the study at hand.

The data also indicated that the perceived familiarity with a soy food signifies a very important factor in soy acceptance. Neophobics correspond to the level of perceived familiarity attached to soy products, preferring familiar over unfamiliar soy foods (H_4). These findings confirm the general literature on food neophobia which stresses that neophobics tend to avoid unfamiliar foods because of a certain distrust towards them (Heath et al., 2011). According to Henriques et al. (2009), neophobics show low expected-liking ratings of unfamiliar foods and are therefore more pessimistic concerning the evaluation of how they would like the products. At the same time, neophilics are not influenced by the level of perceived familiarity attached to a soy product, i.e., they show the same level of acceptance towards familiar and unfamiliar soy foods (H_4). Although scientific literature argues that neophilics intentionally seek out unfamiliar food products (e.g. Schickenberg, 2010), no research can be found which would proof that neophilics actually prefer unfamiliar foods to familiar ones (cf. Leufkens, 2012). The results of the study at hand give evidence that neophilics actually do not distinguish between unfamiliar and familiar products concerning preference.

In contradiction to H_1 and H_4 , *willingness to try* has been found to show a pattern which shows the opposite direction than the other three dependent variables constituting product acceptance. In contrast to the remaining variables, both food neophobia groups show a higher *willingness to try* unfamiliar than familiar soy products. For neophilics, this finding would contradict the conclusion that they do not favor neither unfamiliar nor familiar soy products. However, it could make sense by arguing that neophilics always try to seek out unfamiliar foods to satisfy their need of adventure (Veeck, 2010) and, therefore, probably prefer trying unfamiliar products to familiar ones. However, the findings do not make sense for neophobics since they naturally avoid unfamiliar food products (Veeck, 2010). Research carried out by Schickenberg (2010) could be used as explanation for the findings on *willingness to try*. The researcher argued that consumers do not actually fear to taste food products in a laboratory study and therefore rate products higher on *intention to try*. This could explain the findings on *willingness to try* in the study at hand, giving participants more confidence in the light of not actually having the possibility to really consume the products. However, since the results were only marginally for H_1 and non-significant for H_4 , it is supposed that the particular dependent variable does not add valuable information to the study.

The Level of Expected Healthiness of the Soy Products. Contrary to expectations, the main study showed no significant effects of the healthiness manipulation. Therefore, stressing the level of healthiness or tastiness, respectively, does not influence soy acceptance for neither neophobics nor neophilics. The result of this finding leads to the conclusion that attaching health or taste claims to a soy product for promotional purposes is not effective and, therefore, no money should be invested into it. The completely neutral reaction of the respondents to the healthiness manipulation is in contradiction to research about the ‘unhealthy = tasty intuition’ which supports the assumption that negative taste perceptions are attached to healthy food products (Raghunathan et al., 2006). In other words, illustrating soy foods as healthy products, like in the study at hand, should lead to a more negative perceived taste and likewise to a lower acceptance rate (H_2). Or the other way around, stressing the tastiness of soy foods, like in the study at hand, should lead to a more positive perceived taste and likewise to a higher acceptance rate (H_2). This hypothesis, however, could not be supported by the study at hand.

A possible explanation of the findings concerning the ineffectiveness of the healthiness manipulation was given by Wansink et al. (2000). The researchers hypothesized

that the combination of soy labels and health claims reduce skepticism and negative perceptions that might result from using the claims separately, leading to neutral consumer reactions (Wansink et al., 2000). They found that soy labels have a negative impact on taste perceptions but that they also decrease skepticism towards health claims. From these findings, Wansink et al. (2000) concluded that using both kinds of labels would neutralize negative attitudes resulting from the usage of either alone. For this conclusion, however, they did not deliver scientific evidence. Following Wansink's et al. (2000) argumentation, the ineffectiveness of the healthiness manipulation in the main study could be explained by the usage of both soy and health claims leading to neutral reactions to the initial healthiness manipulation. Since this argumentation is quite vague, it is more likely that the particular design of the manipulation stimuli in the main study reasons the ineffectiveness of the healthiness manipulation.

The literature review described several studies which found evidence for the importance of expected healthiness and tastiness in soy acceptance, which was also supported by the first pre-study. Therefore, it is likely that the design of the manipulation in the main study is responsible for the non-existence of effects. As also argued by Granato, Branco, Nazzaro, Cruz and Faria (2010), many different factors play a role in the usage of health and taste claims. If the claims are not used properly, it will just not show any consequences (Granato et al., 2010). In addition, the portrayed pictures of the soy products could be the reason for the ineffectiveness of the healthiness manipulation. Because the study at hand used both savory and sweet soy products, it is possible that the different flavors led to differences in preference ratings. A follow-up study should focus on one of the two flavors. Considering these problems in the study design, it is recommendable to not only present soy products as familiar as possible but also maximize the level of perceived tastiness. Although the study at hand did not find any effects of the healthiness manipulation, it would be wise to include the findings of previous studies about the importance of tastiness and healthiness in soy acceptance.

Having a closer look at the manipulation check, it becomes clear that the only effect of the level of healthiness is on *expected healthiness* of the soy products. This variable was only included to check the actual effectiveness of the manipulation. However, it also shows that health and taste claims probably do not influence product acceptance of soy foods but do influence health or taste perceptions of these particular products. In other words, by using health or taste claims, food manufacturers could convince consumers of the actual healthiness

or tastiness, respectively, of soy products. However, this does not necessarily influence the consumers' *willingness to buy* the products.

General Health Interest. The results of the main study indicated that differences of the level of food neophobia and *willingness to try* can be put down to individuals' differences in general health interest. Therefore, general health interest should be considered by food manufacturers as a possible factor in soy acceptance. The findings of the main study showed that a high level of general health interest, i.e., health-consciousness, positively influences *willingness to try* the soy products. In other words, health-conscious consumers are more likely to be willing to try soy products than taste-conscious ones. The findings support research arguing that health-conscious consumers generally eat more soy products than taste-oriented individuals (Schyver & Smith, 2005). In addition, the results match the findings of the first pre-study which showed a higher soy consumption rate of restricted eaters than meat-eaters due to the former's more elaborate nutritional knowledge leading to a certain health-consciousness. Furthermore, the effect of the covariate defends the consumer segmentation in health- and taste-conscious individuals as supposed by Wansink (2003) and Chang et al. (2012).

