

COPENHAGEN BUSINESS SCHOOL

Master's Thesis

CIMMO1034E

CAND. MERC. INTERNATIONAL MARKETING AND
MANAGEMENT

2016



Student Consumers' Purchase Intention of Functional Foods

An Application of the Theory of Planned Behavior

Jana Rösner & Ingvild Oeystese

Supervisor: Jesper Clement

Date of submission: 15.09.16

No. of Total Characters: 249,400

No. of Pages: 118

ABSTRACT

The purpose of this study was to gain an understanding of the purchase behavior concerning functional foods of university students in Germany and Denmark. More specifically, the study applied the Theory of Planned Behavior to explain the functional food purchase intention of this consumer group, and the factors influencing the intention to buy these foods.

A quantitative research was conducted, and the primary data was collected through an online questionnaire targeted at university students in Germany and Denmark.. 159 complete questionnaire responses were obtained in total from the two countries.

The purchase intention of functional foods was found to be explained by the TPB constructs attitudes and subjective norm in Germany, and solely by attitudes in Denmark. Furthermore, it was found that some of the behavioral and control beliefs also had a direct influence on purchase behavior, though the TPB only suggests an indirect link between the beliefs and purchase intention. The beliefs that had a direct influence on purchase intention in Germany were perceived healthiness and perceived nutritional knowledge, and perceived healthiness and willingness to pay a higher price in Denmark. Despite of the finding of direct relationships between beliefs and intention, overall, the inclusion of the beliefs specific to functional foods to the TPB model was found not to increase the model's ability to measure purchase intention. This suggests that the beliefs included in TPB model in this case might not be the most salient for this consumer group, and future research on this topic is therefore suggested.

The study found that the student consumer group both in Germany and Denmark values healthy eating which means that this group is a promising target group for healthy food products such as functional food. Though the average consumer's purchase intention was found to be slightly negative, attitudes were positive, which is relevant and posts an opportunity for marketers since attitude was found to be a direct determinant of purchase intention, just as suggested by the TPB. Perceived healthiness was found to increase the attitude towards functional food in both countries, which in turn increases purchase intention, and both attitudes and perceived healthiness were found to be strong direct determinants of purchase intention in both markets. Marketing managers in these countries should therefore focus their strategies on increasing the perceived healthiness and aim to create positive attitudes towards functional food in the mind of the consumer, in order to increase purchase intention, and ultimately actual purchase.

TABLE OF CONTENTS

ABSTRACT	i
TABLE OF CONTENTS	ii
LIST OF TABLES	v
LIST OF FIGURES	vii
1. Introduction.....	1
1.1 Background - Healthy Eating and Functional Food	1
1.2 Purpose of the study and Problem formulation.....	4
1.3 Our Perspective and Relevance of the Research.....	10
1.4 Scope and Delimitations.....	11
1.5 Overview of the Structure of the Thesis.....	12
2. Introduction to Functional Foods.....	14
2.1 The Concept of Functional Foods	14
2.2 Functional Foods Regulations.....	16
2.3 Functional Foods in Germany.....	18
2.4 Functional Foods in Denmark.....	20
3. Literature Review and Theoretical Framework.....	21
3.1 Our view on Consumer Behavior.....	21
3.2 Relevant terms in Consumer Behavior	23
3.2.1 Perception	23
3.2.2 Values - Motivation – Needs	24
3.2.3 Attitudes – Beliefs.....	25
3.3 Consumer Behavior and Characteristics of Students as Food Consumers.....	26
3.4 Influencing Factors of Functional Food Purchase Behavior	29
3.4.1 Functional Food Research in Germany.....	29
3.4.2 Functional Food Research in Denmark.....	32
3.4.3 Summary of Research in Germany and Denmark	37
3.4.4 Functional Food Purchase Behavior Research	38

3.4.5	The Focus in Our Research	39
3.5	The Basis for the Theoretical Framework - The Theory of Planned Behavior.....	40
3.5.1	The Choice of Theoretical Model	41
3.5.2	The Theory of Reasoned Action & the Theory of Planned Behavior.....	42
3.5.3	The Application of the TPB in this Research.....	46
3.6	TPB as the Basis of our Research.....	47
3.6.1	The Beliefs in the Functional Food TPB Model.....	47
3.6.2	The TPB as the Base of our Research	48
4.	Methodology	55
4.1	Choice of philosophical stance	56
4.1.1	Epistemological assumptions	56
4.1.2	Ontological assumptions	57
4.1.3	Axiological assumptions	58
4.2	Choice of Research Strategy.....	58
4.2.1	Research Approach.....	58
4.2.2	Unit and level of analysis.....	60
4.3	Choice of Research Design	61
4.4	Choice of Research Method and Data Collection.....	62
4.5	The Empirical Study	62
4.2.3	Collection of Primary Data.....	63
4.2.4	Sampling Method, Procedure and Respondents.....	67
4.6	Limitations and Critical Reflections on Research Design and Method: Assessment of Validity and Reliability	69
5.	Analysis of the Empirical Study.....	72
5.1	Data Preparation and Coding	73
5.2	Factor Analysis.....	75
5.2.1	Suitability Test	76
5.2.2	Extraction of Factors.....	78
5.2.3	Rotation and Interpretation of Factors	79
5.3	Reliability Tests.....	79
5.4	Validity tests	80

5.5	Descriptive Statistics.....	82
5.5.1	Influencing Factors and TPB constructs.....	82
5.5.2	Value of Healthy Eating	86
5.5.3	Actual Nutritional Knowledge Score.....	86
5.5.4	Age and Gender	87
5.6	Correlations	91
5.6.1	Germany	92
5.6.2	Denmark	92
5.7	Regression Analysis	94
5.7.1	Multivariate Regression Analysis with Beliefs Influencing Intention	94
5.7.2	Hierarchical Regression Analysis with TPB constructs and Beliefs Influencing Intention	97
5.7.3	Multivariate Regression Analysis with Beliefs Influencing TPB Constructs.....	100
5.8	Overview of Findings: Research Questions and Hypotheses	102
6.	Discussion	105
6.1	Theoretical Implications & Future Research Suggestions	105
6.2	Limitations	110
6.3	Managerial Implications and Recommendations.....	111
7.	Conclusion	113
	Bibliography.....	viii
	Appendix.....	xliv
	A-1: Questionnaire English	xliv
	A-2: Questionnaire German	li
	A-3: Analysis	lvi
	3.1.1 Factor Analysis.....	lvi
	3.1.2 Descriptive Statistics.....	lxx
	3.1.3 Regression	lxxv

LIST OF TABLES

Table 1 Influencing factors concerning functional food consumer purchase intention, willingness or motivation to buy and likelihood of purchase in Germany	29
Table 2 Influencing factors of Danes’ functional food consumer purchase intention	33
Table 3 Codebook	73
Table 4 Nutritional Knowledge Test Scale	74
Table 5 Measurement scales used in questionnaire	75
Table 6 KMO Index of Constructs	77
Table 7 Total Explained Variance of Factors.....	78
Table 8 Cronbach's Alpha Values of Factors.....	80
Table 9 Factor Loadings of each Variable within the Factors.....	81
Table 10 Descriptive Statistics of Factors and TPB Constructs Germany	83
Table 11 Descriptive Statistics of Factors and TPB Constructs Denmark	85
Table 12 Value of Healthy Eating in Germany and Denmark	86
Table 13 Actual Nutritional Knowledge Score Germany	87
Table 14 Nutritional Knowledge Score Denmark	87
Table 15 Pearson Product-moment Correlations between Variables in Germany	92
Table 16 Pearson Product-moment Correlations between Variables in Denmark	93
Table 17 Multivariate Regression Coefficients with Purchase Intention as Dependent Variable and Beliefs as Independent Variables Germany.....	95
Table 18 Multivariate Regression Coefficients with Purchase Intention as Dependent Variable and Beliefs as Independent Variables Denmark.....	96
Table 19 Hierarchical multiple regression analysis predicting purchase intention in Germany	98
Table 20 Hierarchical multiple regression analysis predicting purchase intention in Denmark	99
Table 21 Multivariate Regression Coefficients with Attitude as Dependent Variable and Behavioral Beliefs as Independent Variables Germany.....	101
Table 22 Multivariate Regression Coefficients with Attitude as Dependent Variable and Behavioral Beliefs as Independent Variables Denmark.....	102
Table 23 Overview of Confirmed and Rejected Working Hypotheses	104
Table 1 Frequencies Perceived nutritional knowledge Germany.....	lxx
Table 2 Frequencies Willingness to pay Germany.....	lxx
Table 3 Frequencies Gender Germany.....	lxxi
Table 4 Frequencies Age Germany	lxxi
Table 5 Frequencies Nutritional Knowledge Score Germany.....	lxxii
Table 6 Frequencies Perceived nutritional knowledge Denmark.....	lxxiii
Table 7 Frequencies Willingness to Pay Denmark.....	lxxiii
Table 8 Frequencies Gender Denmark.....	lxxiv
Table 9 Frequencies Age Denmark.....	lxxiv
Table 10 Frequencies nutritional knowledge score Denmark.....	lxxv
Table 11 Variance Inflation Factor Germany.....	lxxvi

Table 12 Variance Inflation Factor Denmark.....	lxxviii
Table 13 Variance Inflation Factor Germany.....	lxxxi
Table 14 Variance Inflation Factor Denmark.....	lxxxii
Table 15 Variance Inflation Factor Germany.....	lxxxiv
Table 16 Variance Inflation Factor Denmark.....	lxxxvi

LIST OF FIGURES

Figure 1 The Theory of Planned Behavior.	8
Figure 2 Structure of the Thesis	13
Figure 3 The Theory of Reasoned Action.....	44
Figure 4 The Theory of Planned Behavior.	45
Figure 5 The Proposed TPB Model in the Functional Food Context.....	48
Figure 6 Perceived nutritional knowledge Germany.....	84
Figure 7 Willingness to Pay Germany	84
Figure 8 Perceived nutritional knowledge Denmark.....	85
Figure 9 Willingness to pay Denmark.....	86
Figure 10 Age Distribution German Sample	88
Figure 11 Gender Distribution German Sample	89
Figure 12 Average Factor Scores of Germans Divided By Gender	89
Figure 13 Age Distribution Danish Sample	90
Figure 14 Gender Distribution Danish Sample	90
Figure 15 Average Factor Scores of Danes Divided By Gender	91

1. Introduction

1.1 Background - Healthy Eating and Functional Food

“Let food be thy medicine and medicine be thy food” (Hippocrates).

It was already Hippocrates who recognized the important relationship between food and health, which has to date been a topic of constant concern. In fact, researchers found that the major part of EU citizens believes that healthy nutrition prevents diseases and protects their health, and therefore healthiness has been considered as an important factor in food choice (Lappalainen et al., 1998; Zunft et al., 1997). However, the number of people affected by nutrition-related diseases is still increasing, which also has economic and social consequences of exponentially increasing healthcare costs, decreasing work productivity, and therefore also decreasing personal incomes (Branca et al., 2007; Menrad, 2003; Ziebarth, 2014). Therefore, the topic of healthy nutrition is still very relevant, both socially and economically. In fact, consumer health is dominating innovation in the foods and drinks sector (Meziane, 2007).

One of the most interesting findings by Lappalainen et al. (1998) was that a huge part of European citizens believes that they are healthy enough and do not need to alter their diets. This optimistic bias (Raats & Sparks, 1995) led the authors to propose that people have to be educated in how to evaluate their diets. The finding that 24% of Danes mentioned that knowledge discordance makes it difficult for them to clearly understand what is healthy, demonstrates the importance of nutritional education. Beyond, EU consumers find it difficult to eat healthily due to time constraints and lacking self-control (Lappalainen et al., 1998). In Germany, however, only 16% of respondents considered the time constraint as an issue. Respondents with a higher education mentioned time constraints, self-control and meal preparation as obstacles to eat healthy food. A common problem among higher educated people in all states was the irregularity of working hours. Therefore, instead of only providing information about healthy eating per se, nutritious convenient food (Lappalainen et al., 1998), such as functional food, should be promoted more on the market.

WHO (2013) estimates as of 2008, that Germany is among the countries with the highest obesity rates in Europe. It is estimated, that the percentage of obese people in the country will only continue to

increase (WHO, 2013; Euromonitor, 2016b), which makes Germany an important target to promote more healthy food options on the market.

In comparison to Germany and other countries in the WHO European region, the percentage of obese people in Denmark is lower according to figures from 2008 (WHO, 2013). However, the country follows the trend of increasing obesity rates (Smed et al., 2007). The Danish population is aware of this trend and in order to counteract has begun to care more about healthy eating, and are even willing to pay a higher tax in order to eat healthier (European Commission, 2012). A possible explanation for this is that Danes already pay high taxes and have a high trust in public institutions, and consequently are not that sensitive towards policy changes (European Commission, 2012). The state increased taxes on products with high sugar content, which meant that the prices increased by 25%, and lowered taxes for sugar-free soft drinks in July 2010 (Capacci et al., 2012). In addition, a tax on saturated fat was introduced in Denmark in 2011, which resulted in a consumption reduction by up to 15% of products containing saturated fat within nine months (OECD, 2014). A previous study found that young Danish consumers between 19-24 years decreased their intake the most due to the price increase of saturated fat, and older consumers decreased their sugar intake the most when a tax was raised on sugary products (Smed et al., 2007). Smed et al. (2007) found that generally Danes improved their diet thanks to promotional campaigns of healthier food consumption. However, goals of consuming a certain share of vegetables and fat have not been achieved yet. Still, Danes are aware that a healthy diet is crucial for their health (Bech-Larsen et al., 2001).

The increased concern about nutrition by consumers (Labrecque & Charlebois, 2011) makes consumers' health dominating innovation in the foods and drinks sector (Meziane, 2007). As consumers in western society are aware that health and nutrition are related and that they are responsible of their own health (Franz & Nowak, 2010; Urala & Lähteenmäki, 2004), the worldwide demand for health foods has risen. Functional food is an answer to this demand as it promises to influence health positively, which is one of the major motivational factors of the consumers' food choice (Franz & Nowak, 2010; Bech-Larsen & Grunert, 2003). The importance of health and diet, the aging population in industrialized countries, increased health care costs and the concern by several consumer segments to develop healthier food habits to improve their health conditions made the food industry interested in the idea of functional foods, especially thanks to technological advancement (Jonas & Beckmann, 1998; Siegrist et al., 2015; van Arnum, 2004). The consumption of functional

foods may counteract the increasing trend of nutrition-related diseases and lead to reduced medical costs (Chadwick, 2003; Hasler, 2000; O'Regan, 1999), which in turn is very favorable from the socio-economic point of view (Moors, 2012). Several surveys conducted in European markets have found that consumers often are unfamiliar with the term functional food, but do not oppose to the fortification of functional ingredients into conventional product to enhance their healthiness (Siró et al., 2008) and therefore we can conclude that functional food has prosperous perspectives of acceptance levels from consumers. In fact, the market of functional foods has been growing globally, with many new products being continuously launched on the market (Bigliardi & Galati, 2013). Having a large profit margin and higher retail prices than conventional similar foods (Kotilainen et al., 2006), functional foods are an exciting and promising innovative field for the food sector (Jones & Jew, 2007; Sirò et al., 2008; Doyon & Labrecque, 2008). Globally, the functional food market enjoys growth rates of about 4% each year, which is more than that of conventional foods. From the years 2003 to 2010 the global market even grew by 150%. In 2014 alone, it was expected to grow 22.8% (Nutritional Outlook, 2011). This growth has been possible thanks to marketing communication which managed to create awareness and created a 'need' state out of a 'want' state (Sloan, 1999). The selling proposition to have a healthy lifestyle without having to change eating habits (Jonas and Beckmann, 1998) should also appeal to the consumers as they are usually hesitant to alter their eating habits (Williamson et al., 2000).

The markets for functional food in Germany and Denmark have been growing thanks to the increasing consumer interest. Especially in Germany, the increasing functional food trend (Franz & Nowak, 2010) lead the German functional food market to being one of the four leading functional food markets in Europe (Siró et al., 2008). In Denmark, functional foods preventing heart diseases or that are high in protein have been seen to be especially popular (Bech-Larsen et al., 2001; Euromonitor, 2016a; Lähteenmäki et al., 2010), which resulted in companies developing these products, and hence led the functional food market to grow (Euromonitor, 2016a).

In sum, society agrees that a healthy diet is important and the functional food market's potential is increasing due to the rising consumer need for convenient healthy food options. The markets of interest in this study (Germany and Denmark) promise growth, and hence functional food consumer behavior is a relevant topic to research in these countries.

1.2 Purpose of the study and Problem formulation

The purpose of this study is to understand the consumer behavior of university students in Germany and Denmark regarding functional food in order to get insights into the potential of marketing these products to this consumer group in these two countries. More specifically, we want to investigate the purchase intention of student consumers, as well as the factors influencing their purchase intention of these foods. Therefore, the overall problem statement of this study is

‘What is Danish and German university students’ purchasing intention of functional foods, and what are the factors influencing the purchase intention?’

In this section, we will explain why a consumer study is relevant and why we will investigate the concept of functional food with regards to the specific countries and the student segment. In addition, we will explain the derived research questions and hypotheses for this study.

Researching consumer behavior is important for companies and marketers in order to understand what a consumer really needs and with that information adapt their product offering and marketing strategy accordingly (Hollywood et al., 2007; Nunes & Cespedes, 2003). If the decision making process of the consumer is well understood, the marketers can relate to what the consumers try to achieve when purchasing the functional food product (Smith and Swinyard, 1999 cited in Zanolli and Naspetti, 2002).

As mentioned in the section above, consumers are more and more concerned about nutrition (Labrecque & Charlebois, 2011) and as a response to the demand for healthier food options, functional foods were invented. Although the functional food trend and market are growing in both Germany and Denmark (Euromonitor, 2016a; Franz & Nowak, 2010; Siró et al., 2008) it is important to know that only if the functional food product is purchased repeatedly and hence has become a part of the consumers’ eating pattern, it is able to survive competition (Ares & Gámbaro, 2007; Patch, Tapsell, & Williams, 2005). As the food sector is characterized by constant change and intense competition, it is crucial to respond to consumers and be innovative in developing new food products (Gray et al., 2003).

Especially surprising is that “even well-known companies have not succeeded in launching functional foods” (Siegrist et al., 2015, p. 87) and especially some innovative functional food products have not survived on the market (Annunziata and Vecchio, 2011; Frewer et al., 2003; Marina et al.,

2014; Roe et al., 1999; Verbeke, 2005). Therefore, it is highly important to understand consumers' reasons for the purchase intention of functional foods. A reason why functional foods are sometimes not successful may be that consumers are reluctant to try products that are unfamiliar even though they may believe in its benefits (Wansink, 2002). O'Connor & White (2010) emphasize that functional foods are yet "viewed as less established products" (p. 76) and therefore there still is a future potential for functional food to be exploited. Further, O'Connor & White (2010) view social and consumer research as contributors to influence the growth of health food. Deliens et al. (2014) emphasized that there had been no research on university students' eating behavior in Europe and highlighted the importance of conducting more research in that field. Moreover, literature on functional foods is sparse (Labrecque & Charlebois, 2011) and therefore it is of relevance to contribute to the marketing research in the field of functional foods with more consumer studies on university students.

In this study, the countries Denmark and Germany are chosen to be investigated in terms of student consumer behavior of functional food. This is to fill the current gap in the research regarding functional food research in these countries. In Denmark, there has been research on the topic, however, most of it dates back to the late 1990's and early 2000's. Now, due to the new legislation that came into force in 2012 (see section 2.2), the market has undergone changes and former research becomes more and more outdated. In the German market, there has been more recent research, but to a very limited extent, and most of it still before 2012. Denmark and Germany share the Western culture and therefore can be regarded as culturally close and having characteristics in common. As a result, they provide the researchers a culturally comparable basis, yet having national differences regarding the purchase intention of functional food (see Bredahl, 2001). What has to be emphasized is that the researchers will investigate the two countries separately in order to make conclusions for each market and hence give recommendations to marketers for each country. Germany is especially interesting in terms of its size and very competitive food market. Further, although consumers are very skeptical in this country, especially functional beverages enjoy a huge success (Stein & Rodríguez-Cerezo, 2008), which highlights the market potential for functional food. Denmark is very attractive as a research candidate because it used to have the strictest regulation on functional food up until the new legislation came into place in 2012, which opened up many opportunities for companies to conquer the health conscious Danish consumer.

University students are the research subjects in this study due to their relevance from the marketing perspective and the fact that research has not focused specifically on this consumer group with regard to functional food. Students are responsible for their meals and food selection for the first time and thereby develop eating habits that are likely to impact their diet and health in the long run (Betts et al., 1997; Harker et al., 2010; Sharma et al., 2010; Smith et al., 2000). Therefore, it is attractive for marketers to understand this consumer group and target their marketing activities in an effective way towards this consumer group with the ultimate goal to build long-term relationships (Jenkinson, 2000). However, we do recognize that eating habits may change slightly again when students have a higher income and grow older. Although it might seem that functional foods are more attractive for older consumers with health problems, the younger generation still has a high potential. In fact, it has been found that even young healthy consumers consume functional foods (Ong et al., 2014) and that, in Europe, higher educated socio-economic groups are more willing to pay a higher price for functional food and also have a higher knowledge of it (Hilliam, 1996). Hence, in order to understand whether German and Danish students actually value healthy eating and whether it makes sense to communicate health claims via marketing messages, two of the research questions that will be investigated in this study are:

‘To what degree do students value healthy eating?’

‘How high is their actual nutrition knowledge?’

The objective of this study is to obtain insights into German and Danish students’ purchase intention of functional foods, and therefore another research questions is: **‘What is the functional food purchase intention of student consumers?’** We are investigating purchase *intention* and not actual purchase behavior in this study because of our inability to measure actual purchase behavior due to the large amount of resources that that would require. However, intention to perform a specific behavior can actually with significant accuracy predict actual behavior, according to the widely recognized framework by Ajzen (1991), which suggests that obtaining insights about actual behavior is not dependent on measuring it directly. This model, the Theory of Planned Behavior (TPB) (Ajzen, 1991) has for over 20 years been shown to be valid in predicting a wide array of behaviors, including those

related to health and food choice behavior (see section 3.5). For these reasons, we see this model as being an appropriate theoretical framework for this research.

In addition to measuring purchase intention in itself, we also want to investigate what the underlying factors influencing purchase intention of functional foods are. Prior research on functional foods will provide us with the insights into what factors might influence the purchase behavior of the consumer group of focus in this study. Overall, there are many influencing factors that could be investigated, however, only some were selected based on their relevance considering the student consumer group, and based on which factors would be relevant from a marketing perspective. The factors related to functional food purchase behavior that emerged from our secondary research, and which relationship to purchase intention will be investigated in this study are: perceived healthiness, perceived naturalness, trust in health claims, perceived nutritional knowledge, and willingness to pay. Hence, two more research questions that will be answered in this study are:

‘Do the factors perceived healthiness, perceived naturalness, trust in health claims, perceived nutritional knowledge, and willingness to pay have a direct influence on the purchase intention of functional foods?’

‘What is their relative significant influence in explaining students’ purchase intention of functional foods?’

Based on these research questions, the following hypotheses will be tested:

Perceived healthiness of functional foods positively affects Danish and German consumers’ purchase intention of these products.

Perceived naturalness of functional foods positively affects Danish and German consumers’ purchase intention of these products.

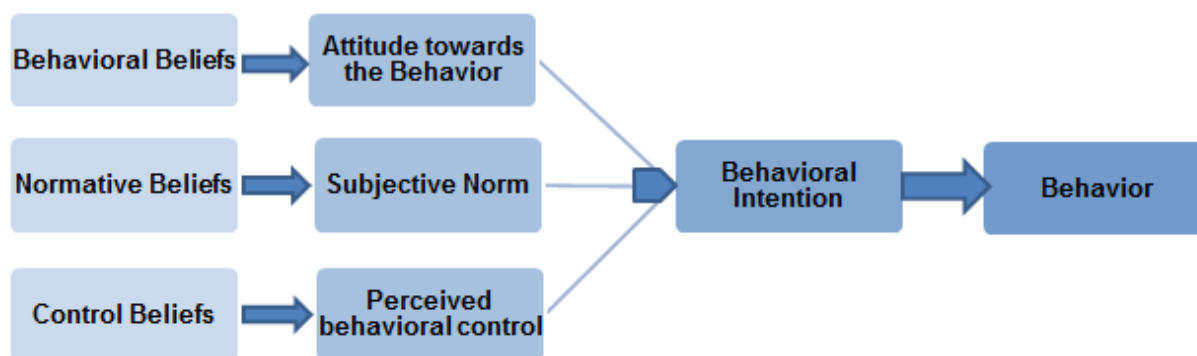
Trust in health claims positively affects Danish and German consumers’ purchase intention of functional foods.

A higher level of perceived nutritional knowledge positively affects Danish and German consumers’ purchase intention of functional foods.

A higher price affects Danish and German consumers' purchase intention of functional food negatively.

We will not only investigate the direct relationships of the influencing factors on purchase intention, but we will also integrate these factors as beliefs within the Theory of Planned Behavior proposed by Ajzen (1991). The TPB model suggests that the three constructs attitude, subjective norm and perceived behavioral control are the direct determinants of purchase intention. In turn, there are a set of salient beliefs specific to the behavior in question that influence each of these constructs: behavioral beliefs influence attitude, normative beliefs influence subjective norm, and control beliefs influence perceived behavioral control (see figure 1 as a visual presentation of the TPB model).

Figure 1 The Theory of Planned Behavior.



Adapted from The Theory of Planned Behavior (p. 182), by Ajzen, 1991.

In our research, the factors specific to functional food purchase behavior; perceived healthiness, perceived naturalness, trust in health claims, willingness to pay a higher price and perceived nutritional knowledge, constitute the behavioral and control beliefs in the model. To test whether the behavioral and control beliefs related to functional foods influence their respective TPB construct, we want to test the following hypotheses:

Perceived healthiness of functional foods positively affects Danish and German consumers' attitude towards purchasing these products.

Perceived naturalness positively affects Danish and German consumers' attitude towards purchasing functional foods.

Trust in health claims positively affects Danish and German consumers' perceived behavioral control of purchasing functional foods.

Perceived nutritional knowledge positively affects Danish and German consumers' perceived behavioral control of purchasing functional foods.

A higher price negatively affects Danish and German consumers' perceived behavioral control of purchasing functional foods.

Furthermore, we want to know what the attitude, subjective norm, and perceived behavioral control are of the student consumers in terms of functional food purchase, as these constructs are predicted to influence purchase intention of these foods. We therefore have the research question:

‘What are the students’ attitude, subjective norm and perceived behavioral control towards the purchase of functional food?’

To test the ability of the TPB constructs to explain purchase intention in the context of functional food, we want to test the following hypotheses:

Higher perceived behavioral control influences Danish and German consumers' purchase intention of functional food positively.

Subjective norm influences Danish and German consumers' purchase intention of functional food positively.

Positive attitude towards the purchase of functional foods influences Danish and German consumers purchase intention of functional food positively.

And lastly, to determine which of these constructs has the the stronger influence on purchase intention, we will seek to answer:

‘What is the relative significant influence of these three TPB constructs on the purchase intention of functional foods?’

In this context, we will also assess whether the addition of the beliefs to the model predict purchase intention better.

The answer to these research questions and the result of the hypothesis tests will provide insights concerning the functional food purchase behavior of students in Germany and Denmark, which could benefit marketers of functional foods in these markets. Further explanation about the relevance of our study, as well as the perspective of the researchers of this study, will be discussed next.

1.3 Our Perspective and Relevance of the Research

The purpose of this research is to provide valuable information for marketing managers about the functional food purchase behavior of the student consumer segments in Denmark and Germany. Thus, we had a marketer's perspective in mind when we created our research questions and hypotheses. The answers to these questions can provide marketers who are promoting and selling functional foods in these two markets information about what the strongest influencing factors of purchase intention of functional foods are, which in turn can be used in the creation of appropriate marketing strategies. Furthermore, the research provides marketers with insights concerning the purchase intention and attitudes towards functional food of this consumer group, which is relevant in understanding the interest and view that this consumer group has on functional foods.

The better knowledge marketers have about the consumer and the consumer's purchase behavior, the better equipped the marketer is to create marketing and communication strategies and campaigns that will be more likely to be effective. The product development of novel foods promoting certain health benefits such as functional foods is highly dependent on marketing, and therefore all information that can support the marketing of the product is very important for functional foods manufacturers (Mark-Herbert, 2004). Also, in order to create effective marketing communication that motivates the consumer, it is important to understand the consumer's thoughts and views of the product in question (Wade, 2006). Because this is what our research explores, we believe that the outcome of this research is of high relevance for producers and marketers of functional foods in the German and Danish markets.

Our research is also theoretically relevant in the sense that it contributes to the limited existing pool of research on the purchase intention of functional foods specifically, on functional food purchase

behavior in the two markets Denmark and Germany, and on student consumer's purchase behavior on functional foods. In addition, it contributes to the very limited literature on the application of the highly recognized purchase intention model the Theory of Planned Behavior to the product group functional food.

1.4 Scope and Delimitations

There could be many different angles taken to the research on purchase intention of functional food consumers, but in order to make our research specific we had to take only one angle and one narrow scope. Therefore, there are a number of delimitations to our research that we want to mention.

First, concerning the influencing factors of the purchase intention of functional foods studied in this research, we acknowledge that the literature review indicates that there are many factors influencing the purchase behavior of functional food, but that we chose the ones that were found to be the most relevant, interesting and most important in this research. Also, we chose only a few factors because a study including them all would be too broad.

Second, we want to emphasize that we are only measuring behavioral intention and not actual behavior, due to the difficulty and large amount of resources needed to measure actual behavior. However, we use a theoretical model that has been shown to be able to predict actual behavior by measuring intention, and thus we get a good insight about actual purchase behavior even though we only measure intention to buy.

Third, we only investigate the concept of functional foods in this thesis, and hence we do not look at any specific product or product category. Therefore, we do not address any specific manufacturer or brand, and delimit ourselves from any influencing factors pertaining to specific products or brands. Rather, because we investigate the potential of targeting students with functional food, we can draw conclusions from positive attitudes and perceptions about the concept of functional food because these may influence the purchase of specific functional foods (Ong et al., 2014). Yet, we are aware that students' intentions might differ from product to product, due to brand influences for instance.

Fourth, even though we are studying the consumer behavior of two different nationalities, we delimit ourselves from taking into account possible cultural factors that could influence the purchase intention of the consumers. Denmark and Germany can both be seen as being part of the western

culture (see Bredahl, 2001), and are therefore suitable to be included in the same study with the same theoretical model applied. Moreover, a cultural study would signify a much larger scope, and would be completely different study if we were to answer the same research questions keeping in mind cultural differences.

Fifth, researchers use the terms willingness to buy, willingness to purchase and purchase intention often interchangeably. However, we will only use the term purchase intention throughout the study. Sixth, as this thesis is a marketing research study, we will refrain from discussing the medical consequences of consuming functional food and instead assume that it is a medically fair concept that is not misleading consumers in their choices to consume healthy foods.

1.5 Overview of the Structure of the Thesis

In order to inform the reader about the structure of the thesis, the researchers provide an overview of the chapters (see Figure 1).

To approach the subject of functional food, the second chapter will provide a definition and background of the concept of functional food. Second, in order to get an understanding of the strict regulations on functional food in Europe and the two countries of interest, the EU regulations will be explained. Lastly, a description of the functional food market in Germany and Denmark will be given.

Chapter 3 will explain our view on consumer behavior and its concepts relevant in this thesis. In addition, the consumer behavior of students as food consumers will be described as students are the research subjects. Then, the influencing factors of food purchase behavior that were looked at in literature will be assessed in general and specific to Germany and Denmark. After this, the Theory of Planned Behavior as our theoretical framework will be introduced and the working hypotheses will be derived.

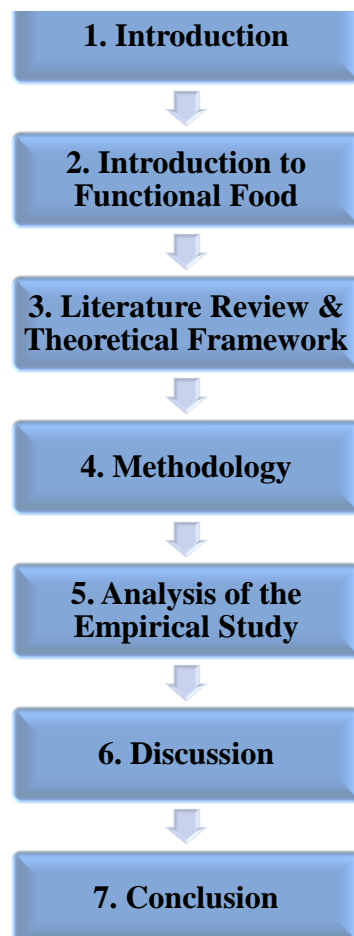
Chapter 4 explains the methodological approach to the research in terms of philosophical stance, research strategy, research design and research method. Further, the empirical study will be described in detail regarding the collection of the primary data, the sampling method and procedure. Finally, the limitations of the research design and method regarding validity and reliability will be acknowledged.

Chapter 5 explains the data analysis starting with the data preparation and coding, followed by a factor analysis. Next, the resulting factors will be tested for their reliability and validity. Descriptive

statistics give an overview of the characteristics of the respondents and answer some research questions. Then, correlations help to detect bivariate relationships of variables and show with which variables regression analyses might generate significant results. Finally, regression analyses are conducted to answer research questions and hypotheses. The analysis part is structured in that way that it analyses the resulting data from Germany and Denmark separately and later compares the findings of the two countries.

Chapter 6 discusses theoretical implications together with ideas for future research and managerial implications together with recommendations for marketers. Further, it states the limitations of the thesis. Finally, chapter 7 gives a concluding summary of the whole thesis.

Figure 2 Structure of the Thesis



2. Introduction to Functional Foods

In this section, first a definition of the concept of functional food and an explanation of how the concept evolved will be provided. Second, the history of regulations regarding functional food and health claims will be outlined in order to help the reader understand the market situation in the EU, Germany and Denmark better, and to understand how restrictive and difficult it is for marketers to communicate the benefits of functional foods. Lastly, the functional food markets in Germany and in Denmark will be described.

2.1 The Concept of Functional Foods

Consumers' health interest together with an increasing interest in food quality and safety (Sloan, 2000) lead to the demand for more and more healthier food products that may counteract diseases and increase quality of life (Jonas & Beckmann, 1998; Niva & Mäkelä, 2005; Siró et al., 2008). Hence, food marketers needed to respond to this demand and the functional food category emerged in the 1990s (Niva & Mäkelä, 2005). Functional foods target a specific physiological health aspect (Diplock et al., 1999) and can thereby help to prevent certain diseases (Jonas & Beckmann, 1998). Moreover, their general goal is to provide extra health benefit to consumers, with the goal to improve health their health (Urala & Lähteenmäki, 2003). Functional foods can therefore be considered as a healthier, modified food option to conventional food products (Lu, 2015). Consumers have stated that they eat functional food because they want "to do something good for themselves and to have a balanced nutrition" (Franz & Nowak, 2010, p. 15). Some functional foods help consumers to include nutrients in their diet that they are lacking due their body's inability to produce them or due to a general deficiency of these nutrients in their regular diet (O'Connor & White, 2010).

Japan was the first country to develop functional foods in the 1980s, when the country was confronted by increasing healthcare costs due to an ageing population. In 1991, the FOSHU (foods for specified health uses) program was introduced and allowed the use of health claims based on scientific evidence for the first time (Büyükkaragöz et al., 2014). In most countries, however, there is no legal definition of this product group (Franz & Nowak, 2010; Jonas & Beckmann, 1998; Niva & Mäkelä, 2005). European legislation considers functional food as a concept and not as distinct food categories

(Coppens et al., 2006). Rather, a functional food is a member of the base-product category instead of a category itself (Lähteenmäki et al., 2010). In this study, we support this notion and consider functional food as a concept rather than a product category. Although there is no legal definition yet, the EU provides a consensus document that states the working definition “A food can be regarded as ‘functional’ if it is satisfactorily demonstrated to affect beneficially one or more target functions in the body” (Diplock et al., 1999, S6). Having a clear working definition is important for consumer behavior research (O’Connor & White, 2010) in order to create a consent research approach to functional foods.

In literature, functional food has been defined in various ways ranging from broader definitions such as “foods that may provide health benefits beyond basic nutrition” (Roberfroid, 2000, p. 13) to more specific definitions such as “food similar in appearance to conventional food that is intended to be consumed as part of a normal diet, but has been modified to subserve physiological roles beyond the provision of simple nutrient requirements” (Roberfroid, 2000, p. 13). In accordance with the study conducted by Bech-Larsen and Grunert (2003), we will follow the second definition stated above. As a consequence, we will exclude therapeutic foods from the definition, but rather focus the definition around those foods that aim to prevent diseases and facilitate living healthier without having to alter eating habits (Bech-Larsen & Grunert, 2003). This argument is supported by the EU regulation that functional foods must show an effect while consuming a normal amount of it, and thus following a regular diet of ordinary food, i.e. not in the form of a pill or capsule (Diplock et al. 1999). In general, functional foods are classified into four categories (Poulsen, 1999):

1. Upgrading: increasing the amount of an already present substance in a product
2. Substitution: replacing a substance in a product by a similar, healthier substance (e.g. omega-3 replacing fat)
3. Enrichment: adding a substance to a product that would normally not be present in it (e.g. add vitamins or fibre)
4. Elimination: eliminating unhealthy ingredients to create light products

The first functional foods on the market were fortified with vitamins (e.g. vitamin C and vitamin E, zinc, iron, calcium and folic acid) (Sloan, 2000). Subsequently, companies fortified food with micronutrients (e.g. omega-3 fatty acid, soluble fiber or phytosterol) to help prevent diseases or encourage healthier eating among consumers (Sloan, 2002). Lately, functional foods with several

health benefits within one product has been developed (Sloan, 2004). Today, functional food products can mainly be found within the soft drink, milk and dairy, confectionery, cereals, baby food and bakery categories (Menrad, 2003; Stein & Rodríguez-Cerezo, 2008).

After the concept of functional food and its evolvement have been defined in this section, the following section will explain the legal perspective in the sense of regulations on nutrition and health claims on functional foods in the EU, Germany and Denmark.

2.2 Functional Foods Regulations

Regulations on nutrition and health claims on foods have been very diverse within Europe until a new regulation came into practice in 2006. Before, each member state regulated health claims individually and health claims have been misused. Consequently, consumers were confused or misled by imprecise information on packaging (Moors, 2012). In Denmark, health claim regulations had been reinforced very strictly where it was not allowed to “state or indicate that a food can prevent, alleviate or have a beneficial effect on disease or disease related symptoms” (Mejborn, 2007, p.11). Even if there was scientific evidence available to support a claim, the ban was still valid. The justification for this was that even though the health benefit was proven, it could result in inappropriate food consumption when consumers were very concerned about preventing a disease. The purpose of this strict regulation was to protect consumers against marketing that arouses fear in consumers and the desire to cure a disease with food (Mejborn, 2007). As a consequence of the lacking possibility to communicate benefits of these products, the market of functional foods could not develop as much as in other countries (Jonas & Beckmann, 1998). Germany is another country that regulated health claims in a very strict way. However, some enhanced-function claims were still allowed (van Trijp & van der Lans, 2007). Similarly, like in Denmark, Germany forbade claims for disease prevention and elimination, even though the product’s effect was scientifically proven. However, the legislation about the ban of health related advertisement (§18 LMBG)¹ distinguished between health and disease claims. Health claims that had no direct relation to a disease were not forbidden in the legislation. General advice about the importance of a food product was allowed (Streinz, 2001). For instance, the claim that

¹ Gesetz über den Verkehr mit Lebensmitteln, Tabakerzeugnissen, kosmetischen Mitteln und sonstigen Bedarfsgegenständen (Lebensmittel- und Bedarfsgegenständegesetz – LMBG). Aktualisierte Fassung in [6], Nr.1

Vitamin A is important for the eyesight and the skin and one glass of this product covers the daily need (OVG Hamburg) was allowed. The ban of deception (§17, Article 1.5.2 LMBG) stated that products with not scientifically proven health benefits were not allowed. In order to not make consumers believe that a single consumption could show an effect, product packagings should contain the wording “daily consumption”, “regular consumption” (Streinz, 2001).

The new EU “Regulation (EC) No 1924/2006 on nutrition and health claims made on foods” obliges the industry to prove claims on their scientific health benefit (Moors, 2012). Moreover, it required member countries to create a list of permitted claims that were agreed upon nationally or internationally and establish nutrient profiles that should be respected in the claims on foods (EC 2006). The objectives of the regulation are “to achieve a high level of consumer protection, to improve the free movement of goods within the internal market, to increase legal security for economic operators, and to ensure fair competition in the food sector” (Buttris, 2007). After years of collecting national lists of health claim proposals from the EU-countries, the European Commission sent out a consolidated list to the European Food Safety Authority and in December 2012 the Commission Regulation (EU) No 432/2012 came into effect (European Commission, 2012). Hence, health claims and labelling are regulated under a common regulation valid in all EU member states and all previous country level regulations are replaced (Moors, 2012). A food can be defined as functional when it is allowed to state a health claim of the list of authorized claims on its packaging (Moors, 2012). According to the Regulation (EC) No 1924/2006 a claim is “any message or representation, which is not mandatory under Community or national legislation, including pictorial, graphic or symbolic representation, in any form, which states, suggests or implies that a food has particular characteristics” (EC 2006, Article 2.2.1). More in detail, health claims are categorized into three different claims (EC 2006, Article 2.4.-2.6.):

1. ‘nutrition claim’ means any claim which states, suggests or implies that a food has particular beneficial nutritional properties due to: the energy (calorific value) it provides, provides at a reduced or increased rate, or does not provide; and/or the nutrients or other substances it contains, contains in reduced or increased proportions, or does not contain;
2. ‘health claim’ means any claim that states, suggests or implies that a relationship exists between a food category, a food or one of its constituents and health;

3. ‘reduction of disease risk claim’ means any health claim that states, suggests or implies that the consumption of a food category, a food or one of its constituents significantly reduces a risk factor in the development of a human disease. (L 12/8)

Next to ‘reduction of disease risk claims’ there are ‘function claims’ which contain nutrients that aim to help growing and developing body functions, controlling weight and satiating energy (European Food Safety Authority, 2016). Medical claims are not allowed within the EU (Moors, 2012).

The new legislation reduced the authorities’ legal doubts and on the demand side it was expected to foster understanding and acceptance. Now, consumers can trust claims and are protected when making healthy food choices (Moors, 2012). Moreover, the Regulation (EC) No 1924/2006 encourages innovation and more healthy food products can be produced (Buttriss and Benelam, 2010). However, due to the requirement of having scientific evidence of a health benefit, it is particularly risky and expensive to develop and market functional foods (Urala and Lähteenmäki, 2004). If the company succeeds in producing a food product that is allowed to carry a health claim, the claim adds value to the product and consequently a higher price can be asked (DI Fødevarer, 2012).

Denmark as one of the strictest countries concerning health claim regulations finally allowed the use of health claims when the Commission Regulation (EU) No 432/2012 came into effect. The country recognized the growth opportunities of the companies now being able to produce value added food products by exploiting the opportunity to increasing the market of healthy food options (DI Fødevarer, 2012). According to a survey in 2012, Danish companies planned to use health claims within a year (DI Fødevarer, 2012).

Having provided an insight into the functional food regulations in the EU, Germany and Denmark, the following two sections will give an overview of the market development of functional foods and current market situation in Germany and Denmark.

2.3 Functional Foods in Germany

The interest and market for functional foods in Germany is on the rise. When Danone launched the big promotional campaign of the probiotic drink “Actimel” in 1996, functional foods begun becoming popular (Franz & Nowak, 2010). Recently, several national market leaders who are specialized in a

food category have been producing functional food. Among these are: “Molkerei Alois Müller (“ProCult” dairy products), Eckes (ACE drinks) and Becker Fruchtsäfte (ACE fruit juice)” (Siró et al., 2008, p. 458). The current dominant players are Danone Deutschland GmbH (functional dairy products) and Wrigley GmbH (functional gum) who enjoy high popularity and awareness levels in the country (Euromonitor, 2016b). Other big players are Nestlé Deutschland AG, August Storck KG and Kellogg (Deutschland) GmbH (Euromonitor, 2016b). In addition, food retailers have been introducing several private label brands in the mature functional dairy market in order to keep up with the trend (Siró et al., 2008). For instance, “food discounters like Aldi, Lidl and Penny [...] launched pro- and prebiotic dairy products in recent years” (Menrad, 2003, p.184) whereby Aldi gained considerable market shares in the functional yogurt segment (Biester, 2001). The competitive landscape in Germany is very tough because competitors monitor each other in order to prevent competitors from breaking the regulations. Due to the changed regulations on health claims, companies’ new product developments were harmed, and they had to reposition their brands and marketing approaches (Euromonitor, 2016b).

According to the Germany Food and Drink Report (2015, p.9) “German consumers are prepared to pay for high-quality goods and product innovations, with health, wellness and functional foods, as well as organic products, having significantly increased in popularity.” Furthermore, Schmidt and Onur (2015) refer to the German market as being one of the four leading functional food markets within Europe next to the UK, France and the Netherlands. In the functional drinks segment, it is the only European country with a sizeable market. This is because of the fact that ACE drinks have enjoyed a considerable success in the market (Siró et al., 2008). Functional food is especially present in German consumers’ minds in relation to physical fitness. Despite of the interest in functional food products in relation to fitness, Germans are not as interested as other nations in products containing high levels of protein (Euromonitor, 2016b). Rather, it has been found that Germans prefer functional foods that prevent diseases in comparison to functional foods that promise direct effects (Stein & Rodríguez-Cerezo, 2008).

In the recent years, the German functional food market’s growth is stagnating with retail value sales of € 2.4 billion in 2015 and functional food has lost its attractiveness in comparison to alternative natural and organic food options (Euromonitor, 2016b). This is partly due to reports by the German consumer watchdogs Stiftung Warentest and Ökotest in which they wrote negatively about fortification

and functional ingredients. However, the development in 2015 was still better than in the years before whereby functional spreadable oils and fats were growing fastest (Euromonitor, 2016b).

Despite the recent slow growth, functional foods are an increasing trend in Germany and, as mentioned before, their popularity is increasing. Therefore, there is an increasing market potential that can be exploited.

2.4 Functional Foods in Denmark

In Denmark, food products that use pro- and prebiotics and synbiotics aiming at gut health have become a major trend (Heasman & Mellentin, 2001). Further, one of the early successful functional food products was the yogurt Gaio launched by MD Foods in 1993, which aimed at lowering cholesterol. As Denmark's largest company for dairy products at the time, it was among the first to develop functional food (Heasman & Mellentin, 2001). The company managed to mass advertise the product using holistic appeals and convince media journalists to report specific information about health benefits to overcome the legal ban of advertising (Bech-Larsen et al., 2005). As a result, it managed to become very successful on the Danish market despite its 70% price premium over conventional yogurts (Heasman & Mellentin, 2001). Despite its success and the increasing demand of such products, the Danish food industry has been reluctant to develop and market functional food. This was due to the fact that health claims were banned in Denmark until 2012 (Jonas & Beckmann, 1998).

In general, Danes have shown a high interest in functional foods that aim to prevent heart diseases (Bech-Larsen et al., 2001; Lähteenmäki et al., 2010). Further, in contrast to Germany, products high in protein are a major trend on the Danish market due to proteins' reputation of being healthy and energy-boosting. Therefore, Danish manufacturers develop convenient products that prevent cardiovascular disease and products with added protein (Euromonitor, 2016a).

Currently, the value of functional food has been growing by 1% reaching DKK 1.2 billion. Thanks to Arla Foods' Arla Cultura brand, probiotic drinking yoghurt enjoyed the fastest value growth, 7% in 2015 (Euromonitor, 2016a). Next to Arla Foods, important market players are Mondelez Danmark (functional chewing gum), Toms Gruppen's Ga-Jol and Cloetta's Läkerol (medicated confectionery) and Lantmännen Schulstad and Kohberg (products with added protein) (Euromonitor, 2016a).

In Denmark, the functional food market has enjoyed growth and since the new regulation for health claims came into place and more functional foods are produced, market growth potential has been increasing more and more.

In this chapter, the concept of functional foods was introduced and the functional food markets in Germany and Denmark were described together with the legislation regarding health claims in the EU and especially in these countries. In the next chapter, the factors that influence consumers in Denmark and Germany and student consumers in their decision to purchase functional foods will be assessed in form of a literature review in order to create the framework for our study.

3. Literature Review and Theoretical Framework

In this chapter of our thesis we will state our view on consumer behavior and provide some background through the explanation of relevant terms in this field. This is followed by a section providing insights into the food purchase behavior of the consumer group studied, which constitutes university students. Then, we will provide a literature review of functional foods research, also in Denmark and Germany, and explain the factors of functional food purchase behavior chosen to be the focus in this study. Thereafter, we will elaborate on and justify the choice of the theoretical model used in our research, and lastly integrate the chosen factors relating to functional food purchase into the theoretical framework, and provide the hypotheses to be tested.

3.1 Our view on Consumer Behavior

There are two main views on consumer behavior, and these are the behaviorist and the cognitivist paradigms. The behaviorist view is considered the more modern approach to consumer behavior, and from this perspective the consumer decision making process is based on a stimulus-response model in which learning from events in consumers' environment influences behavior. Thus, internal cognitive processes are not relevant (Evans et al., 2009) and only the observable behavior is in focus; the consumer's mind is seen as a black box taking observable information in (stimuli) and giving

observable responses out of the box (Solomon et al., 2010). With regards to attitude, behaviorists postulate that pre-behavior shapes an attitude, which results in a post-behavior (Winchester, Romaniuk & Bogomolova, 2008). This means that it is questionable to behaviorists that a consumer actually has a predefined attitude before any behavior takes place.

In this study, the researcher will take on the cognitivist view on consumer behavior because it is the more applied approach in consumer behavior, and is widely recognized and accepted in the consumer behavior research community. In contrast to the behaviorist view, this paradigm takes into account what happens inside the black box, that is, the cognitive processes in the mind of the consumer, in the understanding of consumers' decision-making process. Thus, the cognitivists' basis to understand consumer behavior is the stimulus response model, in which stimuli (marketing and environment) penetrate the consumers' minds and influence their psychological processes and characteristics. As a reaction to this, the consumer undergoes the purchase decision making process and makes the ultimate purchase decision (Kotler & Keller, 2009). Hence, opposite to the behaviorist view, the consumers' decision making process is rational and involves cognitive processes (Solomon, 2011). Kotler & Keller (2009), for instance, describe the consumer decision making process as a sequence of five stages: "problem recognition, information search, evaluation of alternatives, purchase decision, and postpurchase behavior" (p.207). In the evaluation stage, consumers assign benefits to products based on their attributes. Like this, they form a belief and ultimately an attitude towards the product which influences behavior (Kotler & Keller, 2009). This extensive process holds true for high involvement behavior. Verbeke (2005) regards purchasing functional food as a high involvement decision "because of personal relevance to the individual, potential reflection on self-image, incurred cost and risk" (p.55). Further models that confirm the idea that an attitude influences behavior are the so called response hierarchy models about the consumer responses to marketing communications. These are, for instance, the hierarchy of effects or AIDA models that involve the stages in the order of Cognition-Affect-Behavior (also referred to as the ABC model of attitudes) in the case for the high involvement product (Solomon, 2011). This sequence of placing attitude before the actual behavior is supported by the Theory of Planned Behavior (TPB), and as the researchers support the cognitive view, the TPB will be applied (see section 3.5 for further explanation of why we use the TPB as our theoretical framework).

In the next section, relevant terms relating to the cognitive approach to consumer behavior will be explained.

3.2 Relevant terms in Consumer Behavior

In this section we will examine a set of terms from consumer psychology in order to provide a background for the discussion of the factors influencing the consumer purchase behavior of functional food, and the elements in the theoretical model we use in our research.

3.2.1 Perception

Perception is defined as the way that “information acquired from the environment via the sense organs is transformed into experiences of objects, events, sounds, tastes, touch, etc” (Roth, 1986, p. 81). In other words, it is a process in which stimuli are selected and interpreted, and with that get meaning attached to it. The way that objects are perceived is subjective as it depends on an individual’s beliefs and general predisposition. Further, in the process of perception, elements and information in the external environment is influenced by a person’s previous experience, resulting in only some things appealing to our senses (Jansson-Boyd, 2010). The information provided by our senses is continuously categorized and interpreted in our mind, enabling a person to attach meaning and understand stimuli in the environment almost instantly (VanRullen & Thorpe, 2001). A perceptual pattern is formed based on the organization of the information, which is then stored in memory.

Though vision is the most central of the senses affecting human perception, we obtain most information from more than one sense (Heller, 1982). Thus, from a marketing perspective, one should attempt to influence consumers through the use of stimuli that appeal to several senses, and not only vision.

In addition to having implications for advertising, perception is also relevant in terms of how product attributes are being received by consumers. Because even though a manufacturer designs a product with the intention to provide a number of benefits to the consumer, these attributes might not be appreciated or perceived as being beneficial by the particular consumer. The product is only beneficial to the consumer in the case that it is perceived to be so, and when the use of the product

contributes in achieving the consumer's personal values. Therefore, we study the consumers' perception of important characteristics of functional foods such as naturalness and healthiness in our research, to get an insight into how the consumers view these added benefits. The perception of the product benefits is in turn based on the consumer's consumption values (Lai, 1995). These two types of values will be explained next.

3.2.2 Values - Motivation - Needs

Values are one's desired end-states and enduring beliefs about the purpose and goals of one's life and how it should be lived (Rokeach, 1973; Schwartz, 1992). These are personal values, and are shaped through personal, social and cultural learning (Clawson & Vinson 1978). Personal values are closely related to needs, as the values represent an individual's underlying needs that have been modified by the environment, and the personality and previous experiences of the individual (Wilkie, 1990). Needs can be defined as the gap between a person's actual state and desired state (Szmigin & Piacentini, 2015)

There are two types of values, according to Rokeach (1973); terminal (end-state) values, which refer to a person's beliefs about his/her goals in life, and instrumental values, which refer to the means or desired ways by which a person will pursue these end goals or terminal values. Personal values are comparable to terminal values, as they represent enduring beliefs that guide a person's actions across situations. On the other hand, there are consumption values, which are a person's beliefs about the best ways to attain the personal (terminal) values. People attain their goals (personal values) through activities such as possession, social interaction, and consumption (Sheth et al., 1991). Also, people generally have preferences about which actions will help them achieve their personal goals (Peter & Olson, 1990). We can therefore say that consumption values are comparable to instrumental values, as they guide people's behavior towards attaining their personal values.

Individuals usually have a number of values that guide their consumption behavior [Jansson-Boyd, 2010]. In consumer behavior theory, consumer values refer to the personal values that consumers seek to attain (Wilkie, 1990), and research in this field suggests that certain personal values can be achieved through the consumption of products (Peter & Olson, 1990; Sheth et al., 1991).

As mentioned, personal values are rooted in a person's needs. Also closely related to values and needs is motivation, which is the process that result in people behaving in a particular way (Jansson-Boyd, 2010). A person's values will influence the motivation to engage in particular behaviors (Parks-Leduc & Guay, 2009), and therefore also applies to consumption behavior. The relevance of the concept of values in this study is related to our interest in investigating to what degree students value health and a healthy diet, to get some initial insight into the potential of targeting this consumer group with healthy food products, in our case, functional foods.

3.2.3 Attitudes - Beliefs

Attitude is a central concept within social psychology, and has received a lot of attention in terms of research since the 1920-30s (Eagly, 1992). Attitudes are also considered to be one of the most important factors influencing human behavior (Bredahl, 2001). The early definitions of attitudes were quite broad, included several components, and focused on attitudes' close relationship to behavior. For instance, attitude was defined as "a mental and neural state of readiness, organized through experience, exerting a directive and dynamic influence upon the individual's response to all objects and situations with which it is related" (Allport, 1935, p. 810) and "(...) an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world" (Krech & Crutchfield, 1948, p. 152). The contemporary definitionS of attitude are more specific and generally emphasize the evaluative component of the concept:

"Attitudes are likes and dislikes" (Bem, 1970, p.14)

"Attitudes can be described as a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object" (Fishbein & Ajzen, 1975, p. 6)

"[Attitudes are] a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993, p. 1)

"Attitudes are evaluations of people, objects and ideas (Jansson-Boyd, 2010, p. 82)

One generally accepted view on attitude is that it comprises three elements: an affective component, a behavioral component, and a cognitive component (Rosenberg & Hovland, 1960). The affective component according to these authors refers to the feelings or emotional connection that a person has towards the attitude object, represented as a general liking or disliking. The behavioral component refers to the intended action towards the attitude object, and lastly, the cognitive component refers to the beliefs that a person holds about the attitude object.

An alternative view on attitudes to the tripartite model found in the literature suggests that these three elements are not components of attitude, but that they instead are antecedents or consequences of attitudes. This uni-dimensionalist model, proposed by Lutz (1990), suggests that attitude only consists of the affective element, representing the degree of liking/disliking or favorability/unfavorability towards the attitude object. The cognitive element, the beliefs, is considered to be an antecedent to attitude, and the behavioral component is the consequence. Thus, this model states that beliefs influences attitudes, which in turn influences the behavioral intention and actual behavior. This is the approach we will follow in this research as it is in line with the theoretical model we have chosen to use.

Though attitudes in consumer behavior generally are considered in terms of products, we will use the Theory of Planned Behavior, which considers attitude towards a behavior rather than an object, to evaluate the student consumers' attitudes towards the purchase of functional foods.

In order to get a sense of students as consumers of food and health products, the next section will provide some insights into what characterizes students' food choice behavior.

3.3 Consumer Behavior and Characteristics of Students as Food Consumers

In this study, college students are the research subjects. In the following, their relevance for marketers, their health behavior and what factors are important for them in their food choice will be explained.

Jenkinson (2000) sees a future potential in the student consumer segment because marketers has the opportunity to build long-term relationships with them. Further, Wilkins et al. (2002) emphasize the relevance and interest of studying college students' food beliefs because people starting college start living independently during that time, and thus are usually responsible for their meals for the first time

in their life (Harker et al., 2010; Sharma et al., 2010; Smith et al., 2000). While parents made the food choices for them before, students starting university suddenly have the control over purchasing, preparing and consuming food (Harker et al., 2010; Smith et al., 2000). They thus start to develop beliefs and habits of food selection that may impact their health and have nutritional and physiologic consequences in the long-run (Smith et al., 2000; Betts et al., 1997). Especially, in the first year of college, students are influenced the most by the novel lifestyle (Deliens et al., 2014). In their study, Wengreen and Moncur (2009) found that the transition to college goes hand in hand with a significant increase in weight. Therefore, it is important to understand the influencing factors of food choice in order to counteract this trend.

College students may not be very concerned about developing potential chronic diseases due to their young age, and consequently may not be motivated to adapt their food choices to minimize the threat (Smith et al., 2000). Thus, unhealthy food choice habits may continue lifelong (Wardle, 1995; Haberman, S. & Luffey, D., 1998) and thus, if marketers can target their functional food products more successful to the students it may help to prevent diseases caused by unhealthy food choices.

There is a general tendency that students are healthier than other consumer segments (Patrick et al., 1992). To be more precise, Georgiou et al. (1997), found that college students eating behavior was healthier than it was for non-college students. According to their study, college students consume more fruits, dark-green vegetables, low-fat milk and grain foods high in fiber than non-college students. Consequently, college students' risk for chronic illnesses was lower as a result of better eating habits. In addition, they found that college students skipped fewer meals than did non-college students and college students responded more to health promoting messages. This is due to the fact that college students are more health conscious than non-students. Among college students, there are more vegetarians than among non-students and college students also believe they live on a healthy diet (Ness et al., 2002). In Germany, this tendency could also be observed where people with a tertiary education are, in comparison to college students, more likely to be obese (Brombach et al., 2006). Concluding from this, we cannot infer from findings about eating behavior of college students to eating behavior of young adults in general.

In the next section, influencing factors in student consumer food choice will be assessed further in order to understand what factors are of importance in their food consumption behavior.

Important factors in student consumer food choice

Research found that nutrition is not of importance anymore and instead *convenience* increased in significance (Betts et al, 1997). Students regard healthy eating as difficult to fit in their lifestyle as it is characterized by time constraints due to busy schedules, which in turn lead to lack of time to cook and eat regular meals (Marquis, 2005; Deliens et al., 2014; Greaney et al., 2009).

Next to convenience, a decisive factor of food choice is *price* of healthy food due to budget constraints for this young group (Greaney et al., 2009; Marquis, 2005; Betts et al, 1995). In accordance, Betts et al. (1997) emphasized the importance of price, which was found to be followed by health and weight concerns in terms of importance, suggesting that students do care about health in addition to price (Marquis, 2005; Betts et al, 1995). Krystallis et al., (2008) found that young adults require the price of functional foods to be the same or lower than that of a conventional food product in order to consider purchasing the functional food. However, if students are motivated with regards to health, they are more likely to engage in healthy eating (LaCaille et al., 2011). According to a study in France (Monneuse et al., 1997), students are concerned about health, and their privileged access to information about health can explain these consumers' higher level of nutritional knowledge in comparison to non-students. *Nutritional knowledge* is a factor that is believed to influence food choice, although students state that this is only a first step towards a healthier food choice (Deliens et al., 2014).

Further, college students are influenced by taste preferences and (lack of) self-discipline (Deliens et al., 2014). Unfavorable *taste* was found to be an influencing factor to avoid a certain food product (Mooney & Walbourn, 2001). Students place importance on good taste, and hence it can be assumed that they would only choose a functional food if they placed more importance on it being a health-promoting product than a tasty one (Bhaskaran and Hardley, 2002).

The *naturalness* of a food product was also found to be of minor importance, which could be related to the fact that students mainly choose among pre-cooked meals in, for instance, student canteens (Mooney & Walbourn, 2001).

Next to these individual factors, *social networks* play an important role in students' food choices. Parental control or the lack of it can have a crucial influence, as well as peer pressure. Living with peers or support by family and friends are seen as decisive social factors (Deliens et al., 2014). Students emphasized, that social media can also be a great influencer for food choice (Deliens et al., 2014).

From this section, we can derive that there are many important factors in the student consumers' food purchase decision, and which could either facilitate or prevent the purchase of functional foods. In order to find more potential decisive factors that have not been looked at in research regarding the student consumer segment, the following chapter provides a broader overview of influencing factors for the functional food purchase decision that have been found in Germany and Denmark and also in other countries.

3.4 Influencing Factors of Functional Food Purchase Behavior

In the following sections, a summary of previous research both in Germany and Denmark will be provided. Further, we will state what factors have been looked at in functional food research apart from in these two countries. Lastly, we will derive the relevant factors to be researched in this study.

3.4.1 Functional Food Research in Germany

Research on functional foods conducted in Germany has focused on a number of different topics. Van Trijp and Van der Lans (2007) focused on the consumer perception of health claims and Dean et al. (2007) researched several factors influencing consumer perception in general. These factors include the type of health claim, base product and perceived benefit. In addition, Dolgoplova et al. (2015) looked at the influence of trust and food neophobia on consumers' perceptions of functional food. Stein & Rodríguez-Cerezo (2008) studied the effect of the consumers' knowledge of the ingredients in the product on their attitude towards functional foods. Further, several influencing factors concerning functional food consumer purchase intention, willingness or motivation to buy and likelihood of purchase (see table 1) have been looked at.

Table 1 Influencing factors concerning functional food consumer purchase intention, willingness or motivation to buy and likelihood of purchase in Germany

Demographics: gender, age, income and	Stein & Rodríguez-Cerezo, 2008
---------------------------------------	--------------------------------

education	
Taste	Franz & Nowak, 2010; Horskà & Sparke, 2007; Sparke & Menrad, 2009; Stein & Rodríguez-Cerezo, 2008
Trust	Siegrist et al., 2015; Stein & Rodríguez-Cerezo, 2008; Sparke & Menrad, 2009; Horskà & Sparke, 2007
Health claims	Siegrist et al., 2015
Familiarity or awareness of the term functional food	Stein & Rodríguez-Cerezo, 2008
Food neophobia	Siegrist et al., 2015
Base/carrier product	Siegrist et al., 2015
Nutritional knowledge	Stein & Rodríguez-Cerezo, 2008
Health interest	Siegrist et al., 2015
Willingness to pay a higher price	Stein & Rodríguez-Cerezo, 2008
Perceived health benefits	Siegrist et al., 2015

Findings from research on functional food in German consumers will be presented here in order to provide insights about the German functional food consumer. First, when looking at *demographics*, Stein & Rodríguez-Cerezo (2008) found that German women and slightly younger respondents were more likely to purchase functional food. Furthermore, respondents with higher income were more likely to purchase functional food. Education, however, had a mixed influence on likelihood to purchase. Second, *taste* is not a very important factor in Germany (Stein & Rodríguez-Cerezo, 2008) which is in accordance with the study by Franz and Nowak (2010) who segmented German consumers and found that German functional food buyers do not necessarily buy it because of hedonic reasons. Third, research considers *trust* (in the food industry) as an important factor that predicts the willingness of Germans to purchase functional food (Siegrist et al., 2015). Besides scientific information, German consumers trust “nutrition advisors, medical doctors, research institutions and consumer groups” (Dolgopolova et al., 2015, p. 713) the most and the government the least (Stein & Rodríguez-Cerezo, 2008). They blame their government to react too late in case of a food scandal and in general to lack control of the food production. Further, food manufacturers and retailers are not trusted due to dishonest communication and commercial self-interest (Stein & Rodríguez-Cerezo, 2008). Besides, Germans distrust the media and certain marketing techniques (Dolgopolova et al., 2015). Further, previous functional food research in Germany has focused on five factors that will be investigated in this study. In the following, an overview of these factors including research findings will be given.

First, Stein & Rodríguez-Cerezo (2008) focus on the factor *nutritional knowledge* which has shown to be an influencing factor to motivate German consumers to purchase functional food. They state that consumer knowledge increases when functional ingredients have been on the market for a long time. However, a strong advertisement can also increase knowledge in a short time. When consumers have a higher and correct knowledge about the health benefits and the efficacy of the ingredients, the attitude, acceptance and the likelihood to purchase functional food increase. Further, if consumers increase their nutritional knowledge, they may also be more likely to try functional foods that are recently launched on the market (Stein & Rodríguez-Cerezo, 2008).

Second, Siegrist et al. (2015) focus on the factor *health interest* and found that highly health motivated German consumers have a higher willingness to buy functional food. Moreover, Stein & Rodríguez-Cerezo (2008) found that Germans buy functional food because they want to stay healthy and do something good for themselves. In accordance, Franz and Nowak (2010) found that functional

food buyers are characterized as “conscious, health oriented” buyers. In addition, Sparke and Menrad (2009) found that, in comparison to other countries, Germany’s cluster of health oriented people was overrepresented. This shows that German consumers are very health conscious.

Third, Stein & Rodríguez-Cerezo, 2008 focused on the factor *willingness to pay a higher price* and found that price is not a very important influencing factor for Germans to purchase functional food. However, it is never a positive factor meaning that a lower price is always preferred. Yet, Germans are willing to pay a price premium for functional food if it has “a (credible) positive health effect” (Stein & Rodríguez-Cerezo, 2008, p. 45).

Fourth, Siegrist et al., (2015) focused on the factor *perceived health benefits*. Surprisingly, they found that when a health benefit was communicated to German consumers via health claims, they were less willing to buy it. They deduce from this finding that German consumers do not believe in the health benefits that are promised. In contrast to that, Stein & Rodríguez-Cerezo (2008) found that Germans buy functional food “to avoid medical treatment” (p. 34) which means that they see some benefit from consuming functional food.

Fifth, *health claims* constitute an important factor that influences the willingness to buy of Germans. According to research by Siegrist et al. (2015), it seems however that this influence is not very positive. Even more, health claims can reduce the willingness to buy a functional food.

3.4.2 Functional Food Research in Denmark

Research conducted in Denmark has focused on several topics concerning functional food:

- Health claims, cultural values and nutritional knowledge influencing acceptance of FF (Bech-Larsen et al., 2001)
- Price, health claims and enrichment influencing perceived healthiness (Bech-Larsen and Grunert, 2003)
- Health claims influencing consumers’ perceptions of attractiveness, healthiness, naturalness, tastiness and ability to reduce risk of disease (Lähteenmäki et al., 2010)
- Factors influencing perception of health claims: different active ingredients (familiar, unfamiliar), type of claim (combination of information about ingredient, physiological function)

and health benefit), framing (positive, negative), and use of qualifier (with, without “may”) (Grunert et al., 2009)

- Attitude towards functional food (Bech-Larsen et al., 2001; Jonas and Beckmann (1998); Bech-Larsen and Grunert, 2003)
- Knowledge about functional food influencing purchase and education influencing likelihood to purchase functional food (Hall, 2009)

Further, researchers focused on several influencing factors concerning Danes’ functional food consumer purchase intention (see table 2). Among these factors are

Table 2 Influencing factors of Danes’ functional food consumer purchase intention

Perceived taste	Bech-Larsen et al., 2001
Convenience	Bech-Larsen et al., 2001; Poulsen, 1999
Base product	Bech-Larsen et al., 2001
Enrichment	Bech-Larsen et al., 2001
Perceived naturalness	Bech-Larsen et al., 2001; Poulsen, 1999
Price	Bech-Larsen et al., 2001; Poulsen, 1999
Attitude towards purchasing	Poulsen, 1999
Perceived healthiness	Bech-Larsen et al., 2001

Interesting findings concerning the functional food purchase behavior and attitudes of Danish consumers will be presented here in order to understand the Danish functional food consumer better, and to provide insights about what prior research on functional foods in this market has found.

First, Hall (2009) found that Danes with the highest *educational level* were the ones that “are likely to buy functional foods least frequently” (p. 12). However, it has to be mentioned here that Hall (2009) researched actual behavior and not intention. Second, Danes perceive enriched foods as less *tasty* than non-enriched foods (Bech-Larsen et al., 2001). Moreover, Lähteenmäki et al. (2010) found that perceived tastiness depends on the type of benefit and ingredient. Third, the idea of functional foods as a *convenient* food choice that promotes health was found to influence the buying intention of Danish consumers the most in comparison to the other positively influencing variables taste and naturalness (Bech-Larsen et al., 2001). Further, previous functional food research in Denmark has focused on six influencing factors that will be investigated in this study. In the following, an overview of these factors including research findings will be given.

First, Danes’ *perceived naturalness* of functional foods seems to be negative as Jonas and Beckmann (1998) found that Danes were against functional food because they perceived it as unnatural. Due to the addition of alien ingredients, consumers distrust functional foods and hence perceive it as unnatural in comparison to its conventional counterparts and especially organic food. Yet, functional foods are perceived “as ‘more natural’ than genetically engineered foods” (Jonas and Beckmann, 1998, p.19). In addition, Bech-Larsen et al. (2001) found that enriched foods are perceived as less natural in Denmark than non-enriched foods and that naturalness positively influenced Danes’ purchase intention. Moreover, Poulsen (1999) found that Danish consumers see functional food as unnatural and that perceived naturalness explained 18% of variance of attitude towards purchasing functional food. This means that it is an important belief that ultimately influences the purchase intention. In general, Danes “have a strong preference for natural, unprocessed food” (Euromonitor, 2016a) and therefore it can be regarded as major influencing factor of purchase intention in Denmark.

Second, the factor *price* influences Danes’ perception in that way that “more expensive products are perceived as less natural and tasty than normally priced products” (Bech-Larsen et al., 2001, p.11). Therefore, price potentially influences buying intention (Bech-Larsen et al., 2001). However, although Danes prefer a lower price, its relative importance in comparison to other attributes is relatively small (Bech-Larsen et al., 2001) and the effect of price differences on perceived healthiness is only modest

(Bech-Larsen and Grunert, 2003). Poulsen (1999) found that the factor price as a belief influenced attitude towards behavior which explained 21% of variance. Some Danish consumer segments are willing to pay a higher price if they believe in the health effect, especially elderly people. In addition, women more readily accept functional food with a higher price (Poulsen, 1999).

Third, Bech-Larsen et al. (2001) found that Danes' *attitude* towards functional foods and genetically modified foods was very negative. In accordance with this finding, Jonas and Beckmann (1998) found that Danes are against modified and fortified foods. Moreover, Bech-Larsen et al. (2001) found that the cultural influence on attitudes towards functional food according to the two value dimensions mastery and harmony by Schwartz (1994) only explained attitude towards functional food to a low extent. Poulsen (1999) found that *attitude towards purchasing* influenced the buying intention the most in comparison to subjective norm.

Fourth, *perceived healthiness* is another important influencing factor influencing Danes' buying intention (Bech-Larsen et al., 2001). Bech-Larsen and Grunert (2003) found that the "healthiness of specific functional enrichments" (p.12) is accepted the least by the Danes in comparison to Finnish and US consumers. Only if functional foods are perceived as healthier than conventional food, it can be expected that consumers replace the conventional version with the functional one. In this context, perceptions of healthiness of the functional food explain countries' acceptance rates (Bech-Larsen and Grunert, 2003). Danish consumers may not accept functional enriched food products that are in their un-enriched version already perceived as healthy (e.g. vegetables). Thereby, there is a risk that enrichment influences consumer perceptions concerning the healthiness of these products negatively (Bech-Larsen and Grunert, 2003). In contrast to that, products that are perceived as unhealthy can benefit from enrichment because it can be justified to enrich these products (Bech-Larsen et al., 2001). Surprisingly, in the case of the three products investigated in the study by Bech-Larsen et al. (2001), Danes' "buying intention towards enriched products with either of the two components is independent of the base product" (Bech-Larsen et al., 2001, p. 13). Consequently, the perceived healthiness of a functional food is related to the base-product's perceived nutritional quality instead of the health claim or functional ingredient in the product (Bech-Larsen and Grunert, 2003). In general, non-enriched foods are perceived as most wholesome in Denmark (Bech-Larsen et al., 2001). What Danes perceive healthier and more natural in comparison to conventional foods are ecologically processed foods. If an ecologically processed food is functionally enriched at the same time, Danes perceive it as more tasty

but inconsistent in respect to its promised health consequences (Bech-Larsen et al., 2001). Consequently, functional enrichment may harm Danish consumers' perception of healthiness of ecologically processed foods (Bech-Larsen and Grunert, 2003). In Denmark, organically processed food is also perceived as healthier than conventional food which might be due to the fact that the Danish organic food market is one of the most advanced markets globally (Bech-Larsen and Grunert, 2001). In the study conducted by Jonas and Beckmann (1998), respondents stated that they see the process of functional food production as harming the “nutritional value of original ingredients” (p.19) and therefore “the respondents did not perceive functional foods as healthier than conventional foods” (p.19).

Fifth, Bech-Larsen et al. (2001) found that *nutritional knowledge* plays an important role in consumer acceptance of functional food. In general, Danes express a high knowledge concerning enrichment components. Especially younger consumers and women have a larger knowledge (Bech-Larsen et al., 2001). Jonas and Beckmann (1998) found that knowledge about functional food per se was limited in Denmark. However, it has to be emphasized here that their study was conducted 18 years ago and therefore knowledge about functional food is likely to be different today. A more recent study by Hall (2009) showed that Danish consumers know functional food to some extent but results on the influence of purchase were mixed. Respondents under 25 years stated the lowest knowledge level, however, age did not explain purchase behavior (Hall, 2009).

Sixth, regarding the influencing factor *health claims*, findings vary broadly. On the one hand, health claims negatively impacted the perception of product attributes as a possible consequence of the long existing ban of health claims on products and in marketing in Denmark (Lähteenmäki et al., 2010). On the other hand, Bech-Larsen et al. (2001) found that health claims influenced buying intention towards functional foods positively. Consequently, disclosing health information may result in higher acceptance of functional food (Bech-Larsen et al., 2001). Further, when it comes to trust in information sources the study by Hall (2009) suggests that Danes respond to food-related information and are likely to act on it. Products carrying a health claim were perceived “as more tasty and natural than products without health claims” (Bech-Larsen et al., 2001, p. 11). It is expected that the less a consumer knows about a component, the more will a health claim influence the attitude and the more a consumer knows about a component, the more limited the effect of a health claim on the attitude. Especially a more

elaborate claim has been found to influence buying intention to a larger extent (Bech-Larsen et al., 2001). Further, a claim on enriched food products influences Danish consumers' perception of convenience and healthiness positively (Bech-Larsen et al., 2001; Bech-Larsen and Grunert, 2003).

In the following section, a summary of the German and Danish findings will be provided in order to understand the German and Danish consumer better regarding the influencing factors of the functional food choice.

3.4.3 Summary of Research in Germany and Denmark

Overall, regarding functional food, several factors are decisive for *German* consumers. While taste and price are not very important influencing factors (Franz and Nowak, 2010; Stein & Rodríguez-Cerezo, 2008), health claims can even reduce the willingness to buy a functional food (Siegrist et al., 2015). Nutritional knowledge is an important influencing factor. The higher the knowledge, the more likely are Germans to buy it (Stein & Rodríguez-Cerezo, 2008). Perceived health benefits have been found to negatively influence willingness to buy (Siegrist et al., 2015). However, Stein & Rodríguez-Cerezo, (2008) found that consumers buy functional food because of its health benefit and are even willing to pay a higher price for it. Highly health motivated Germans have a higher willingness to buy functional food (Siegrist et al., 2015) and women, slightly younger people and people with a higher income are more likely to buy functional food (Stein & Rodríguez-Cerezo, 2008).

Danish consumers see naturalness as very important and do not perceive functional food as very natural (Jonas and Beckmann, 1998; Bech-Larsen et al., 2001; Poulsen, 1999; Euromonitor, 2016a). Further, Danes perceive enriched foods as less tasty (Bech-Larsen et al., 2001) and not healthier than conventional food (Jonas and Beckmann, 1998). Hence, their attitude towards it is rather negative (Bech Larsen et al., 2001; Jonas and Beckmann, 1998). However, some Danish consumer segments are still willing to pay a higher price (Poulsen, 1999). With regards to nutritional knowledge, it has been found that younger consumers and women have a higher knowledge level and that knowledge is an important influencer of consumer acceptance of functional food (Bech-Larsen et al., 2001). Consumers with a higher educational level do not buy functional food very often (Hall, 2009). However, this is actual behavior and cannot be looked at equally from intention. Poulsen (1999) found that attitude towards purchasing functional food influences the buying intention.

Although there has been research in both Germany and Denmark, the general research area has focused on many more influencing factors that could also be interesting for our markets of interest. Therefore, the next section provides a literature review of the overall research on functional foods, followed by an overview and explanation of the factors that we will investigate in relation to purchase intention in this study.

3.4.4 Functional Food Purchase Behavior Research

Food choice is a complex process that can be influenced by a large number of factors (Caplan, Keane, Willetts, & Williams, 1998; Furst, Connors, Bisogni, Sobal, & Falk, 1996; Parraga, 1990; Shepherd, 1989), from sensory factors such as taste and look, to psychological aspects, environmental and social factors (e.g. Eertmans, Baeyens, & Van den Bergh, 2001; Rozin & Tuorila, 1993). Thus, functional food consumer behavior is also characterized by numerous influencing factors; cognitive, attitudinal, social, economic and knowledge-based (Patch et al., 2005; Siro et al., 2008; Verbeke, 2005). This is also reflected in the extensive variation in terms of the focus of the existing studies on functional foods: Acceptance of functional food (Bech-Larsen, Grunert, & Poulsen, 2001; Frewer, Scholderer, & Lambert, 2003; Krutulyte et al 2011), willingness to try functional foods (Annunziata & Vecchio, 2011; Ares, Giménez, & Gámbaro, 2008; O'Connor & White, 2010; Urala, Schutz & Spinks, 2011), willingness to buy (Siegrist, Stampfli & Kastenholz, 2008) purchase intention (Krutulyte et al 2011; O'Connor & White, 2010; Poulsen, 1999; Rezai, Teng, Mohamed, & Shamsudin, 2014), intention to consume (Cox, Koster, Russell, 2004), and willingness to use (Urala, Lähteenmäki, 2004).

In terms of the factors studied in terms of consumer behavior of functional foods, the literature has covered a wide range of influencers: taste (Krutulyte et al 2011; Poulsen, Grunert & Bech-Larsen, 1999; Stein & Rodríguez-Cerezo, 2008; Urala, 2005; Urala & Lähteenmäki, 2004), confidence in health claims (van Kleef et al., 2005; Urala, 2005), nutritional knowledge (Ares, Giménez, & Gámbaro, 2008; Lu, 2014; van Kleef et al., 2005; Wansink et al., 2005), perceived naturalness (Poulsen, 1999; Bech-Larsen et al., 2001; Krystallis, Maglaras & Mamalis, 2008; Urala & Lähteenmäki, 2004), perceived healthiness (Ares, Giménez, and Gámbaro, 2008; Bech-Larsen & Grunert, 2003; O'Connor & White, 2010; Poulsen, Grunert & Bech-Larsen, 1999) carrier product (Ares & Gámbaro, 2007; Bech-

Larsen & Grunert, 2003; Lu, 2014; Krystallis, Maglaras & Mamalis, 2008; Siegrist, Stampfli, Kastenholz, 2008), demographics such as gender, income and age (Verbeke, 2005; Jeżewska-Zychowicz, 2009; Krystallis, Maglaras & Mamalis, 2008; Niva, 2006; Ong, Kassim, Peng & Singh, 2013; Seechurn, Neeliah & Neeliah, 2009), attitudes towards functional foods (Cox, Koster, Russell, 2004; O'Connor & White, 2010; Ong, et al., 2013; Poulsen, 1999; Poulsen, Grunert & Bech-Larsen, 1999; Urala, Lähteenmäki, 2004; Urala & Lähteenmäki, 2007), perceived risk (O'Connor & White, 2010; Urala & Lähteenmäki's, 2004; Siró et al., 2008), familiarity (Lähteenmäki, L., 2013; Urala, Schutz & Spinks, 2011; Wansink, Westgren & Cheney, 2005), trust (Siegrist, Stampfli & Kastenholz, 2008; Urala, Schutz & Spinks, 2011), self-efficacy (Cox & Bastiaans, 2007; Cox, Koster, & Russell, 2004), food neophobia (Urala & Lähteenmäki, 2004; Siegrist, Stampfli, & Kastenholz, 2008).