It is further noteworthy that no correlation between a person's level of food neophobia and the level of general health interest could be found. Although it is logical to assume that individuals with a high level of general health interest, in other words health-conscious people, show a low level of food neophobia due to profound knowledge about health attributes of foods, no correlation could be detected. This result supports the findings about the ineffectiveness of the healthiness manipulation as discussed before.

Personal lifestyle beliefs. As the first pre-study as well as the main study indicated, soy consumers need to be divided into meat-eaters and restricted eaters. Pre-study 1 showed that restricted eaters overall have more elaborated ideas about soy and soy-based food products. They show a deeper nutritional knowledge of soy foods. These findings were supported by the main study. The results of the main study showed significant differences in soy acceptance between meat-eaters and restricted eaters. Overall, restricted eaters were found to have higher preference ratings for all soy products than meat-eaters. These findings support research carried out by Schyver and Smith (2005) who argued that vegetarians generally show a higher soy food consumption than other individuals. Furthermore, the findings indicated that restricted eaters show a higher health-consciousness than meat-eaters, whereas they do not differ from meat-eaters concerning their level of food neophobia. Therefore, it is likely that

the differences in general health interest are responsible for the differences in soy acceptance. These differences between restricted eaters and meat-eaters suggest that there is a higher potential for food manufacturers to win over meat-eaters. Restricted eaters are already convinced by the healthiness of soy products and show therefore a higher consumption frequency. To the contrary, meat-eaters need to be introduced to the consumption benefits of soy foods to increase their consumption.

Slogans as priming cues. The slogans used for the manipulation stimuli were found to be effective cues which prime either perceived healthiness or tastiness. In other words, slogans can be seen as successful in priming specific attributes of a certain soy product, also supporting research carried out by Boush (1993). The content of a slogan has been found to be important for the effectiveness of its manipulation (Pryor & Brodie, 1998). Pryor and Brodie (1998) argued that a focus of slogan content on either abstract or tangible attributes leads to differences in effectiveness. The researchers argued that a tangible attribute (e.g., spicy) is more effective than an abstract one (e.g., quality) (Pryor & Brodie, 1998). In contrast to the study carried out by Pryor and Brodie (1998), the slogans used in the study at hand can be donated as effective, although they primed abstract attributes. This finding shows that there has to be more factors than only the type of content which influence the effectiveness of slogans.

To sum up, the results reported in the paper at hand allow to verify four of the six hypotheses of the study: it has been confirmed that food neophobia plays a crucial role in soy acceptance due to its status as ethnic food product. Food neophobics and neophilics show different acceptance ratings towards soy products. As expected, neophobics show a lower soy acceptance than neophilics. Above that, they are influenced by the perceived familiarity of a particular soy product, showing higher preference ratings for familiar than unfamiliar soy foods. In contrast, neophilics are not influenced by the level of perceived familiarity with soy products but show overall higher acceptance ratings for soy products. The results suggest that an enhancement of the level of familiarity of soy products seem to work for neophobic individuals, whereas they do not seem to work for neophilics. Furthermore, health-consciousness should be considered as moderator in the relationship between food neophobia and soy acceptance. The remaining two hypotheses are rejected, showing the ineffectiveness of health claims for an improvement of product acceptance.

4.1. Marketing Implications

With respect to practical implications, the results are promising for food manufacturers and marketers insofar that they provide practical guidelines for the effective positioning of soy products. First of all, the results support the necessity to divide soy consumers according to their level of food neophobia. Food neophobics and neophilics show different preferences in soy consumption. Shaping subgroups on the basis of the level of food neophobia can be beneficial for an effective targeting through individually adjusted marketing measures (Hoek, Luning, Stafleu & de Graaf, 2004). Put differently, food neophobia has to be regarded as an important barrier in the market place and marketers should take this factor into account when trying to introduce new products.

Neophobic consumers show significant reactions to the manipulation of perceived familiarity with soy products, whereas neophilics do not prefer neither familiar nor unfamiliar soy products. Neophilics show an overall higher product acceptance of soy foods. It is therefore necessary to focus on food neophobics by stressing the familiarity of specific soy-based food products. Increasing perceived familiarity of otherwise unfamiliar soy products would lead to a higher soy acceptance of the neophobic consumer group. For neophilics, on the other hand, stressing the level of perceived familiarity would not lead to a higher product acceptance but would also not decrease it since, as shown in the study at hand, they do not have a preference for unfamiliar or familiar soy products. Therefore, it is recommended to heighten the level of perceived familiarity of soy foods to increase product acceptance of neophobics. By following this recommendation, the communication gap between neophilics and neophobics can be filled.

Increasing the level of perceived familiarity of soy products can be achieved by different means, such as giving preparation instructions, taste comparisons (e.g., “tastes like cheese”) or packaging alterations (cf. Tuorila et al., 1994). All of this should be done with the goal to increase the resemblance with existing and familiar products. Also, an increased frequency of promotional activities could be beneficial to increase perceived familiarity with specific soy foods. A mere exposure effect resulting from a higher consumer exposure due to more frequent promotional activities would lead to an increased level of familiarity with soy products (Heath et al., 2011). It has been found that food neophobic behavior can be reduced by exposure to novel foods (Pliner, Pelchat & Grabski, 1993). Following this argumentation, the addition of familiarity to otherwise unfamiliar soy products could lead to a higher soy product acceptance of neophobics while having a neutral effect on neophilics’ soy acceptance.

To increase the overall level of soy acceptance and therefore also effecting neophilics' soy preferences, a commercial marketing strategy would not sufficiently be successful. In contrast, a public information campaign would be necessary to influence the overall consumer attitude towards healthy nutrition. Increasing nutritional knowledge about soy's health benefits while, at the same time, supporting the need of a healthier lifestyle, could lead to an overall increase of soy consumption by both neophobics and neophilics. Following research conducted by Chang et al. (2012), a certain level of nutritional knowledge is beneficial for soy acceptance and should therefore be accelerated. This assumption also resonates with the findings of the first pre-study which showed that consumers with a higher level of nutritional knowledge, like restricted eaters, have a higher soy consumption. It was also found that meat-eaters and restricted eaters differ concerning their soy acceptance because of a higher health-consciousness of restricted eaters. In contrast to restricted eaters, the rest of the sample population is still undereducated concerning soy products and does not know about the particular health attributes of soy. A public information campaign would thus be helpful to change this undereducation. In addition, educating consumers to be more health-conscious would take into consideration the effects of general health interest as covariate.