The existing literature is, as mentioned, dominated by a large number of different topics. In this study, however, we will investigate purchase intention, as well as a number of influencing factors that we hypothesize will influence the purchase intention of student consumers in Denmark and Germany. The justification for the factors chosen will be provided next.

3.4.5 The Focus in Our Research

The added health benefit is what distinguishes functional foods from conventional products and functional foods' ability to contribute to good health has been found to be a major motivator for its consumption (Urala, 2005). Thus, the degree to which consumers perceive functional foods to be healthy is a very relevant factor to study in relation to the purchase intention of these products. Another characteristic of functional foods is that they contain added nutritional substances, which can influence the degree to which consumers perceive the functional foods to be natural products. Because naturalness has been found to be an important factor in food choices (Bech-Larsen et al., 2001; Urala, 2005), we want to investigate the degree to which perceived naturalness influences intention to purchase these foods for the consumer group in question.

Health claims on the product packaging are an essential means to communicate the health benefits provided by the functional food product. Because convincing the consumer that the functional foods actually provides a health benefit, it is crucial that the consumer believes in health claim made on the packaging. Also, this is an element that marketers can influence. Therefore, we find that studying the

relationship between the consumers' trust in health claims and their purchase intention is highly relevant.

As mentioned, the purpose of the health claims is to inform the consumer about the health benefit of the functional foods product. However, in order to be able to understand the information on packaging concerning the health benefit of the functional food in question, the consumer would have to have some level of nutrition knowledge. Thus, we wanted to find out the level of nutritional knowledge of the consumers and investigate the relationship between their perceived level of nutritional knowledge and purchase intention towards functional foods.

Price is usually an important factor determining consumer food purchase decisions (Krystallis, Maglaras & Mamalis, 2008; Roininen et al., 2001), and price is especially important for student consumers in their food purchasing choices (Betts et al, 1995; Greaney et al., 2009; Marquis, 2005). Therefore, we wanted to look at the degree to which willingness to pay a higher price influences the purchase intention of functional foods in our study.

In sum, the factors relating to functional food purchase behavior that will be studied in this research include perceived naturalness, perceived healthiness, trust in health claims, perceived nutritional knowledge and price. As mentioned in the Introduction, these factors will be integrated as beliefs in the TPB, which will form the basis of our research. But before we give an overview of the application of functional food specific beliefs to the TPB in section 3.6, we will first provide a detailed explanation and justification of the use of the TPB in section 3.5.

3.5 The Basis for the Theoretical Framework - The Theory of Planned Behavior

The theoretical foundation for our study is the behavior-prediction model of Ajzen (1991): the Theory of Planned Behavior (TPB). The TPB suggests that people's behavior can be predicted by their intention to perform that behavior (Ajzen, 1985; 1991), and that the intention to engage in a certain behavior is explained by the "cognitive, motivational and affective internal processes associated with a given behavior" (Casper, 2007, pg. 1324). The TPB model is based on Ajzen and Fishbein's earlier work, the model Theory of Reasoned Action (TRA) (1980). Both of these theories are considered to be theories of reasoned action (Ajzen & Fishbein, 2005), and these theories are in line with the cognitive

view on consumer behavior in that they assume that people are rational decision-makers who consider the possible outcomes of their actions before actually engaging in any specific behavior (Ajzen & Fishbein, 1980). The fact that the TPB is a cognitivist model and thus in consonance with the researchers' view on consumer behavior is one reason for why the TPB forms the basis for this research. Further justification for why the application of this model is appropriate in this study will be presented in the first part of this chapter. Subsequently, we will provide an explanation of the TRA and our chosen model, the TPB, along with a justification for why the TPB is a more appropriate model than the TRA in this study.

3.5.1 The Choice of Theoretical Model

Our study is about exploring the purchase intention of functional foods for students in Denmark and Germany. However, the reason we want to measure purchase intention is to be able to predict consumers' actual purchase behavior in these countries. The TPB is therefore an appropriate framework in this study, as actual behavior can be predicted through the measure of behavioral intention in this model (Ajzen, 1985; 1991). The model has also been shown to be able to predict consumer behavior (Ajzen & Fishbein, 2000).

As mentioned in section 3.2, attitude is often linked to an object, that is, a product or service (Rosenberg & Hovland, 1960). However, due to factors such as price, a positive attitude towards a product cannot be assumed to result in a purchase (Thompson et al., 1994). The TPB on the other hand, suggests that the attitude towards the *behavior*, which in this case is a purchase, rather than towards the product, influences behavioral intention. Thus, the TPB and its evaluation of attitude is more useful in our case as we have the perspective of a marketer in this research. On that note, the TPB is not only useful in predicting behaviors, but can also be used in discovering which factors influence purchase intention and the strength of the influence of each factor. This information can then be used by marketers in developing and implementing strategies to increase purchase intention through influencing the factors found to affect it (Casper, 2007).

The TPB is an established framework that has been found to be a valid model for the prediction of behavioral intention: According to Francis et al. (2004), the TPB has aided the behavior prediction and

provided conclusive results in over 600 empirical studies over the past 20 years, and a meta-analysis of numerous different behaviors found that the TPB to be able to successfully predict behavioral intention (Armitage & Conner, 2001). The TPB has also been applied in numerous studies on food choice behavior (Conner, 1993; Conner & Sparks, 1996; Dreezens et al., 2005; Grunert et al., 1995; Honkanen et al., 2005; Sparks & Shepherd, 1992; Verbeke et al., 2004). Furthermore, the model has proven successful in predicting the intention of engaging in healthy eating behaviors (Astrom & Rise, 2001; Godin & Kok, 1996; Guardia et al., 2006; Gummesson, Jonsson, & Conner, 2007; Øygaard & Rise 2006), of using supplements (Conner, Kirk, & Barrett, 2001), of consuming genetically modified foods (Bredahl, 2001; Cook, Kerr, & Moore, 2002; Verdurme & Viaene, 2003), of purchasing and consuming organic foods (Anssi & Sanna, 2005; Arvola et al., 2008; Chen, 2007; Cullen et al., 1998; Maria et al., 2001), and of the consumption of dairy products (Kim, Reicks, & Sjoberg, 2003).

Several of the studies mentioned above also applied the TPB to predict purchase intention, specifically (Anssi, & Sanna, 2005; Arvola et al., 2008; Bredahl, 2001; Chen, 2007; Cook, Kerr, & Moore, 2002; Patch, Williams & Tapsell, 2005; Verbeke, Vermeir, Vackier, 2004). Furthermore, though limited, there are a few studies that have also applied the TPB to the consumption behavior of functional food. Patch, Williams and Tapsell (2005) used the model to predict the intent of Australian consumers to purchase omega-3 enriched foods, and O'Connor and White (2010) applied the model in the study of the willingness of consumers, here also Australian, to try functional foods. There appears to be no research using the TPB to predict the functional food purchase intention of German or Danish consumers, though it is worth mentioning that Poulsen (1999) applied the TRA in his study to predicting purchase intention of functional foods in Denmark.

In sum, an extensive amount of research has proven the TPB to be a valid model to predict intention of food choice and healthy eating behavior, also concerning functional foods. We therefore propose that the model is applicable also in this study of student consumers' purchase intention of functional foods.

Next, we will explain the TPB, as well as the theoretical foundations the model is based on.

3.5.2 The Theory of Reasoned Action & the Theory of Planned Behavior

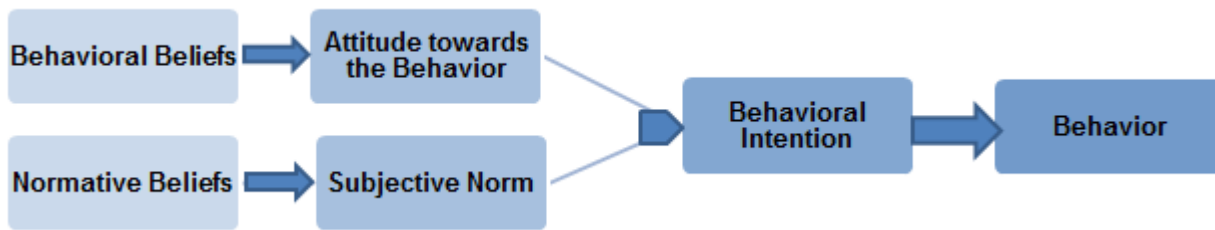
The Theory of Reasoned Action

As mentioned in the introduction to this section, the TPB is based on the earlier model the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), which proposes that behavioral intention, and thus actual behavior, can be explained by the two constructs attitudes towards the behavior and the subjective norms (social pressures) to perform the behavior.

The TRA can be used to explain an individual's attitude towards a specific behavior. Because a person's attitude towards a behavior often is not the same as the actual behavior, the Theory of Reasoned Action uses the intermediate factor of 'behavioral intention,' which has been shown to be a better predictor of behavior (Ajzen & Fishbein, 1980; Ajzen, 1988). The model states that a person's actual behavior can be determined from the person's intention to perform the behavior. In the model, intention is explained by these two factors: an individual's attitude towards the behavior and the subjective norms. Attitude concerns a person's positive or negative evaluation of performing the specific behavior, and is predicted by the salient beliefs concerning the potential outcome of the behavior. These beliefs are known as behavioral beliefs, and are a person's beliefs about the possible negative or positive consequences of performing the behavior. Thus, according to the model, the behavioral beliefs form the basis for a person's overall positive or negative attitude towards the behavior (Ajzen & Fishbein, 2005).

Subjective norm refers to a person's overall perception of the social pressure from important individuals or groups to engage or not engage in a certain behavior. For example, a student could feel pressured to purchase functional foods if his/her friends were very favorable towards functional foods and bought them themselves. The subjective norm is the outcome of an individual's normative beliefs, which are the beliefs about whether the people whose opinions that person value think that the he/she should perform the specific behavior. These beliefs can therefore be also be explained as the person's perception about the degree to which his/her referents approve or disapprove, and in that sense judge, the behavior in question (Ajzen & Fishbein, 1980).

Figure 3 The Theory of Reasoned Action



Adapted from *Understanding Attitudes and Predicting Social Behavior* (p. 8), by Ajzen & Fishbein, 1980, Englewood Cliffs, New Jersey: Prentice-Hall Inc.

The Theory of Planned Behavior

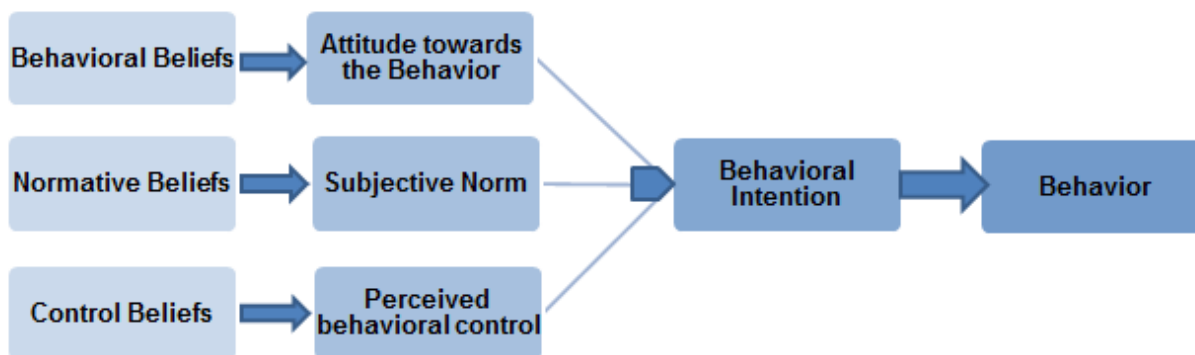
The TRA model has a major limitation in that it can only predict behaviors that can be easily performed, and behavior over which the individual has complete control. The TRA was therefore extended, resulting in the Theory of Planned Behavior (TPB). Contrary to the TRA, the TPB can also predict behaviors over which the person does not have complete volatile control. Volatile control has to do with how easily a behavior can be performed (Blackwell et al., 2006). Two elements were added to the TRA to take this volatile control into consideration in the prediction of behavioral intention; perceived behavioral control, and control beliefs. Perceived behavioral control (PBC) is defined as an individual's perception of the difficulty/ease of performing a certain behavior, and is a direct determinant of intention, alongside the factors attitude and subjective norm from the TRA (Ajzen, 1991).

Just as behavioral normative beliefs explain subjective norm, there are also a set of beliefs that result in the overall PBC. These are known as control beliefs, and are a person's beliefs about factors that might facilitate or hinder the person's intention to perform the behavior, and therefore has to do with the person's possession of opportunities and resources needed to engage in the behavior (Ajzen, 1991). Thus, control beliefs usually concern resources such as money, skills and time (Ajzen, 1991). In addition to the PBC and control beliefs, the TPB also includes the elements of the original model, TRA; behavioral beliefs/attitude and normative beliefs/subjective norms.

In sum, in the TPB, the intention to perform a certain behavior is determined by the constructs perceived control of engaging in the behavior, the subjective norm, and the attitudes towards

performing the behavior. Thus, positive attitudes towards the behavior, social pressure to perform the behavior, and perceived control over one's ability to perform the behavior are suggested to strengthen an individual's intention to perform a given behavior. As these constructs are in turn influenced by a set of salient beliefs concerning the behavior (control beliefs, normative beliefs, and behavioral beliefs, respectively), these beliefs also indirectly influence behavioral intention.

Figure 4 The Theory of Planned Behavior.



Adapted from The Theory of Planned Behavior (p. 182), by Ajzen, 1991.

The Choice of TPB over TRA

In real life there might be uncontrollable factors that interfere with one's intention to engage in a specific behavior. As a consequence of this interference, intention could become less precise in predicting the actual behavior (Ajzen, 1991). Therefore, it is highly relevant to include a person's perceived behavioral control of the behavior in the study of behavioral intention. Furthermore, according to Sparks et al. (1992), PBC is more likely to be significant in explaining food-choice-related behavioral intention in the study of behaviors in which volitional choice is strongly impeded. Thus, because the subjects in this study are university students, and price considerations are important for this consumer group (Betts et al, 1995; Greaney et al., 2009; Marquis, 2005), it is necessary for us to include the PBC factor in our research. Further, the model suggests that as the volitional control decreases, the inclusion of PBC in the model becomes more important (Ajzen, 1991). These are then

the reasons for why we use the extended model, the TPB, instead of the original TRA model in our study.

3.5.3 The Application of the TPB in this Research

Consumer behavior is very complex and the different factors influencing the purchase intention of a product is therefore dependent on the product type in question. Our literature review has found that the purchase behavior of functional foods is characterized by very many factors influencing the purchase decision that are specific to functional foods. Therefore, the TPB without the inclusion of the relevant salient beliefs is not specific enough in explaining the purchase intention of these products, and therefore we have include some of the most salient beliefs that prior research has found to influence functional food purchase behavior. We predict that by the inclusion of these beliefs, the model will be better at predicting the purchase intention of these foods.

As we have mentioned, the TPB is an established model to measure purchase intention, and with that predicting behavior, but the model has not been used much in research on functional foods. Therefore, it is relevant to explore the degree to which the TPB constructs subjective norms, attitudes, and perceived behavioral control, as well as the beliefs relating to student functional food consumer behavior, can explain the purchase intention of these foods. The relative importance of subjective norm, attitude and perceived behavioral control in explaining behavioral intention depends on the behavior, and therefore vary across situations (Ajzen, 1991). Therefore, we want to measure how these vary in their degree of being able to explain purchase intention in the case of functional foods in the markets of Denmark and Germany.

As we now have provided a thorough explanation of the TPB model and the justification for the use of this model in our study, we will in the next section integrate the beliefs found to be salient from the literature review on functional food consumer behavior into the TPB framework. This will then form the basis for our empirical study.

3.6 TPB as the Basis of our Research

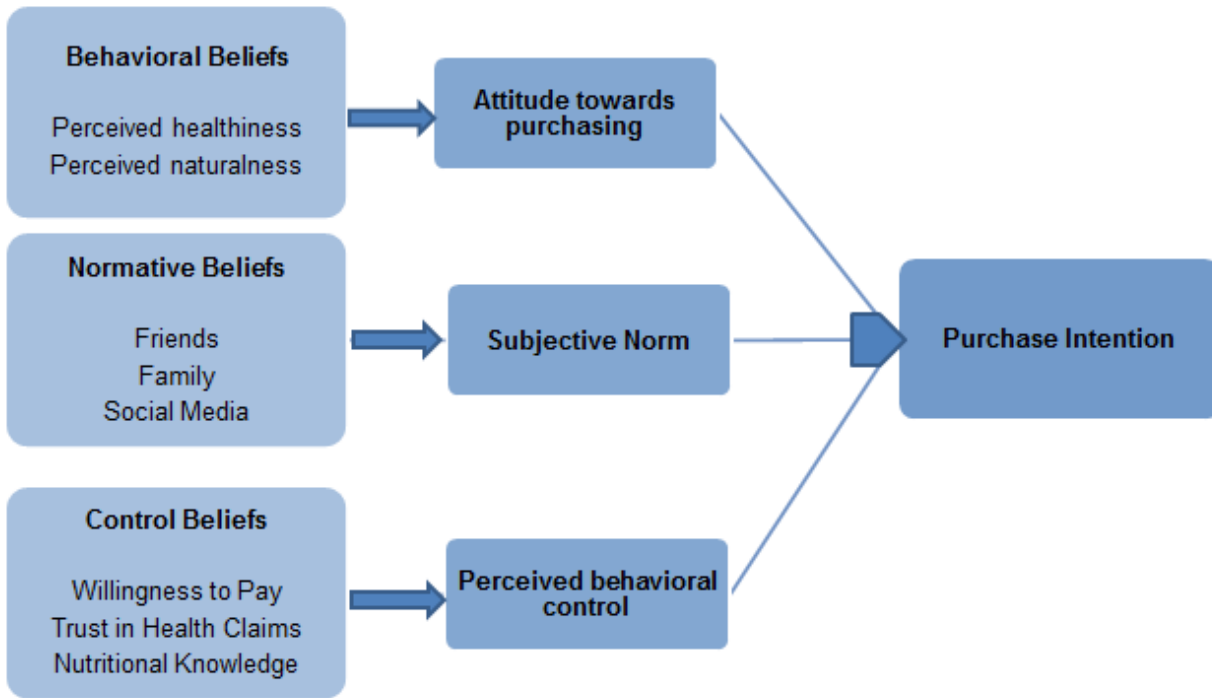
In order to be able to predict the purchase intention specifically for the product type of functional foods, we integrate the beliefs that previous research have found to be salient beliefs influencing the purchasing behavior of these products into the TPB framework. In this section we will first provide an explanation of how the beliefs concerning functional foods fit into the TPB model. Secondly, we will provide the hypotheses concerning these beliefs and their respective TPB construct, as well as purchase intention. The hypotheses will be based on findings from prior research of these beliefs/factors' influence on the functional food purchase decision.

3.6.1 The Beliefs in the Functional Food TPB Model

Behavioral beliefs are person's beliefs about the possible negative or positive consequences of performing a certain behavior (Ajzen & Fishbein, 1980). Because perceived healthiness and perceived naturalness refer to characteristics of functional foods that the consumer might think will cause a negative or positive experience of purchasing functional foods, these have been added as behavioral beliefs predicted to influencing the attitude towards purchasing functional foods, and thus also purchase intention. Normative beliefs are the beliefs about whether important reference groups or individuals think that a person should perform a specific behavior or not. The most relevant social contacts whose opinions are predicted to influence student consumers include friends, family and social media, and therefore we predict that the normative beliefs concerning the opinions of these sources will influence the subjective norm of purchasing functional foods, and thus purchase intention. Willingness to pay, trust in health claims, and nutritional knowledge are considered to be control beliefs, because they are factors that can influence the perception of how difficult/easy it would be to perform the behavior (Ajzen, 1991), which in our study is purchasing functional foods.

The visual representation of the inclusion of the beliefs related to functional food purchase behavior in the TPB is presented in figure 5.

Figure 5 The Proposed TPB Model in the Functional Food Context



3.6.2 The TPB as the Base of our Research

In this section we provide the theoretical foundation on which we base our hypotheses concerning the factors that could possibly influence the purchase intention of functional foods in the case of student consumers in Denmark and Germany. The hypotheses will be based on the TPB and prior research findings from the literature on functional food purchase behavior.

Behavioral Belief: PERCEIVED HEALTH BENEFITS

Functional foods promote a healthy eating lifestyle through providing certain health benefits that are linked to specific ingredients in the food product (Lähteenmäki, 2003). Because consumers are only expected to choose functional food over conventional food if the former is perceived healthier than the

latter (Urala & Lähteenmäki, 2003), and because consumers' perception of the positive health effects gained from the product has found to be a main motivational factor behind the consumption of functional foods (Annunziata & Vecchio, 2011; Bech-Larsen & Grunert, 2003), perceived healthiness is a very relevant variable to investigate in our study of the purchase behavior of functional foods.

The willingness to use functional foods has been found to increase with the expected health benefits from consuming them (Jeżewska-Zychowicz, 2009; Urala & Lähteenmäki, 2004; Saher et al. 2004). Furthermore, Poulsen (1999) suggests that perceived healthiness is one determinant of the purchase intention of functional foods. We therefore hypothesize that:

H1: Perceived healthiness of functional foods positively affects Danish (H1a) and German (H1b) consumers' purchase intention of these products.

According to the TPB, behavioral beliefs influence the attitude towards the behavior (Ajzen, 1991). Therefore, because we have established that perceived healthiness is a behavioral belief, we hypothesize that:

H2: Perceived healthiness of functional foods positively affects Danish (H2a) and German (H2b) consumers' attitude towards purchasing these products.

Behavioral Beliefs: PERCEIVED NATURALNESS

Various research has investigated the naturalness perception of functional foods and its influence on consumer behavior (e.g. Cox, Koster, & Russell, 2004; Frewer, Scholderer, & Lambert, 2003). Consumers tend to prefer foods that they perceive as being natural (Rozin et al., 2004), and the addition of substances can therefore lead consumers to perceive functional foods as being unnatural (Jonas & Beckmann, 1998, Lähteenmäki et al., 2010). The way that food products are being produced, organically versus conventionally, has also been linked to perceived naturalness, and it has been found that organically processed foods are perceived as being more healthy than those that have been conventionally processed (Bech-Larsen & Grunert, 2001). Urala and Lähteenmäki (2004) found that the perceived naturalness of the functional foods did not affect consumers' willingness to use these products. However, perceived naturalness has been found to be a major influencer determining functional food acceptance (Urala, 2005), an important factor in the purchase decision of functional

foods (Fewer et al., 2003) and to influence the purchase intention of functional foods positively (Poulsen, 1999; Bech-Larsen et al., 2001). We therefore hypothesize that:

H3: Perceived naturalness of functional food positively affects Danish (H3a) and German (H3b) consumers' purchase intention of these products.

As mentioned above, perceived naturalness is a behavioral belief in the TPB construct, and is therefore expected to positively influence attitude. Thus, we hypothesize that:

H4: Perceived naturalness positively affects Danish (H4a) and German (H4b) consumers' attitude towards purchasing functional food.

Control Belief: TRUST IN HEALTH CLAIMS

The information about the health benefits provided is considered to be a very important attribute of functional foods (Kraus, 2015), and providing information about the health benefits one can expect from a certain food has been found to increase the chance of consumption of these foods (Tuorila & Cardello, 2002). Ares, Giménez, and Gámbaro (2008) suggest that consumers have to be aware of the health effect that the functional ingredient provides in order to even be interested in functional foods. As a means to provide this information about the nutrition and health benefits of the functional food products and with that aid in the consumer's decision making process, the use of *health claims* is often regarded necessary (Urala et al., 2011; Williams, 2005; Hasler, 2002; Childs, 1998). Health claims are statements found on the front side of packaging of a food product that inform the consumers about certain health functions or outcomes one can expect from consuming the product. Nutrition claims are different from health claims in that they only communicate the nutrition content without linking it to a health outcome or function (Lähteenmäki 2013). Several studies have found that health claims on food products increases perceived healthiness (Lyly, Roininen, Honkapää, Poutanen, & Lähteenmäki, 2007; Saba et al., 2010; van Trijp & van der Lans, 2007), and this has also been found for functional foods (Bech-Larsen & Grunert, 2003; Wansik, 2003). Bech-Larsen & Grunert (2003) found that health claims had a positive effect on both Danish and German consumers' health perceptions. Furthermore, Poulsen and Grunert (1999) found that for Denmark, Finland and the U.S., health claims had a positive influence on their attitudes towards functional foods.

The difference between perceived healthiness and other attributes such as taste is that the consumer is dependent on trusting the information about the health effect, as they cannot observe it directly (Urala & Lahteenmaki 2004). Furthermore, because conventional and functional foods to consumers may appear identical, they rely on trusting the information concerning the health effect found on the packaging (Urala & Lahteenmaki, 2004). In other words, since health claims play a large role in informing the consumers about the health benefit (Lahteenmaki, 2013), the trust in these claims is crucial in convincing the consumers to believe that the product will actually provide the promised health benefit. According to Urala (2005), the consumers' trust in a functional food is dependent on their trust in the associated health claims, and thus determine the success of these foods (Urala, 2005). Previous research has found that trusted health claims have been found to increase the likelihood of functional food consumption (Markovina et al. , 2011; Kozup et al. , 2003). Therefore, we hypothesise that:

H5: Trust in health claims positively affects Danish (H5a) and German (H5b) consumers' purchase intention of functional foods.

Trust in health claims is considered to be a control belief, and is therefore expected to influence perceived behavioral control according to the TPB, and thus we hypothesize:

H6: Trust in health claims positively affects Danish (H6a) and German (H6b) consumers' perceived behavioral control of purchasing functional foods.

Control Belief: NUTRITIONAL KNOWLEDGE

The acceptance of a functional food depends on the consumer's knowledge about the health effects of the ingredients of the food product. As a result, functional ingredients that have been in the mind of the consumers for a longer period, like fiber and vitamins, is generally more accepted than those that have not been used in functional foods for that long a time, like omega-3 fatty acids and flavonoids (Bech-Larsen & Grunert, 2003; Bech-Larsen & Scholderer, 2007; Krygier, 2007; Urala & Lahteenmaki, 2007). When the consumers are not familiar with the specific groups of ingredients, they do not know their health benefits, and therefore cannot evaluate the possible beneficial effect of the product. As a result, even though presenting the functional ingredient and promoting a healthy image,

these elements are not enough to secure a market success for functional foods (Siró, Kápolna, Kápolna, & Lugasi, 2008). It is therefore highly relevant in this study to determine the nutritional knowledge level of student consumers, if this factor has a positive relationship with purchase intention, and what the strength of this relationship is.

Health claims are based on nutritional information (Lähteenmäki 2013), which therefore require associative networks in order for the consumer to process that information (Lawson, 2002). In other words, the level of a consumer's nutritional knowledge is likely to determine his/her ability to process and understand the information communicated through the health claims. Furthermore, health claims typically contain one or more of the following elements: the functional component, the function as such, and the physiological or psychological beneficial outcome of the function. If the health claims contain all of these components, the consumer will have information about what health benefit one can expect to experience and the reason behind the benefit. However, if the health claim contains only one of the elements, the consumer will use his/her existing knowledge to fill in the blanks (Lähteenmäki, 2013). This also suggests the importance of knowledge in consumers' evaluation of functional foods.

Several studies have found that nutritional knowledge has a strong influence on the food choice behavior of consumers (Harnack, Block, Subar, Lane, & Brand, 1997; Wardle, Parmenter, & Waller, 2000; Chern & Rickertsen, 2003). Wardle, Parmenter, and Waller (2000) for instance found that the people in the highest quartile of nutrition knowledge were 25 times more likely to engage in healthy eating behavior. There has also been some research done concerning the impact of nutritional knowledge in the consumer behavior of functional foods. For instance, the level of nutrition knowledge of the consumer has been found to be a prime influencer of the acceptance of functional foods (Sparke & Menrad, 2009), and has been shown to increase the intention and willingness to try functional foods (Frewer et al. , 2003; Wansink et al. , 2005; Annunziata & Vecchio, 2011; Ares et al., 2008; Rezai et al. , 2014). Furthermore, Ares et al. (2008) found that consumers with a low level of nutritional knowledge showed little interest in the consumption of functional foods, while those with a high level of knowledge showed the most interest. In terms of the relationship between nutritional knowledge and purchase intention, it has been found that higher nutritional knowledge increases the purchase intention of functional foods (Lu, 2014; van Kleef et al., 2005; Wansink et al., 2005; Lappalainen & Sjödén, 1992).

One can look at a consumer's nutritional knowledge in two ways: either their actual knowledge or their perceived knowledge (Bower, Saadat, Whitten, 2003; Petrovici & Ritson, 2006). As mentioned in previous chapters, one of our research questions is what the actual level of nutrition of German and Danish student consumers is, because this could be relevant information in the creation of marketing messages appropriate to this consumer group. However, in terms being an influencing factor of purchase intention, we want to study the consumer's own perception of his/her knowledge of nutrition, which we regard as a control belief likely to influence the consumer's perceived behavioral control of purchasing functional foods. We propose that if a consumer perceives his/her nutrition level to be low, the consumer might feel inadequate in interpreting the health messages on the functional foods, thus negatively influencing perceived behavioral control and purchase intention. We hypothesize:

H7: A higher level of perceived nutritional knowledge positively affects Danish (H7a) and German (H7b) consumers' purchase intention of functional foods.

H8: Perceived nutritional knowledge positively affects Danish (H8a) and German (H8b) consumers' perceived behavioral control of purchasing functional foods.

Control Belief: WILLINGNESS TO PAY A HIGHER PRICE

Price has been reported as one of the major factors influencing food choice behavior (Krystallis, Maglaras & Mamalis, 2008; Roininen et al., 2001). In terms of functional foods, their prices can be between 30% and 500% above those of conventional food products (Kotilainen et al., 2006), and they are also perceived by consumers to be more expensive than the conventional versions (Sukboonyasatit, 2009). The actual and perceived higher price of functional foods could explain why the producers of functional foods see price as a major obstacle to expand the sale of these foods (Wade, 2006), and why price has been cited as one of the reasons for why consumers would maybe not purchase functional foods (Niva, 2006). In a study by Urala, Schutz, and Spinks (2011) it was found that only 39% of respondents were willing to pay more for functional foods than for conventional foods. Also, Verbeke (2005) found that price is a factor that influences purchase intention of functional foods negatively.

Even though a premium price can both have a negative and positive influence on consumer purchase intentions (Dodds, Monroe & Grewal, 1991), it is more likely to have a negative influence in the case of student consumers because low prices is important to this consumer group due to their

budget constraints (Greaney et al., 2009; Marquis, 2005; Betts et al, 1995). Because of this, and the previous research findings mentioned above, we hypothesize that:

H9: A higher price influences Danish (H9a) and German (H9b) consumers purchase intention of functional food negatively.

Price can be a hinder for consumers to purchase functional foods, and is therefore considered to be a control belief. The TPB suggests that control beliefs influence perceived behavioral control, and we therefore hypothesize that:

H10: A higher price negatively affects Danish (H10a) and German (H10b) consumers' perceived behavioral control of purchasing functional foods.

Perceived Behavioral Control

Resources such as time, money, and skills are known to affect a person's perceived behavioral control over performing a certain behavior (Ajzen, 1991). Thus, when people believe they have more of these resources, they have a higher perceived control and their behavioral intention increases thereafter. Previous research has found that self-efficacy, which is a person's confidence in the ability to perform a given behavior (Bandura, 1977), is an important factor that can predict functional food acceptance and intention to consume these products (Cox & Bastiaans, 2007; Cox, Koster, & Russell, 2004). We therefore hypothesize that:

H11: Higher perceived behavioral control influences Danish (H11a) and German (H11b) consumers purchase intention of functional food positively.

Subjective Norm

It has been established that consumer behavior is influenced by the social and reference groups of the consumers (Bearden and Etzel, 2001). According to the TPB, subjective norms are formed by a person's normative beliefs, that is, the beliefs about the opinions of important reference groups concerning whether or not the person should perform the behavior (Ajzen & Fishbein, 1980). The reference groups that we find the most relevant in terms of student consumers and their purchase

intention of functional foods include friends, family and social media, and therefore these were considered in the current study.

Prior research have found that subjective norm has a significant positive influence on the willingness to use functional foods (O'Connor and White 2010), as well as on the behavioral intention to consume functional foods (Sukboonyasatit, 2009; Poulsen, 1999). Therefore, we hypothesize that:

H12: Subjective norm influences Danish (H12a) and German (H12b) consumers' purchase intention of functional food positively.

Attitude

Many studies on attitudes in connection with functional foods purchase behavior have been conducted (Bech-Larsen & Grunert, 2003; Urala & Lähteenmäki, 2007; Niva, 2007; Landström, Hursti, Becker, & Magnusson, 2007; Landström, Hursti, & Magnusson, 2009). As we have established in the previous section about our theoretical framework, attitude from the TPB perspective means attitude towards a specific *behavior*, and not towards an object. It has been food in prior research that attitudes towards the purchase of functional foods have a positive influence on purchase intention of functional foods (Poulsen, 1999), and therefore we hypothesize:

H13: Positive attitudes towards the purchase of functional foods influences Danish (H13a) and German (H13b) consumers' purchase intention of functional food positively.

The tests of the hypotheses stated above will aid the researchers in gaining an understanding of what factors influence the purchase intention of functional foods. However, before we provide the analysis of our empirical study in Chapter 5, we will explain the methodological approach to our research, in the following chapter.

4. Methodology

In this section, we will outline the methodology of our research which is “the theory of how research should be undertaken” (Saunders et al., 2009, p.3). We will explain our philosophical as well as theoretical assumptions upon which we base our research and state its implications for our method.

First, we will explain our choice of the philosophical stance regarding epistemological, ontological and axiological assumptions. Second, we will argue for why we use the deductive research approach and hypothesis testing. Third, the choice of research design will be stated. Fourth, the choice of research method and data collection method will be outlined. Fifth, the empirical study regarding data collection and sampling procedure will be explained. Finally, we will critically evaluate our choices and assess them with regards to its reliability and validity.

4.1 Choice of philosophical stance

Before conducting a research, the researchers have to be aware that their assumptions about the way in which they view the world will influence the decision about which research strategy and methods will be chosen and how findings will be interpreted (Crotty, 1998). The assumptions based on the research philosophy contain “assumptions about human knowledge (*epistemological assumptions*), about the realities you encounter in your research (*ontological assumptions*) and the extent and ways your own values influence your research process (*axiological assumptions*)” (Saunders et al., 2015, p. 124). There is no agreement on which philosophy should be followed. Hence, there is not only one philosophy which is considered the best (Tsoukas and Knudsen, 2003). In fact, practicalities such as time and budget and data access influence the choice of philosophical position to some extent (Saunders et al., 2015).

4.1.1 Epistemological assumptions

Epistemological assumptions concern about what is acceptable knowledge. Burrell and Morgan (1979) see these as where people start to make sense of the world and pass on their knowledge to others. There are three different philosophies or assumptions: *positivism*, *realism* and *interpretivism* (Saunders et al., 2009; Bryman, 2012). First, *realism* is a position that claims that objects and reality exist independently of the mind and “what we see is only part of the bigger picture” (Saunders et al., 2009, p.115). Second, *interpretivism* is a criticism of positivism emphasizing that our complex world cannot be generalized with “laws” like the positivist tries to accomplish. Rather, we as researchers are

actively taking part in the research process (Szmigin and Piacentini, 2015) and need to understand humans in their different roles as social actors (Saunders et al., 2009). Moreover, interpretivists interpret behavior in multiple ways instead of trying to find a single explanation (Szmigin and Piacentini, 2015). Third, the “resources” researcher embraces the *positivist philosophy* to the development of knowledge with the goal to make law-like generalizations as natural scientists would do (Saunders et al., 2009; Remenyi et al., 1998). As researchers, we are external to the data collection process which means that our research is conducted as value-free as possible (Saunders et al., 2009). We consider ourselves as natural scientists adopting the Theory of Planned Behavior by Icek Ajzen, who himself is a natural scientist. We see consumers as rational decision-makers (Calder and Tybout, 1989) and the world as “having an external objective reality” (Szmigin and Piacentini, 2015, p. 30). Applying this approach, we follow several steps. First, we make use of existing theories that have been thoroughly tested (Szmigin and Piacentini, 2015) in order to derive our hypotheses. Second, we use statistical data obtained from a quantitative questionnaire in order to be able to make generalizations concerning students’ functional food consumer behavior. We know that making these generalizations for the social sciences is a very simplistic approach. However, we still acknowledge the well-recognized and much tested Theory of Planned Behavior and wanted to test its applicability to functional food consumer behavior.

4.1.2 Ontological assumptions

Ontological assumptions, which are about the realities we encounter in our research, are divided into two positions: *subjectivist* and *objectivist*. The objectivist view considers social entities as being external to the social actors. We follow the subjectivist view which considers that social phenomena are shaped by perceptions and actions of the social actors. Hence, we as researchers need to understand the meanings that our respondents (social actors) connect to social phenomena (Saunders et al., 2009). While interacting with their surroundings, the students interpret events and try to become clear of its meanings. We need to understand their subjective reality to be able to interpret their motives, intentions and behavior (Saunders et al., 2009). The social phenomena are constantly revised meaning that the intentions and behavior of the students may change over time. We are aware that the answers to our questionnaire represent the students’ current beliefs and intentions and might change if we ask them

again at a future point in time. Our research aims to be as objective and independent of the social actors (students) as possible, however, our preconceptions guide our decisions as well.

4.1.3 Axiological assumptions

Axiological assumptions concern about awareness that our philosophical approach and research process are influenced by our values (Saunders et al., 2009; Strang, 2015). We are aware that we are two researchers who might draw different conclusions due to our different values. However, as positivists, we undertake our data collection process value-free and with our survey we are independent and objective of the data (Saunders et al., 2009). There are two philosophical views: the *teleological* and the *deontological* views. While the first argues that “the ends served by your research justify the means” (Saunders et al., 2009, p.184), the second acknowledges that “the ends served by the research can never justify the use of research which is unethical” (Saunders et al., 2009, p.184). When it comes to the “process of social enquiry” (Saunders et al., 2009, p.116), which is the essential concern in the research process, we agree to follow the *deontological* philosophical view, which means that we would not conduct unethical behavior in order to obtain the data needed for our research (Saunders et al., 2009).

4.2 Choice of Research Strategy

In terms of the research strategy, the researchers will argue for the deductive hypothesis testing approach in the first section and define the unit and level of analysis based on their research questions and hypotheses in the second section.

4.2.1 Research Approach

There are two approaches dealing with the relationship between theory and research (Bryman, 2012). These are the *deductive* approach which applies or tests an existing theory and the *inductive*

approach which builds a theory (Strang, 2015; Saunders et al., 2009). In this thesis, we will follow the deductive research approach which natural scientists predominantly follow. Here, laws help to explain, anticipate and predict phenomena (Collis and Hussey, 2003) and relationships between variables (e.g. perceived naturalness and the attitude towards purchasing functional food) can be tested. The Theory of Planned Behavior is applied and with this theory the resulting quantitative data from the questionnaire (the unit of analysis) is described, explained and evaluated with students in Denmark and Germany being the respondents (level of analysis) (Strang, 2015). De Vaus (2014, pp. 13-15) proposes six stages of the deductive research process that we will follow:

1. *Specify the theory to be tested*
2. *Derive a set of conceptual propositions*
3. *Restatement of conceptual propositions as testable propositions*
4. *Collect relevant data*
5. *Analyze data*
6. *Assessing the theory*

As our research topic is not completely new in literature, we decided to get familiar with existing theory and findings from research about functional food in order to specify the theory to be tested (stage 1). In this thesis, we investigate the research gap of consumer behavior of the student segment in particular looking at the two countries Denmark and Germany. As we see ourselves as positivistic researchers, we start with research questions which give us an idea of the unit and level of analysis that we will consider in the present research and start with one of the W5 question words (Strang, 2015; Richardson, 2000). Further, we derive conceptual propositions from the theory (stage 2). “A proposition is a statement which specifies the nature of a relationship between two factors” (De Vaus, 2014, p. 13). However, these are not clearly observable and rather abstract (De Vaus, 2014). Therefore, in the third stage we transform these into several testable propositions or hypotheses that test the theory based on quantitative data (De Vaus, 2014; Strang, 2015). Hence, in comparison to the research questions which use a theoretical lens (Strang, 2015), the hypotheses are propositions that statistically test “the relationship between two or more concepts or variables” (Saunders et al., 2009, p.124). To be more precise, they replace the conceptual propositions with indicators that can be measured and help the researchers to understand which data to collect (De Vaus, 2014). The fourth and fifth stage of the

deduction process involves collecting and analyzing the relevant data. During the data analysis process the researcher then assesses how much support for the hypotheses can be found and consequently how much the conceptual propositions and ultimately the initial theory can be supported (De Vaus, 2014). In the last step, the theory will be assessed and in the most extreme case we might not find any support and hence deduce that our predictions were wrong. This could be explained in three possible ways (De Vaus, 2014, p.10):

1. *The theory is wrong*
2. *The prediction has been illogically derived from the theory.*
3. *The way we have gone about gathering information from the real world was flawed.*

This would require going back to the starting point and questioning the whole research approach. What is most likely, however, is that we will find that the results are ambiguous and that the theory is only supported to some degree (De Vaus, 2014). In the last step, we then will draw implications regarding the theory and make inferences which might lead to adapting the theory. This in turn would have to be tested again and hence the research process could start anew (De Vaus, 2014). In this thesis, we will give our implications for future research and our well-structured methodology aims to help future research to replicate the study (Gill and Johnson 2002). In addition, this ensures the reliability of the research (Saunders et al 2009).

4.2.2 Unit and level of analysis

After writing the hypotheses, we as positivistic researchers determine the level and unit of analysis (Strang, 2015). In this study, the level of analysis is the individual student. Thereby, we define who we can generalize our findings to. In that context, it is important for us as positivists that our findings are reliable and significant (Strang, 2015). The unit of analysis is the variable of any type of data, factor or relationship that the study focuses on. In other words, it is “the ‘what’ and ‘how’ explanation of the units to be analyzed within the levels of analysis” (Strang, 2015, p. 34). Here, the units of analysis are the key variables of the TPB such as beliefs and intentions. In chapter 4.5.1 we describe the type of data we use more in depth. The units of analysis can exist at different levels of analysis (Strang, 2015)

and within one study several units of analysis can be used (de Vaus, 2014). We compare two countries and look at the differences or commonalities between the countries; however, we also research the relationship of factors within the individual. For instance, we look at the unit of analysis, which is the relation between purchase intention of functional food and the country (Denmark and Germany). Further, we look at the relation between attitude towards the purchase of functional food and purchase intention of functional food within an individual. What is more, as positivists, we are not only interested in the direction but also in the strength of the relationship and will therefore investigate the correlation in our statistical analysis (Strang, 2015).

4.3 Choice of Research Design

There are three different research designs, which are considered as the most important ones, depending on the research purpose: exploratory, descriptive and explanatory (or causal) (Saunders et al., 2009; Cooper and Schindler, 2008). However, a study can serve several purposes and hence include elements of more than one research design (Saunders et al., 2009). First, to get an understanding of what research has been done in the area of functional food and to find a research gap for our thesis, we started out with an exploratory research, searching literature. The literature research provided us a useful insight into the topic and we constantly adapted our research focus accordingly in the process (Saunders et al., 2009). Second, the study contains a small descriptive element as part of the data analysis: a descriptive overview (descriptive statistics) of our respondents is displayed. Third, the main part of the study is an explanatory research design. The causal relationship between the variables within the Theory of Planned Behavior is explained whereby the independent variables are the causal factors (e.g. perceived healthiness) and the dependent variable is the effect (e.g. purchase intention) (de Vaus, 2001). For instance, correlation tests are made in order to get a clearer idea of the relationship (Saunders et al., 2009). Regarding the time dimension of the study, it can be considered a cross-sectional study meaning that the study is conducted at one certain point in time in contrast to a longitudinal study (Cooper and Schindler, 2008). As we are not only time and budget constrained, but also rather interested in assessing the current situation instead of comparing two different points in time, we decided for a cross-sectional study and determined the longitudinal study as inappropriate in this case. An advantage of measuring at one point in time is that, relatively, response rates are higher in

comparison to other survey designs. However, attention has to be drawn to the fact that a current or recent event may influence the survey result (Kelay et al., 2006).

4.4 Choice of Research Method and Data Collection

Among the three basic methods for collecting primary data, experiments, observation and surveys (Saunders et al., 2009), the latter was the most appropriate in our case because of its many advantages and because it was the method that best enabled us to answer our research questions. Quantitative surveys provide descriptive information, facts whereas qualitative methods such as observation, interview, focus groups provide richer data from people which helps to understand their behavior better given a certain context. At the same time, a drawback here is that qualitative methods do not manage to generalize findings due to subjectivity of researchers which leads to the impossibility of replication by others (De Vaus, 2014). There are several advantages of using a survey method to collect data (Schmidt & Hollensen, 2006; Burns & Bush, 2014). First, a survey is easy to administer, compared for instance to a focus groups or interviews. Second, the data collected through surveys is very suitable to statistical analysis and tabulation due to the large samples sizes and the nature of the data. This was a requirement to the method of our choice in in our research because we needed to make statistical analysis to answer the research questions and test our hypotheses. Third, the questions in a survey are standardized, and thus we were assured that every respondent answered the questions that have been created to obtain the information needed to meet the objectives of our research. Lastly, the information needed to answer the what, why, how and who in our research could not have been obtained through observation, but required direct questions.

Though there are different types of survey methods, we chose to use a computer-administered online survey because of it enabled us to create the survey using a web-based questionnaire design system.

In the following section, the empirical study will be described in terms of how the data was collected and what limitations can result from this procedure.

4.5 The Empirical Study

In this section, first a detailed explanation of how data was collected is presented. Second, the sampling method and procedure is described.

4.2.3 Collection of Primary Data

In this section, the primary data collection to test the hypotheses is described in detail with the development, organization and pre-test of the survey questionnaire.

4.5.1.1 Developing the Questionnaire

Our theoretical model and our research questions served as the foundation for the sections and the measurement scales included in the survey.

Because our research is about the purchase behavior of German and Danish university students, we were only interested in the responses from these respondents. Therefore, we included two screening questions at the start of the survey: “Are you currently a university/college student?” (Yes/No), and “What is your nationality” (*Danish/other; German/other*). For the survey sent out to German students, we included only the options *German/other*, and for the survey sent out to Danish students we included only the response option *Danish/other*. The same survey was sent out to the Danish and the German students. However, the questionnaire was translated from English to German before we sent it out to the German students in order to ensure that the students would understand the questions perfectly.

To ease the respondents into the survey, we started off with the most general question; about their views of healthy eating, and included the scale for the Value of Healthy Eating. After that followed a definition of functional foods, which we provided in order to prevent any confusion among the respondents about what we meant with the term functional foods in the survey. Similarly, in order to ensure that all respondent understood what we meant by the term ‘health claims,’ we provided a definition of health claims made by the European Commission (EC 2006, Article 2.2.1), as well as some examples of health claims found in academic papers (van Trijp & van der Lans, 2007; Urala et al., 2003).

We followed the guideline by Burns & Bush (2014), and therefore placed the more complicated and difficult questions in the middle of the survey, and the demographic questions, concerning gender and age at the end. According to Schmidt & Hollensen (2006) it is important for the researchers to put themselves in the shoes of the respondents in order to design an effective questionnaire (Schmidt & Hollensen, 2006), and therefore some of the questions were modified so to be more easily understood by the respondents.

The Measurement Scales

In order to measure the different variables in our model, we used established and proven measurement scales. Because the responses to questions concerning degree of agreement or disagreement can be influenced by the negative or positive direction of the statement (Malhotra, Birks, & Wills, 2012), we reversed some of the questions so that there was a variation concerning the direction of the questions in the scales.

The measurement scales that were used to measure each influencing factor will be explained next.

Value of Healthy Eating

To measure the value that students put on health in their food choice behavior, we used the General Health Interest scale by Roininen et al. (1999). Some of the questions were adapted to make them more understandable for the respondent group. Responses were given based on a 5-point Likert scale, in which 1 denoted *I strongly agree* and 5 – *I strongly disagree*.

Perceived Naturalness

The respondents' perceived naturalness of functional foods was measured by adapting the Natural Product Interest scale created by Roininen et al. (1999). This scale included questions like “I try not to eat functional foods because they contain additives,” “In my opinion, organic functional foods are no better for my health than non-organic functional food products,” the answers to which were rated on a 5-point Likert scale where 1= *strongly disagree*, and 5= *strongly agree*.

Perceived Health Benefits

The construct measuring the individual's healthiness was based on those used by Sukboonyasatit (2009) and Annunziata and Vecchio (2011). We made some adaptations and only used those items that were appropriate considering the consumer segment investigated in our research (for instance we did not include questions such as "I can reduce taking medication if I eat/drink functional foods" because taking medication is not relevant to students in general). Furthermore, we reduced the number of items due to concerns about the overall length of our survey, as a long survey naturally has a negative effect on the response rate (Smith et al., 2003). Because the different scales measure the same factor, which is perceived healthiness, we can justify reducing the number of items without hurting accuracy, as we still included four items to measure perceived healthiness. The type of scales used was 5-point Likert scales, and examples of the statements the respondents were asked to evaluate include: "Functional foods are likely to have a beneficial impact on my personal health" and "I can prevent disease by eating/drinking functional foods regularly." Respondents were asked to rate the degree to which they agreed with the statements, where 1= *strongly disagree*, and 5= *strongly agree*.

Trust in Health Claims

We based the measurement of the trust in health claims on the respondents' trust in health claims on the framework of Keller et al. (1997), consisting of five 5-point semantic differential scales. Respondents were asked "On a scale from 1-7, do you believe that health claims are...;" *dependable - not dependable; untrustworthy - trustworthy; credible - not credible; insincere - sincere; honest - dishonest*.

Nutritional Knowledge

To measure the perceived nutrition knowledge, we used a 5-point scale adopted by Bower, Saadat, and Whitten (2003), in which we asked "How knowledgeable of nutrition do you consider yourself of being?" The question was rated from 1 - *very low*, to 7 - *very high*, with *average* labeled to point 4 for emphasis.

As consumers' perception of their own nutrition knowledge can differ from their actual knowledge, we also included a measurement of actual nutrition knowledge. Several other studies have included both a measurement of self-assessed nutritional knowledge and actual nutritional knowledge (Bower, Saadat, Whitten, 2003; Petrovici & Ritson, 2006), and that is what we also chose to do in our study.

For the measurement of actual nutritional knowledge, we used a 10-item nominal true-false scale developed by Alexander and Tepper (1995). The combination of questions cover the the various macronutrients, as well as common misconceptions about topics like fibre and calories in the diet. Some examples include: “Honey is more nutritious than table sugar” and “Margarine has fewer calories than butter.” This measurement of nutritional knowledge has been found to be reliable in other studies (Tepper, Choi, & Nayga, 1997).

Perceived Behavioral Control

The measurement for perceived behavioral control was based on the guidelines for creating a Theory of Planned Behavior questionnaire developed by Ajzen (2006), and the studies of Conner et al. (2001) and Sukboonyasatit (2009). This construct consists of three 5-point Likert scales (1= *strongly disagree* to 5= *strongly agree*) that measure the degree to which the respondents believes that he/she has control over the behavior, which here is the purchase of functional foods. The scales asked respondents to take a stand to the following statements: “If I wanted to, I could purchase functional foods;” “It is up to myself whether or not I purchase functional foods;” and “There are factors out of my control that could prevent me from purchasing functional foods.”

Purchase Intention

Based on the guidelines provided by Ajzen (2006), and the studies made by Sukboonyasatit (2009) and Chan, Prendergast and Ng (2016), the respondents’ purchase intention of functional foods was measured using three 5-point Likert scales. The first scale asked the participants if they intended to purchase functional foods over the next two weeks, In both these scales 1= *strongly disagree* and 5= *strongly agree*. In the third scale, the question asked “It is (*very unlikely* - *very likely*) that I will purchase functional foods over the next two weeks,” in which 1= *very unlikely* and 5= *very likely*.

Attitudes towards the Behavior

The construct for measuring the attitudes towards the behavior, which here is the purchasing of functional foods, is based on Ajzen (2006), which also have been used in other research (e.g. Conner et

al., 2001; Sukboonyasatit, 2009). One item was excluded because it related to a factor that we were measuring separately, that is Perceived Naturalness. The scales used for this construct included seven 5-point semantic differential scales, asking the respondents to answer to: “Overall, I think me purchasing functional foods is ... *worthless - valuable; harmful - beneficial; negative - positive; bad - good; difficult - convenient.*”

Subjective Norms

To measure the degree of perceived social pressure to perform the behavior, the purchasing of functional foods, we used three 5-item Likert scales. The scales were adopted from the Theory of Planned Behavior questionnaire framework (Ajzen, 2006). Two of the scales asked about the degree to which the respondents think their friends and family think they should purchase functional foods. We added a statement about the influence of the Internet and social media because studies have found that students prefer to get advice about health and nutrition from these media channels (Deliens et al., 2014).

Price

For the measurement of students’ willingness to pay a higher price for functional foods we used the 5-point Likert scale as suggested by Landstrom et al. (2007). The respondents were asked to rate the statement “I happily pay a higher price for foods with added health benefits” from 1= *strongly disagree* to 5= *strongly agree*.

The resulting questionnaire was distributed to a sample of the target population which are university students in Denmark and Germany. The following section describes the sampling method in detail together with the sampling procedure.

4.2.4 Sampling Method, Procedure and Respondents

When selecting a sample for the survey, several stages have to be followed. First, the target population has to be defined. Second, the sampling frame, which is “a representation of the elements of the target population” (Malhotra et al., 2012, p. 497) has to be chosen. Third, the sampling technique

has to be decided. Fourth, the sample size has to be determined. Finally, the sampling process is to be executed and the sample to be validated (Malhotra et al., 2012).

The *target population* in our survey is all university students in Germany and Denmark who are citizens of the country in which they study and live. The researchers do not target international university students as these are mainly expected to only stay in the countries for a limited amount of time and are not a segment that is likely to start a family and stay in the respective country for a longer period of time. Though we recognize that exceptions to this assumption exist. The *sampling frame* consists of elements of the target population and has to be chosen carefully in order to be able to later infer from the sample size to the target population (Malhotra et al., 2012). Here, the sampling frame is all university students who the researchers know, mainly those who are in the list of friends in the Facebook accounts of the researchers.

There are two types of *sampling techniques* the researchers have to choose from: probability (or representative) and non-probability (or judgmental) sampling (Saunders et al., 2009). As probability sampling is very difficult and associated with high costs and therefore often avoided, this sampling type is not used in this study. Hence, non-probability sampling, which can be conducted by convenience, snowball or quota sampling is used in this study. To be more precise, snowball sampling is used where the researchers select some initial respondents who, in turn, search for additional respondents (Babin and Zikmund, 2016). In particular, the social media platform Facebook is used to contact students that the researchers know, who then should spread the link to the survey to further students. This sampling technique is relatively cheap but can be time consuming. Normally, the snowball sampling method is used when the sampling frame is inaccessible. University students should be easily accessible, however, we do not have the means to reach many students in Germany and Denmark ourselves as university email addresses are confidential. Hence, the researchers have to rely on initial respondents to forward our survey link. As the researchers are time and money constrained, the snowballing technique only generates a relatively small *sample size*. However, it is justifiable only having a relatively small sample due to similar population elements (Babin and Zikmund, 2016). The researchers conducted the survey approximately three weeks, and after a saturation point was reached (no additional respondents), the survey was closed.

In order to increase the response rate, which is “the number of legitimately completed questionnaires returned divided by the total number of sample members provided a chance to

participate” (Babin and Zikmund, 2016, p. 189) several measures can be taken. These are, among others, to give incentives, provide a well-designed questionnaire or follow-up on initial contacts (Malhotra et al., 2012). First, *incentives* have been proven to increase the response rate (Malhotra et al., 2012) and therefore, the researchers give respondents the chance to take part in a draw to win a voucher worth 30 Euro from Amazon (in Germany) and a voucher worth 250 DKK from Netto (in Denmark). These vouchers were chosen to give gender neutral incentives which are at the same time attractive for students. Second, a well-designed questionnaire helps to decrease the refusal rate (Malhotra et al., 2012) and therefore, the researchers chose a survey tool with a user friendly and appealing design (GoogleForms). Third, following up on the initial contacts decreases refusal rates (Malhotra et al., 2012) and therefore, the researchers contacted them again to check whether the survey had been forwarded.

The researchers are aware that there might be a bias because people who have initially been selected by the researchers, are likely to choose someone who is similar to themselves (Babin and Zikmund, 2016). Consequently, the sample would be rather homogeneous (Lee, 1993). Likewise, representativeness is a major concern when using this method (Bryman, 2012). In order to *validate the sample*, the participants are screened during the survey (see chapter 4.5.1).

4.6 Limitations and Critical Reflections on Research Design and Method: Assessment of Validity and Reliability

In order to evaluate the credibility of research findings, there are two criteria: *reliability* and *validity* (Bryman, 2012; Cooper and Schindler, 2008; Saunders et al., 2009). In the following, the criteria will be discussed and threats and ways to test them will be explained.

Reliability is concerned whether the research will generate consistent findings (Saunders et al., 2009). In order to test for reliability, the positivist asks: “Will the measures yield the same results on other occasions?” (Easterby-Smith et al., 2012, p. 71) We assume that the results of the survey will not be the same as in the future as the (relative importance) of the beliefs can change over time. However, the researchers provide a thorough methodology including a detailed description of the survey questionnaire and the original questionnaire in the appendix A-1 (in English) and appendix A-2 (in German) of the thesis in order to increase the probability that other researchers can replicate the study.

Further, in order to create the same starting situation for each respondent, the concept of functional food was explained in the survey including a provision of examples.

Two threats to reliability are *subject or participant error* and *subject or participant bias* (Robson, 2002). The participant error “may occur when research subjects are studied in situations that are inconsistent with their normal behavior patterns, leading to atypical responses” (Saunders, 2009, p.601). In order to decrease the participant error, participants should possess all necessary information about the questions and be aware of their important role in providing the precise information. Moreover, they should be motivated adequately and neglect any possible mental reservations (Cooper and Schindler, 2008). By providing detailed definitions throughout the survey where necessary, the researchers aimed to decrease the participant error. However, respondents may interpret questions in a different way from us as researchers. In order to motivate respondents to reply an incentive was given and a motivating introduction was provided in order to communicate the importance of the survey (Cooper and Schindler, 2008). The participant bias “may occur when research subjects are giving inaccurate responses in order to distort the results of the research” (Saunders, 2009, p.601). The survey was anonymous so that participants could give honest replies with the ultimate goal to decrease the bias.

Reliability and its three perspectives can be assessed by three approaches: test re-test (stability), internal consistency and alternative form (equivalence) (Mitchell, 1996; Cooper and Schindler, 2008). First, *test re-test* means that respondents should be asked a second time to answer the questionnaire under very similar conditions in order to assess *stability* (Mitchell, 1996; Cooper and Schindler, 2008). However, it is difficult to convince respondents to answer twice (Saunders et al., 2009) and therefore this approach will not be taken by the researchers. Second, *internal consistency* “measures the consistency of responses across either all the questions or a sub-group of the questions” (Saunders et al., 2009, p. 374) from the questionnaire. The researchers will measure it with the Cronbach’s alpha method (Saunders et al., 2009). Third, *alternative form* means that alternative versions or ‘check questions’ should be used throughout the questionnaire to compare them with each other and test fatigue and with the ultimate goal to test *equivalence* (Mitchell, 1996; Cooper and Schindler, 2008). However, it is difficult to guarantee the equivalence of questions (Saunders et al., 2009). In this case, the researchers use construct questions. In order to test, for example, purchase intention, three similar questions are asked.

Internal validity is concerned whether the questionnaire measured the concept that was meant to be measured (Bryman, 2012). The question that arises is whether there actually is a causal relationship between the variables (Saunders et al., 2009). In the following, we will look at the three forms of validity of the questionnaire which are *content validity*, *criterion-related validity* and *construct validity* (Cooper and Schindler, 2008). First, *content validity* concerns whether the measurement questions and scales adequately cover the investigative questions aimed to be answered in the study (Cooper and Schindler, 2008). This subjective evaluation is not a sufficient measure to assess validity (Malhorta et al., 2012) and cannot be investigated in the data analysis process. Therefore, other validity criteria will be assessed. What the researchers did in order to attain a good content validity is to carefully define the research through literature (Saunders et al., 2009) and already existing constructs and scales of relevant factors for student functional food consumer behavior were used. Second, *criterion-related validity* concerns whether the questions and scales accurately predict or estimate the purchase intention (Cooper and Schindler, 2008). A criterion variable that could be taken as a comparison is actual purchase behavior (Malhorta et al., 2012) which will not be looked at in this study. Third, *construct validity* concerns whether the measurement questions measure the constructs we wanted to measure (Cooper and Schindler, 2008). For instance, the attitude scale is such a construct. Consequently, the question arises how well we can actually generalize from our questions to the constructs we use such as the attitude construct (Saunders et al., 2009). Two types of construct validity are *convergent* and *discriminant validity* (Malhorta et al., 2012). The first is concerned about whether there is a positive correlation between the scale and “other measurements of the same construct” (Malhorta et al., 2012, p.436) and the second is concerned about whether the measure “does not correlate with other constructs from which it is supposed to differ” (Malhorta et al., 2012, p. 437). These two types of construct validity will be assessed in the analysis part of this study via correlation matrices.

There are three relevant threats to internal validity (Cook and Campbell, 1979). First, *history* can influence the findings and mislead if the questionnaire is sent out after a product-recall or bad press concerning functional foods. As to our knowledge, no such recent event took place and therefore, we are not concerned about history. Second, *ambiguity about causal direction* signifies that the causal direction of influence between two variables can be ambiguous. Does X really cause Y or does Y cause X? This will not generate a problem if we know the relationship between the variables or if we can logically analyze it. This can be confirmed in this study as we found the causal directions the causal

relationships between the factors from the literature review and also the causal directions of the TPB variables. Third, *mortality* means that respondents can drop out of a study. Here, someone could drop out in the middle of the questionnaire. To overcome this problem, the researchers tried not to make questions too difficult and the questionnaire not too long.

External validity or *generalizability* refers to the ability of the data results “to be generalized across persons, settings, and times” (Cooper and Schindler, 2008, p.289). In the case of this study, the researchers do not claim that the results will be generalizable across other segments apart from the student segment. Moreover, the researchers are aware that the students’ purchase intention and beliefs about functional food may change over time due to factors influencing their beliefs such as advertisement. Therefore, external validity is not a concern for the researchers (Saunders et al., 2009).

Taking the methodological considerations into account, the empirical analysis is presented in the next chapter. The choice of analytical methods will be justified in each section.

5. Analysis of the Empirical Study

In this section, the resulting data from the questionnaire will be analyzed. First, the data preparation and coding process will be described. Second, a factor analysis will be conducted in order to reduce the data from many items to fewer constructs that each represents one scale. Third, reliability and fourth validity of the constructs will be tested. Fifth, the descriptive statistics are presented to show the characteristics of the German and Danish sample. Sixth, the bivariate correlations between the constructs will be presented in order to see which constructs are related to each other and to see which constructs can potentially be related to the dependent variables in the later regression analyses. Seventh, various regression analyses aim to test the hypotheses. Last, an overview of the results is presented.

In order to analyze the resulting data from the questionnaire, the Statistical Package for Social Sciences (SPSS) 22.0 was used. Additional output graphs and tables from each analytical test are listed in the appendix.

5.1 Data Preparation and Coding

For the following data analysis, the raw data in the SPSS data sets had to be coded. The coding instructions for each variable are stated in Table 3. In total, three data sets are used for the analysis: one data set including all cases from both countries, one data set only with the cases from Germany and one only with the cases from Denmark. The German sample consists of 97 respondents in total. Out of these, 11 are non-students and therefore do not fulfill the criteria to be selected for the analysis. They were deleted from the data and consequently 86 cases are used in the data analysis for the German sample. The Danish sample consists of 94 respondents in total. Out of these, 11 people are non-students and 10 people are not from Denmark. Therefore, these 21 cases were deleted from the data set, with 73 cases remaining for the analysis. In all data sets the reversed scale items were reversed again in order to be able to interpret the composite scores of the construct better. Like this, a high total scale score of a construct can be interpreted as a higher level of the construct. For instance, the number 5 in the ‘total trust in health claims’ construct means that the respondent has a high trust in health claims. The categorical variables were coded with dummy variables meaning they take on the values 0 and 1, respectively. These variables were gender, country and the nutritional knowledge test scale items (see Table 4).

To assess respondents’ actual knowledge about nutrition, a nutritional knowledge test was made within the survey. Ten statements concerning nutritional knowledge had to be answered with “true” or “false”, e.g. “Coconut oil has more saturated fat than sunflower oil”. In the data set in SPSS, the answers were coded with “0 = wrong answer” and “1 = correct answer”. In this way, a nutritional knowledge score could be calculated, where the number 10 means that all questions were answered correctly and the number 0 that no question was answered correctly.

Table 3 Codebook

Variable	SPSS variable name	Coding instructions
Country	Country	0= Denmark 1 = Germany
Identification number	ID	Number assigned to each respondent

Value of healthy eating scale items 1 to 8	Healthy1 to Healthy 8	5 point Likert scale
Perceived naturalness scale items 1 to 4	Natural1 to Natural 4	1 = strongly disagree
Perceived healthiness scale items 1 to 4	Benefit1 to Benefit4	2 = disagree
Perceived behavioral control scale items 1 to 3	Control1 to Control 3	3 = neutral
Subjective norm scale items 1 to 3	Normative Belief 1 to Normative Belief 3	4 = agree
Purchase intention scale items 1 to 3	Intention1 to Intention3	5 = strongly agree
Willingness to pay	Price	
Nutritional knowledge test scale items 1 to 10	TestKnow1 to TestKnow10	0 = wrong answer 1 = correct answer
Perceived nutritional knowledge	Knowledge	Semantic differential scale 1 = very low to 5 = very high
Trust in health claims scale items 1 to 4	Claim1 to Claim4	Semantic differential scale 1 = untrustworthy to 5 = trustworthy 1 = not credible to 5 = credible 1 = insincere to 5 = sincere 1 = dishonest to 5 = honest
Attitude towards purchase intention items 1 to 5	Attitude1 to Attitude5	Semantic differential scale 1 = worthless to 5 = valuable 1 = harmful to 5 = beneficial 1 = negative to 5 = positive 1 = bad to 5 = good 1 = difficult to 5 = convenient
Gender	Gender	0 = Female 1 = Male
Age	Age	Age in years

Table 4 Nutritional Knowledge Test Scale

Variable name	Measurement	Items
Nutritional knowledge test scale	<i>true / false</i>	Please indicate whether the following statements are true or false 1. Margarine has fewer calories than butter. (False) 2. 1 gram of protein has the same amount of calories as 1 gram of fat. (False)

3. Natural vitamins are more nutritious than synthetic vitamins. (False)
4. Coconut oil has more saturated fat than sunflower oil. (True)
5. Certain citrus products, like grapefruit, help the body burn fat quicker. (False)
6. Removing the skin from poultry reduces fat content. (True)
7. Whole milk is a better source of calcium than skim milk. (False)
8. Eating more fruits and vegetables will help you increase fiber in your diet. (True)
9. Cholesterol-free products are also fat-free. (False)
10. Sugar from fruits is more nutritious than table sugar. (False)

5.2 Factor Analysis

In the following, a factor analysis will be conducted in order to reduce and summarize data (Malhorta et al., 2012). The underlying assumption to be able to conduct a factor analysis is that there is a linear relationship between the variables as it is based on correlations (Pallant, 2010). A factor can then be defined as linear combination of variables that are highly correlated and together form a construct. At the same time they do not correlate with other variables, meaning they are distinct and independent from other factors (Tabachnick & Fidell, 2007). Table 5 gives an overview of the used scales in the questionnaire which will be put together as distinct factors in the factor analysis.

Table 5 Measurement scales used in questionnaire

Variable name	Measurement	Items
Value of healthy eating scale	5 point Likert scale (1 = completely disagree to 5 = completely agree)	<ol style="list-style-type: none"> 1. The healthiness of food has little impact on my food choices. (reversed) 2. I am very particular about the healthiness of the food I eat/drink. 3. I do not worry much about the healthiness of the food I consume. (reversed) 4. It is important for me that the fats in my diet are of the healthy kind. 5. I always follow a healthy and balanced diet. 6. It is important for me that my daily diet contains a lot of vitamins and minerals. 7. Eating a lot of vegetables on a daily basis is not of much importance to me. (reversed) 8. I do not avoid foods, even if I know they are unhealthy. (reversed)
Perceived naturalness scale		<ol style="list-style-type: none"> 1. I try not to eat functional foods because they contain additives. (reversed) 2. I do not eat processed foods such as functional foods, because I do not know what they contain. 3. Generally, functional foods are organic. (reversed) 4. There are less organic functional food products than organic conventional products.
Perceived healthiness scale		<ol style="list-style-type: none"> 1. Functional foods are likely to have a beneficial impact on my personal health. 2. I can prevent disease by eating/drinking functional foods regularly. 3. Functional foods do not make it easier for me to follow a healthy lifestyle. (reversed) 4. I do not worry about eating a balanced diet, if I eat/drink functional foods.

Perceived behavioral control scale	<i>Semantic differential scale</i>	1. If I wanted to, I could purchase functional foods.
Subjective norm scale		2. It is up to myself whether or not I purchase functional foods.
Purchase intention scale		3. There are factors out of my control that could prevent me from purchasing functional foods. (reversed)
		1. My friends think that I should purchase functional foods.
		2. My family thinks that I should purchase functional foods.
		3. Information on the Internet and social media tells me that I should purchase functional foods.
		1. I intend to purchase functional foods over the next two weeks.
		2. I want to purchase functional foods over the next two weeks.
		3. It is likely that I will purchase functional foods over the next two weeks.
Trust in health claims scale		In general, I believe health claims found on product packaging are
		untrustworthy 1...5 trustworthy
		credible 1...5 not credible (reversed)
		insincere 1...5 sincere
		honest 1...5 dishonest (reversed)
Attitude towards purchase intention scale		Overall, I think me purchasing functional foods is
		worthless 1...5 valuable
		harmful 1...5 beneficial
		positive 1...5 negative (reversed)
		bad 1...5 good
		convenient 1...5 difficult (reversed)

In the following, the researchers will follow the three steps to factor analysis proposed by Pallant (2010). First, the data will be tested for suitability for factor analysis. Second, the factors will be extracted. Third, the factors will be rotated and interpreted.

5.2.1 Suitability Test

To test suitability of factor analysis, two issues have to be considered: “sample size, and the strength of the relationship among the variables” (Pallant, 2010, p.182).

Concerning the sample size, some authors discuss about the minimum sample size necessary (Tabachnick and Fidell, 2007; Stevens, 1996), while others claim that the ratio of respondents to items is important (Nunnally, 1978; Tabachnick and Fidell, 2007). As long as the sample size is above 150

(in this case we have 159 respondents in total for both countries) and not too many variables are used, Pallant (2010) does not consider this being an issue. In order to have a reasonable sample size and to have the same resulting factors for both the Germany and Denmark sample for later common interpretation, the researchers base the factor analysis on the whole data set including both countries. Like this, the sample size increased to 159 cases (Denmark = 73 cases, Germany = 86 cases).

In order to assess the strength of the relationships of the variables within one construct, the correlation matrices (see appendix 3.1.1-3-1-8) will be looked at. Tabachnick and Fidell (2007) recommend doing a factor analysis when most correlations in the matrix are above .3. This is the case for all constructs that are measured here. One statistical measure which can be calculated in SPSS is the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970, 1974). The index ranges from 0 to 1 where values above .5 indicate the appropriateness of a factor analysis (Malhorta et al., 2012). All the constructs here have a KMO value above .5 which can be seen in Table 6. Another measure is the Bartlett's test of sphericity (see appendix 3.1.1-3-1-8) (Bartlett, 1954) which tests the hypothesis "that all variables are uncorrelated in the population" (Malhorta et al., 2012, p. 776). This test has to be significant ($p < .05$) for an appropriate factor analysis (Pallant, 2010). All constructs show p values of .0 and therefore, this measure also shows that a factor analysis is appropriate here.

Table 6 KMO Index of Constructs

Value of healthy eating	.830
Perceived naturalness	.513
Perceived healthiness	.666
Trust in health claims	.714
Perceived behavioral control	.597
Attitude towards purchasing	.815
Subjective norm	.580
Purchase intention	.745

5.2.2 Extraction of Factors

The two methods of factor extraction most commonly used are the principal component analysis and common factor analysis (Malhorta et al., 2012). In the following, we will use principal component analysis which helps “to determine the minimum number of factors that will account for maximum variance in the data for use in subsequent multivariate analysis” (Malhorta et al., 2012, p. 782). In comparison, common factor analysis only focuses on the common variance (Malhorta et al., 2012). Overall, the researcher is preoccupied in finding the least factors possible explaining as much variance as possible (Pallant, 2010).

The number of factors will be determined based on the Kaiser’s criterion which is based on eigenvalues (Pallant, 2010). According to this criterion, only factors with eigenvalues of 1.0 or above are included. The eigenvalue “represents the amount of the total variance explained by that factor” (Pallant, 2010, p. 184). A visual representation of the eigenvalues is Catell’s scree plot (Catell, 1966) which plots “eigenvalues against the number of factors in order of extraction” (Malhorta et al., 2012, p.783). Where the scree curve changes from vertical (the scree) to the horizontal curve, the optimal number of factors is found. These factors explain the highest percentage of variance in the data (Pallant, 2010) (see table 7). Based on the scree plot and the eigenvalue rule, nine factors resulted from the factor analysis (see scree plots appendix 3.1.1-3.1.8). All constructs could be summed up into one factor each, apart from the *perceived naturalness* construct which had to be divided into two factors. The *value of healthy eating* and *attitude* constructs were adapted after rotation (see next section).

Table 7 Total Explained Variance of Factors

Factor	Total Explained Variance in %
Trust in health claims	62.789
Purchase intention	87.261
Perceived behavioral control	51.667
Perceived healthiness	50.847
Subjective norm	65.996
Perceived naturalness additives**	69.866
Perceived naturalness organic**	72.365
Value of healthy eating*	46.490

Attitude*	80.378
-----------	--------

* after adaptation, **looked at factors separately

5.2.3 Rotation and Interpretation of Factors

In order to be able to better interpret the resulting factors from the factor analysis, the factors are rotated with the orthogonal Varimax factor solution approach. This approach minimizes the amount of variables with high loadings on the factor and the resulting rotated factor matrix shows which variables “clump together” (Pallant, 2010, p.185). As stated above, the factor analysis was conducted with the whole data set with all data from Germany and Denmark in order to have the same resulting factors for both countries and in order to have a higher sample size which is necessary for a factor analysis. After the rotation of the factors, nine factors could be extracted and interpreted. The *perceived naturalness* construct was divided into two factors (see rotated component matrix in appendix 3.1.4). Statement 1 (“I try not to eat functional foods because they contain additives”) and statement 2 (“I do not eat processed foods such as functional foods, because I do not know what they contain”) described one factor concerning the perception of the added content in the food and hence was labeled *perceived additive naturalness*. Statement 3 (“I would like to only eat organic functional foods”) and statement 4 (“In my opinion, organic functional foods are no better for my health than non-organic functional food products”) described one factor concerning the perception of the naturalness of the functional food in comparison to organic food and hence labeled *perceived organic naturalness*. The *value of healthy eating* construct was reduced by the first statement because the first statement (“The healthiness of food has little impact on my food choices”) alone would have formed a second factor next to the other seven statements. The *attitude* construct was reduced by the fifth comparison (convenient ... difficult) due to low correlations with all other statements.

5.3 Reliability Tests

The researchers created factors based on factor analysis and in the following these factors will be used to assess its reliability measuring its internal consistency. In statistical terms, internal consistency

can be described as “the degree to which the items that make up the scale ‘hang together’” (Pallant, 2010, p. 97). It will be tested on the data set including both countries with the Cronbach’s alpha coefficient which ranges from 0 to 1 where a value below 0.6 is unsatisfactory (Malhorta et al., 2012). However, this measure is sensitive to the size of a scale and short scales (with less than ten items) typically attract lower values. When the values are low (around .5), it is recommended to look at the inter-item correlation mean and check whether the range of correlations is between .2 and .4 (Pallant, 2010; Briggs and Cheek, 1986) Here, both perceived behavioral control ($\alpha = .517$) and perceived naturalness additives ($\alpha = .567$) have low Cronbach’s Alpha values which might be due to their small scale size (see table 8). Perceived behavioral control has three items and perceived additive naturalness only two items. Assessing the inter-item correlation means (perceived behavioral control = .273 and perceived additive naturalness = .397), the values are between .2 and .4 and hence the scales can also be considered reliable next to the other scales with higher Cronbach values.

Table 8 Cronbach's Alpha Values of Factors

Factor	Cronbach’s Alpha
Purchase Intention	.926
Perceived behavioral control	.517
Value of healthy eating	.789
Perceived naturalness additives	.567
Perceived naturalness organic	.615
Perceived healthiness	.657
Trust in health claims	.797
Attitude towards purchasing	.913
Subjective norm	.716

5.4 Validity tests

In the last section, reliability of the factors was measured, which is a precondition for validity (Malhorta et al., 2012). Now, the two types of construct validity will be assessed via data analysis. First, convergent validity is measured by assessing whether the items correlate positively with the factor. This is done by investigating the factor loadings which represent the correlation of each item with the factor. The higher the loading of the item, the more representative it is of the factor (Hair et al., 1998). Here, the factor loadings are higher than .5 (see table 9) which confirms convergent validity

(Fornell & Larcker, 1981). The only exception of a slightly lower factor loading is the perceived healthiness item number 4 with a loading of .415. Second, discriminant validity is assessed by comparing the lowest correlation of the items within one construct to the correlations with the items of this construct and items of other constructs. The lowest number of correlation within one construct has to be higher than each correlation with the items of the constructs with items of other constructs. As long as the number of violations of this rule is less than half of the total number of comparisons, discriminant validity can be ensured (Campbell and Fiske, 1959). Here, the total number of comparisons is 132² and the total number of violations is 60. Hence, discriminant validity can be confirmed.

Table 9 Factor Loadings of each Variable within the Factors

Variable/construct	Factor loading
View on healthy eating 2	.818
View on healthy eating 3	.747
View on healthy eating 4	.710
View on healthy eating 5	.625
View on healthy eating 6	.719
View on healthy eating 7	.528
View on healthy eating 8	.580
Purchase Intention of FF 1	.947
Purchase Intention of FF 2	.947
Purchase Intention of FF 3	.908
Perceived behavioral control 1	.737
Perceived behavioral control 2	.774
Perceived behavioral control 3	.639
View on naturalness of food 1	.836
View on naturalness of food 2	.836
View on naturalness of food 3	.851
View on naturalness of food 4	.851
Perceived healthiness of FF 1	.846
Perceived healthiness of FF 2	.812

² view on healthy eating (7*7) + naturalness additives (2*2) + naturalness organic (2*2) + health benefits (4*4) + trust in health claims (4*4) + PBC (3*3) + purchase intention (3*3) + attitude (4*4) + subj.norm (3*3) = 132

Perceived healthiness of FF 3	.698
Perceived healthiness of FF 4	.415
View on health claims 1	.836
View on health claims 2	.708
View on health claims 3	.785
View on health claims 4	.834
Attitude towards purchasing FF 1	.885
Attitude towards purchasing FF 2	.863
Attitude towards purchasing FF 3	.917
Attitude towards purchasing FF 4	.920
Subjective norm 1	.903
Subjective norm 2	.899
Subjective norm 3	.596

5.5 Descriptive Statistics

In the following section, the descriptive statistics of the sample aim to display the characteristics of the German and Danish sample. First, the descriptive statistics of the factors and TPB constructs will be looked at. This is also to answer the research questions ‘**What are the students’ attitude, subjective norm and perceived behavioral control towards the purchase of functional food?**’ and ‘**What is the purchase intention of students of functional foods?**’ Second, value of healthy eating and fourth actual nutritional knowledge will be assessed in the descriptive statistics in order to answer the research questions ‘**To what degree do students value healthy eating?**’ and ‘**How high is their actual nutritional knowledge?**’ Third, observations regarding age and gender will be stated.

5.5.1 Influencing Factors and TPB constructs

First, the purchase intention, TPB constructs and the factors which resulted from the factor analysis will be addressed in this section. Second, the categorical variables *willingness to pay* and *perceived nutritional knowledge* will be addressed. These variables were assessed with each one question.