4.2. Limitations and further research

It is crucial to keep in mind that the study at hand did not involve the cultural factor of food choice and consumption. The main study was carried out in Germany and should not be generalized to other cultures (Meiselman & Schutz, 2003). This is also supported by the findings of pre-study 1 which showed cross-cultural differences in soy consumption, especially between European and East Asian countries (Johns et al., 2011). The differences in soy consumption were found especially between countries who traditionally consume soy and those which are rather unfamiliar with soy-based foods. In addition, scientific research argued that there is a relationship between food neophobia and culture (cf. Johns et al., 2011; Tu et al., 2012; Wansink, 2003). Certainly, the consumption of soy differs between countries due to factors such as perceived familiarity and traditionalism. Although the influence of culture on soy consumption has been investigated already (cf. Tu et al., 2012; Tuorila et al., 2001), further research should look deeper into culture as a moderator in the relationship of food neophobia and soy consumption.

Previous research suggested that a generalization across food categories can be complicated. Similar to cross-cultural differences, differences across food categories are likely (Barrena & Sanchez, 2013). Therefore it is reasonable to assume that the categories of

soy products which were chosen for the main study could also have an influence on the results. The used products were milk, sauce, cookies and soup. It is likely that different preferences exist for the different food categories independent from them being made from soy. For example, the soy milk could be associated with animal milk evoking a relation to an animal origin. Martins and Pliner (2005) found that food neophobic behavior is generally higher for products originating from animals. Additionally, the products did not match the same flavor, being partly savory and partly sweet. This difference in flavor could also be responsible for the difference in acceptance ratings. Therefore, further research should be carried out to get an overview of possible influences of food categories and to check applicability of the findings to other categories of soy products.

Although no unexplainable results in relation to the soy product Yuba have been found, it is noteworthy that some respondents of the questionnaire criticized the picture illustrating Yuba in the manipulation stimulus. Some participants mentioned that they perceive the Yuba picture as synthetic. The reason for this reaction could be that the picture of the soy product Yuba has been revised with the help of an image editing program. Strawberries and soy beans were added. Probably, the quality of the editing was not sufficient enough and the product was therefore perceived by the respondent as synthetic. In case the research at hand will be replicated, this problem needs to be considered carefully.

Focusing on the external validity of the study at hand, some weaknesses can be encountered. First of all, the main study was carried out in a laboratory setting. Whilst ensuring that no distraction possibilities would influence the participants' answers on the questionnaire, the experiment did not imitate a realistic consumer situation because it did not occur in a realistic setting like in a store. Secondly, due to the laboratory setting which was based on a modeled situation, the consumers were not able to make personal in-store experiences with the products. A realistic in-store situation would provide multisensory cues which would impact the decision making process in a different way than a laboratory setting (Becker, van Rompay, Schifferstein & Galetzka, 2011). In addition, the laboratory setting added a certain safety to the situation which would have not been present in a more realistic study. In other words, the respondents did not have to fear actual taste of the products. Schickenberg (2010) argued that this fictitious safety could increase scores on factors such as *willingness to try* because respondents are braver in a laboratory setting. Further research is needed to assess how closely the experiences evoked by the manipulation stimuli match reality.

The main study showed the soy products unpackaged and prepared for consumption. In a real consumer setting, however, the products would be offered in a package. Put differently, during the first encounter between consumers and soy products, these products would be packaged. Since packaging is a strong means to influence consumption behavior (Wansink, van Ittersum & Painter, 2005), it would be crucial to carry out research investigating whether the results found in the study at hand would be the same for packaged products. As recommended before, the packaging could be used to increase the perceived familiarity of the particular soy products. Research is needed to find proper packaging which would positively impact the perceived familiarity of the soy product of interest.

The preliminary analysis of the main study showed significant differences between different personal lifestyle beliefs. Restricted eaters, i.e., vegetarians and vegans, differ significantly in their preference scores. For more in-depth research on the differences between restricted eaters and meat-eaters, the number of participants following a restricted diet was too small in the study at hand. Further research should specifically investigate consumption behavior of restricted eaters to be able to perform a comparison between personal lifestyle beliefs. In accordance with current research (Kim et al., 2010), however, the applicability of the food neophobia scale for individuals following a restricted diet should be considered. Some of the items used in the FNS are too general for vegetarians and vegans, such as the item *“I will eat almost anything”* (Kim et al., 2010). Taking this item as example, vegetarians and vegans might be willing to try an unfamiliar product but would nevertheless answer negatively to this question since they avoid several food categories. Some of the respondents following a restricted diet stated that they were not sure how to answer to these ambiguous questions. Therefore, replication studies should use one of the shortened versions of the FNS which has been shown valid by Knaapila et al. (2007) and Henriques et al. (2009). Excluding the items which are ambiguous for restricted eaters would make the FNS more valid for this particular consumer group.

Another aspect that has to be considered is that the amount of restricted eaters ($n = 72$) in this study in relation to meat-eaters ($n = 327$) is larger than it is in the overall German population. A percentage of 3.3% of the German population is considered to be restricted eaters (Heinrich Böll Stiftung, BUND & Le Monde diplomatique, 2013). In the study at hand, however, 18% of the sample was restricted eaters. Therefore, the relation between restricted eaters and meat-eaters cannot be regarded as comparable to the overall German population since there is an obvious overrepresentation of restricted eaters. A generalization of the results

found in the comparison of soy acceptance between restricted eaters and meat-eaters should therefore be treated with caution.

Having a closer look at the used slogans in the main study, research argued that consumers perceive slogans as persuasion attempts carried out by marketers. This perception results in no or even reversed behavioral effects, sometimes leading to resistant consumers (Laran, Dalton & Andrade, 2011). It would have been reasonable to include a funneled debriefing at the end of the questionnaire to check the respondents' suspiciousness regarding the marketing manipulations. Such a debriefing would have been helpful to detect possible influences of perceived persuasion (Custers & Aarts, 2007). It is recommended to include such a funneled debriefing in replicate or follow-up studies.

The results of pre-study 1 indicated that there are potential age differences in soy acceptance. The younger the interviewees, the more elaborate knowledge they had about soy and soy-based food products. However, the main study of this research did not investigate potential age differences in soy acceptance. A check of age differences was not conducted because a large proportion of the sample was drawn from a participant pool of a university which means that the sample is overall quit young and well-educated. Future research should draw a better balanced sample concerning age and compare age groups concerning their soy acceptance.

Another aspect that needs to be considered in future research is the division of consumers into the two food neophobia categories, neophobics and neophilics. The study at hand used a median split to ensure that both groups are big enough for scientific comparison. However, future studies should focus on having a bigger sample so that a split according to Henriques, King and Meiselman (2009) could be conducted. These researches defined all subjects scoring lower than 25 as neophilics and those scoring higher than 35 as neophobics, excluding the subjects in-between. Such an approach would lead to a more extreme classification of neophobics and neophilics and likewise to clearer differences in preference ratings since the more neutral subjects are not considered in comparisons. This approach would probably also lead to significant results of the healthiness manipulation.

The interviews of pre-study 1 showed different consumer perceptions of soy in Asian cuisine. Western consumers seem to attach a different attitude to soy in Asian cuisine than to soy in their own cuisine. Further research should investigate whether different influence or

different acceptance patterns can be investigated between soy in Asian or Western cuisine, respectively.

4.3. Conclusions

The study at hand has provided further evidence about how the level of food neophobia influences the product acceptance of soy-based food products. Food neophobics and neophilics differ significantly in their reactions to soy-based food products. While neophobics prefer familiar soy products over unfamiliar ones, neophilics do not show a difference in product acceptance between these two categories. Furthermore, neophilics show in general a higher soy acceptance than neophobics. To increase preference ratings for the latter, familiarity has to be added to otherwise unfamiliar products by developing an effective commercial marketing campaign. However such a campaign would not influence soy acceptance of neophilics since these consumers have been found to not react to the familiarity level of soy foods. The overall level of soy acceptance could possibly be increased by enhancing the nutritional knowledge about soy's health benefits while, at the same time, supporting the need of a healthier lifestyle. For the purpose of increasing overall soy product acceptance for both food neophobia groups, a public information campaign would be necessary.

Acknowledgements. I would like to thank Natalie Moschner, Marie-Theres Hermes and Mariana Leytón Escóbar for proof reading this thesis as well as Dirk Schuster for his contribution to the data collection. Further, I would like to thank my family for their permanent support. Special thanks go to my supervisors, Dr. Anna Fenko and Dr. Joris J. van Hoof, for their professional encouragement and their constant stream of ideas.

5. References

- Aarts, H. (2007). Health and goal-directed behavior: The nonconscious regulation and motivation of goals and their pursuit. *Health Psychology Review*, 1(1), 53-82.
- Bäckström, A., Pirttilä-Backman, A.-M., & Tuorila, H. (2003). Dimensions of novelty: a social representation approach to new foods. *Appetite*, 40(3), 299-307.
- Barrena, R., & Sanchez, M. (2013). Neophobia, personal consumer values and novel food acceptance. *Food Quality and Preference*, 27(1), 72-84.
- Becker, L., van Rompay, T. J. L., Schifferstein, H. N. J., & Galetzka, M. (2011). Tough package, strong taste: The influence of packaging design on taste impressions and product evaluations. *Food Quality and Preference*, 22(1), 17-23.
- Boeije, H. (2002). A Purposeful Approach to the Constant Comparative Method in the Analysis of Qualitative Interviews. *Quality and Quantity*, 36(4), 391-409. doi: 10.1023/A:1020909529486
- Boush, D. M. (1993). How advertising slogans can prime evaluations of brand extensions. *Psychology and Marketing*, 10(1), 67-78.
- Chang, J. B., Moon, W., & Balasubramanian, S. K. (2012). Consumer valuation of health attributes for soy-based food: A choice modeling approach. *Food Policy*, 37(3), 335-342. doi: <http://dx.doi.org/10.1016/j.foodpol.2012.03.001>
- Choe, J. Y., & Cho, M. S. (2011). Food neophobia and willingness to try non-traditional foods for Koreans. *Food Quality and Preference*, 22(7), 671-677.
- Cooke, L. J., Haworth, C. M., & Wardle, J. (2007). Genetic and environmental influences on children's food neophobia. *The American journal of clinical nutrition*, 86(2), 428-433.
- Costell, E., Tárrega, A., & Bayarri, S. (2010). Food acceptance: the role of consumer perception and attitudes. *Chemosensory Perception*, 3(1), 42-50.
- Custers, R., & Aarts, H. (2007). In search of the nonconscious sources of goal pursuit: Accessibility and positive affective valence of the goal state. *Journal of Experimental Social Psychology*, 43(2), 312-318.
- de Barcellos, M. D., Aguiar, L. K., Ferreira, G. C., & Vieira, L. M. (2009). Willingness to try innovative food products: a comparison between British and Brazilian consumers. *BAR. Brazilian Administration Review*, 6(1), 50-61.
- Dijksterhuis, A., Smith, P. K., van Baaren, R. B., & Wigboldus, D. H. J. (2005). The Unconscious Consumer: Effects of Environment on Consumer Behavior. *Journal of Consumer Psychology*, 15(3), 193-202.
- Dovey, T. M., Staples, P. A., Gibson, E. L., & Halford, J. C. (2008). Food neophobia and 'picky/fussy' eating in children: a review. *Appetite*, 50(2-3), 181-193.