Perceived nutritional knowledge was assessed by asking “What level of nutrition knowledge do you consider yourself of having?” where answers could be stated on a 5-point semantic differential scale reaching from low to very high. The willingness to pay was assessed on a 5-point Likert scale reaching from strongly disagree (1) to strongly agree (5) to the statement “I happily pay a higher price for foods with added health benefits”.

Germany

Germans’ purchase intention is below the neutral value of 3 with a mean of 2.47 indicating that Germans rather disagree to purchase functional food. Regarding the TPB constructs, Germans rate above neutral on the constructs perceived behavioral control (3.53) and attitude towards purchasing (3.24) (see table 10). This means that, on average, their attitude towards purchasing functional food is rather positive and their perceived behavioral control is rather high. Their subjective norm is rather low indicating a value below the neutral value (2.48).

Table 10 Descriptive Statistics of Factors and TPB Constructs Germany

	N	Min	Max	Mean	Standard deviation
Total Purchase Intention	86	1.00	5.00	2.47	1.06
Total Perceived Behavioral Control	86	1.00	5.00	3.53	0.68
Total Attitude towards Purchasing	86	1.00	5.00	3.24	0.76
Total Subjective Norm	86	1.00	4.00	2.48	0.80
Perceived Naturalness Additives	86	1.00	5.00	2.90	0.94
Perceived Naturalness Organic	86	1.00	4.50	2.47	0.89
Total Perceived Healthiness	86	1.00	4.25	2.78	0.70
Total Trust in Health Claims	86	1.00	4.50	2.54	0.78
Perceived nutritional knowledge	86	2	5	3.77	0.807
Willingness to pay	86	1	5	3.14	0.984

As for the influencing factors, or beliefs, Germans rate below neutral on all of them apart from perceived nutritional knowledge and willingness to pay. On average, Germans’ perceived nutritional knowledge is slightly above average and they rather agree to pay a higher price for functional foods. 65% of respondents rate their knowledge as above average (4 and 5) and 44% agree and strongly agree

to pay a higher price for functional food (see frequency tables in appendix 3.2.1). The bar charts in figure 6 and 7 show the frequencies of the replies to the two questions.

Figure 6 Perceived nutritional knowledge Germany

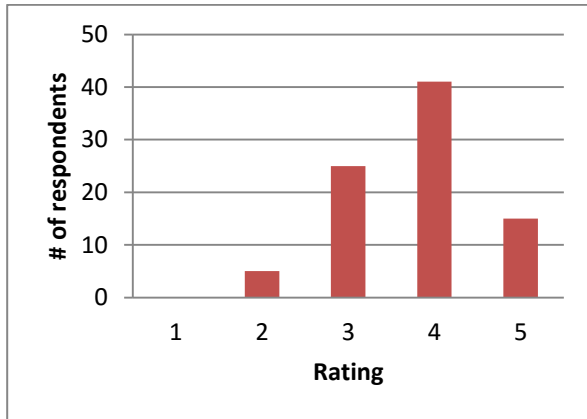
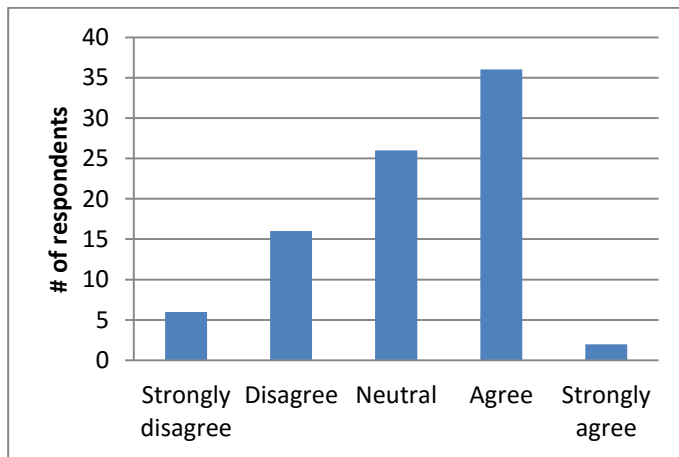


Figure 7 Willingness to Pay Germany



Denmark

Danes' purchase intention is also below neutral (below 3), with a mean of 2.61. Regarding the TPB constructs for the Danish sample, it can be observed that Danes rate above neutral on the constructs perceived behavioral control (3.41), and attitude towards purchasing (3.35) (see table 11). This means that their attitude towards purchasing functional food is rather positive and their perceived behavioral control is rather high. Danes' subjective norm is also low as it rates below neutral (2.54).

Table 11 Descriptive Statistics of Factors and TPB Constructs Denmark

	N	Min	Max	Mean	Standard deviation
Total Purchase Intention	73	1.00	5.00	2.61	0.97
Total Perceived Behavioral Control	73	2.00	5.00	3.41	0.60
Total attitude towards purchasing	73	1.75	5.00	3.35	0.75
Total subjective norm	73	1.00	4.33	2.54	0.78
Perceived naturalness additives	73	1.50	5.00	3.32	0.73
Perceived naturalness organic	73	1.00	5.00	2.49	1.03
Total perceived healthiness	73	1.25	5.00	2.80	0.67
Total trust in health claims	73	1.00	5.00	2.74	0.84
Perceived nutritional knowledge	73	1	5	3.95	0.926
Willingness to Pay	73	1	5	2.51	1.180

Regarding the beliefs, most of them rate below neutral, whereas perceived naturalness additives rates above neutral (3.32). An above average rating in the construct perceived naturalness additives means that the respondents do not seem to mind that functional foods contain additives and would not avoid them for this reason. As for the perceived nutritional knowledge, Danes believe that it is rather high (3.95). Their willingness to pay a higher price for a functional food, however, is below neutral (2.51). 73% perceive their knowledge as above average (4 and 5) and yet still 58% agree or strongly agree to pay a higher price for functional food (see frequency tables in appendix 3.2.2). The bar charts in figure 8 and 9 show the frequencies of the replies to the two questions.

Figure 8 Perceived nutritional knowledge Denmark

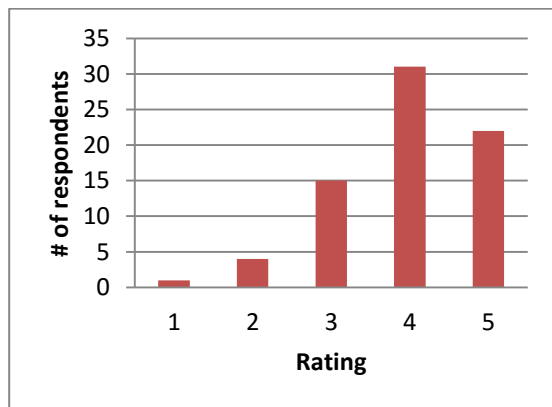
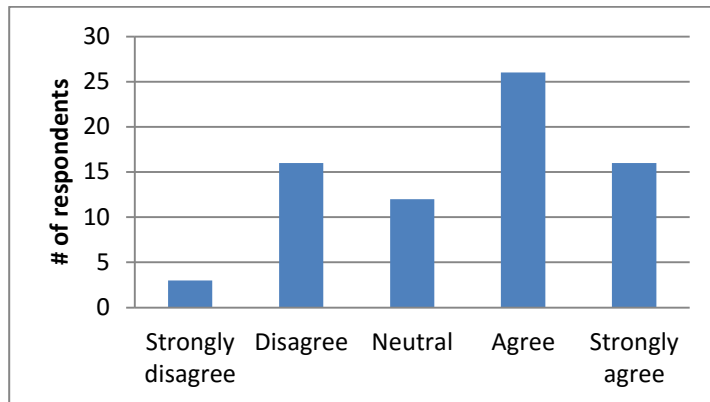


Figure 9 Willingness to pay Denmark



5.5.2 Value of Healthy Eating

In order to answer the research question ‘**To what degree do students value healthy eating?**’ the mean value of the value of healthy eating scale will be looked at. Both countries state values above neutral, meaning they do value healthy eating. German students value healthy eating slightly more than Danish students with mean values of 3.40 and 3.32, respectively (see table 12).

Table 12 Value of Healthy Eating in Germany and Denmark

	N	Min	Max	Mean	Standard deviation
Germany: Total Value of healthy eating	86	1.57	4.86	3.40	0.70
Denmark: Total view on healthy eating	73	1.57	4.86	3.32	0.62

5.5.3 Actual Nutritional Knowledge Score

In order to assess the respondents’ actual nutritional knowledge and thereby answer the research question ‘**How high is the students’ actual nutritional knowledge?**’ 10 statements were given and respondents had to indicate whether these were correct or wrong. In this section, an overview of the test results will be given.

The descriptive statistics of the actual nutritional knowledge test score in Germany show that, on average, 6 questions out of 10 were answered correctly by the Germans. The lowest score was 1 and

the highest score 10. 65% of respondents answered more than half of the questions correctly (6-10 points). In comparison to that, Danes answered 7 out of 10 questions correctly. The lowest score was 2 and the highest score 10. 79% of respondents answered more than half of the questions correctly (6-10 points). Tables 13 and 14 show the frequency distribution of the actual nutritional knowledge test scores in both countries.

Table 13 Actual Nutritional Knowledge Score Germany

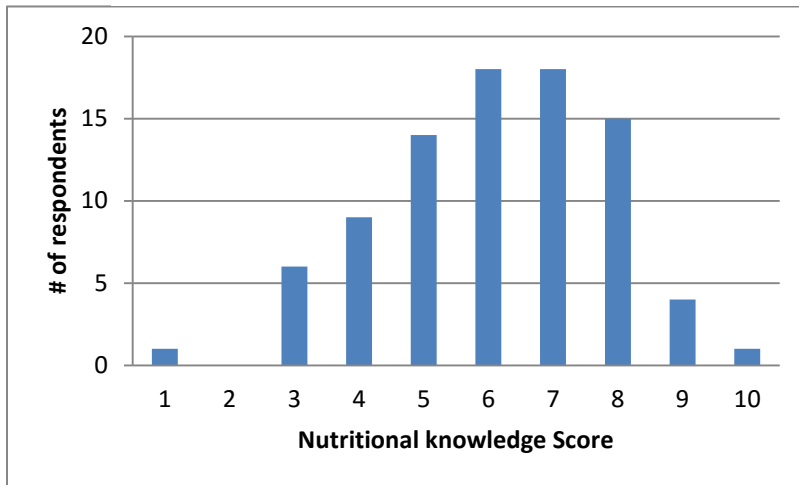
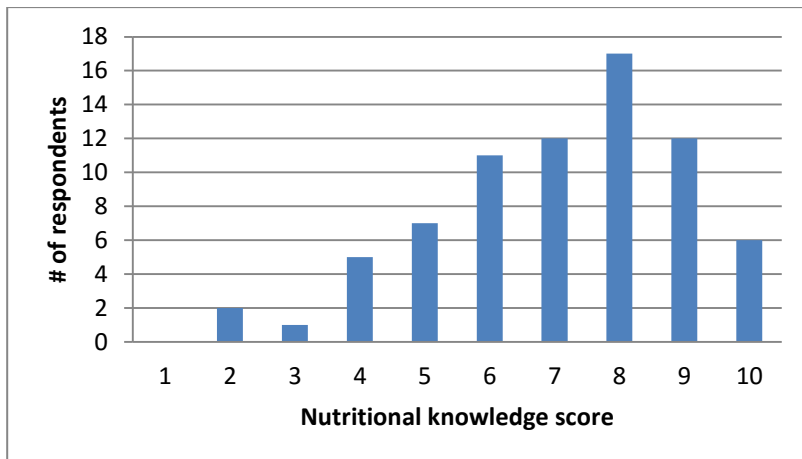


Table 14 Nutritional Knowledge Score Denmark



5.5.4 Age and Gender

The variables age and gender were only asked in the questionnaire in order to be able to describe the sample characteristics better and not to address any research questions or hypotheses. Hence, in this section only the observations concerning these two variables will be stated. Further, all average factor ratings will be compared by gender.

Germany

In the German sample, the majority of respondents (71%) are between 23-26 years old; only one person is 20 years or younger and two people are above 29 years (see figure 10). One of the male respondents did not state his age and hence there is one missing value in the data set. This missing value was produced because the researchers gave respondents the option not to state their age (“I prefer not to say”). Females are overrepresented consisting of 62% of respondents and males are underrepresented with 38% (see figure 11).

Figure 10 Age Distribution German Sample

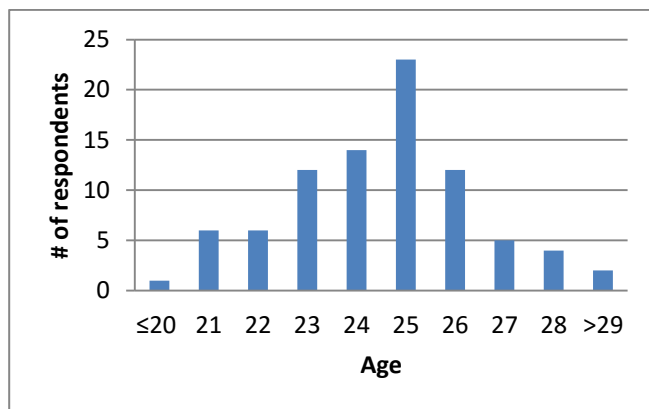


Figure 11 Gender Distribution German Sample

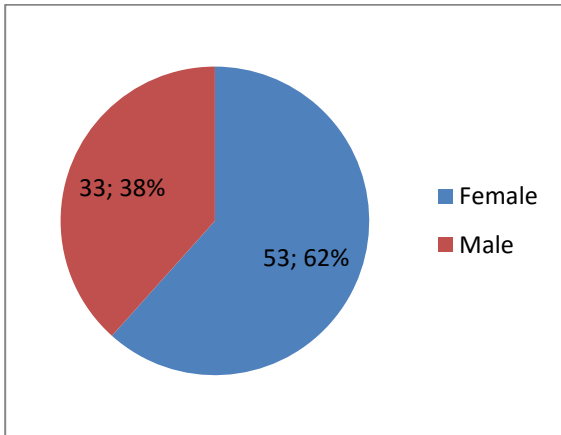
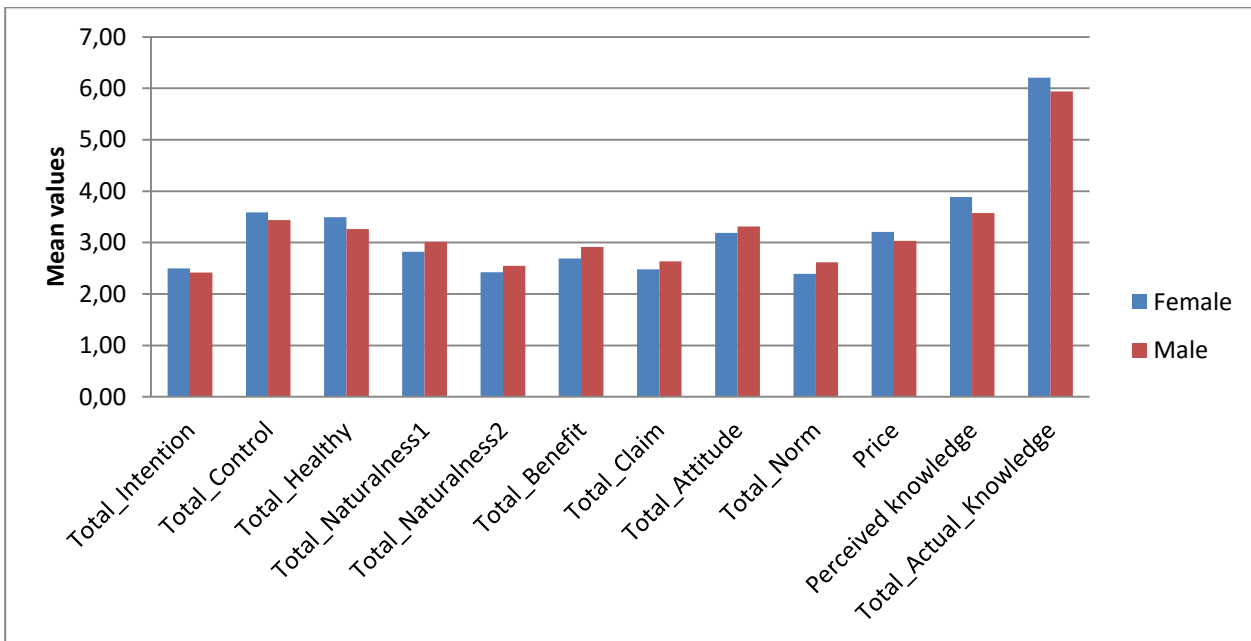


Figure 12 Average Factor Scores of Germans Divided By Gender



There are no big differences between the average factors regarding females and males. Overall, women rated the categories purchase intention, perceived behavioral control, value of healthy eating, willingness to pay and perceived knowledge higher than men. Both women and men are willing to pay a higher price for functional food (3.21 and 3.03, respectively). Their purchase intention, however, is lower than neutral (women: 2.5, men: 2.41). Females’ average knowledge of nutrition (6.2) is slightly higher than that of males (5.9) (see figure 12).

Denmark

In the Danish sample, the majority of respondents (74%) are between 22-26 years old. Only two people were 20 years old or younger and two more than 29 years old (see figure 13). Women are also overrepresented with an even higher value of 70% (see figure 14).

Figure 13 Age Distribution Danish Sample

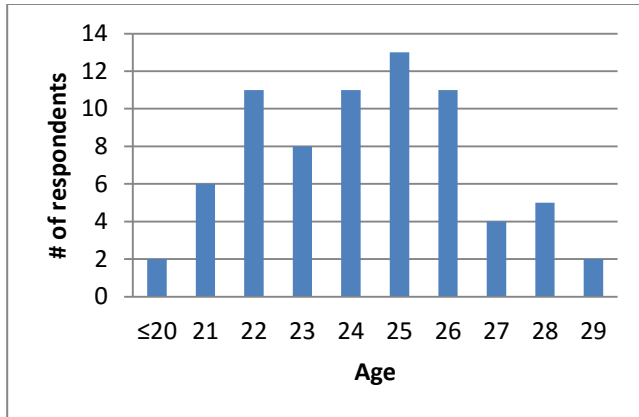


Figure 14 Gender Distribution Danish Sample

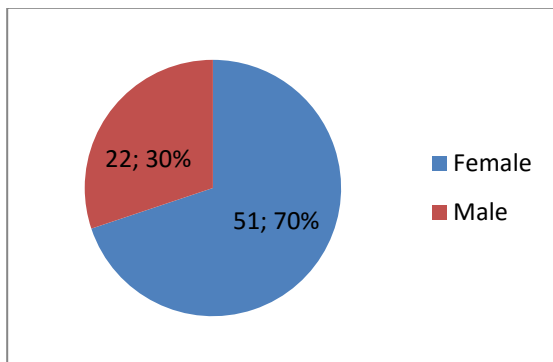
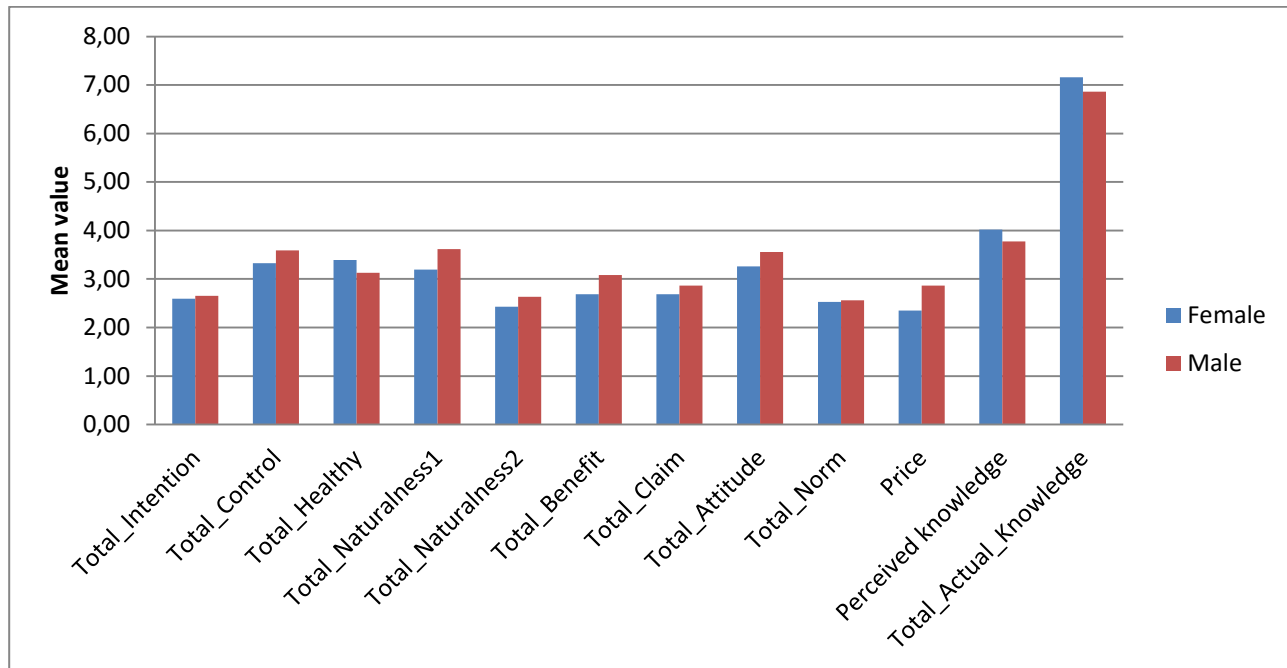


Figure 15 Average Factor Scores of Danes Divided By Gender



Males rated higher in all categories except value of healthy eating and perceived nutritional knowledge. Women were less willing to pay a higher price for functional food (2.35) than men (2.86). However, one has to take into account that these ratings below the neutral point (3) and hence, one can deduct that they are, on average, not willing to pay a higher price for functional food. Purchase intention is also below the neutral point for both groups (women: 2.59, men: 2.65). Females’ average knowledge of nutrition (7.16) is slightly higher than that of males (6.86) (see figure 15).

5.6 Correlations

In the following section, the bivariate relationships of all variables were investigated with the Pearson product-moment correlation coefficient in order to assess significant bivariate relationships. It was especially interesting to see for the further analysis which factors correlate the most with the dependent variable purchase intention and which beliefs correlate with their respective TPB constructs.

5.6.1 Germany

Table 15 shows the correlations between the variables in Germany. Purchase intention correlated significantly and in increasing strength with perceived nutritional knowledge ($r = .270$), willingness to pay ($r = .287$), subjective norm ($r = .420$), total perceived healthiness ($r = .444$) and total attitude towards purchasing ($r = .519$). The TPB constructs mostly do not correlate significantly with their underlying beliefs. Only attitude towards purchasing and its behavioral belief perceived healthiness correlate significantly ($r = .794$). An interesting observation here is that perceived nutritional knowledge and total actual knowledge did not correlate significantly with each other which could suggest that respondents could not rate their nutritional knowledge according to the test results and hence could not estimate their correct nutritional knowledge level.

Table 15 Pearson Product-moment Correlations between Variables in Germany

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Perceived nutritional knowledge	1	.115	<i>.270*</i>	.111	-.015	.076	<i>.624**</i>	<i>-.453**</i>	-.206	-.125
2. Willingness to pay		1	<i>.287**</i>	-.023	<i>.378**</i>	.093	<i>.257*</i>	<i>-.284**</i>	<i>-.223*</i>	<i>.290**</i>
3. Total Purchase Intention			1	.006	<i>.519**</i>	<i>.420**</i>	.211	-.073	-.120	<i>.444**</i>
4. Total Perceived Behavioral Control				1	<i>-.225*</i>	-.027	.055	-.078	-.007	<i>-.222*</i>
5. Total attitude towards purchasing					1	<i>.396**</i>	.015	.109	-.141	<i>.794**</i>
6. Total subjective norm						1	.067	-.019	-.158	<i>.269*</i>
7. Total view on healthy eating							1	<i>-.485**</i>	<i>-.347**</i>	.004
8. Perceived naturalness additives								1	<i>.222*</i>	.112
9. Perceived naturalness organic									1	-.070
10. Total perceived healthiness										1
11. Total trust in health claims										
12. Total actual knowledge										

** . Correlation is significant at the 0.01 significance level (2-tailed).

* . Correlation is significant at the 0.05 significance level(2-tailed).

5.6.2 Denmark

Table 16 shows the correlations between the variables in Denmark. Purchase intention correlated significantly and in increasing strength with total subjective norm ($r = .274$), willingness to pay ($r = .446$), total perceived healthiness ($r = .474$) and total attitude towards purchasing ($r = .567$). Also in this sample, the TPB variables mostly do not correlate significantly with their underlying beliefs. Like in the German sample, only total attitude towards purchasing correlates significantly with the behavioral belief total perceived healthiness ($r = .604$). In contrast to the German sample, the correlation between perceived nutritional knowledge and total actual knowledge is significant and medium strong ($r = .367$).

Table 16 Pearson Product-moment Correlations between Variables in Denmark

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Perceived nutritional knowledge	1	.077	.120	-.135	.119	.074	.390**	-.159	-.095	-.147	-.119
2. Willingness to pay		1	.446**	.091	.570**	.264*	.246*	-.063	-.145	.366**	.000
3. Total Purchase Intention			1	-.057	.567**	.274*	.069	-.139	-.010	.474**	-.000
4. Total Perceived Behavioral Control				1	.202	.067	.228	-.012	.147	.234*	.000
5. Total attitude towards purchasing					1	.211	.271*	-.044	-.024	.604**	.200
6. Total subjective norm						1	.181	-.221	.048	.150	-.000
7. Total view on healthy eating							1	-.398**	-.010	.190	.100
8. Perceived naturalness additives								1	.248*	-.087	.000
9. Perceived naturalness organic									1	.255*	-.000
10. Total perceived healthiness										1	.200
11. Total trust in health claims											1
12. Total actual knowledge											

** . Correlation is significant at the 0.01 significance level (2-tailed).

* . Correlation is significant at the 0.05 significance level(2-tailed).

5.7 Regression Analysis

In the following regression analyses, the strength of the predictive power of the factors concerning purchase intention will be investigated and like this the hypotheses will be tested. Before conducting a regression analysis, its underlying assumptions have to be tested. The researchers will test three important assumptions. First, linear dependence of independent and dependent variable will be tested which can be assessed in the correlation matrices (see tables 15 and 16) where values should be above 0.3 (Pallant, 2010). Second, the linear independence of regressors, in other words no multicollinearity, will be tested. The linear independence can be detected in the correlation matrix where no factor should have a correlation of 0.9 or above (Pallant, 2010) and the test for multicollinearity is done via the variance inflation factor (VIF). As long as the VIF factor is below 10, there is no concern for multicollinearity (Pallant, 2010). Third, normal distribution and independence of residuals will be tested via the normal probability plot of the regression standardized residual and via the scatterplot.

5.7.1 Multivariate Regression Analysis with Beliefs Influencing Intention

In the following regression analysis the direct influence of the behavioral, normative and control beliefs on purchase intention will be tested in order to answer the research question **‘Do the influencing factors perceived healthiness, perceived naturalness, trust in health claims, perceived nutrition knowledge, and willingness to pay have a direct influence on the purchase intention of functional foods?’** Doing this, we test the Null-hypotheses = **The behavioral belief perceived healthiness does not influence purchase intention, = The behavioral belief perceived naturalness (organic / additive) does not influence purchase intention, = Normative belief 1, 2 or 3 does not influence purchase intention, = The control belief willingness to pay does not influence purchase intention, = The control belief perceived nutritional knowledge does not influence purchase intention, = The control belief trust in health claims does not influence purchase intention.** All beliefs will be tested together in one model in order to assess its interaction and hence relative importance when explaining purchase intention. Hence, another research question that will be answered is **‘What is the relative significant influence of the factors perceived healthiness, perceived**

naturalness, trust in health claims, perceived nutrition knowledge, and willingness to pay in explaining students' purchase intention of functional foods?'

As purchase intention is a complex construct, one independent variable might not accurately predict it (Privitera, 2015). The inclusion of several variables may show that variables that are significant in a bivariate regression might lose its relative significance when other “better” predictors are included (Privitera, 2015). Further, multiple regression allows to hold some variables constant while explaining the variation in purchase intention when the value of only one variable is changed by one unit (Malhorta et al., 2012).

Germany

In the German sample the first assumption of linear dependence of the beliefs and the purchase intention can only be confirmed for three out of nine beliefs which have a higher correlation than .3 with purchase intention. Multicollinearity is no concern as all VIFs are below 10. The third assumption can be confirmed. The overall model explains 40.5% of variance in purchase intention where $F(9, 76) = 5,760, p < .001$. The only statistically significant predictors for purchase intention are the control belief *perceived nutritional knowledge* ($p = .006$) and the behavioral belief *perceived healthiness* ($p = .001$). The stronger predictor for purchase intention is the perceived healthiness variable ($\beta = .362$) followed by perceived nutritional knowledge ($\beta = .293$) (see table 17). Hence, the hypotheses that perceived nutritional knowledge (control belief) and perceived healthiness (behavioral belief) do not influence purchase intention can be rejected.

Table 17 Multivariate Regression Coefficients with Purchase Intention as Dependent Variable and Beliefs as Independent Variables Germany

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Willingness to pay	0.152	0.108	0.141	1.408	0.163
Perceived nutritional knowledge	0.385	0.137	0.293	2.814	0.006
Normative Belief 1	0.042	0.162	0.037	0.263	0.794
Normative Belief 2	0.15	0.159	0.143	0.943	0.349
Normative Belief 3	0.191	0.096	0.201	1.98	0.051

Perceived naturalness additives	0.07	0.121	0.062	0.581	0.563
Perceived naturalness organic	0.046	0.114	0.039	0.402	0.689
Total perceived healthiness	0.549	0.159	0.362	3.444	0.001
Total trust in health claims	0.051	0.128	0.038	0.402	0.689

Denmark

In the Danish sample the first assumption of linear dependence of the beliefs and the purchase intention can only be confirmed for two out of nine beliefs which have a higher correlation than .3 with purchase intention. Multicollinearity is no concern as all VIFs are below 10. The third assumption can be confirmed. The overall model explains 38.4% of variance in purchase intention where $F(9, 63) = 4,365$, $p < .001$. *Willingness to pay* and *perceived healthiness* are the only statistically significant predictors for purchase intention. As in the German sample, the stronger predictor for purchase intention here is also the perceived healthiness variable ($\beta = .414$) followed by willingness to pay ($\beta = .282$) (see Table 18). Hence, the hypotheses that willingness to pay (control belief) and perceived healthiness (behavioral belief) do not influence purchase intention can be rejected.

Table 18 Multivariate Regression Coefficients with Purchase Intention as Dependent Variable and Beliefs as Independent Variables Denmark

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Perceived naturalness additives	-0.023	0.148	-0.017	-0.154	0.878
Perceived naturalness organic	-0.085	0.107	-0.091	-0.799	0.427
Total perceived healthiness	0.601	0.182	0.414	3.295	0.002
Total trust in health claims	-0.158	0.123	-0.137	-1.281	0.205
Willingness to pay	0.232	0.099	0.282	2.342	0.022
Perceived nutritional knowledge	0.123	0.108	0.118	1.137	0.26
Normative Belief 1	0.037	0.194	0.033	0.189	0.851
Normative Belief 2	0.167	0.171	0.17	0.979	0.332
Normative Belief 3	-0.067	0.116	-0.069	-0.579	0.565

5.7.2 Hierarchical Regression Analysis with TPB constructs and Beliefs Influencing Intention

A hierarchical regression was conducted to investigate the ability of the behavioral and control beliefs (perceived healthiness, perceived naturalness additives, perceived naturalness organic, willingness to pay perceived nutritional knowledge and trust in health claims) to predict purchase intention after controlling for the influencing TPB construct variables (total subjective norm, total attitude towards purchasing, total perceived behavioral control). The TPB constructs were entered as first step and its underlying beliefs as second step. The approach to use a hierarchical regression to understand the applicability of the TPB has been used in several studies (see Conner and McMillan, 1999; Smith et al., 2007; Norman et al., 1999; Jemmott III, 2001; Umeh and Patel, 2004; O'Connor and White, 2010). The first step test the TPB construct variables and hence the research question '**Are the three TPB constructs able to predict the purchase intention of functional foods?**' and the null-hypotheses = **Total attitude towards purchasing does not influence purchase intention,** = **Total subjective norm does not influence purchase intention,** = **Total perceived behavioral control does not influence purchase intention.** In this step, the relative importance between the TPB constructs is also assessed. The second step assesses whether the behavioral and control beliefs emerge as independent predictors of intention and explain additional variance. This can be detected via the R square change. Moreover, the second step shows all predictors together in one model (the ANOVA of Step 2 gives the same results as if it was one simple multiple regression) as if all were entered at once in a multiple regression. In other words, the predictive utility of the TPB constructs and additionally the predictive utility of the behavioral and control beliefs were tested.

Germany

The assumptions for the hierarchical regression of the German sample have been tested. Regarding the first assumption, only three out of nine independent variables have been found to correlate higher than .3 with the dependent variable. The second assumption can be confirmed because no variable has a VIF of 10 or higher. Hence, no multicollinearity exists between the independent variables. The third assumption of normal distribution and independence of residuals has been tested and can be confirmed.

The first step of the hierarchical regression explained 33.6% of variance in purchase intention, $F(3, 82) = 13.848$, $p < .001$. The behavioral and control beliefs explained an additional 8.5% of variance in purchase intention after the TPB constructs had been controlled for (R squared change = .085). The F -statistic indicates however that the change is not significant (F -change (6, 76) = 1.866, $p = .098$) at the 5% significance level. The model as a whole, after entering the behavioral and control beliefs in the second step, explained 42.2%, $F(9, 76) = 6.153$, $p < .001$ and hence was significant. The first step shows that the TPB constructs *total attitude towards purchasing* and the *total subjective norm* have a unique significant contribution to the purchase intention. The standardized beta coefficients indicate that total attitude towards purchasing ($\beta = .447$, $p < .01$) is the strongest indicator followed by total subjective norm ($\beta = .246$, $p < .05$) (see Table 19). Concluding from this, the null-hypotheses of the TPB can be rejected for total attitude towards purchasing and total subjective norm. When looking at the whole model, the only significant independent variables predicting purchase intention are *perceived nutritional knowledge* with the strongest influence ($\beta = .285$, $p < .01$) followed by *total subjective norm* ($\beta = .245$, $p < .05$) (see also Table 19).

Table 19 Hierarchical multiple regression analysis predicting purchase intention in Germany

Step	Variable	Unstandardized Coefficients		Standardized Coefficients		
		B	Standard Error	β	t	Sig.
1	Total Perceived Behavioral Control	0.175	0.143	0.113	1.222	0.225
	Total attitude towards purchasing	0.62	0.14	0.447**	4.438	0
	Total subjective norm	0.325	0.13	0.246*	2.504	0.014
2	Total Perceived Behavioral Control	0.14	0.144	0.09	0.969	0.336
	Total attitude towards purchasing	0.343	0.229	0.248	1.502	0.137
	Total subjective norm	0.323	0.128	0.245*	2.517	0.014
	Willingness to pay	0.108	0.11	0.1	0.98	0.33
	Perceived nutritional knowledge	0.374	0.132	0.285**	2.82	0.006
	Perceived naturalness additives	0.042	0.119	0.038	0.355	0.723
	Perceived naturalness organic	0.051	0.112	0.043	0.453	0.652
	Total perceived healthiness	0.318	0.223	0.21	1.43	0.157

	Total trust in health claims	-0.015	0.131	-0.011	-0.119	0.906
--	-------------------------------------	--------	-------	--------	--------	-------

** . Correlation is significant at the 0.01 significance level (2-tailed).

* . Correlation is significant at the 0.05 significance level(2-tailed).

Note: R2 = .336 for step 1; R2 = .422 for step 2. N = 86.

Denmark

The assumptions for the hierarchical regression of the Danish sample have been tested. As in the German sample, only three out of nine independent variables have been found to correlate higher than .3 with purchase intention. The second and third assumption can be confirmed.

The first step of the hierarchical regression explained 37.9% of variance in purchase intention, $F(3, 69) = 14.046$, $p < .001$. Hence, the TPB accounted for a greater percentage of variance in purchase intention in the Danish sample than in the German sample. The behavioral and control beliefs explained an additional 7.4% of variance in purchase intention after the TPB constructs had been controlled for (R squared change = .074). However, like in the German sample, the F-statistic indicates that the change is not significant ($F\text{-change}(6, 63) = 1.428$, $p = .218$) at the 5% significance level.

The model as a whole, after entering the behavioral and control beliefs in the second step, explained 45.3%, $F(9, 63) = 5.808$, $p < .001$ and hence was significant. The first step shows that the only TPB construct of *total attitude towards purchasing* significantly contributes to the purchase intention. The standardized beta coefficient indicates a positive relationship ($\beta = .569$, $p < .01$) (see Table 20). Concluding from this, the null-hypothesis that total attitude towards does not influence purchase intention can be rejected. In the whole final model (step 2), more variables become significant. *Total attitude towards purchasing* influences purchase intention the most ($\beta = .365$, $p < .05$), followed by *total perceived healthiness* ($\beta = .281$, $p < .05$) and finally *total perceived behavioral control* ($\beta = .202$, $p < .05$) (see also Table 20).

Table 20 Hierarchical multiple regression analysis predicting purchase intention in Denmark

Step	Variable	Unstandardized Coefficients		Standardized Coefficients		
		B	Standard Error	β	t	Sig.
1	Total Perceived Behavioral Control	-0.298	0.157	-0.183	-1.893	0.063

	Total attitude towards purchasing	0.74	0.129	0.569**	5.757	0
	Total subjective norm	0.208	0.121	0.167	1.716	0.091
2	Total Perceived Behavioral Control	-0.329	0.159	-0.202*	-2.069	0.043
	Total attitude towards purchasing	0.475	0.182	0.365*	2.606	0.011
	Total subjective norm	0.147	0.126	0.118	1.174	0.245
	Perceived nutritional knowledge	0.051	0.105	0.049	0.483	0.631
	Willingness to pay	0.101	0.097	0.123	1.045	0.3
	Perceived naturalness additives	-0.053	0.138	-0.04	-0.388	0.699
	Perceived naturalness organic	-0.021	0.102	-0.022	-0.204	0.839
	Total perceived healthiness	0.408	0.195	0.281*	2.089	0.041
	Total trust in health claims	-0.168	0.113	-0.146	-1.487	0.142

** . Correlation is significant at the 0.01 significance level (2-tailed).

* . Correlation is significant at the 0.05 significance level (2-tailed).

Note: R2 = .379 for step 1; R2 = .453 for step 2. N = 73.

5.7.3 Multivariate Regression Analysis with Beliefs Influencing TPB Constructs

Due to the mostly insignificant results above and to test our hypotheses from the literature review that the beliefs we assigned to each TPB construct actually have a relationship with it, we test the relationship of the beliefs toward the PBC and the Attitude construct as dependent variables. First, the relationship of the PBC construct as dependent variable will be tested with its underlying control beliefs. Therefore, the Null-hypothesis is as follows: = **The underlying control beliefs do not influence PBC**. Second, the relationship of attitudes towards purchasing as dependent variable will be tested with its underlying behavioral beliefs. Therefore, the Null-hypothesis is as follows: = **The underlying behavioral beliefs do not influence attitude towards purchasing**.

Perceived behavioral control

Both the multivariate regression with PBC as dependent variable and its control beliefs as independent variables for the German and the Danish sample results in a model that is not statistically significant. This result is not surprising when assessing the correlations of the control beliefs and PBC. There are no significant correlations and therefore no relationship can be detected. Hence, we can conclude that the control beliefs investigated in this research do not explain perceived behavioral control.

Attitude

Germany

As for the German sample, the correlation matrix shows that *perceived healthiness* is the only one with a high correlation with the dependent variable attitude ($r = .794$). The other assumptions have been tested and can be confirmed. The overall model explains 63.9% of variance in attitude towards purchasing. According the ANOVA, the model is statistically significant $F(3, 82) = 48.353$, $p < .001$. However, only the variable *perceived healthiness* is statistically significant ($p = .000$). The standardized beta coefficient of this variable ($\beta = .782$) also shows that its contribution is the strongest (see table 21). As a result, the Null-hypothesis can be rejected for the behavioral belief *perceived healthiness*.

Table 21 Multivariate Regression Coefficients with Attitude as Dependent Variable and Behavioral Beliefs as Independent Variables Germany

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Perceived naturalness additives	.035	.056	.042	.616	.539
Perceived naturalness organic	-.082	.059	-.096	-1.400	.165
Total perceived health benefits	.856	.073	.782	11.657	.000

Denmark

In the Danish sample, the correlation matrix shows that the only variable that is higher correlated with the dependent variable attitude is perceived healthiness ($r = .604$). The other assumptions of the regression have been tested and can be confirmed. The overall model explains 40.2% of variance in attitude towards purchasing. According the ANOVA, the model is statistically significant with $F(3, 69) = 15.486$, $p < .001$. The statistically significant predictors are *perceived naturalness organic* ($p = .040$) and *perceived healthiness* ($p = .000$). The standardized beta coefficients of these variables show that perceived healthiness ($\beta = .663$) contributes the most followed by the perceived naturalness organic variable ($\beta = -.209$) (see table 22). The negative value of the perceived naturalness organic indicates a negative influence. This scale measured how strongly the respondents agreed that it was not important that functional foods are organic. Hence, the negative influence means that it actually is important for

respondents that functional foods are organic. As a result, the Null-hypothesis can only be rejected for the behavioral beliefs *perceived naturalness organic* and *perceived healthiness*.