- Downs, C. W., & Adrian, A. D. (2004). *Assessing Organizational Communication: Strategic Communication Audits*. New York: The Guilford Press.
- Eertmans, A., Victoir, A., Vansant, G., & Van den Bergh, O. (2005). Food-related personality traits, food choice motives and food intake: Mediator and moderator relationships. *Food Quality and Preference*, 16(8), 714-726.
- Flight, I., Leppard, P., & Cox, D. N. (2003). Food neophobia and associations with cultural diversity and socio-economic status amongst rural and urban Australian adolescents. *Appetite*, 41(1), 51-59.
- Fotopoulos, C., Krystallis, A., Vassallo, M., & Pagiaslis, A. (2009). Food Choice Questionnaire (FCQ) revisited. Suggestions for the development of an enhanced general food motivation model. *Appetite*, 52(1), 199-208.
- Genta, H. D., Genta, M. L., Álvarez, N. V., & Santana, M. S. (2002). Production and acceptance of a soy candy. *Journal of Food Engineering*, 53(2), 199-202. doi: [http://dx.doi.org/10.1016/S0260-8774\(01\)00157-1](http://dx.doi.org/10.1016/S0260-8774(01)00157-1)
- Granato, D., Branco, G. F., Nazzaro, F., Cruz, A. G., & Faria, J. A. F. (2010). Functional Foods and Nondairy Probiotic Food Development: Trends, Concepts, and Products. *Comprehensive Reviews in Food Science and Food Safety*, 9(3), 292-302. doi: 10.1111/j.1541-4337.2010.00110.x
- Heath, P., Houston-Price, C., & Kennedy, O. B. (2011). Increasing food familiarity without the tears. A role for visual exposure? *Appetite*, 57(3), 832-838. doi: <http://dx.doi.org/10.1016/j.appet.2011.05.315>
- Heinrich Böll Stiftung, BUND, & Le Monde diplomatique. (2013). *Fleischatlas: Daten und Fakten über Tiere als Nahrungsmittel*. Retrieved from <http://www.boell.de/fleischatlas>
- Henriques, A. S., King, S. C., & Meiselman, H. L. (2009). Consumer segmentation based on food neophobia and its application to product development. *Food Quality and Preference*, 20(2), 83-91.
- Hoek, A. C., Luning, P. A., Stafleu, A., & de Graaf, C. (2004). Food-related lifestyle and health attitudes of Dutch vegetarians, non-vegetarian consumers of meat substitutes, and meat consumers. *Appetite*, 42(3), 265-272.
- Hoek, A. C., Luning, P. A., Weijzen, P., Engels, W., Kok, F. J., & de Graaf, C. (2011). Replacement of meat by meat substitutes. A survey on person- and product-related factors in consumer acceptance. *Appetite*, 56(3), 662-673.
- Huhman, M., Potter, L. D., Wong, F. L., Banspach, S. W., Duke, J. C., & Heitzler, C. D. (2005). Effects of a Mass Media Campaign to Increase Physical Activity Among Children: Year-1 Results of the VERB Campaign. *Pediatrics*, 116(2), e277-e284.
- Johns, N., Edwards, J. S., & Hartwell, H. (2011). Food neophobia and the adoption of new food products. *Nutrition & Food Science*, 41(3), 201-209.

- Jones, V. S., Drake, M. A., Harding, R., & Kuhn-Sherlock, B. (2008). Consumer Perception of Soy and Dairy Products: A Cross-cultural Study. *Journal of Sensory Studies*, 23(1), 65-79. doi: 10.1111/j.1745-459X.2007.00142.x
- Kähkönen, P. (2000). *Consumer Acceptance of Reduced-Fat Foods - The Effects of Product Information*. PhD Thesis, University of Helsinki, Helsinki. Retrieved from <http://ethesis.helsinki.fi/julkaisut/maa/elint/vk/kahkonen/>
- Keller, K. L., Sternthal, B., & Tybout, A. (2002). Three questions you need to ask about your brand. *Harvard Business Review*, 80(9), 80-89.
- Kim, Y. G., Suh, B. W., & Eves, A. (2010). The relationships between food-related personality traits, satisfaction, and loyalty among visitors attending food events and festivals. *International Journal of Hospitality Management*, 29(2), 216-226.
- Knaapila, A., Tuorila, H., Silventoinen, K., Keskitalo, K., Kallela, M., Wessman, M., . . . Perola, M. (2007). Food neophobia shows heritable variation in humans. *Physiology & Behavior*, 91(5), 573-578.
- Kohli, C., Leuthesser, L., & Suri, R. (2007). Got slogan? Guidelines for creating effective slogans. *Business Horizons*, 50(5), 415-422.
- Kohli, C., & Suri, R. (2002). Creating effective logos: Insights from theory and practice. *Business Horizons*, 45(3), 58-64.
- Laran, J., Dalton, A. N., & Andrade, E. B. (2011). The Curious Case of Behavioral Backlash: Why Brands Produce Priming Effects and Slogans Produce Reverse Priming Effects. *Journal of Consumer Research*, 37(6), 999-1014.
- Leufkens, J.-M. (2012). *Tackling food neophobia - Investigation of a mixed slogan approach to facilitate the introduction of unknown food products*. Master thesis, University of Twente, Enschede. Retrieved from <http://essay.utwente.nl/62147/>
- Martins, Y., & Pliner, P. (2005). Human food choices: An examination of the factors underlying acceptance/rejection of novel and familiar animal and nonanimal foods. *Appetite*, 45(3), 214-224.
- Meiselman, H. L., & Schutz, H. G. (2003). History of food acceptance research in the US Army. *Appetite*, 40(3), 199-216.
- Moon, W., Balasubramanian, S. K., & Rimal, A. (2005). Perceived Health Benefits and Soy Consumption Behavior: Two-Stage Decision Model Approach.
- Mustonen, S., & Tuorila, H. (2010). Sensory education decreases food neophobia score and encourages trying unfamiliar foods in 8–12-year-old children. *Food Quality and Preference*, 21(4), 353-360. doi: <http://dx.doi.org/10.1016/j.foodqual.2009.09.001>
- Palacios, O. M., Badran, J., Drake, M. A., Reisner, M., & Moskowitz, H. R. (2009). Consumer Acceptance of Cow's Milk versus Soy Beverages: Impact of Ethnicity, Lactose Tolerance and Sensory Preferences Segmentation *Journal of Sensory Studies*, 24(5), 731-748. doi: 10.1111/j.1745-459X.2009.00236.x

- Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS*: Open University Press.
- Petty, R. E., Brinol, P., & Priester, J. R. (2009). Mass media attitude change. Implications of the Elaboration Likelihood Model of Persuasion. In J. Brynat (Ed.), *Media Effects* (3rd ed., pp. 125-164). New York: Routledge.
- Pliner, P., & Hobden, K. (1992). Development of a scale to measure the trait of food neophobia in humans. *Appetite*, 19(2), 105-120. doi: [http://dx.doi.org/10.1016/0195-6663\(92\)90014-W](http://dx.doi.org/10.1016/0195-6663(92)90014-W)
- Pliner, P., & Melo, N. (1997). Food Neophobia in Humans: Effects of Manipulated Arousal and Individual Differences in Sensation Seeking. *Physiology & Behavior*, 61(2), 331-335. doi: [http://dx.doi.org/10.1016/S0031-9384\(96\)00406-4](http://dx.doi.org/10.1016/S0031-9384(96)00406-4)
- Pliner, P., Pelchat, M., & Grabski, M. (1993). Reduction of neophobia in humans by exposure to novel foods. *Appetite*, 20(2), 111-123.
- Pryor, K., & Brodie, R. J. (1998). How advertising slogans can prime evaluations of brand extensions: further empirical results. *Journal of Product and Brand Management*, 7(6), 497-508.
- Raghunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The Unhealthy = Tasty Intuition and Its Effects on Taste Inferences, Enjoyment, and Choice of Food Products. *Journal of Marketing*, 70(4), 170-184.
- Rah, J. H., Hasler, C. M., Painter, J. E., & Chapman-Novakofski, K. M. (2004). Applying the Theory of Planned Behavior to Women's Behavioral Attitudes on and Consumption of Soy Products. *Journal of Nutrition Education and Behavior*, 36(5), 238-244. doi: [http://dx.doi.org/10.1016/S1499-4046\(06\)60386-2](http://dx.doi.org/10.1016/S1499-4046(06)60386-2)
- Reid, M., Bunting, J., & Hammersley, R. (2005). Relationships between the food expectancy questionnaire (FEQ) and the food frequency questionnaire (FFQ). *Appetite*, 45(2), 127-136.
- Roininen, K. (2001). *Evaluation of Food Choice Behavior: Development and Validation of Health and Taste Attitude Scales*. Phd Thesis, University of Helsinki, Helsinki. Retrieved from <http://ethesis.helsinki.fi/julkaisut/maa/elint/vk/roininen/>
- Roininen, K., Lähteenmäki, L., & Tuorila, H. (1999). Quantification of consumer attitudes to health and hedonic characteristics of foods. *Appetite*, 33(1), 71-88.
- Schickenberg, B. (2010). *Towards strategies to stimulate first time trial of unfamiliar healthful food products*. PhD Thesis, Maastricht University, Maastricht, The Netherlands.
- Schyver, T., & Smith, C. (2005). Reported attitudes and beliefs toward soy food consumption of soy consumers versus nonconsumers in natural foods or mainstream grocery stores. *Journal of Nutrition Education and Behavior*, 37(6), 292-299.

- Steptoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: the food choice questionnaire. *Appetite*, 25(3), 267-284.
- Tu, V. P., Husson, F., Sutan, A., Ha, D. T., & Valentin, D. (2012). For me the taste of soy is not a barrier to its consumption. And how about you? *Appetite*, 58(3), 914-921. doi: <http://dx.doi.org/10.1016/j.appet.2012.01.023>
- Tuorila, H., Lähteenmäki, L., Pohjalainen, L., & Lotti, L. (2001). Food neophobia among the Finns and related responses to familiar and unfamiliar foods. *Food Quality and Preference*, 12(1), 29-37. doi: [http://dx.doi.org/10.1016/S0950-3293\(00\)00025-2](http://dx.doi.org/10.1016/S0950-3293(00)00025-2)
- Tuorila, H., Meiselman, H. L., Bell, R., Cardello, A. V., & Johnson, W. (1994). Role of sensory and cognitive information in the enhancement of certainty and liking for novel and familiar foods. *Appetite*, 23(3), 231-246.
- van Kleef, E., van Trijp, H. C. M., Luning, P., & Jongen, W. M. F. (2002). Consumer-oriented functional food development: how well do functional disciplines reflect the 'voice of the consumer'? *Trends in Food Science & Technology*, 13(3), 93-101.
- Veeck, A. (2010). Encounters with Extreme Foods: Neophilic/Neophobic Tendencies and Novel Foods. *Journal of Food Products Marketing*, 16(2), 246-260.
- Verbeke, W. (2006). Functional foods: Consumer willingness to compromise on taste for health? *Food Quality and Preference*, 17(1-2), 126-131.
- Wansink, B. (2003). Overcoming the Taste Stigma of Soy. *Journal of Food Science*, 68(8), 2604-2606. doi: 10.1111/j.1365-2621.2003.tb07068.x
- Wansink, B., & Chan, N. (2004). Relation of Soy Consumption to Nutritional Knowledge. *Journal of Medicinal Food*, 4(3), 145-150. doi: 10.1089/109662001753165729.
- Wansink, B., & Park, S. B. (2002). Sensory Suggestiveness and Labeling: Do Soy Labels Bias Taste? *Journal of Sensory Studies*, 17(5), 483-491.
- Wansink, B., Park, S. B., Sonka, S., & Morganosky, M. (2000). How soy labeling influences preference and taste. *The International Food and Agribusiness Management Review*, 3(1), 85-94.
- Wansink, B., van Ittersum, K., & Painter, J. E. (2005). How descriptive food names bias sensory perceptions in restaurants. *Food Quality and Preference*, 16(5), 393-400.
- Werle, C. O., Trendel, O., & Ardito, G. (2012). Unhealthy food is not tastier for everybody: The "healthy= tasty" french intuition. *Food Quality and Preference*.
- Yeu, K., Lee, Y., & Lee, S. Y. (2008). Consumer Acceptance of an Extruded Soy-Based High-Protein Breakfast Cereal. *Journal of Food Science*, 73(1), S20-S25. doi: 10.1111/j.1750-3841.2007.00601.x

Appendix A. Questionnaire of the Main Study (Condition 'Miso')

Akzeptanz von Sojaprodukten

Hallo liebe/r Teilnehmer/in,
im Rahmen meiner Masterarbeit an der Universiteit Twente (NL) führe ich eine Studie über die Konsumentenwahrnehmungen bezüglich eines bestimmten Sojaproduktes durch. Ich wäre Ihnen sehr dankbar, wenn Sie an meiner Studie teilnehmen würden, indem Sie die folgenden Fragen beantworten. Ihre Daten werden natürlich vertraulich und anonym behandelt.