Table 22 Multivariate Regression Coefficients with Attitude as Dependent Variable and Behavioral Beliefs as Independent Variables Denmark

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Perceived naturalness additives	.067	.100	.066	.675	.502
Perceived naturalness organic	-.151	.072	-.209	-2.088	.040
Total perceived health benefits	.740	.109	.663	6.798	.000

5.8 Overview of Findings: Research Questions and Hypotheses

In the final section of the analysis, an overview of the findings regarding the research questions and hypotheses will be given.

The first two research questions that we aimed to answer were ‘**What are the students’ attitude, subjective norm and perceived behavioral control towards the purchase of functional food?**’ and ‘**What is the purchase intention of students of functional foods?**’ These questions were assessed via the mean values of the constructs. Both in Germany and Denmark, students’ attitude towards purchasing functional food is slightly positive (3.24 and 3.35, respectively) as well as the PBC (3.53 and 3.41, respectively). The subjective norm is rather negative in both countries (Germany: 2.48, Denmark: 2.54). The purchase intention is also rather negative in Germany (2.47) and Denmark (2.61). The next two research questions ‘**To what degree do students value healthy eating?**’ and ‘**How high is the students’ actual nutritional knowledge?**’ were also assessed via the mean values. On average, students in Germany and Denmark value healthy eating as being important (3.40 and 3.32, respectively). The nutritional knowledge is rather high in both countries. German students answered 6 out of 10 questions in the nutritional knowledge test correctly and Danish students answered 7 correctly.

In a multivariate regression analysis with the beliefs as independent variables and purchase intention as dependent variable, the research questions ‘**Do the influencing factors perceived healthiness, perceived naturalness, trust in health claims, perceived nutrition knowledge, and**

willingness to pay have a direct influence on the purchase intention of functional foods?’ and **‘What is the relative significant influence of the factors perceived healthiness, perceived naturalness, trust in health claims, perceived nutrition knowledge, and willingness to pay in explaining students’ purchase intention of functional foods?’** were answered. As for the German sample, the only statistically significant predictors are perceived nutritional knowledge and perceived healthiness. Perceived healthiness is the stronger predictor ($\beta = .362$) followed by nutritional knowledge ($\beta = .293$). In the Danish sample, the only statistically significant predictors are willingness to pay a higher price and perceived healthiness. Perceived healthiness is the stronger predictor ($\beta = .414$) followed by willingness to pay a higher price ($\beta = .282$). The positive beta value of willingness to pay indicates a positive influencing meaning that consumers are willing to pay a higher price for functional food in Denmark.

The last two research questions were answered with a hierarchical regression having the TPB constructs as independent variables in the first step and the behavioral and control beliefs in the second step. Like this, the research questions **‘Are the three TPB constructs able to predict the purchase intention of functional foods?’ (STEP 1)** and **‘Do the behavioral and control beliefs emerge as independent predictors of intention and explain additional variance?’ (STEP 2)**. In the German sample, two TPB constructs were significant, namely attitude ($\beta=.447$) and subjective norm ($\beta=.246$), both positively influencing purchase intention. In the Danish sample, only attitude was significant and had a positive influence on intention ($\beta= .569$). When the behavioral and control beliefs were entered in step 2, the R square change indicated an insignificant change in explained variance in both countries which means that the beliefs do not contribute to explain the purchase intention better.

Next to answering research questions, we tested hypotheses in the analysis to assess relationships between independent and dependent variables. For the most part, the working hypotheses were rejected. However, some significant relationships could be found, out of these perceived healthiness both influenced purchase intention directly (H1a and H1b) as well as the attitude (H2a and H2b) which in turn influenced intention (H13a and H13b) (see Table 23 for an overview of the confirmed and rejected working hypotheses).

Table 23 Overview of Confirmed and Rejected Working Hypotheses

HYPOTHESIS	CONFIRMED / REJECTED
H1: Perceived healthiness of functional foods positively affects Danish (H1a) and German (H1b) consumers' purchase intention of these products.	H1a confirmed H1b confirmed
H2: Perceived healthiness of functional foods positively affects Danish (H2a) and German (H2b) consumers' attitude towards purchasing these products.	H2a confirmed H2b confirmed
H3: Perceived naturalness of functional foods positively affects Danish (H3a) and German (H3b) consumers' purchase intention of these products.	H3a rejected H3b rejected
H4: Perceived naturalness of functional foods positively affects Danish (H4a) and German (H4b) consumers' attitude towards purchasing these products.	H4a confirmed for naturalness organic H4b rejected
H5: Trust in health claims positively affects Danish (H5a) and German (H5b) consumers' purchase intention of functional foods.	H5a rejected H5b rejected
H6: Trust in health claims positively affects Danish (H6a) and German (H6b) consumers' perceived behavioral control of purchasing functional foods.	H6a rejected H6b rejected
H7: A higher level of perceived nutritional knowledge positively affects Danish (H7a) and German (H7b) consumers' purchase intention of functional foods.	H7a rejected H7b confirmed
H8: Perceived nutritional knowledge positively affects Danish (H8a) and German (H8b) consumers' perceived behavioral control of purchasing functional foods.	H8a rejected H8b rejected

H9: A higher price influences Danish (H9a) and German (H9b) consumers' purchase intention of functional food negatively.	H9a significant but positive H9b rejected
H10: A higher price negatively affects Danish (H10a) and German (H10b) consumers' perceived behavioral control of purchasing functional foods.	H10a rejected H10b rejected
H11: Higher perceived behavioral control influences Danish (H11a) and German (H11b) consumers' purchase intention of functional food positively.	H11a rejected H11b rejected
H12: Subjective norm influences Danish (H12a) and German (H12b) consumers purchase intention of functional food positively.	H12a rejected H12b confirmed
H13: Positive attitude towards the purchase of functional foods influences Danish (H13a) and German (H13b) consumers purchase intention of functional food positively.	H13a confirmed H13b confirmed

6. Discussion

In this chapter, we will discuss the findings of our empirical study, their theoretical and managerial implications, as well as the limitations of our research and suggestions for future research.

6.1 Theoretical Implications & Future Research Suggestions

This study aimed to explain German and Danish students' purchase intention regarding functional food through the application of the Theory of Planned Behavior model.

On average, both Danish and German students' purchase intention is rather negative, which is indicated by mean values slightly below the neutral value. For Denmark, this result is in line with the

finding by Bech-Larsen et al. (2001) who found that Danes' purchase intention towards functional food is negative. In the case for Germany this is rather surprising as, according to the Germany Food and Drink Report (2015), functional food is popular in Germany and Germans seem to be prepared to pay for it. However, the attitude towards purchasing in both countries was found to be slightly positive. The average PBC in both countries is slightly above neutral, which means that students, on average, feel that they are quite in control of the behavior of purchasing functional foods, that there are not significant barriers of engaging in the behavior. Students' subjective norm is rather negative in both countries, which means that, on average, they do not perceive social pressure from others to purchase functional foods.

Out of the three TPB constructs, attitude towards purchasing functional food, subjective norm and perceived behavioral control, only attitude was found to be a predictor of purchase intention in Denmark. To be precise, the influencing factor attitude positively influenced purchase intention in Denmark. This is in accordance with the study in Denmark conducted by Poulsen (1999) who found that the purchase intention of functional food was almost solely explained by attitudes. In Germany, both attitude and subjective norm were found to be predictors of purchase intention, while the PBC was not supported in this country either. Both attitude and subjective norm influence the purchase intention positively, with attitude being the stronger predictor. The relatively lower importance of attitude in comparison to the Danish sample and significant contribution of subjective norms could be explained by Hofstede's cultural dimension individualism (Karijin et al., 2007). Germany is a slightly less individualistic country than Denmark, having a score of 67 in comparison to the score of 74 in Denmark (Itim international, 2016) and hence the opinion of others is more important than in Denmark and the personal attitude relatively less important. Furthermore, Hassan et al. (2016) found that an explanation for the cross-country variation in the Theory of Planned Behavior could be the difference in power distance, which means that people accept that power is unequally distributed and that they could be less powerful than others (Itim international, 2016). Consequently, in a country with a higher power distance more powerful others could influence the student consumers in their purchase intention. Germany has a higher power distance with a score of 35 than Denmark with a score of 18 (Itim international, 2016). This could be an explanation that subjective norm is significant in Germany and not in Denmark. These cultural dimensions, however, were not investigated in this study and hence

there is a need for future research to integrate these dimensions into the research of student consumer behavior regarding functional foods to assess whether it actually is related or not.

The addition of the indirect factors (or beliefs) to the regression with the three TPB constructs did not explain any significant additional variance in purchase intention, meaning that the added salient beliefs specific to functional foods did not improve the model's ability to predict purchase intention. This might suggest that the beliefs extracted from the literature review on functional food purchase behavior were not the most salient with regards to the specific consumer groups of students in Denmark and Germany.

Further, the researchers assessed whether the behavioral beliefs investigated in this thesis influenced attitude. The behavioral beliefs that significantly influenced attitude in Denmark are perceived healthiness as the relatively stronger indicator and perceived naturalness organic as the less strong indicator. In Germany, only perceived healthiness influenced attitude. In terms of the perceived healthiness, we can conclude that this factor is decisive in both countries and should be researched further both in Germany and Denmark. Specifically interesting would be to assess what factors in turn influence this belief, to then find a way to increase consumers' perceived healthiness of functional foods. Though some research has looked at the influencers of perceived healthiness, it should be studied in the respective markets. Bech-Larsen and Grunert (2003) and Lähteenmäki et al. (2010) found that using different health claims influenced perceived healthiness. Moreover, Bech-Larsen and Grunert (2003) found that enrichments and product types influenced the perceived healthiness of functional foods significantly and, in comparison, the factor price only had a modest effect on perceived healthiness.

In terms of perceived naturalness organic, we found that the more the consumers perceive functional foods to be natural, the more positive the attitude towards purchasing these foods is. The fact that perceived naturalness organic is a significant belief influencing the attitude in Denmark is not surprising because the Danish organic food market is a very advanced in the global comparison (Bech-Larsen and Grunert, 2001), suggesting that Danes value their food products to be organic. Furthermore, prior research has found that Danes see naturalness as being a very important attribute of foods (Jonas and Beckmann, 1998; Bech-Larsen et al., 2001; Euromonitor, 2016a). Poulsen (1999) found that perceived naturalness explained attitude towards purchasing functional food. In our study, we found that on average, Danish students perceive naturalness organic as rather neutral. Other research has

shown that Danes do not perceive functional food to be very natural (Jonas and Beckmann, 1998; Bech-Larsen et al., 2001; Poulsen, 1999; Euromonitor, 2016a). Considering that we found that perceived naturalness in terms of functional foods being organic has a positive influence on attitudes, there is therefore a potential for marketers to attempt to increase the degree to which functional foods are being perceived as natural in terms of being organic products. What has to be acknowledged is that the result from the factor analysis was that perceived naturalness had to be divided into two constructs. Hence, there is potential for future research to explore the perceived naturalness and influences the degree to which functional foods are perceived as being natural.

When assessing whether the beliefs have a direct influence on the purchase intention of functional foods, perceived healthiness and perceived nutritional knowledge turned out to be significant positive influencing factors of purchase intention in Germany. The relatively stronger predictor was perceived healthiness. This result is in accordance to the study by Stein & Rodríguez-Cerezo (2008) who found that a higher nutritional knowledge influenced Germans' likeliness to purchase functional food and that they buy functional food because of its health benefits. In the Danish sample, perceived healthiness also influences purchase intention positively and the strongest. Perceived nutritional knowledge, however, was not a significant predictor of purchase intention. In contrast to this finding, Bech-Larsen et al. (2001) found that nutritional knowledge is important for consumers' acceptance of functional food. Further, nutritional knowledge influences consumers' ability to understand health claims and like this the perceived healthiness increases which then influences purchase intention (Ares, Giménez, & Gámbaro, 2008; Walters and Long (2012). Therefore, the importance of nutritional knowledge should be investigated further not only in Germany but also in Denmark due to its suggested potential to influence purchase intention. It would especially be interesting to explore more how the nutritional knowledge influences the perception or understanding of the health claims made on packagings. Bech-Larsen et al. (2001), for instance, expected that the more a consumer knows about a component, the more limited the effect of a health claim on the attitude towards functional foods. In Denmark, the second significant positive predictor after perceived healthiness is the willingness to pay a higher price, which was also found to be a positive influencing factor in the study conducted by Poulsen (1999). In Germany, willingness to pay a higher price was not a direct significant predictor. This is in accordance with previous research, which found that price is not a very important influencing factor, however, usually a lower price is preferred. Yet, Germans would pay a higher price when the

functional foods' healthiness is credible (Stein & Rodríguez-Cerezo, 2008). Consequently, future research should still investigate the influence of price on purchase intention and assess how much more consumers are willing to pay for the additional benefits of functional food.

In both countries, trust in health claims, perceived naturalness additive and organic and the three normative beliefs were not found to be direct significant predictors of purchase intention. Regarding trust in health claims, this finding is in contrast to previous research by Siegrist et al. (2015) who found that Germans consider it as an important influencing factor for purchase intention which might be even negative. In Denmark, findings regarding the type of health claims vary. What should be emphasized is, however, that Bech-Larsen et al. (2001) found that the use of health claims positively influenced buying intention towards functional foods. Hence, it should be researched further whether consumers in Germany and Denmark have different opinions about health claims. If the result is that the two countries trust them in different ways, special importance has to be placed on communicating the health benefits via claims in different ways in the two countries.

Next to adapting the Theory of Planned Behavior to the student consumer group in terms of functional food, the researchers assessed whether students actually value healthy eating and whether they actually know something about nutrition. It became apparent that students both in Denmark and Germany, on average value healthy eating, though not strongly, and have a moderate to quite high nutritional knowledge. Danish students know slightly more about nutrition than German students. In general, the secondary data research did only provide some significant beliefs for the student segment in Denmark and Germany. As students are concerned about healthy nutrition and have a rather high knowledge of nutrition, we can assume that they can explain what attributes exactly are important for them in their food choice. Consequently, we propose that future research should explore more in depth qualitative research, for instance, in form of laddering interviews, in order to assess students' significant values, underlying motives and preferred attributes of a functional food should have.

To sum it up, the theoretical framework explains students' purchase intention in functional food in Germany and Denmark to some degree. However, the researchers acknowledge that there are some limitations to this study.

6.2 Limitations

First, it has to be emphasized that the findings cannot be generalized to the whole student population based on the fact that a judgmental sampling technique (snowball sampling) was used to distribute the questionnaire. Hence, the results from the study are biased towards Copenhagen and Southern Germany and towards a probably relatively homogeneous group of people and hence do not represent the two countries to their full geographic extent. Therefore, we propose that a probability sampling technique be used in future research. Further, the findings cannot be generalized towards other consumer segments than students. However, this was not the purpose of the study.

Second, no specific product was investigated and therefore respondents might have had difficulties to evaluate the different factors (e.g. perceived healthiness, perceived naturalness) based on the general concept of functional foods. Previous studies found that consumers do not view functional foods as one homogenous category but rather as different single foods with specific health benefits (Urala and Lähteenmäki, 2003 and 2007; Urala , Schutz & Spinks, 2011). Moreover, they often are unfamiliar with the term or concept (Urala , Schutz & Spinks, 2011) and although we provided a definition still had only a certain product in mind. Consequently, we do not know which particular products the respondents had in mind when replying to the questions. Further, several studies pointed out the importance of the influence of the carrier product (van Trijp & van der Lans, 2007; Poulsen, 1999; Levy et al. 1997). Ares & Gámbaro (2008) found that the carrier product and the enrichment type influence perceived healthiness and consumers' willingness to try functional food and hence it is important to understand their attitudes towards certain products and types of enrichment. Therefore, findings from studies about specific products cannot be generalized to other products. It has been found, for instance, that younger consumers prefer products helping to increase energy and not to prevent a disease (Bogue and Ryan, 2000; Zunft et al., 1997).

Keeping these limitations in mind, several ideas for future research evolve. As perceived healthiness and attitude resulted as important influencing factors of purchase intention, future research could assess the factors that actually influence perceived healthiness and find which factors in addition to perceived healthiness explain attitude. Although trust in health claims was insignificant, it is still an important factor that could be influenced via marketing communication. Hence, it should be a central factor in future research. In terms of nutritional knowledge, it would be interesting to assess to what degree understanding the relationship between the functional ingredient and consequences of

consumption explain purchase intention. Further, several research investigated the acceptance of functional food but did not relate it to purchase intention. Therefore, another avenue of research could assess this relationship. As the carrier product has been found to influence consumers' willingness to purchase, a logic consequence would also be that the brand plays an important role. The question that arises consequently is whether the brand reputation will positively influence the degree to which consumers trust more in the health claims on the packaging and hence are willing to purchase functional food. Finally, the whole population could be researched more in a large-scale study and not only the student segment.

Although there are several limitations, this study still provided a first impression of the students as functional food consumers in Germany and Denmark and some theoretical implications and ideas for future research could be derived. Out of these, we can deduct some managerial implications and recommendations for marketers which will be stated in the next chapter.

6.3 Managerial Implications and Recommendations

To begin with, the study found that the student consumer group both in Germany and Denmark on average values healthy eating which means that this group is a promising target group for healthy food products such as functional food.

Furthermore, the study found that perceived healthiness increases the attitude towards functional food which in turn increases purchase intention both in Denmark and Germany. Marketing managers in these countries should therefore focus on increasing perceived healthiness and attitudes towards functional food. Increasing the perceived healthiness of a product can be done via health claims which communicate the health benefits to the student consumers and ultimately make them aware that they get more benefit out of replacing the conventional food with its functional version (Ares & Gámbaro, 2007). Especially important is to increase their nutritional knowledge as a higher knowledge means that the perceived health benefit increases (Ares, Giménez and Gámbaro, 2008) and health claims can be understood better. However, health claims should be easily understandable even for consumers with a low level of nutritional knowledge meaning that medical terms marketers should be avoided (Menrad, 2003). Health claims are then able to change attitudes positively towards functional foods (O'Connor & White, 2010; Bech-Larsen and Grunert, 2003). Nutritional knowledge can, for instance, be increased in

educational campaigns. In Germany, nutritional knowledge directly influences purchase intention and therefore increasing nutritional knowledge in these campaigns in Germany might even result in the redundancy of health claims. Like this, Germans would directly understand the health benefits without the marketers influence. Then, marketers have to be cautious to utilize claims as Siegrist et al. (2015) found that the presence of a health claim might even reduce the skeptical Germans' willingness to purchase functional food. Whether campaigns or measures need to be taken in order to increase students' actual nutritional knowledge should be assessed further as this study found that students have a moderate to high level of nutritional knowledge. Hence, according to this study, the need to educate the student consumers about the detailed nutritional content and the resulting health benefits may be limited.

Marketing managers have to understand which type of health claim the student consumers respond to in the best way. This could be a possible explanation that Bech-Larsen and Grunert (2003) found that it is not so much the health claim itself but more the nutritional value of the carrier product, enrichment and processing method that influence consumers' perceived healthiness. Hence, marketers should research the attitudes consumers have about the carrier product and enrichment separately in order to influence these to increase the perceived healthiness of the functional food and ultimately the attitude about the whole combination of product and enrichment. The marketing communication and campaigns, however, has to be executed carefully as consumers' trust in marketing campaigns may be limited (Ares, Giménez, & Gámbaro, 2008) and a too aggressive campaign can make consumers avoid the product (Elliott, 2004).

An issue regarding the influencing factors of attitudes towards functional food is that these may change over time (Urala and Lähteenmäki, 2007) and hence it is crucial for marketers to understand that the functional food market is very dynamic and one communication strategy might be effective one year but not necessarily the following year. Therefore, marketing research needs to be conducted on a regular basis.

In Denmark, attitude can be influenced positively by increasing the perceived naturalness of functional food in terms of promoting it as being organic. Therefore, the communication focus should be that functional food, although it may sound 'artificial' is enriched with natural substances. This may be more credible for the Danish consumer if more organic functional food products are available on the Danish market. This can increase awareness and knowledge of the concept of functional food. The

Danish consumers need to be convinced that functional food is not a ‘junk food’ that contains artificial additives but instead natural enrichments (Poulsen, 1999). Then, consumers will accept functional food more and might get more open towards more ‘unnatural’ enrichments. Poulsen (1999) recommended this many years ago, however, it can clearly be seen that the importance of naturalness and the perceived naturalness of functional food did not change to date and that is why it is still important to focus on naturalness.

In Germany, the influence of others can increase purchase intention and therefore marketers should highlight normative support for functional foods by, for instance, including statements from influencers (O’Connor & White, 2010) such as medical doctors (Dolgopolova et al., 2015) on product packaging or in advertisement. Moreover, nowadays’ importance of social media can be exploited by functional food marketers in order to reach especially the young student audience and create social buzz.

7. Conclusion

Due to the growing markets for functional foods in Denmark and Germany, and the research gaps concerning the purchase behavior of the student consumer group in these two countries, we aimed to obtain insights about the functional food purchase behavior of these consumers in this research. The Theory of Planned Behavior (TPB) was found to be an appropriate model for application, due to its long track record of having been able to predict various food choice behaviors through the measure of behavioral intention. This model was then applied to determine the purchase intention of functional foods of Danish and German student consumers. The behavioral and control beliefs concerning functional food purchase behavior that were suggested by secondary research to be salient were included in the TPB model, and were also hypothesized to have a direct influence on purchase intention, as this was also suggested by the existing literature on functional foods.

The results of the empirical study showed that the functional food purchase intention of both Danish and German consumers was quite negative, but that attitudes were found to be positive. Among the TPB constructs, attitude and subjective norm could explain purchase intention in Germany, attitude having the strongest influence, and only attitude had a direct influence on purchase intention in Denmark. Though suggested to influence intention by the TPB, perceived behavioral control did not affect intention to buy in either country. Regarding the beliefs and intention, perceived healthiness and

perceived nutritional knowledge was found to be determinants of purchase intention in Germany, and perceived healthiness and willingness to pay had positive influence on the outcome variable in Denmark. Because perceived healthiness was found to be the strongest predictor of purchase intention among the beliefs in both countries, the factors that determine the perceived healthiness for this consumer group should be researched further. As perceived healthiness was found in this study to be an important factor influencing purchase intention of functional foods, this information could prove to be valuable to marketers seeking to increase the purchase intention of these consumers. Another finding relevant for marketers is the strong influence of attitudes on purchase intention of functional foods. Based on this result, marketers seeking to influence student consumers' intention to purchase functional foods should focus their marketing and communications strategies on anchoring positive attitudes towards these foods in the mind of the consumer, while at the same time highlighting the added health benefit provided by functional foods.

Though this research did provide valuable insights about the purchase intention of student consumers in Denmark and Germany, relevant both from a theoretical and a managerial perspective, we recommend that a larger study using probability sampling be conducted in order to be able to generalize the findings to the whole student consumer population. With that, we would be able to make even better conclusions about the functional food purchase behavior of student consumers in Denmark and Germany. As mentioned, the functional food market holds great potential, and by obtaining a deeper understanding the consumer's purchase decisions, marketers can create more tailored, and thus more effective, marketing strategies and implementation plans.

Bibliography

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Ajzen, I. (2006). Constructing a theory of planned behavior questionnaire.
- Ajzen, I., & Fishbein, M. (2000). The prediction of behavior from attitudinal and normative variables.
- Alexander, J. M., & Tepper, B. J. (1995). Use of reduced-calorie/reduced-fat foods by young adults: influence of gender and restraint. *Appetite*, 25 (3), 217-230.
- Allport, G. W. (1935). Attitudes. In *Handbook of social psychology*. Edited by C. Murchison, 798–844. Worcester, MA: Clark Univ. Press.
- Annunziata, A. & Vecchio, R. (2011). Functional foods development in the European market: a consumer perspective. *Journal of Functional Foods*, 3 (3), 223-228.
- Anssi, T. & Sanna, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British Food Journal*, 107 (11), 808-22.
- Anttolainen, M., Luoto, R., Uutela, A., Boice, J.D., Blot, W.J., McLaughlin, J.K., Puska, P. (2001) Characteristics of users and nonusers of plant sterol ester margarine in Finland: An approach to study functional foods. *Journal of American Dietetic Association*, 101 (11), 1365-1368.

- Ares, G., & Gámbaro, A. (2007). Influence of gender, age and motives underlying food choice on perceived healthiness and willingness to try functional foods. *Appetite*, *49*, 148–158.
- Ares, G., Giménez, A., & Gámbaro, A. (2008). Influence of nutritional knowledge on perceived healthiness and willingness to try functional foods. *Appetite*, *51*, 663–668.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British journal of social psychology*, *40* (4), 471-499.
- Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the Theory of Planned Behaviour. *Appetite*, *50*, 443–454.
doi:10.1016/j.appet.2007.09.010.
- Astrom, A. N., & Rise, J. (2001). Young adults' intentions to eat healthy food: Extending the theory of planned behaviour. *Psychology and Health*, *16*, 223–237.
- Babbie, E. (1990). *Survey research methods* (2nd ed.). Belmont, CA: Wadsworth.
- Babin, B., & Zikmund, W. (2016). *Essentials of Marketing Research* (6th ed.). Boston: Cengage Learning.
- Balasubramanian, S. K., & Cole, C. (2002). Consumers' search and use of nutrition information: The challenge and promise of the nutrition labeling and education act. *Journal of marketing*, *66* (3), 112-127.

- Balectis, E., & Dunning, D. A. (2006). See what you want to see: Motivational influence on perception. *Journal of Personality and Social Psychology*, 91, 612-625.
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84(2), 191.
- Bartlett, M.S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of the Royal Statistical Society*, 16 (Series B), 296-8.
- Bearden, W. and Etzel, M. (2001). Reference Group Influence on Product and Brand Purchase Decisions. *Journal of Consumer Research*, vol. 9.
- Bech-Larsen, T., & Grunert, K. G. (2001). Konsumententscheidungen bei Vertrauenseigenschaften. Eine Untersuchung am Beispiel des Kaufes von ökologischen Lebensmitteln in Deutschland und Dänemark. *Marketing ZFP*, 23 (3), 188-198.
- Bech-Larsen, T., & Grunert, K. G. (2003). The perceived healthiness of functional foods. A conjoint study of Danish, Finnish and American consumers' perception of functional foods. *Appetite*, 40, 9-14.
- Bech-Larsen, T., Grunert, K. G., Agerhem, H., & Fjelkner-Modig, S. (2005). Interactive effects of commercial and news media information on consumers' acceptance of probiotic foods. In R. Bjerke, G. Kunoe, & H. M. Thjomoe (Eds.), Conference proceedings: Abstract of papers presented at the Icoria conference. Oslo: Norwegian School of Management.
- Bech-Larsen, T., Grunert, K. G., & Poulsen, J. B. (2001). The acceptance of functional foods in Denmark, Finland and the United States. *Working Paper No. 73. The Aarhus*

School of Business, 1-25.

Bech-Larsen, T., & Scholderer, J. (2007). Functional foods in Europe: Consumer research, market experiences and regulatory aspects. *Trends in Food Science & Technology*, 18, 231–234.

Bem, D. J. (1970). *Beliefs, attitudes, and human affairs*. Oxford, England: Brooks/Cole

Betts, N. M., Amos, R. J., Keim, K., PETERS, P., & Stewart, B. (1997). Ways Young Adults View Foods. *Journal of Nutrition Education*, 29 (2), 73-79.

Betts N. M., Amos, R., & Georgiou, C. (1995). What young adults say about factors affecting their food intake. *Ecology of Food and Nutrition*, 34, 59-64.

Bhaskaran, S., & Hardley, F. (2002). Buyer beliefs, attitudes and behaviour: foods with therapeutic claims. *Journal of Consumer Marketing*, 19 (7), 591 – 606.

Biester, S. (2001). Verhaltene Stimmung. *Lebensmittelzeitung*, 53 (30), 33–34.

Bigliardi, B., & Galati, F. (2013). Innovation trends in the food industry. The case of functional foods. *Trends in Food Science & Technology*, 31 (2), 118–129.

Bogue, J., & Ryan, M. (2000). Market-oriented new product development: Functional foods and the Irish consumer. Agribusiness Discussion Paper 27. Department of food economics. National University of Ireland, Cork.

Bonner, G. P., & Nelson, R. (1985). Product attributes and perceived quality: foods. In J.

Jacoby, & J. C. Olson (Eds.), *Perceived Quality - How Consumers View Stores and Merchandise* (pp. 65–79). Toronto: Lexington.

Bower, J. A., Saadat, M. A., & Whitten, C. (2003). Effect of liking, information and consumer characteristics on purchase intention and willingness to pay more for a fat spread with a proven health benefit. *Food Quality and Preference*, 14 (1), 65-74.

Branca, F., Nikogosian, H., & Lobstein, T. (2007). *The challenge of obesity in the WHO European region and the strategies for response*. Copenhagen: WHO Regional Office for Europe.

Bredahl, L. (2001). Determinants of Consumer Attitudes and Purchase Intentions With Regard to Genetically Modified Foods – Results of a Cross-National Survey. *Journal of Consumer Policy*, 24, 23–61.

Brombach, C., Wagner, U., Eisinger-Watzl, M., & Heyer, A. (2006). Die Nationale Verzehrstudie II. *Ernährungs-Umschau*, 53 (1), 4–9.

Bryman, A. (2012). *Social Research Methods* (4th ed.). Oxford: University Press.

Burrell, G., & Morgan, G. (1979). *Sociological paradigms and organizational analysis*. London: Heinemann.

Buttriss, J.L. (2007). Nutrition and health claims - new regulation in place. *Nutrition bulletin*, 32, 72-76.

Büyükkaragöz, A., Bas, M., Sağlam, D., & Cengiz, Ş. E. (2014). Consumers' awareness,

acceptance and attitudes towards functional foods in Turkey. *International Journal of Consumer Studies*, 38, 628–635.

Campbell, D.T. & Fiske, D.W. (1959). Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix. *Psychological Bulletin*, 56 (2), 81-105.

Capacci, S., Mazzocchi, M., Shankar, B., Brambila Macias, J., Verbeke, W., Pérez-Cueto, F.J.A., Koziół-Kozakowska, A., Piórecka, B., Niedzwiedzka, B., D’Addesa, D., Saba, A., Turrini, A., Aschemann-Witzel, J., Bech-Larsen, T., Strand, M., Smillie, L., Wills, J., & Traill, W.B. (2012). Policies to promote healthy eating in Europe: a structured review of policies and their effectiveness. *Nutrition Reviews*, 70 (3), 188–200.

Caplan, P., Keane, A., Willetts, A., & Williams, J. (1998). Studying food choice in its social and cultural contexts: Approaches from a social anthropological perspective. In A. Murcott (Ed.), *The Nation’s diet: The social science of food choice* (168–182). London/New York: Longman.

Casper, E. S. (2007). The theory of planned behavior applied to continuing education for mental health professionals. *Psychiatric Services*, 58 (10), 1324-1329.

Castellini, A., Canavari, M., & Pirazzoli, C. (2002, August). Functional foods in the European Union: An overview of the sector’s main issues. In *8th Joint Conference on Food, Agricultural and the Environment, Wisconsin, USA*.

Chadwick, R.F., (ed.). (2003). *Functional foods. Wissenschaftsethik in Technikfolgenbeurteilung* (Band 20). Berlin: Springer.

Chan, K., Prendergast, G., & Ng, Y. L. (2016). Using an expanded Theory of Planned

Behavior to predict adolescents' intention to engage in healthy eating. *Journal of International Consumer Marketing*, 28 (1), 16-27.

Chen, M.-F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference*, 18 (7), 1008-1021.

Chern, W. S., & Rickertsen, K. (Eds.). (2003). *Health, nutrition and food demand*. Wallingford: Cabi Publishing.

Childs, N.M. (1998). Public policy approaches to establishing health claims for food labels: an international comparison. *British Food Journal*, 100 (4), 191-200.

Clawson, C. J., & Vinson, D. E. (1978). Human values: a historical and interdisciplinary analysis. *NA-Advances in Consumer Research*, Vol., 5.

Conner, M. T. (1993). Understanding determinants of food choice: Contributions from attitude research. *British Food Journal*, 95, 27-31.

Conner, M., Kirk, S. F., Cade, J. E., & Barrett, J. H. (2001). Why do women use dietary supplements? The use of the theory of planned behaviour to explore beliefs about their use. *Social science & medicine*, 52 (4), 621-633.

Conner, M. & McMillan, B. (1999). Interaction effects in the theory of planned behavior: Studying cannabis use. *British Journal of Social Psychology*, 38, 195-222.

- Conner, M. & Sparks, P. (1996). The theory of planned behaviour and health behaviours. In: M. Conner & P. Norman (Eds.), *Predicting health behavior*, 121-162. Buckingham, UK: Open University Press.
- Collis, J. & Hussey, R. (2003). *Business Research: A Practical Guide for Undergraduate and Postgraduate Students* (2nd ed.). Basingstoke: Palgrave Macmillan.
- Cook, T.D. & Campbell, D.T. (1979). *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Chicago: Rand McNally.
- Cook, A. J., Kerr, G. N., & Moore, K. (2002). Attitudes and intentions towards purchasing GM food. *Journal of Economic Psychology*, 23 (5), 557-572.
- Cooper, D. R. & Schindler, P. S. (2008). *Business Research Methods* (10th ed.). McGraw Hill International Edition.
- Coppens, P., Fernandes Da Silva, M. & Pettman, S. (2006). European regulations on nutraceuticals, dietary supplements and functional foods: A framework based on safety. *Toxicology*, 221, 59–74.
- Cox, D. N., & Bastiaans, K. (2007). Understanding Australian consumers' perceptions of selenium and motivations to consume selenium enriched foods. *Food Quality and Preference*, 18, 66–76.
- Cox, D. N., Koster, A., & Russell, C. G. (2004). Predicting intentions to consume functional foods and supplements to offset memory loss using an adaptation of protection motivation theory. *Appetite*, 43, 55–64.

- Crotty, M. (1998). *The Foundations of Social Research*. London: Sage.
- Cullen, K. W., Bartholomew, L. K., Parcel, G. S., & Kok, G. (1998). Intervention mapping: use of theory and data in the development of a fruit and vegetable nutrition program for girl scouts. *Journal of Nutrition Education*, 30 (4), 188-195.
- Dagevos, H. (2005). Consumers as four-faced creatures. Looking at food consumption from the perspective of contemporary consumers. *Appetite*, 45, 32–39.
- Dean, M., Shepherd, R., Arvola, A., Vassallo, M., Winkelmann, M., Claupein, E., et al. (2007). Consumer perceptions of healthy cereal products and production methods. *Journal of Cereal Science*, 46 (3), 188–196.
- Deliens, T., Clarys, P., De Bourdeaudhuij, I., & Deforche, B. (2014). Determinants of eating behaviour in university students: a qualitative study using focus group Discussions. *Public Health*, 14 (53), 1-12.
- De Vaus, D. (2001). *Research Design in Social Research*. London: Sage.
- De Vaus, D. (2014). *Surveys in Social Research* (6th ed.). New York: Routledge.
- DeVellis, R.F. (2003). *Scale Development: Theory and applications* (2nd ed.). Thousand Oaks, California: Sage.
- DI Fødevarer. (8. November 2012). Anprisninger. Hentede 2. March 2013 fra

foedevareer.di.dk:

http://foedevareer.di.dk/SiteCollectionDocuments/Indsig%2039_SundhedsanprisningerFinal.pdf

Diplock, A.T., Agget, P.J., Ashwell, M., Bornet, F., Fern, E.B., & Roberfroid, M.B. (1999).

Scientific concepts of functional foods in Europe: consensus document. *British Journal of Nutrition*, 81, 1-27.

Dodds, W.B., Monroe, K.B. & Grewal, D. (1991). Effects of Price, Brand, and Store

Information on Buyers' Product Evaluations. *Journal of Marketing Research*, 28, pp. 307-19.

Dolgopolova, I., Teuber, R., & Bruschi, V. (2015) Consumers' perceptions of functional

foods: trust and food neophobia in a cross-cultural context. *International Journal of Consumer Studies*, 39, 708–715.

Doyon, M., & Labrecque, J. (2008). Functional foods: A conceptual definition. *British Food*

Journal, 110, 1133–1149.

Dreezens, E., Martijn, C., Tenbult, P., Kok, G., & de Vries, N. K. (2005). Food and the

relation between values and attitude characteristics. *Appetite*, 45, 40–46.

Eagly, A.H. (1992). Uneven progress: Social psychology and the study of attitudes. *Journal of Personality and Social Psychology*, 1992. Vol. 63, No. 5. 693-710.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Harcourt Brace Jovanovich

College Publishers.

- Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management research* (4th ed.) London: Sage.
- EC Regulation No 1924/2006 (2007). EC Regulation No 1924/2006 on nutrition and health claims made on foods. Published in the Official Journal of the European Union. L12/3 – L12/18. Available at:
<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:012:0003:0018:EN:PDF>
- Eertmans, A., Baeyens, F., & Van den Bergh, O. (2001). Food likes and their relative importance in human eating behavior: Review and preliminary suggestions for health promotion. *Health Education Research*, 16, 443–456.
- Elliott, S. (14 April 2004) 'New survey on ad effectiveness', *NYT Online*.
- Evans, M., Jamal, A., & Foxall, G. (2009). *Consumer behavior* (2nd ed.). Hoboken, NJ: Wiley.
- Euromonitor (2016a). *Fortified/functional packaged food in Denmark*.
- Euromonitor (2016b). *Fortified/functional packaged food in Germany*.
- European Commission (2012). There's something healthy in the state of Denmark. Retrieved 28.04.2016 from cordis.europa.eu: http://cordis.europa.eu/news/rcn/34561_en.html
- European Food Safety Authority (2016). "General function" health claims under Article 13. Retrieved 12.05.2016 from: <http://www.efsa.europa.eu/en/topics/topic/article13>

- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39–50.
- Francis, J., Eccles, M. P., Johnston, M., Walker, A. E., Grimshaw, J. M., Foy, R., Kaner, E. F. S., Smith, L. & Bonetti, D.(2004). *Constructing questionnaires based on the theory of planned behaviour: A manual for health services researchers*. Newcastle upon Tyne, UK: Centre for Health Services Research, University of Newcastle upon Tyne.
- Franz, A., & Nowak, B. (2010). Functional food consumption in Germany: A lifestyle segmentation study. *Diskussionspapiere // Department für Agrarökonomie und Rurale Entwicklung*, No. 1003.
- Frewer, L., Scholderer, J., & Lambert, N. (2003). Consumer acceptance of functional foods: Issues for the future. *British Food Journal*, 10, 714–731.
- Fullmer, S., Geiger, C. J. & Parent, C. R. M. (1991). Consumer's knowledge, understanding, and attitudes toward health claims on food labels. *Journal of American Dietetic Association*, 91 (2), 166-171.
- Furst, T., Connors, M., Bisogni, C. A., Sobal, J., & Falk, L. W. (1996). Food choice: A conceptual model of the process. *Appetite*, 26, 247–265.
- Georgiou, C. C., Betts, N. M., Hoerr, S. L., Keim, K., Peters, P. K., Stewart, B., & Voichick, J. (1997) Among Young Adults, College Students and Graduates Practiced more Healthful Habits and made more Healthful Food Choices than did Nonstudents.

Journal of the American Dietetic Association, 97 (7), 754–759.

Germany Food and Drink Report Q4 (2015). Part of *BMI's Industry Report & Forecasts Series*. Published by: BMI Research.

Gill, J., & Johnson, P. (2002). *Research Methods for Managers* (3rd edn.). London: Sage.

Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its application to health related behaviors. *American Journal of Health Promotion*, 11 (2), 87–99.

Gray, J., Armstrong, G. & Farley, H. (2003). Opportunities and constraints in the functional food market. *Nutrition & Food Science*, 33 (5), 213-218.

Greaney, M.L., Less, F.D., White, A.A., Dayton, S.F., Riebe, D., Blissmer, B., Shoff, S., Walsh, J.R., & Greene, G.W. (2009). College Students' barriers and enablers for healthful weight management: a qualitative study. *Journal of Nutrition Education and Behavior*, 41 (4), 281–286.

Grunert, K.G., Lähteenmäki, L., Boztug, Y., Martinsdóttir, E., Ueland, Ø., Åström, A., Lampila, P. (2009). Perception of Health Claims Among Nordic Consumers. *Journal of Consumer Policy*, 32, 269–287.