Anfangen

www.thesistools.com

Akzeptanz von Sojaprodukten

Im Folgenden sehen Sie eine Werbeanzeige für ein Sojaprodukt. Bitte gucken Sie sich das Produkt und den zugehörigen Slogan aufmerksam an. Die anschließenden Fragen werden sich auf das Bild beziehen.



1.

Bitte geben Sie hierunter Ihre allgemeine Meinung und Empfindung zu dem Sojaprodukt im Bild an.

unangenehm	○ ○ ○ ○ ○	angenehm
schlecht	○ ○ ○ ○ ○	gut
negativ	○ ○ ○ ○ ○	positiv
abstoßend	○ ○ ○ ○ ○	anziehend

2.

Das Produkt ist...

nicht gesund	○ ○ ○ ○ ○	gesund
nicht lecker	○ ○ ○ ○ ○	lecker
nicht bekannt	○ ○ ○ ○ ○	bekannt
nicht vertraut	○ ○ ○ ○ ○	vertraut

3.

Bitte geben Sie dem Sojaprodukt im Bild eine Note, wobei 1 = 'ich finde es gar nicht gut' und 10 = 'ich finde es sehr gut'

-- bitte, wählen Sie --

Weiter

PRODUKT BEZOGENE FRAGEN



4.

Bitte geben Sie an in wie weit Sie mit den Aussagen übereinstimmen.

	stimme gar nicht zu				stimme voll zu	
Ich erkenne das Produkt.	☐	☐	☐	☐	☐	☐
Ich habe das Produkt schon mal probiert.	☐	☐	☐	☐	☐	☐
Das Produkt repräsentiert was ich normalerweise esse.	☐	☐	☐	☐	☐	☐
Das Produkt kommt mir vertraut vor.	☐	☐	☐	☐	☐	☐
Das Produkt kommt mir unbekannt vor.	☐	☐	☐	☐	☐	☐
Mein erster Eindruck vom Produkt ist, dass ich es sehr mag.	☐	☐	☐	☐	☐	☐
Das Produkt zieht Aufmerksamkeit an.	☐	☐	☐	☐	☐	☐
Im Allgemeinen empfinde ich das Produkt als attraktiv.	☐	☐	☐	☐	☐	☐
Das Produkt sieht gut aus.	☐	☐	☐	☐	☐	☐

Weiter



5.

Was denken Sie über die gesundheitlichen Aspekte des Sojaproduktes im Bild?

	stimme gar nicht zu			stimme voll zu		
Das Produkt hilft das Gewicht zu kontrollieren.	☐	☐	☐	☐	☐	☐
Das Produkt hilft Muskeln aufzubauen.	☐	☐	☐	☐	☐	☐
Das Produkt ruft allergische Reaktionen hervor.	☐	☐	☐	☐	☐	☐
Das Produkt ist nicht vorteilhaft für die Gesundheit.	☐	☐	☐	☐	☐	☐
Das Produkt verleiht Energie.	☐	☐	☐	☐	☐	☐
Das Produkt ist nahrhaft.	☐	☐	☐	☐	☐	☐
Das Produkt ist reich an Protein.	☐	☐	☐	☐	☐	☐
Das Produkt senkt Cholesterin im Blut.	☐	☐	☐	☐	☐	☐
Das Produkt fungiert als Antioxidans.	☐	☐	☐	☐	☐	☐
Das Produkt hilft Knochenmasse zu erhalten.	☐	☐	☐	☐	☐	☐
Das Produkt passt in eine gesunde Ernährung.	☐	☐	☐	☐	☐	☐
Das Produkt ist gut für die Darmflora.	☐	☐	☐	☐	☐	☐

Weiter



6.

Was denken Sie über die (sensorischen) Eigenschaften des Sojaproduktes im Bild?

	stimme gar nicht zu			stimme voll zu	
Das Produkt wird gut schmecken.	☐	☐	☐	☐	☐
Das Produkt wird einen bekannten Geschmack haben.	☐	☐	☐	☐	☐
Es wird unangenehm sein, das Produkt zu verspeisen.	☐	☐	☐	☐	☐
Ich würde den Konsum des Produktes genießen.	☐	☐	☐	☐	☐
Das Produkt sieht anziehend aus.	☐	☐	☐	☐	☐
Das Produkt wird gut riechen.	☐	☐	☐	☐	☐
Das Produkt wird eine angenehme Konsistenz haben (= damit ist die fühlbare Sinneswahrnehmung im Mund gemeint).	☐	☐	☐	☐	☐

7.

Stellen Sie sich vor, dass das Sojaprodukt Ihnen bei einem Freund zu Hause angeboten wird. Bitte geben Sie an, in welchem Maße Sie mit den folgenden Aussagen übereinstimmen.

	stimme gar nicht zu			stimme voll zu	
Ich denke darüber nach das Produkt zu probieren.	☐	☐	☐	☐	☐
Die Wahrscheinlichkeit, dass ich das Produkt probieren werde, ist hoch.	☐	☐	☐	☐	☐
Ich werde das Produkt probieren.	☐	☐	☐	☐	☐
Es ist wahrscheinlich, dass ich das Produkt im nächsten Monat probieren werde.	☐	☐	☐	☐	☐

ALLGEMEINE MEINUNGEN ZU NAHRUNGSMITTELN

8.

Was denken Sie im Allgemeinen über die folgenden Aussagen?					
	stimme gar nicht zu			stimme voll zu	
Ich probiere konstant neue und unterschiedliche Lebensmittel.	☐	☐	☐	☐	☐
Ich vertraue neuen Lebensmitteln nicht.	☐	☐	☐	☐	☐
Wenn ich nicht weiß, was ein Lebensmittel enthält, probiere ich es nicht.	☐	☐	☐	☐	☐
Ich mag Lebensmittel aus verschiedenen Ländern.	☐	☐	☐	☐	☐
Ausländische Lebensmittel sehen zu komisch aus, um sie zu essen.	☐	☐	☐	☐	☐
Bei einem Festessen probiere ich neue Lebensmittel.	☐	☐	☐	☐	☐
Ich habe Angst davor Lebensmittel zu essen, die ich vorher noch nie probiert habe.	☐	☐	☐	☐	☐
Ich bin sehr wählerisch bei den Lebensmitteln, die ich esse.	☐	☐	☐	☐	☐
Ich würde fast alles essen.	☐	☐	☐	☐	☐
Ich mag es, neue ausländische Restaurants auszuprobieren.	☐	☐	☐	☐	☐

9.

Was denken Sie über die folgenden Aussagen betreffend Ihrem generellen Gesundheitsinteresse?					
	stimme gar nicht zu			stimme voll zu	
Die Gesundheit von Lebensmitteln hat wenig Einfluss auf meine Lebensmittelauswahl.	☐	☐	☐	☐	☐
Ich bin sehr speziell wenn es um die Gesundheit der Lebensmittel geht, die ich esse.	☐	☐	☐	☐	☐
Ich esse, was ich mag und ich mache mir keine besonderen Sorgen über die Gesundheit von Lebensmitteln.	☐	☐	☐	☐	☐
Es ist wichtig für mich, dass meine Ernährung wenig Fett enthält.	☐	☐	☐	☐	☐
Ich folge stets einer gesunden und balancierten Ernährung.	☐	☐	☐	☐	☐
Es ist wichtig für mich, dass meine tägliche Ernährung viele Vitamine und Mineralien enthält.	☐	☐	☐	☐	☐
Die Gesundheit von Snacks macht für mich keinen Unterschied.	☐	☐	☐	☐	☐
Ich vermeide keine Lebensmittel, selbst wenn diese mein Cholesterin erhöhen könnten.	☐	☐	☐	☐	☐
Wenn ich esse, konzentriere ich mich darauf, den Geschmack des Lebensmittels zu genießen.	☐	☐	☐	☐	☐
Es ist für mich wichtig, leckere Lebensmittel zu essen.	☐	☐	☐	☐	☐
Es ist für mich wichtig, dass die Lebensmittel, die ich esse, nahrhaft sind.	☐	☐	☐	☐	☐
Es ist für mich wichtig, dass die Lebensmittel, die ich esse, viele Proteine enthalten.	☐	☐	☐	☐	☐

10.

Was denken Sie über Ihre eigene gesundheitliche Situation?

	stimme gar nicht zu				stimme voll zu	
Ich bin gesund.	☐	☐	☐	☐	☐	☐
Ich esse gesund.	☐	☐	☐	☐	☐	☐
Ich bin gesünder als eine durchschnittliche Person.	☐	☐	☐	☐	☐	☐
Ich lege keinen besonderen Wert auf gesunde Ernährung.	☐	☐	☐	☐	☐	☐

FRAGEN ZUR PERSON

11.

Wie alt sind Sie?*

12.

Was ist Ihr Geschlecht?*

- ☐ weiblich
☐ männlich

13.

Wurden Sie in Deutschland geboren?*

- ☐ ja
☐ nein

14.

Was ist Ihre höchste, abgeschlossene Ausbildung? Falls Sie Ihre Ausbildung noch nicht vollendet haben, geben Sie bitte Ihre derzeitige Ausbildung an.

- ☐ Hauptschulabschluss
☐ Qualifizierender Hauptschulabschluss
☐ Mittlere Reife (Realschulabschluss)
☐ Fachhochschulreife (allgemeine oder fachgebundene Fachhochschulreife)
☐ Abitur (allgemeine oder fachgebundene Hochschulreife)
☐ Bachelor
☐ Master
☐ Diplom
☐ Magister
☐ Doktor
☐ anders, nämlich:

15.

Sind Sie Vegetarier/in? (Falls Sie Veganer/in sind, antworten Sie an dieser Stelle bitte mit 'nein')*

- ☐ ja
☐ nein

16.

Sind Sie Veganer/in?*

- ☐ ja
☐ nein

17.

Haben Sie irgendwelche Lebensmittelintoleranzen oder Allergien, die Sie vom Konsum des Sojaproduktes abhalten würden?*

- ☐ ja
☐ nein

18.

Haben Sie das Sojaprodukt in der Abbildung vorher schon einmal gegessen?*

- ☐ ja
☐ nein

19.

Wie oft essen Sie im Durchschnitt Sojaprodukte?*

- ☐ nie
☐ selten
☐ monatlich
☐ an 1-2 Tagen/Woche
☐ an 3-4 Tagen/Woche
☐ an 5-6 Tagen/Woche
☐ täglich

20.

Für Bachelorstudenten der UTwente:
Wenn ihr für diese Studie Punkte über 'SONA systems' erhalten wollt, gebt hier bitte eure SONA Nummer an.

21.

Falls Sie irgendwelche Anmerkungen haben sollte, geben Sie diese bitte in dem folgenden Kästchen an.

Ende

Vielen Dank für die Teilname!

Debriefing:

Mit diesem Fragebogen wurde Ihr Angstlevel bezüglich neuen und unbekannten Lebensmitteln sowie Ihr allgemeines Interesse an Gesundheitsaspekten von Lebensmitteln gemessen. Das Ziel der Studie ist es, herauszufinden, ob diese beiden Faktoren einen Einfluss auf die Bewertung des Sojaproduktes im Bild hatten. Der Slooan zum Produkt sollte die allgemeinen Eigenschaften des Sojaproduktes unterstreichen. Diese Eigenschaften wurden vorher in einer Vorstudie gemessen. Im Allgemeinen sollen die Ergebnisse der Studie einen Überblick bieten über Faktoren, die die Akzeptanz von Sojaprodukten beeinflussen.