Grunert, K. G., Sørensen, E., Bredahl, L., & Nielsen, N. A. (1995). Analysing food choice from a means-end perspective. In F. Hansen (Ed.). *European advances in consumer research*, 2, 366–371. Provo, UT: Association for Consumer Research.

- Godin, G. & Kok, G. (1996). The theory of planned behavior: A review of its applications to health related behaviors. *American Journal of Health Promotion*, 11, 87-97.
- Guardia, M. D., Guerrero, L., Gelabert, J., Gou, P., & Arnau, J. (2006). Consumer attitude towards sodium reduction in meat products and acceptability of fermented sausages with reduced sodium content. *Meat Science*, 73 (3), 484–490.
- Gummeson, L., Jonsson, I., & Conner, M. (2007). Predicting intentions and behaviour of Swedish 10-16-year-olds at breakfast. *Food Quality & Preference*, 8 (4), 297-306. doi: 10.1016/S0950-3293(97)00013-X.
- Haberman, S. & Luffey, D. (1998). Weighing in college students' diet and exercise behaviours. *Journal of American College Health*, 46 (4), 189-191.
- Hair, J.F., Anderson, R.L., & Tatham, W.C. (1998). *Multivariate Data Analysis* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Hall, C. (2009). Investigating consumer knowledge and behaviour in the context of functional foods. In *113th Seminar, September 3-6, 2009, Chania, Crete, Greece* (No. 58024). European Association of Agricultural Economists.
- Hansen, T., Jensen, J.M., & Solgaard, H.S. (2004). Predicting online grocery buying intention: A comparison of the theory of reasoned action and the theory of planned behavior. *International Journal of Information Management*, 24 (6), 539-550. doi: 10.1016/j.ijinfomgt.2004.08.004.

- Harnack, L., Block, G., Subar, A., Lane, S., & Brand, R. (1997). Association of cancer prevention-related nutrition knowledge, beliefs, and attitudes to cancer prevention dietary behaviour. *Journal of the American Dietetic Association*, 97, 957–965.
- Hasler, C.M. (2000). The changing face of functional foods. *Journal of American College of Nutrition*, 19 (5), 499-506.
- Hasler, C.M. (2002). Functional foods: benefits, concerns and challenges – a position paper from the American council on science and health. *The Journal of Nutrition*, 132 (12), 3772-3781.
- Heasman, M., & Mellentin, J. (2001). *The Functional Foods Revolution. Healthy people, healthy profits?*. Routledge.
- Held, R. (1970). Two modes of processing spatially distributed visual stimulation. *The Neurosciences*, 317-324.
- Heller, M. A. (1982). Visual and tactual texture perception: Intersensory cooperation. *Perception & psychophysics*, 31(4), 339-344.
- Herath, D., Cranfield, J., & Henson, S. (2008). Who consumes functional foods and nutraceuticals in Canada? Results of cluster analysis of the 2006 survey of Canadians' demand for food products supporting health and wellness. *Appetite*, 51 (2), 256-265.
- Hilliam, M. (1996). Functional foods: the Western consumer viewpoint. *Nutrition Reviews*, 54 (11), 189.

- Hollywood, L.E, Armstrong,G.A., & Durkin, M.G. (2007). Using behavioural and motivational thinking in food segmentation. *International Journal of Retail & Distribution Management*, 35 (9), 691-702. doi: 10.1108/09590550710773245.
- Honkanen, P., Olsen, S.O. & Verplanken, B. (2005). Intention to consume seafood- the importance of habit. *Appetite*, 45, 161-8.
- Horská, E. & Sparke, K. (2007) Marketing attitudes towards the functional food and implications for market segmentation. In: *AGRIC. ECON – CZECH*, 53 (8), 349-353.
- Jansson-Boyd, . V., (2010). *Consumer Psychology*. New York, NY: Open University Press.
- Jemmott III, J.B., Jemmott, L.S., Moore Hines, P., & Fong, G.T. (2001). The Theory of Planned Behavior as a Model of Intentions for Fighting among African American and Latino Adolescents. *Maternal and Child Health Journal*, 5 (4), 253-263.
- Jenkinson, E. (2000, February). Carry on campus. *Checkout*, 20-21.
- Jezewska-Zychowicz, M. (2009). Impact of beliefs and attitudes on young consumers' willingness to use functional food. *Polish journal of food and nutrition sciences*, 59 (2).
- Jonas and Beckmann (1998). Functional Foods: Consumer Perceptions in Denmark and England. *MAPP Working Paper no 55*, 1-34.

- Jones, P. J., & Jew, S. (2007). Functional foods development: Concept to reality. *Trends in Food Science & Technology*, 18, 387–390.
- Kaiser, H. (1970). A second generation Little Jiffy. *Psychometrika*, 35, 401-15.
- Kaiser, H. (1974). An index of factorial simplicity. *Psychometrika*, 39, 31-36.
- Kant, A. K., Schatzkin, A., Graubard, B. I., & Schairer, C. (2000). A prospective study of diet quality and mortality in women. *Jama*, 283 (16), 2109-2115.
- Kelay, T., Vloerbergh, I., Chenoweth, J., Morrison, G., Lundéhn, C., Ramaker, T., & Fife-Schaw, C. (2006). Assessing Consumer Trust & Confidence. Methods appropriate for the Water Utilities. Techneau.
- Keller, S. B., Landry, M., Olson, J., Velliquette, A. M., Burton, S., & Andrews, J. C. (1997). The effects of nutrition package claims, nutrition facts panels, and motivation to process nutrition information on consumer product evaluations. *Journal of Public Policy & Marketing*, 256-269.
- Kim, K., Reicks, M., & Sjoberg, S. (2003). Applying the theory of planned behavior to predict dairy product consumption by older adults. *Journal of Nutrition Education and Behavior*, 35(6), 294-301.
- Knudsen, C. (2003). Pluralism, scientific progress, and the structure of organization theory, in H. Tsoukas and C. Knudsen (eds) *The Oxford Handbook of Organization Theory: Meta-Theoretical Perspectives* (262-86). Oxford: Oxford University Press.

- Kotilainen, L., Rajalahti, R., Ragasa, C., & Pehu, E. (2006). Health enhancing foods. *World Bank*.
- Kotler, P., & Keller, K. L. (2009). *Marketing Management* (13th ed.). Harlow, England; New York: Pearson/Prentice Hall.
- Kozup, J.C., Creyer, E.H. & Burton, S. (2003). Making healthful food choices: the influence of health claims and nutrition information on consumers' evaluations of packaged food products and restaurant menu items. *Journal of Marketing*, 67 (2), 19-34.
- Kraus, A. (2015). Development of functional food with the participation of the consumer. Motivators for consumption of functional products. *International Journal of Consumer Studies*, 39 (1), 2-11.
- Krech, D., & Crutchfield, R. S. (1948). *Theory and problems of social psychology*. New York, NY, US: McGraw-Hill
- Krutulyte, R., Grunert, K. G., Scholderer, J., Lähteenmäki, L., Hagemann, K. S., Elgaard, P., ... & Graverholt, J. P. (2011). Perceived fit of different combinations of carriers and functional ingredients and its effect on purchase intention. *Food Quality and Preference*, 22 (1), 11-16.
- Krygier, K. (2007). Functional foods in Poland. In Proceedings of the fourth international FFNet meeting on functional foods.
- Krystallis, A., Maglaras, G., & Mamalis, S. (2008). Motivations and cognitive structures of

consumers in their purchasing of functional foods. *Food Quality and Preference*, 19, 525–538.

Labrecque, J., & Charlebois, S. (2011). Functional foods: An empirical study on perceived health benefits in relation to pre-purchase intentions. *Nutrition & Food Science*, 41 (5), 308-318.

LaCaille, L. J., Dauner, K. N., Krambeer, R. J., & Pedersen, J. (2011). Psychosocial and environmental determinants of eating behaviors, physical activity, and weight change among college students: a qualitative analysis. *Journal of American College Health*, 59 (6), 531–538.

Lai, A. W. (1995). Consumer values, product benefits and customer value: a consumption behavior approach. *NA-Advances in Consumer Research*, 22, 381-388.

Landström, E., Hursti, U.K.K., Becker, W., Magnusson, M. (2007) Use of functional foods among Swedish consumers is related to health-consciousness and perceived effect. *British Journal of Nutrition*, 98 (5), 1058-1069.

Landström, E., Hursti, U-K. & Magnusson, M. (2009). Functional foods compensate for an unhealthy lifestyle. Some Swedish consumers' impression and perceived need of functional foods. *Appetite*, 53 (1), 34-43. doi:10.1016/j.appet.2009.04.219.

Landström, E., Hursti, U. K. K., Becker, W., & Magnusson, M. (2007). Use of functional foods among Swedish consumers is related to health-consciousness and perceived effect. *British Journal of Nutrition*, 98 (05), 1058-1069.

- Lappalainen, R., Kearney, J., & Gibney, M. (1998). A pan EU survey of consumer attitudes to food, nutrition and health: an overview. *Food Quality and Preference*, 9 (6), 467 – 478.
- Lappalainen R, & Sjödén P. (1992). A functional analysis of food habits. *Scandinavian Journal of Nutrition*, 26, 125–33.
- Lawson, R. (2002). Consumer Knowledge Structures: Background Issues and Introduction. *Psychology & Marketing*, 19 (6), 447–455.
- Lee, R.M. (1993) *Doing Research on Sensitive Topic*. London: Sage.
- Levy, A. S., Derby, B. M., & Roe, B. (1997). Consumer impacts of health claims: An experimental study. *Washington, DC: Center for Food Safety and Applied Nutrition*.
- Lu, J. (2015). The effect of perceived carrier-ingredient fit on purchase intention of functional food moderated by nutrition knowledge and health claim. *British Food Journal*, 117 (7), 1872-1885.
- Lutz, R.J. (1990). The role of attitude in marketing. In H.H. Kassarian & T.S. Robertson (Eds.), *Perspectives in consumer behavior* (4th ed, pp. 317-319). Upper Saddle River, NJ: Prentice Hall
- Lähteenmäki, L. (2003) Consumers and functional foods. In Mattila-Sandholm, T., Saarela, M. (Eds.). *Functional Dairy Products*. Woodhead Publication Ltd, Cambridge.
- Lähteenmäki, L. (2013). Claiming health in food products. *Food Quality and Preference*, 27

(2), 196-201.

Lähteenmäki, L., Lampila, P., Grunert, K., Boztug, Y., Ueland, Ø., Åström, A., & Martinsdóttir, E. (2010) Impact of health-related claims on the perception of other product attributes. *Food Policy*, 35,230–239.

Malhotra, N. K., Birks, D. F., & Wills, P. (2012). *Marketing research: An applied approach* (4th ed.). Harlow: Pearson Education Limited.
<https://www-dawsonera-com.esc-web.lib.cbs.dk:8443/readonline/9781408212202/startPage/454>

Maria, K.M., Anne, M. & Hustri, U.K. (2001). Attitude towards organic food among Swedish consumers. *British Food Journal*, 103 (23), 209-26.

Marina, T., Marija, C. & Ida, R. (2014). Functional foods and the young. *Journal of Food Products Marketing*, 20 (5), 441-451.

Mark-Herbert, C. (2004). Innovation of a new product category—functional foods. *Technovation*, 24, 713–719.

Markovina, J., Čačić, J., Kljusurić, G.J. and Kovačić, D. (2011). Young consumers' perception of functional foods in Croatia. *British Food Journal*, 113 (1), 7-16.

Marquis, M. (2005). Exploring convenience orientation as a food motivation for college students living in residence halls. *International Journal of Consumer Studies*, 29 (1), 55–63.

McCrorie, V., & Bone, D. (2008). Fantastic future for functional foods. *Prepared Foods*, 177, 70.

Mejborn, H. (2007). *Health claims on foods and food supplements. Existing practice in Nordic and Baltic countries* (1st ed., 1st circulation). National Food Institute, DTU Department of Nutrition.

Menrad, K. (2003). Market and marketing of functional food in Europe. *Journal of Food Engineering*, 56, 181–188.

Meziane, Z. (2007). *Future Innovations in Food and Drinks to 2012: NPD, trend convergence and emerging growth opportunities*. Business Insights Limited.

Mitchell, V. (1996). Assessing the reliability and validity of questionnaires: an empirical example. *Journal of Applied Management Studies*, 5 (2), 199-207.

Monneuse, M.O., Bellisle, F., & Koppert, G. (1997). Eating habits, food and health related attitudes and beliefs reported by French students. *European Journal of Clinical Nutrition*, 51, 46-53.

Mooney, K.M. & Walbourn, L. (2001). When college students reject food: not just a matter of taste. *Appetite*, 36, 41-50.

Moorman, C., Diehl, K., Brinberg, D. & Kidwell, B. (2004). Subjective knowledge, search locations, and consumer choice. *Journal of Consumer Research*, 31, 673-680.

- Moors, E.H.M. (2012). Functional foods: regulation and innovations in the EU. *Innovation - The European Journal of Social Science Research*, 25 (4), 424-440.
- Ness, M., Gorton, M., & Kuznesof, S. (2002). The student food shopper. *British Food Journal*, 104 (7), 506 – 525.
- Niva, M. (2006). Can we predict who adopts health-promoting foods? Users of functional foods in Finland. *Scandinavian Journal of Food and Nutrition*, 50 (1), 13–24.
- Niva, M. (2007) All foods affect health: Understandings of functional foods and healthy eating among health-oriented Finns. *Appetite*, 48 (3), 384-393.
- Niva, M. & Mäkelä, J. (2005). Finns and functional foods: socio-demographics, health efforts, notions of technology and the acceptability of health-promoting foods. *International Journal of Consumer Studies*, 31 (1), 34-45.
- Nocella, G. and Kennedy, O. (2012). Food health claims – what consumers understand. *Food Policy*, 37 (5), 571-580.
- Norman, P., Conner, M., & Bell, R. (1999). The Theory of Planned Behavior and Smoking Cessation. *Health Psychology*, 18 (1), 89-94.
- Normann, R., & Ramirez, R. (1993). From value chain to value constellation. *Harvard business review*, 71 (4), 65-77.
- Nunnally, J.O. (1978) *Psychometric theory*. New York: McGraw-Hill.

Nunes, P. F., & Cespedes, F. V. (2003). The customer has escaped. *Harvard Business Review*, 81(11), 96-105.

Nutritional Outlook. (August, 2011). Leatherhead: Functional foods market to grow 22.8% by 2014. Retrieved from <http://www.nutritionaloutlook.com/news/leatherhead-functional-foods-market-grow-2, 28-2014>

O'Connor, E.L., & White, K.M. (2010). Willingness to trial functional foods and vitamin supplements: The role of attitudes, subjective norms, and dread of risks. *Food Quality and Preference*, 21, 75–81.

OECD (2014). Obesity update.

Ong, F.S., Kassim, N.M., Peng, O.S., & Singh, T. (2014). Purchase Behaviour of Consumers of Functional Foods in Malaysia: An Analysis of Selected Demographic Variables, Attitude and Health Status. *Asia Pacific Management Review*, 19 (1), 81-98.

Ogden, J. (1998). *Health Psychology, A Textbook*. Trowbridge: Open University Press.

O'Regan, E. (1999). Give yourself a boost with functional foods. Ireland: Irish Independent.

OVG Hamburg, Urt.v.10.12.1985, LRE 19, 297 (304)

Parks-Leduc, L. & Guay, R.P. (2009). Personality, values, and motivation. *Personality and Individual Differences* 47(7):675-684. DOI: 10.1016/j.paid.2009.06.002

- Pallant, J. (2010). *SPSS Survival Manual. A step by step guide to data analysis using SPSS* (4th ed.). Maidenhead: McGrawHill.
- Parraga, I. M. (1990). Determinants of food consumption. *Journal of the American Dietetic Association, 90*, 661–663.
- Patch, C. S., Tapsell, L. C., & Williams, P. G. (2005). Attitudes and intentions toward purchasing novel foods enriched with omega-3 fatty acids. *Journal of Nutrition Education and Behavior, 37* (5), 235-241.
- Patrick, K., Grace, T. W., & Lovato, C.Y. (1992). Health issues for college students. *Annual Review of Public Health, 13*, 253–268.
- Patterson, R., Kristal, A., Lynch, J., & White, E. (1995). Diet-cancer related beliefs, knowledge, norms and their relationship to healthful diets. *Journal of Nutritional Education, 27* (2), 86–92.
- Peter, J. Paul and Jerry C. Olson (1990). *Consumer Behavior and Marketing Strategy*, 2nd ed., Homewood, IL: Irwin
- Petrovici, D.A., & Ritson, C. (2006) Factors influencing consumer dietary health preventative behaviours. *BMC Public Health, 6*, 222.
- Poulsen, J. (1999). *Danish consumers' attitudes towards functional foods* (No. 62). University of Aarhus, Aarhus School of Business, The MAPP Centre, 1-44.
- Poulsen, J. B., Grunert, K. G. & Bech-Larsen, T. (1999). Consumer attitudes toward

functional foods in Denmark, Finland and the United States. Work in progress

Poulsen, J., [Grunert, K. G., & Bech-Larsen, T.](#) (1999). [Consumer attitudes toward functional foods in Denmark, Finland and the United States](#). European Marketing Academy. (pp. Cd-rom)

Privitera, G. J. (2015). *Statistics for the Behavioral Sciences* (2nd ed.). Thousand Oaks: SAGE Publications, Inc.

Raats, M. M. & Sparks, P. (1995). Unrealistic optimism about diet-related risks: implications for intervention. *Proceedings of The Nutrition Society*, 54, 737-745.

Remenyi, D., Williams, B., Money, A. & Swartz, E. (1998). *Doing Research in Business and Management: An Introduction to Process and Method*. London: Sage.

Rezai, G., Kit Teng, P., Mohamed, Z., & Shamsudin, M. N. (2014). Structural equation modeling of consumer purchase intention toward synthetic functional foods. *Journal of Food Products Marketing*, 20 (sup1), 13-34.

Richardson, L. (2000). Writing: A method of inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). New York: Sage.

Roberfroid, (2000). Defining functional foods. In G. Gibson, & C. M. Williams (Eds.), *Functional Foods; Concept to product* (pp. 9–29). Cambridge: Woodhead.

Robson, C. (2002) *Real World Research* (2nd edn). Oxford: Blackwell.

- Roe, B., Levy, A. S., & Derby, B. M. (1999). The impact of health claims on consumer search and product evaluation outcomes: Results from FDA experimental data. *Journal of Public Policy and Marketing, 18* (1), 89–105.
- Roth, I. (1986). An introduction to object perception. In I. Roth & J.P. Frisby (Eds.), *Perception and representation: A cognitive approach*. Milton Keynes: Open University Press.
- Roininen, K., Lähteenmäki, L., & Tuorila, H. (1999). Quantification of consumer attitudes to health and hedonic characteristics of foods. *Appetite, 33* (1), 71-88.
- Rokeach, M. (1973). *The nature of human values*. New York, NY: Free Press
- Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, affective, and behavioral components of attitudes. *Attitude organization and change: An analysis of consistency among attitude components, 3*, 1-14.
- Rozin, P., Spranca, M., Krieger, Z., Neuhaus, R., Surillo, D., Swerdlin, A., & Wood, K. (2004). Preference for natural: instrumental and ideational/moral motivations, and the contrast between foods and medicines. *Appetite, 43* (2), 147-154.
- Rozin, P., & Tuorila, H. (1993). Simultaneous and temporal contextual influences on food acceptance. *Food Quality and Preference, 4*, 11–20.
- Räsänen, M., Niinikoski, H., Keskinen, S., Helenius, H., Talvia, S., & Rönnemaa, T. (2003). Parental nutrition knowledge and nutrient intake in an atherosclerosis prevention project: the impact of child-targeted nutrition counselling. *Appetite, 41*, 69–77.

- Saba, A., Vassallo, M., Shepherd, R., Lampila, P., Arvola, A., Dean, M., et al. (2010). Country-wise differences in perception of health-related messages in cereal based food products. *Food Quality and Preference*, 21, 385–393.
- Saba, A., Vassallo, M., & Turrini, A. (2000). The role of attitudes, intentions and habit in predicting actual consumption of fat containing foods in Italy. *European Journal of Clinical Nutrition*, 54 (7), 540-545.
- Saher M., Arvola A., Lindeman M., Lähteenmäki L. (2004) Impressions of functional food consumers. *Appetite*, 42, 79-89.
- Saunders, M., Lewis, P., Thornhill, A. (2015). *Research Methods for Business Students* (7th ed.) Pearson Education Limited. Retrieved 28 June 2016, from <<http://www.mylibrary.com?ID=819487>> à <http://lib.mylibrary.com.esc-web.lib.cbs.dk/ProductDetail.aspx?id=819487>
- Saunders, M., Lewis, P., Thornhill, A. (2009). *Research Methods for Business Students* (5th ed.) Edinburgh: Pearson Education Limited.
- Schmidt, M. J., & Hollensen, S. (2006). *Marketing research: An international approach*. Pearson education.
- Schmidt, J. and Onur, S. (2015). Funktionelle Lebensmittel. In Rimbach, G., Nagursky, J., Erbersdobler, H. F. (2015) *Lebensmittel in Lebensmittel-Warenkunde für Einsteiger* (2nd ed.) Part of the series Springer-Lehrbuch, 373-385.

- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In: M. P. Zanna (Ed.), *Experimental social psychology*, pp. 1–62. San Diego, CA: Academic Press.
- Schwartz, S. H. (1994). Beyond individualism/collectivism: new cultural dimensions of values. In K. Uichol, H. C. Triandis, C. Kagitcibasi, S.-C. Choi, & G. Yoon (Eds.), *Individualism and Collectivism* (85–119). Thousand Oaks, CA: Sage.
- Seechurn, D., Neeliah, H., & Neeliah, S.A. (2009). Functional foods in Mauritius: A consumer survey. *Journal of Development and Agricultural Economics*, 1 (9), 204-211.
- Sheth, Jagdish N., Bruce I. Newman and Barbara L. Gross (1991). Why We Buy What We Buy: A Theory of Consumption Values. *Journal of Business Research*, 22, 159-170.
- Siegrist, M., Shi, J., Giusto, A., & Hartmann, C. (2015). Worlds apart. Consumer acceptance of functional foods and beverages in Germany and China. *Appetite*, 92, 87–93.
- Siegrist, M., Stampfli, N., & Kastenholz, H. (2008). Consumers' willingness to buy functional foods. The influence of carrier, benefit and trust. *Appetite*, 51 (3), 526-529.
- Siró, I., Kapolna, E., Kapolna, B., & Lugasi, A. (2008). Functional foods. product development, marketing and consumer acceptance—A review. *Appetite*, 51, 456–467.
- Shepherd, R. (1989). Factors influencing food preferences and choice. In R. Shepherd (Ed.), *Handbook of the psychophysiology of human eating* (3–24). Chichester: Wiley.

- Shepherd, R. (1992). Application of social psychological models to fat intake. In D. J. Mela (Ed.), *Dietary fats: Determinants of preference, selection and consumption* (9–25). London: Elsevier.
- Sloan, A.E. (1999) The new market: Foods for the not-so-healthy. *Food Technology*, 53 (2), 54-60.
- Sloan, A. E. (2000). The top ten functional food trends. *Food Technology*, 54 (4), 33–62.
- Sloan, A. E. (2004). The top ten functional food trends. *Food Technology*, 58, 28–51.
- Sloan, E. (2002). The top 10 functional food trends. The next generation. *Food Technology*, 56, 32–57.
- Smed, S., Jensen, J. D., & Denver, S. (2007). Socio-economic characteristics and the effect of taxation as a health policy instrument. *Food Policy*, 32, 624–639.
- Szmigan, I., & Piacentini, M. (2015). *Consumer behavior*. Oxford, UK: Oxford University Press.
- Smith, R., Olah, D., Hansen, B., & Cumbo, D. (2003). The effect of questionnaire length on participant response rate: A case study in the US cabinet industry. *Forest Products Journal*, 53 (11/12), 33.
- Smith, S.M. & Swinyard, W.R. (1999). Introduction to marketing models.

- Smith, S. C., Taylor, J. G., & Stephen, A. M. (2000). Use of food labels and beliefs about diet - disease relationships among university students. *Public Health Nutrition*, 3 (2), 175-182.
- Smith, J.R., Terry, D.J., Manstead, A.S.R., Louis, W.R., Kotterman, D. and Wolfs, J. (2007) Interaction Effects in the Theory of Planned Behavior: The Interplay of Self-Identity and Past Behavior. *Journal of Applied Social Psychology*, 37 (11), 2726–2750.
- Solomon, M. R. (2011). *Consumer Behavior, Buying, Having, And Being* (9th ed.). Boston: Pearson.
- Solomon, M., Bamossy, G., Askegaard, S., & Hogg, M.K. (2010). *Consumer Behaviour. A European Perspective* (4th ed.). Harlow: Pearson Prentice Hall.
- Sparke, K. & Menrad, K. (2009). Cross-European and functional food-related consumer segmentation for new product development. *Journal of Food Products Marketing*, 15 (3), 213-230.
- Sparks, P., Hedderley, D. & Shepherd, R., (1992). An Investigation into the Relationship between Perceived Control Attitude Variability and the Consumption of Two Common Foods. *European Journal of Social Psychology*, 22, 55-71.
- Sparks, P. & Shepherd, R. (1992). Self-identity and the theory of planned behavior: assessing the role of identification with green consumerism. *Social Psychology Quarterly*, 55 (4), 388-99.
- Stein, A., & Rodríguez-Cerezo, E. (2008). Functional Food in the European Union. IPTS –

Institute for Prospective Technological Studies, JRC, Seville, Spain.

Stevens, J. (1996). *Applied multivariate statistics for the social sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.

Strang, K. D. (2015). *The Palgrave handbook of research design in business and management*. PALGRAVE MACMILLAN.

Streinz, R. (2001). Rechtliche Vorgaben für gesundheits- und krankheitsbezogene Angaben bei funktionellen Lebensmitteln. „Health Claims“. Bundesgesundheitsbl. Gesundheitsforsch – Gesundheitsschutz 44, Springer-Verlag, 227–233.

Sukboonyasatit, D. (2009). Prediction of peoples' intentions and actual consumption of functional foods in Palmerston North: a thesis presented in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Food Technology at Massey University, Palmerston North, New Zealand.

Szmigin, I., & Piacentini, M. (2015) *Consumer Behaviour*. Oxford: Oxford University Press.

Tabachnick, B.G. & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson Education.

Tepper, B., Choi, Y. S., & Nayga Jr, R. (1997). Understanding food choice in adult men: influence of nutrition knowledge, food beliefs and dietary restraint. *Food Quality and Preference*, 8 (4), 307–318.

- Teratavanat, R., & Hooker, N. H. (2006). Consumer valuations and preference heterogeneity for a novel functional food. *Journal of Food Science*, *71*, 533–541.
- Thompson, K. E., Haziris, N., & Alekos, P. J. (1994). Attitudes and food choice behaviour. *British Food Journal*, *96* (11), 9-13.
- Tuorila, H., & Cardello, A. V. (2002). Consumer responses to an off-flavor in juice in the presence of specific health claims. *Food Quality and Preference*, *13*, 561–569.
- Umeh, K. & Patel, R. (2004) Theory of planned behaviour and ecstasy use: An analysis of moderator-interactions. *British Journal of Health Psychology*, *9*, 25–38.
- Urala, N. (2005) Functional foods in Finland: Consumers' views, attitudes and willingness to use (VTT Publication No. 581). Technical Research Centre of Finland, Helsinki, Finland.
- Urala, N., Arvola, A., & Lähteenmäki, L. (2003). Strength of health- related claims and their perceived advantage. *International journal of food science & technology*, *38* (7), 815-826.
- Urala, N., & Lähteenmäki, L. (2003). Reasons behind consumers' functional food choices. *Nutrition & Food Science*, *33* (4), 148-158.
- Urala, N., & Lähteenmäki, L. (2004). Attitudes behind consumers' willingness to use functional foods. *Food Quality and Preference*, *15*, 793–803.

- Urala, N., & Lähteenmäki, L. (2007). Consumers' changing attitudes towards functional foods. *Food Quality and Preference*, *18*, 1–12.
- Urala, N., Schutz, H. & Spinks, J. (2011). Consumer Perceptions of “Functional Food” in the United States. *Journal of Food Products Marketing*, *17* (4), 407-419.
- van Arnum, P. (2004). Food innovation targets health & wellness. *Chemical Market Reporter*, *266* (1), FR3.
- van Kleef, E., van Trijp, H. C. M., & Luning, P. (2005). Functional foods: Health claim-food product compatibility and the impact of health claim framing on consumer evaluation. *Appetite*, *44*, 299–308.
- Vanrullen, R., & Thorpe, S. J. (2001). The time course of visual processing: from early perception to decision-making. *Journal of cognitive neuroscience*, *13*(4), 454-461.
- van Trijp, H. C. M., & van der Lans, I. A. (2007). Consumer perceptions of nutrition and health claims. *Appetite*, *48*, 305–324.
- Verdurme, A., & Viaene, J. (2003). Consumer beliefs and attitude towards genetically modified food: Basis for segmentation and implication for communication. *Agribusiness*, *19*, 91–113.
- Verbeke, W. (2005). Consumer acceptance of functional foods: socio-demographic, cognitive and attitudinal determinants. *Food Quality and Preference*, *16*, 45–57.

- Verbeke, W. (2008). Impact of communication on consumers' food choices. *Proceedings of the Nutrition Society*, 67, 281-288.
- Verbeke, W., Vermeir, I. & Vackier, I. (2004). Impact of values, involvement and perceptions on consumer attitudes and intentions towards sustainable food consumption. in De Tavernier, J. and Aerts, S. (Eds), *Proceedings of the EURSAFE – Science, Ethics and Society, Centre for Agricultural, Bio- and Environmental Ethics*. Leuven, 81-5.
- Wade, M. A. (2006). Defending functional foods. *Prepared Foods*, September, 84–95.
- Walters, A. and Long, M. (2012) The Effect of Food Label Cues on Perceptions of Quality and Purchase Intentions among High-Involvement Consumers with Varying Levels of Nutrition Knowledge. *Journal of Nutrition Education and Behavior*, 44 (4), 350-354.
- Wansink, B. (2002). Changing eating habits on the home front: Lost lessons from World War II research. *Journal of Public Policy & Marketing*, 21 (1), 90-99.
- Wansink, B. (2003). How do front and back package labels influence beliefs about health claims?. *Journal of Consumer Affairs*, 37 (2), 305-316.
- Wansink, B., & Chan, N. (2001). Relation of soy consumption to nutritional knowledge. *Journal of Medicinal Food*, 4 (3), 145-150.
- Wansink, B., Westgren, R. E., & Cheney, M. M. (2005). Hierarchy of nutritional knowledge that relates to the consumption of a functional food. *Nutrition*, 21 (2), 264-268.
- Wardle, J. (1995). Parental influences on children's diets. *Proceedings of the Nutrition*

Society, 54 (3), 747-758.

Wardle, J., Parmenter, K., & Waller, J. (2000). Nutrition knowledge and food intake. *Appetite*, 34, 269–275.

Wengreen, H. J., & Moncur, C. (2009). Change in diet, physical activity, and body weight among young-adults during the transition from high school to college. *Nutrition journal*, 8 (1), 1.

WHO, Regional Office for Europe (2013). *Nutrition, Physical Activity and Obesity Germany*.

Wilkie, W. L. (1990). *Consumer Behavior*, 2nd ed., New York, NY: John Wiley

Wilkins, J. L., Bowdish, E., & Sobal, J. (2000). University Student Perceptions of Seasonal and Local Foods. *Journal of Nutrition Education*, 32 (5), 261-268.

Williams, P. (2005). Consumer understanding and use of health claims for foods. *Nutrition Reviews*, 63 (7), 256-264.

Williamson, A. R., Hunt, A. E., Pope, J. F., & Tolman, N. M. (2000). Recommendations of dietitians for overcoming barriers to dietary adherence in individuals with diabetes. *The Diabetes Educator*, 26, 272–278.

Winchester, M.K., Romaniuk, J. & Bogomolova, S. (2008). Positive and Negative Brand Beliefs and Brand Defection/Uptake. *European Journal of Marketing*, 42 (5/6), 553-570.

- Zanoli, R. & Naspetti, S. (2002). Consumer motivations in the purchase of organic food. *British Food Journal*, 104 (8), 643-653.
- Ziebarth, N. R. (2014). Assessing the effectiveness of health care cost containment measures: evidence from the market for rehabilitation care. *International Journal Health Care Finance and Economics*, 14, 41–67.
- Zunft, H. J. F., Friebe, D., & Seppelt, B. (1997). Perceived benefits of healthy eating among a nationally-representative sample of adults in the European Union. *European Journal of Clinical Nutrition* 51 (2), S41-S46.
- Øygard, L., & Rise, J. (2006). Predicting the intention to eat healthier food among young adults. *Health Education Research*, 11 (4), 453-461.

Appendix

A-1: Questionnaire English

Dear Participants,

Thank you very much for participating in our survey for our Master Thesis about the concept of FUNCTIONAL FOODS. The survey is anonymous and will take no longer than 5 minutes to complete. If you provide us with your email address at the end of the survey, you will be part of a lottery to win a voucher from Netto valued at DKK 250. The winner will be contacted via email.

Best regards,

Ingvild & Jana

Screening questions

1. Are you currently a student? - Yes/No
2. What is your nationality? - Danish - other

Your views on healthy eating

Please indicate to what degree you agree to the following statements (5-point Likert scale strongly disagree - strongly agree)

1. The healthiness of food has little impact on my food choices. (reversed)
2. I am very particular about the healthiness of the food I eat/drink.
3. I do not worry much about the healthiness of the food I consume. (reversed)
4. It is important for me that the fats in my diet are of the healthy kind.
5. I always follow a healthy and balanced diet.
6. It is important for me that my daily diet contains a lot of vitamins and minerals.
7. Eating a lot of vegetables on a daily basis is not of much importance to me. (reversed)
8. I do not avoid foods, even if I know they are unhealthy. (reversed)

DEFINITION FUNCTIONAL FOODS:

FUNCTIONAL FOODS are food products that can be consumed as a healthier option to conventional foods. They have been modified by substituting an unhealthy ingredient with a healthy one (e.g. omega-3 replacing fat), eliminating the unhealthy ingredient (e.g. sugar), or enriching the product with a healthy ingredient that would normally not be present in the product (e.g. add vitamins or fibre). Thereby, these products provide health benefits beyond basic nutrition and can help preventing certain diseases. Functional food products can mainly be found in the food categories soft drink, dairy products, confectionery, cereals, baby food and bakery products. Examples of common functional food products include probiotic yoghurt, bread with added omega 3 or juice with calcium.

Your view on the Naturalness of Functional Food

Please indicate to what degree you agree to the following statements (5-point Likert scale strongly disagree - strongly agree)

1. I try not to eat functional foods because they contain additives. (reversed)
2. I do not eat/drink processed foods such as functional foods, because I do not know what they contain. (reversed)
3. Generally, functional foods are organic. (reversed)
4. There are less organic functional food products than organic conventional products.

Your views on the health benefits of functional foods

Please indicate to what degree you agree to the following statement (5-point Likert scale strongly disagree - strongly agree)

1. Functional foods are likely to have a beneficial impact on my personal health.
2. I can prevent disease by eating/drinking functional foods regularly.
3. Functional foods do not make it easier for me to follow a healthy lifestyle. (reversed)
4. I do not worry about eating a balanced diet, if I eat/drink functional foods.

Your views on health claims found on functional foods

The next questions concern health claims. Health claims are any statement about a relationship between the food product and health, and can be found on the product packaging. These are some examples of health claims:

- *The added fibre in the product reduces the risk of cancer*
- *The calcium added to the product strengthens your bones*
- *The low salt content in the product reduces the risk of high blood pressure*
- *This yoghurt reduces the risk of lack of concentration because it contains caffeine*

In general, I believe health claims found on product packaging are

untrustworthy 1...5 trustworthy

credible 1...5 not credible (reversed)

insincere 1...5 sincere

honest 1...5 dishonest (reversed)

Your knowledge of nutrition

1. What level of nutrition knowledge do you consider yourself of having?

Very low 1...average....5 Very high

2. Please indicate whether the following statements are true or false

1. Margarine has fewer calories than butter. (False)
2. 1 gram of protein has the same amount of calories as 1 gram of fat. (False)
3. Natural vitamins are more nutritious than synthetic vitamins. (False)
4. Coconut oil has more saturated fat than sunflower oil. (True)
5. Certain citrus products, like grapefruit, help the body burn fat quicker. (False)
6. Removing the skin from poultry reduces fat content. (True)
7. Whole milk is a better source of calcium than skim milk. (False)
8. Eating more fruits and vegetables will help you increase fiber in your diet. (True)
9. Cholesterol-free products are also fat-free. (False)
10. Sugar from fruits is more nutritious than table sugar. (False)

Your functional food purchase decision

Please indicate to what degree you agree to the following statements (5-point Likert scale strongly disagree - strongly agree)

1. If I wanted to, I could purchase functional foods.
2. It is up to myself whether or not I purchase functional foods.
3. There are factors out of my control that could prevent me from purchasing functional foods.
(reversed)

Your intention to purchase functional foods

Please indicate to what degree you agree to the following statements (5-point Likert scale strongly disagree - strongly agree)

1. I intend to purchase functional foods over the next two weeks.
2. I want to purchase functional foods over the next two weeks.
3. It is likely that I will purchase functional foods over the next two weeks.

Your view on purchasing functional food

Overall, I think me purchasing functional foods is:

- Worthless 1...5 Valuable
- Harmful 1...5 Beneficial
- Positive 1...5 negative (reversed)

- Bad 1...5 Good
- Convenient 1...5 difficult (reversed)

Other people's view on purchasing functional foods

Please indicate to what degree you agree to the following statement (5 point Likert scale strongly disagree - strongly agree)

1. My friends think that I should purchase functional foods.
2. My family thinks that I should purchase functional foods.
3. Information on the Internet and social media tells me that I should purchase functional foods.

Your view on the price of functional foods

Please indicate to what degree you agree to the following statement (5 point Likert scale strongly disagree - strongly agree)

“I happily pay a higher price for foods with added health benefits”

Demographic Information

Please indicate your gender: Male Female

Please indicate your age: <20 21 22 23 24 25 26 27 28 29 >29, I prefer not to say

Thank you for completing this questionnaire.

Please add your email if you want to get the chance to win a voucher from Netto worth 250 DKK.

A-2: Questionnaire German

Liebe Teilnehmer,

Vielen Dank für die Teilnahme an unserer Umfrage für unsere Masterarbeit über das Konzept FUNKTIONELLE LEBENSMITTEL. Die Umfrage ist anonym und wird nicht länger als 5 Minuten in Anspruch nehmen. Wenn Sie uns Ihre E-Mail Adresse am Ende der Umfrage hinterlassen, werden Sie an einer Verlosung für einen Gutschein von Amazon im Wert von 30 Euro teilnehmen. Der Gewinner wird anschließend per E-Mail kontaktiert.

Viele Grüße,

Jana & Ingvild

Screening-fragen

Sind Sie zurzeit Student? – Ja / Nein

Was ist Ihre Nationalität? – Deutsch / Andere

Ihre Ansicht über gesundes Essen

Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen (5-Punkt Likert Skala: Stimme überhaupt nicht zu – Stimme voll und ganz zu)

1. Die Gesundheit von Lebensmitteln hat einen geringen Einfluss auf meine Lebensmittelwahl. (reversed)
2. Ich bin sehr bestimmt wenn es um die Gesundheit der Lebensmittel geht, die ich verzehre.
3. Ich Sorge mich nicht viel über den Gesundheitswert der Lebensmittel, die ich konsumiere. (reversed)
4. Es ist wichtig für mich, dass die Fette in meiner Ernährung, gesunde Fette sind.
5. Ich halte mich immer an einen gesunden und ausgewogenen Ernährungsplan.
6. Es ist wichtig für mich, dass meine tägliche Ernährung viele Vitamine und Mineralien enthält.
7. Der tägliche Verzehr von verschiedenen Gemüsen ist nicht sehr wichtig für mich. (reversed)

8. Ich vermeide keine Lebensmittel, selbst dann nicht wenn sie ungesund sind. (reversed)

DEFINITION FUNKTIONELLE LEBENSMITTEL:

Funktionelle Lebensmittel sind Lebensmittel, die als gesündere Alternative zu herkömmlichen Lebensmitteln verzehrt werden können. Sie wurden modifiziert indem die ungesunde Zutat mit einer gesünderen ersetzt wird (z.B. omega-3 als Fettersatz), die ungesunde Zutat entfernt wird (z.B. Zucker), oder das Produkt mit einer gesunden Zutat angereichert wird, die das Produkt normalerweise nicht beinhalten würde (z.B. Vitamin oder Ballaststoff). Dadurch bieten diese Produkte gesundheitlichen Nutzen über eine grundlegende Ernährung hinaus und können dabei helfen, bestimmte Krankheiten zu verhindern. Funktionelle Lebensmittel sind vor allem in den Lebensmittelkategorien Erfrischungsgetränke, Milchprodukte, Süßwaren, Getreide, Babynahrung und Backwaren zu finden. Beispiele herkömmlicher funktioneller Lebensmittel sind probiotischer Joghurt, Brot mit angereichertem Omega-3 oder Saft mit Kalzium.

Ihre Ansicht über die Natürlichkeit von Funktionellen Lebensmitteln

Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen (5-Punkt Likert Skala: Stimme überhaupt nicht zu – Stimme voll und ganz zu)

1. Ich versuche keine funktionellen Lebensmittel zu essen, da sie Zusatzstoffe enthalten. (reversed)
2. Ich esse/trinke keine verarbeiteten Lebensmittel wie zum Beispiel funktionelle Lebensmittel, weil ich nicht weiß was sie enthalten.
3. Funktionelle Lebensmittel sind normalerweise biologisch. (reversed)
4. Es gibt weniger biologische funktionelle Lebensmittel als biologische konventionelle Lebensmittel.

Ihre Ansicht über den gesundheitlichen Nutzen funktioneller Lebensmittel

Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen (5-Punkt Likert Skala: Stimme überhaupt nicht zu – Stimme voll und ganz zu)

1. Funktionelle Lebensmittel haben wahrscheinlich einen positiven Effekt auf meine persönliche Gesundheit.
2. Ich kann Krankheiten vermeiden indem ich regelmäßig funktionelle Lebensmittel verzehre.
3. Funktionelle Lebensmittel machen es für mich nicht leichter einen gesunden Lebensstil zu führen. (reversed)
4. Ich mache mir keine Sorgen über eine ausgewogene Ernährung, wenn ich funktionelle Lebensmittel verzehre.

Ihre Ansicht über gesundheitsbezogene Aussagen (health claims) auf funktionellen Lebensmitteln

Die nächsten Fragen betreffen gesundheitsbezogene Angaben (health claims). Gesundheitsbezogene Angaben sind Aussagen über den Zusammenhang zwischen dem Lebensmittel und Gesundheit. Diese kann man z.B. auf der Produktverpackung finden. Einige Beispiele von gesundheitsbezogenen Angaben sind:

- *Der hinzugefügte Ballaststoff in dem Produkt reduziert das Krebsrisiko.*
- *Das hinzugefügte Kalzium in dem Produkt stärkt Ihre Knochen.*
- *Der niedrige Salzgehalt in dem Produkt reduziert das Risiko von Bluthochdruck.*
- *Dieser Joghurt reduziert das Risiko von Konzentrationsmangel, weil er Koffein enthält.*

Auf einer Skala von 1-5, glaube ich, dass gesundheitsbezogene Angaben auf der Produktverpackung...sind.

nicht vertrauenswürdig 1...5 vertrauenswürdig

glaubwürdig 1...5 nicht glaubwürdig (reversed)

unaufrichtig 1...5 aufrichtig

ehrlich 1...5 unehrlich (reversed)

Ihr Wissen über Ernährung

1. Welches Level an Wissen über Ernährung glauben Sie zu haben? Sehr niedrig
1...durchschnittlich... 5 sehr hoch

2. Bitte geben Sie an, ob die folgenden Aussagen richtig oder falsch sind.

1. Margarine hat weniger Kalorien als Butter. (FALSCH)
2. 1 Gramm Protein hat die gleiche Menge an Kalorien wie 1 Gramm Fett. (FALSCH)
3. Natürliche Vitamine sind nahrhafter als synthetische Vitamine. (FALSCH)
4. Kokosöl hat mehr gesättigte Fettsäuren als Sonnenblumenöl. (WAHR)
5. Bestimmte Zitrusprodukte, wie Grapefruit, helfen dem Körper, schneller Fett zu verbrennen. (FALSCH)
6. Das Entfernen der Haut von Geflügel verringert den Fettgehalt. (WAHR)
7. Vollmilch ist eine bessere Quelle für Kalzium als Magermilch. (FALSCH)
8. Mehr Obst und Gemüse zu essen, hilft Ihnen Ballaststoffe in der Ernährung zu erhöhen. (WAHR)
9. Cholesterinfreie Produkte sind auch fettfrei. (FALSCH)
10. Zucker aus Früchten ist nahrhafter als Tafelzucker. (FALSCH)

Ihre Kaufentscheidung für funktionelle Lebensmittel

Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen (5-Punkt Likert Skala: Stimme überhaupt nicht zu – Stimme voll und ganz zu)

1. Wenn ich wollen würde, könnte ich funktionelle Lebensmittel kaufen.
2. Es liegt an mir, ob ich funktionelle Lebensmittel kaufe oder nicht.
3. Es gibt Faktoren außer meiner Kontrolle, die mich vom Kauf funktioneller Lebensmittel abhalten könnten. (reversed)

Ihre Absicht funktionelle Lebensmittel zu kaufen

Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen (5-Punkt Likert Skala: Stimme überhaupt nicht zu – Stimme voll und ganz zu)

1. Ich beabsichtige in den nächsten zwei Wochen funktionelle Lebensmittel zu kaufen.
2. Ich will in den nächsten zwei Wochen funktionelle Lebensmittel kaufen.
3. Es ist wahrscheinlich, dass ich in den nächsten zwei Wochen funktionelle Lebensmittel kaufen werde.

Ihre Ansicht über den Kauf von funktionellen Lebensmitteln

Ich halte den Kauf von funktionellen Lebensmitteln als...

- Wertlos 1 ... 5 Wertvoll
- Gesundheitsschädlich 1 ... 5 Nützlich
- Positiv 1 ... 5 Negativ (**reversed**)
- Schlecht 1 ... 5 Gut
- Günstig 1 ... 5 Schwierig (**reversed**)

Ansicht anderer Leute in Bezug auf den Kauf von funktionellen Lebensmitteln

Bitte geben Sie an, inwieweit Sie den folgenden Aussagen zustimmen (5-Punkt Likert Skala: Stimme überhaupt nicht zu – Stimme voll und ganz zu)

1. Meine Freunde denken, dass ich funktionelle Lebensmittel kaufen sollte.
2. Meine Familie denkt, dass ich funktionelle Lebensmittel kaufen sollte.
3. Informationen aus dem Internet und den sozialen Medien sagen mir, dass ich funktionelle Lebensmittel kaufen sollte.

Ihre Ansicht über den Preis von funktionellen Lebensmitteln

Bitte geben Sie an, inwieweit Sie der folgenden Aussage zustimmen (5-Punkt Likert Skala: Stimme überhaupt nicht zu – 5 Stimme voll und ganz zu)

„Ich bezahle gerne einen höheren Preis für Lebensmittel mit gesundheitlichem Zusatznutzen“

Demographische Information

Bitte geben Sie Ihr Geschlecht an: - männlich – weiblich

Bitte geben Sie ihr Alter an: <20 21 22 23 24 25 26 27 28 29 >29, Ich möchte es lieber nicht sagen

Vielen Dank für das Ausfüllen des Fragebogens.

Bitte fügen Sie Ihre E-Mail an, wenn Sie die Chance erhalten möchten einen Gutschein von Amazon im Wert von 30 Euro zu gewinnen.

A-3: Analysis

3.1.1 Factor Analysis

3.1.1.1 *View on healthy eating*

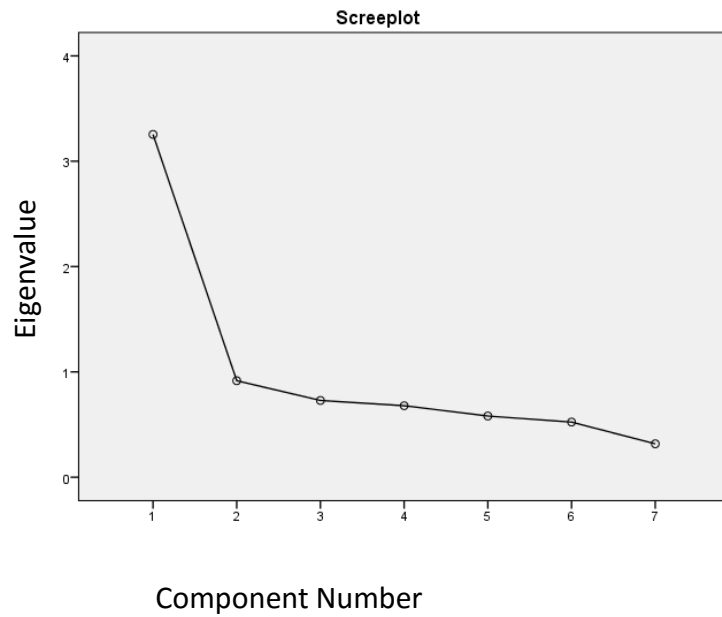
Correlation Matrix

	View on healthy eating 2	View on healthy eating 3	View on healthy eating 4	View on healthy eating 5	View on healthy eating 6	View on healthy eating 7	View on healthy eating 8
View on healthy eating 2	1.000	.617	.537	.439	.469	.259	.437
View on healthy eating 3	.617	1.000	.386	.328	.463	.325	.336
View on healthy eating 4	.537	.386	1.000	.351	.453	.340	.255

View on healthy eating 5	.439	.328	.351	1.000	.358	.184	.350
View on healthy eating 6	.469	.463	.453	.358	1.000	.364	.265
View on healthy eating 7	.259	.325	.340	.184	.364	1.000	.204
View on healthy eating 8	.437	.336	.255	.350	.265	.204	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.829
Bartlett's Test of Sphericity	Approx. Chi-Square	301.876
	df	21
	Sig.	.000



3.1.1.2 Purchase Intention

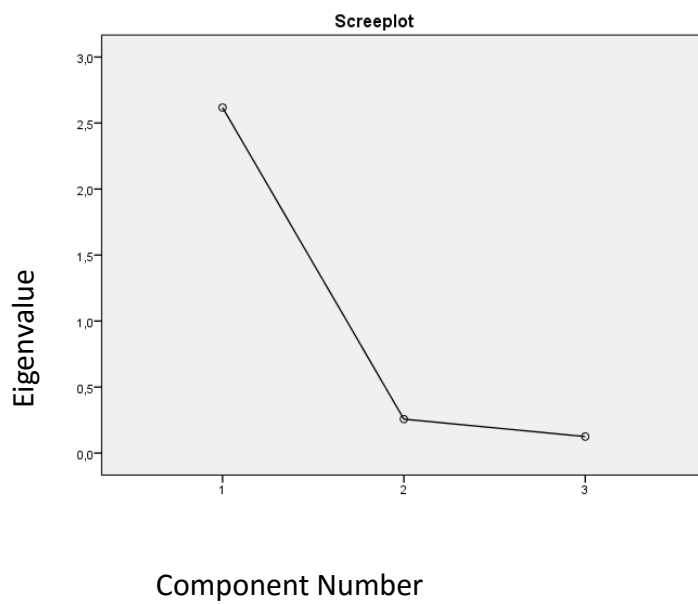
Correlation Matrix

	Purchase Intention of FF 1	Purchase Intention of FF 2	Purchase Intention of FF 3
Purchase Intention of FF 1	1.000	.875	.774
Purchase Intention of FF 2	.875	1.000	.776
Purchase Intention of FF 3	.774	.776	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.745
--	------

Bartlett's Test of Sphericity	Approx. Chi-Square	386.402
	df	3
	Sig.	.000



3.1.1.3 *Perceived behavioral control*

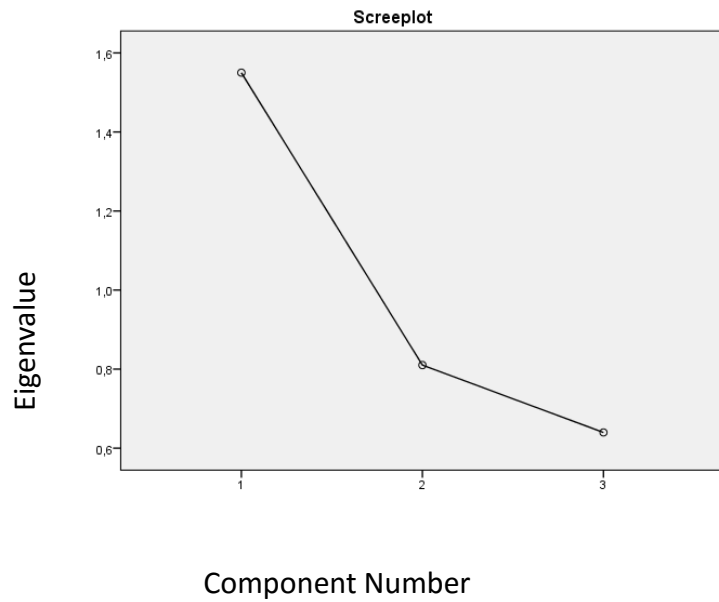
Correlation Matrix

	Perceived behavioral control 1	Perceived behavioral control 2	Perceived behavioral control 3
Perceived behavioral control 1	1.000	.354	.206
Perceived behavioral control 2	.354	1.000	.258

Perceived behavioral control 3	.206	.258	1.000
--------------------------------	------	------	-------

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.597
Bartlett's Test of Sphericity	Approx. Chi-Square	34.177
	df	3
	Sig.	.000



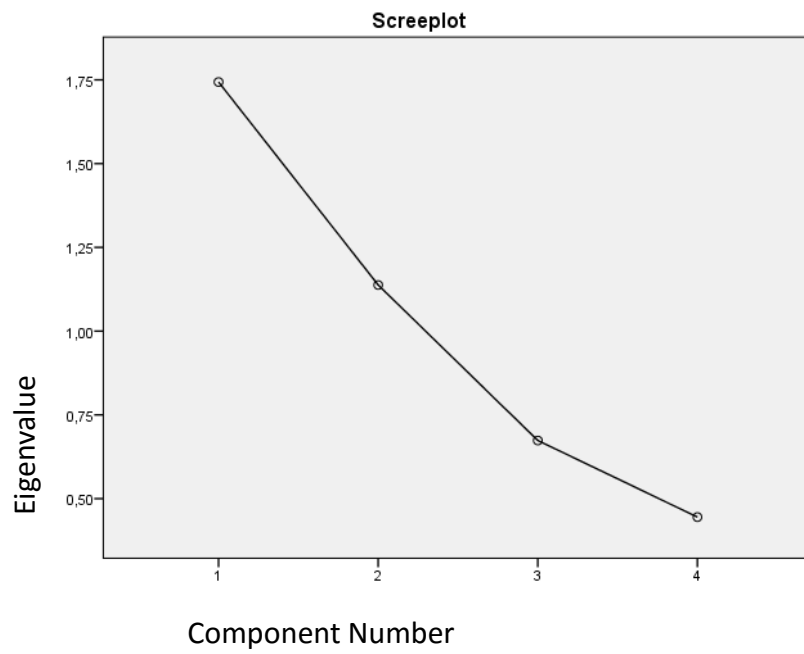
3.1.1.4 Perceived naturalness

Correlation Matrix

	View on naturanless of food 1	View on naturalness of food 2	View on naturalness of food 3	View on naturalness of food 4
View on naturanless of food 1	1.000	.397	.321	.060
View on naturalness of food 2	.397	1.000	.142	.092
View on naturalness of food 3	.321	.142	1.000	.447
View on naturalness of food 4	.060	.092	.447	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.513
Bartlett's Test of Sphericity	Approx. Chi-Square
	80.993
	df
	6
	Sig.
	.000



Rotated Component Matrix

	Component	
	1	2
View on naturalness of food 1		.830
View on naturalness of food 2		.822
View on naturalness of food 3	.813	
View on naturalness of food 4	.874	

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser-Normalization

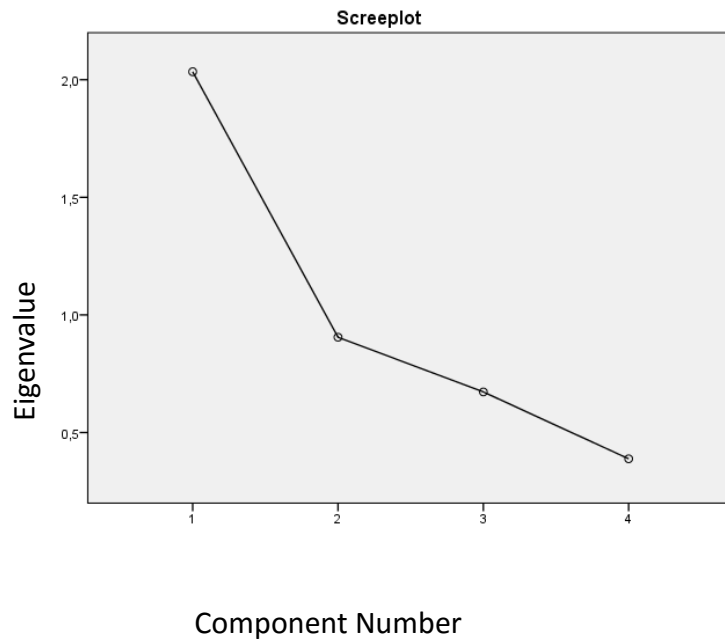
3.1.1.5 Perceived healthiness

Correlation Matrix

	Perceived health benefits of FF 1	Perceived health benefits of FF 2	Perceived health benefits of FF 3	Perceived health benefits of FF 4
Perceived health benefits of FF 1	1.000	.602	.438	.194
Perceived health benefits of FF 2	.602	1.000	.355	.198
Perceived health benefits of FF 3	.438	.355	1.000	.150
Perceived health benefits of FF 4	.194	.198	.150	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.666
Bartlett's Test of Sphericity	Approx. Chi-Square
	114.092
	df
	6
	Sig.
	.000



3.1.1.6 *Trust in health claims*

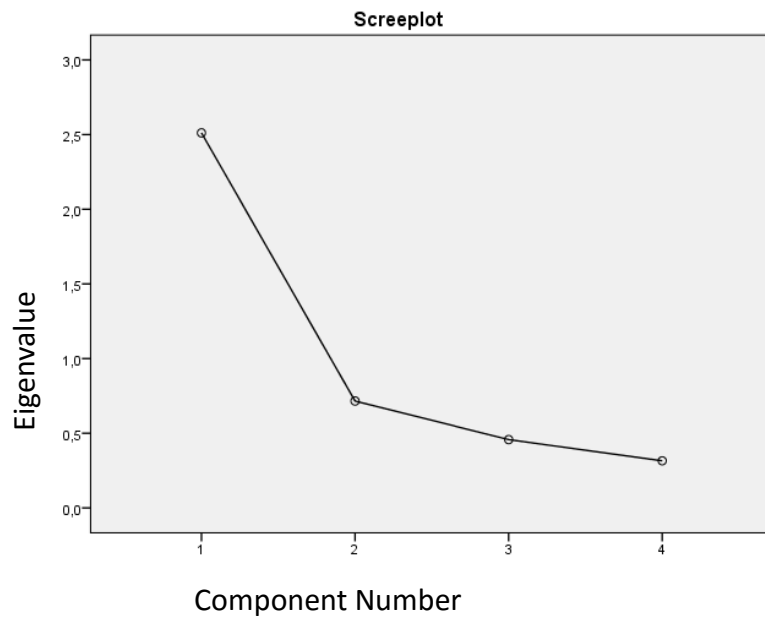
Correlation Matrix

		View on health claims 1	View on health claims 2	View on health claims 3	View on health claims 4
Korrelation	View on health claims 1	1.000	.481	.606	.536
	View on health claims 2	.481	1.000	.297	.522
	View on health claims 3	.606	.297	1.000	.563
	View on health claims 4	.536	.522	.563	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.714
--	------

Bartlett's Test of Sphericity	Approx. Chi-Square	210.340
	df	6
	Sig.	.000



3.1.1.7 *Attitude towards purchasing*

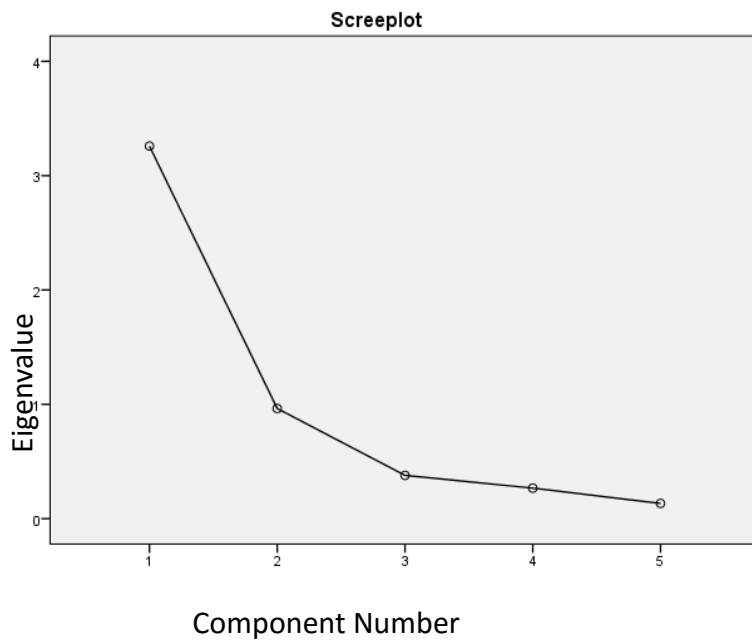
Correlation Matrix

	Attitude towards purchasing FF 1	Attitude towards purchasing FF 2	Attitude towards purchasing FF 3	Attitude towards purchasing FF 4	Attitude towards purchasing FF 5
Attitude towards purchasing FF 1	1.000	.726	.721	.732	.148
Attitude towards purchasing FF 2	.726	1.000	.691	.691	.203
Attitude towards purchasing FF 3	.721	.691	1.000	.866	.153
Attitude towards purchasing FF 4	.732	.691	.866	1.000	.125
Attitude towards purchasing FF 5	.148	.203	.153	.125	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.815
--	------

Bartlett's Test of Sphericity	Approx. Chi-Square	492.241
	df	10
	Sig.	.000



Attitude towards purchasing 1-4

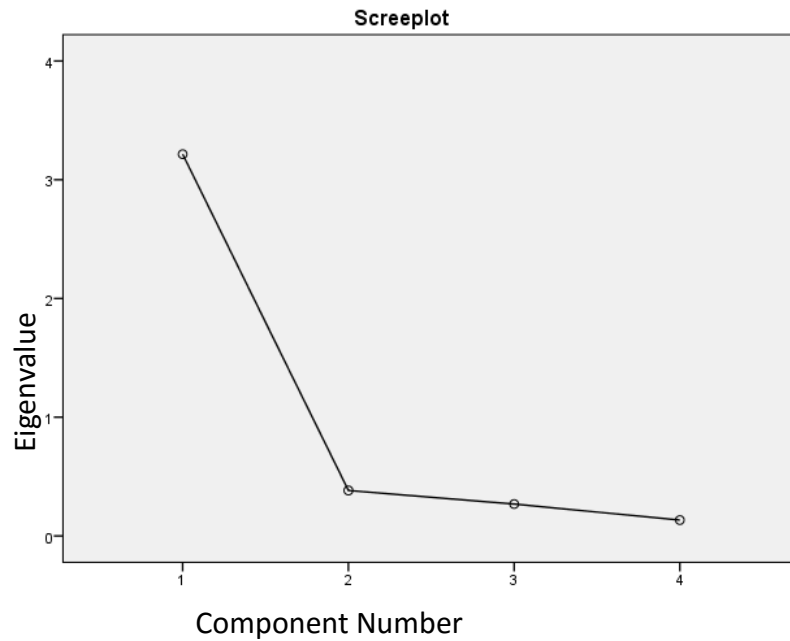
Correlation matrix

	Attitude towards purchasing FF 1	Attitude towards purchasing FF 2	Attitude towards purchasing FF 3	Attitude towards purchasing FF 4
Attitude towards purchasing FF 1	1,000	,726	,721	,732
Attitude towards purchasing FF 2	,726	1,000	,691	,691

Attitude towards purchasing FF 3	,721	,691	1,000	,866
Attitude towards purchasing FF 4	,732	,691	,866	1,000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,814
Bartlett's Test of Sphericity	Approx. Chi-Square	486,252
	df	6
	Sig.	,000



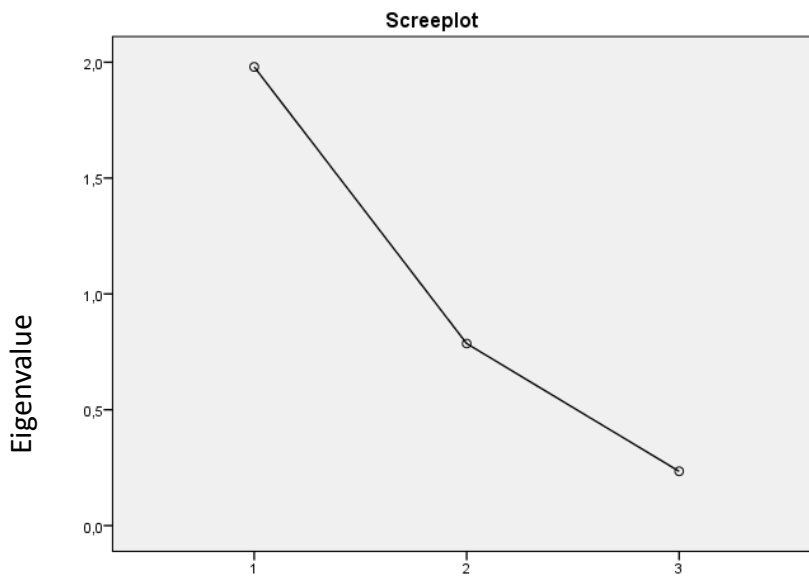
3.1.1.8 Subjective norm

Correlation Matrix

	Subjective norm 1	Subjective norm 2	Subjective norm 3
Subjective norm 1	1.000	.765	.330
Subjective norm 2	.765	1.000	.318
Subjective norm 3	.330	.318	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.580
Bartlett's Test of Sphericity	Approx. Chi-Square	157.544
	df	3
	Sig.	.000



Component Number

3.1.2 Descriptive Statistics

3.1.2.1 Germany

Table 24 Frequencies Perceived nutritional knowledge Germany

	Frequency	Percent	Valid Percent	Cumulative Percent
2	5	5.8	5.8	5.8
3	25	29.1	29.1	34.9
4	41	47.7	47.7	82.6
5	15	17.4	17.4	100.0
Total	86	100.0	100.0	

Table 25 Frequencies Willingness to pay Germany

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	6	7.0	7.0	7.0
Disagree	16	18.6	18.6	25.6
Neutral	26	30.2	30.2	55.8
Agree	36	41.9	41.9	97.7
Strongly agree	2	2.3	2.3	100.0
Total	86	100.0	100.0	

Table 26 Frequencies Gender Germany

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	53	61.6	61.6	61.6
	Male	33	38.4	38.4	100.0
	Total	86	100.0	100.0	

Table 27 Frequencies Age Germany

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	≤20	1	1.2	1.2	1.2
	21	6	7.0	7.1	8.2
	22	6	7.0	7.1	15.3
	23	12	14.0	14.1	29.4
	24	14	16.3	16.5	45.9
	25	23	26.7	27.1	72.9
	26	12	14.0	14.1	87.1
	27	5	5.8	5.9	92.9

	28	4	4.7	4.7	97.6
	>29	2	2.3	2.4	100.0
	Total	85	98.8	100.0	
Missing	System	1	1.2		
Total		86	100.0		

Table 28 Frequencies Nutritional Knowledge Score Germany

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.2	1.2	1.2
	3	6	7.0	7.0	8.1
	4	9	10.5	10.5	18.6
	5	14	16.3	16.3	34.9
	6	18	20.9	20.9	55.8
	7	18	20.9	20.9	76.7
	8	15	17.4	17.4	94.2
	9	4	4.7	4.7	98.8
	10	1	1.2	1.2	100.0
	Total	86	100.0	100.0	

3.1.2.2 Denmark

Table 29 Frequencies Perceived nutritional knowledge Denmark

	Frequency	Percent	Valid Percent	Cumulative Percent
1	1	1.4	1.4	1.4
2	4	5.5	5.5	6.8
3	15	20.5	20.5	27.4
4	31	42.5	42.5	69.9
5	22	30.1	30.1	100.0
Total	73	100.0	100.0	

Table 30 Frequencies Willingness to Pay Denmark

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	16	21.9	21.9	21.9
Agree	26	35.6	35.6	57.5
Neutral	12	16.4	16.4	74.0
Disagree	16	21.9	21.9	95.9
Strongly disagree	3	4.1	4.1	100.0
Total	73	100.0	100.0	

Table 31 Frequencies Gender Denmark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	51	69.9	69.9	69.9
	Male	22	30.1	30.1	100.0
	Total	73	100.0	100.0	

Table 32 Frequencies Age Denmark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	≤20	2	2.7	2.7	2.7
	21	6	8.2	8.2	11.0
	22	11	15.1	15.1	26.0
	23	8	11.0	11.0	37.0
	24	11	15.1	15.1	52.1
	25	13	17.8	17.8	69.9
	26	11	15.1	15.1	84.9
	27	4	5.5	5.5	90.4
	28	5	6.8	6.8	97.3
	29	2	2.7	2.7	100.0
	Total	73	100.0	100.0	

Table 33 Frequencies nutritional knowledge score Denmark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	2.7	2.7	2.7
	3	1	1.4	1.4	4.1
	4	5	6.8	6.8	11.0
	5	7	9.6	9.6	20.5
	6	11	15.1	15.1	35.6
	7	12	16.4	16.4	52.1
	8	17	23.3	23.3	75.3
	9	12	16.4	16.4	91.8
	10	6	8.2	8.2	100.0
	Total	73	100.0	100.0	

3.1.3 Regression

3.1.3.1 Multiple Regression Beliefs – Intention

Germany

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.637	.405	.335	.86384

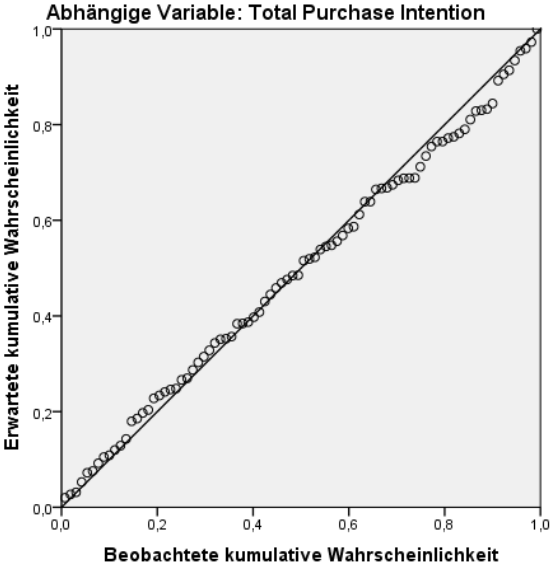
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.683	9	4.298	5.760	.000
	Residual	56.713	76	.746		
	Total	95.395	85			

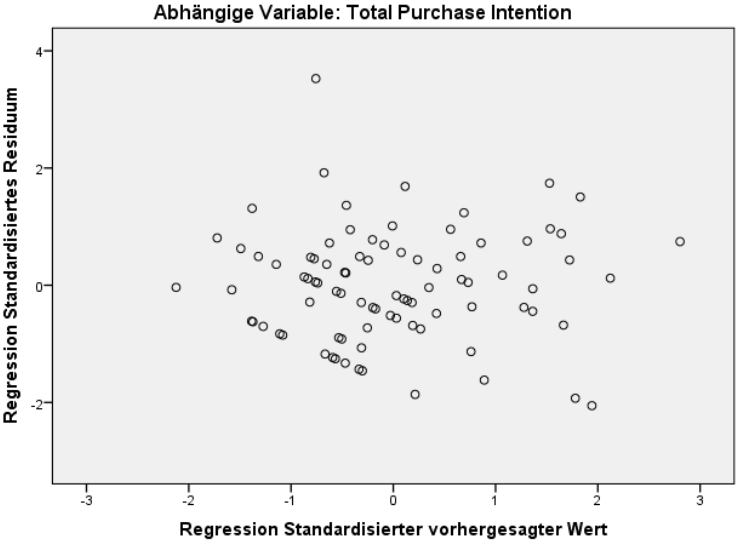
Table 34 Variance Inflation Factor Germany

	VIF
Willingness to pay	1.290
Perceived nutritional knowledge	1.387
Subjective norm 1	2.539
Subjective norm 2	2.926
Subjective norm 3	1.321
Perceived naturalness additives	1.455
Perceived naturalness organic	1.181
Total perceived health benefits	1.414
Total trust in health claims	1.136

Normalverteilungsdiagramm der Regression von Standardisiertes Residuum



Streudiagramm



Denmark

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620	.384	.296	.81271

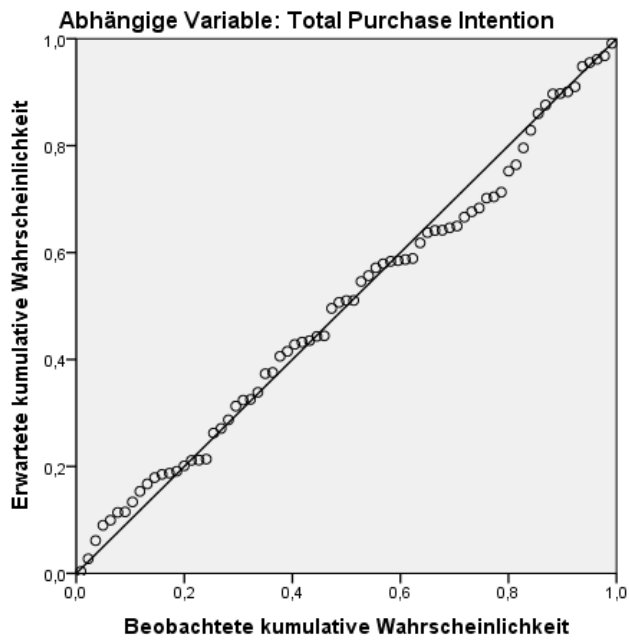
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.947	9	2.883	4.365	.000
	Residual	41.612	63	.661		
	Total	67.559	72			

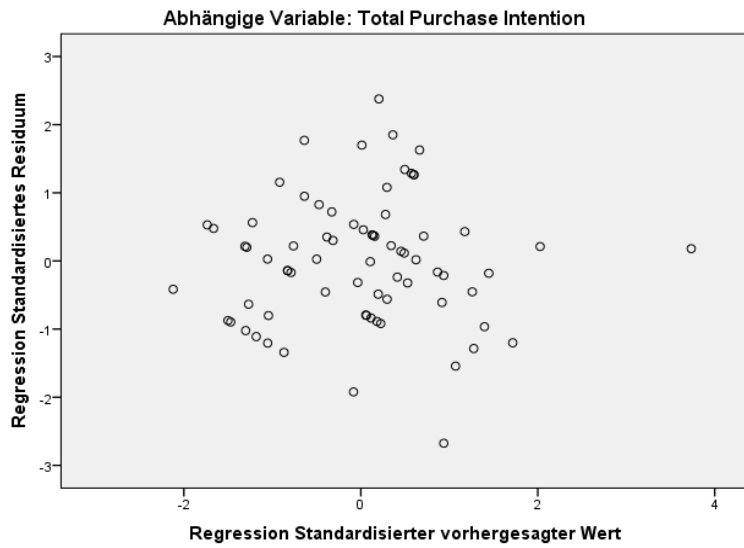
Table 35 Variance Inflation Factor Denmark

	VIF
Perceived naturalness additives	1.268
Perceived naturalness organic	1.318
Total perceived health benefits	1.611
Total trust in health claims	1.170
Willingness to pay	1.486
Perceived nutritional knowledge	1.101
Subjective norm 1	3.080
Subjective norm 2	3.073
Subjective norm 3	1.473

Normalverteilungsdiagramm der Regression von Standardisiertes Residuum



Streudiagramm



3.1.3.2 Hierarchical Regression

Germany

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.580	.336	.312	.87872	.336	13.848	3	82	.000
2	.649	.422	.353	.85213	.085	1.866	6	76	.098

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.079	3	10.693	13.848	.000
	Residual	63.316	82	.772		
	Total	95.395	85			
2	Regression	40.210	9	4.468	6.153	.000
	Residual	55.185	76	.726		
	Total	95.395	85			

Table 36 Variance Inflation Factor Germany

	VIF
Total Perceived Behavioral Control	1.058
Total attitude towards purchasing	1.255
Total subjective norm	1.192
Total Perceived Behavioral Control	1.139
Total attitude towards purchasing	3.572
Total subjective norm	1.241
Willingness to pay	1.376
Perceived nutritional knowledge	1.338
Perceived naturalness additives	1.465
Perceived naturalness organic	1.161
Total perceived health benefits	2.830
Total trust in health claims	1.216

Denmark

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.616	.379	.352	.77967	.379	14.046	3	69	.000
2	.673	.453	.375	.76555	.074	1.428			

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.615	3	8.538	14.046	.000

	Residual	41.944	69	.608		
	Total	67.559	72			
2	Regression	30.636	9	3.404	5.808	.000
	Residual	36.922	63	.586		
	Total	67.559	72			

Table 37 Variance Inflation Factor Denmark

	VIF
Total Perceived Behavioral Control	1.043
Total attitude towards purchasing	1.087
Total subjective norm	1.047
Total Perceived Behavioral Control	1.102
Total attitude towards purchasing	2.263
Total subjective norm	1.162
Perceived nutritional knowledge	1.170
Willingness to pay	1.605
Perceived naturalness additives	1.233
Perceived naturalness organic	1.349
Total perceived health benefits	2.087
Total trust in health claims	1.113

3.1.3.3 Multiple Regression Beliefs – TPB Constructs

PBC Germany

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.396	3	.465	.992	.401

Residual	38.485	82	.469		
Total	39.881	85			

PBC Denmark

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.735	3	.245	.680	.567
	Residual	24.875	69	.361		
	Total	25.610	72			

Attitude Germany

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.799	.639	.626	.46771

ANOVA

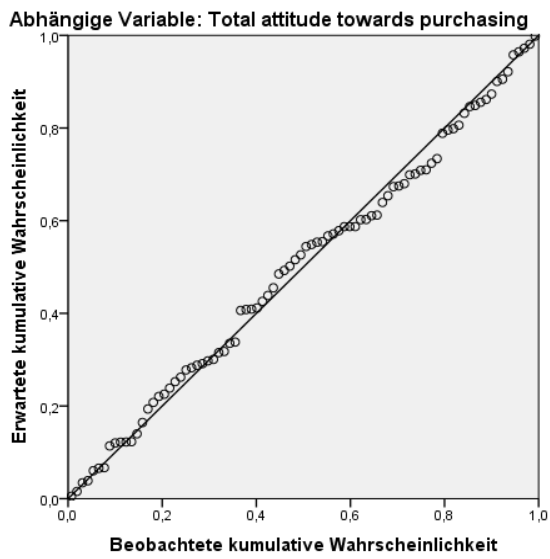
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.732	3	10.577	48.353	.000
	Residual	17.938	82	.219		

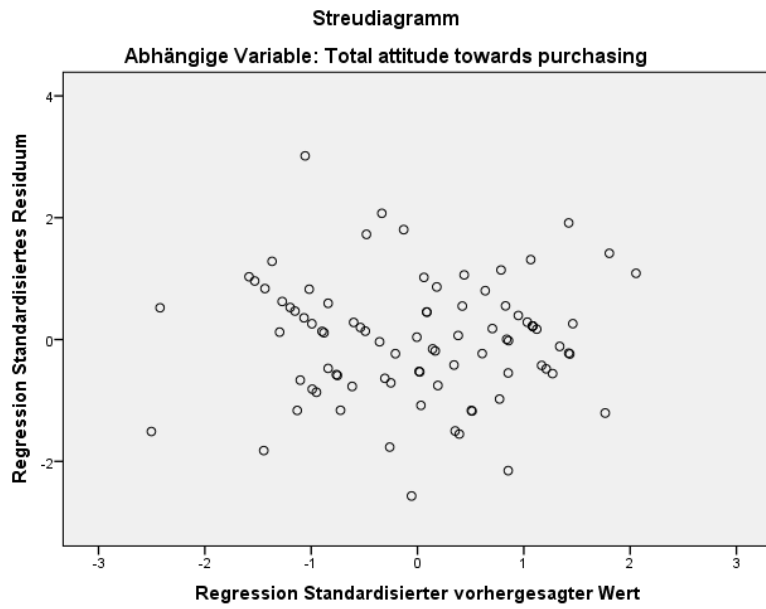
Total	49.669	85			
-------	--------	----	--	--	--

Table 38 Variance Inflation Factor Germany

	VIF
Perceived naturalness additives	1.070
Perceived naturalness organic	1.062
Total perceived health benefits	1.022

Normalverteilungsdigramm der Regression von Standardisiertes Residuum





Attitude Denmark

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.634	.402	.376	.58836

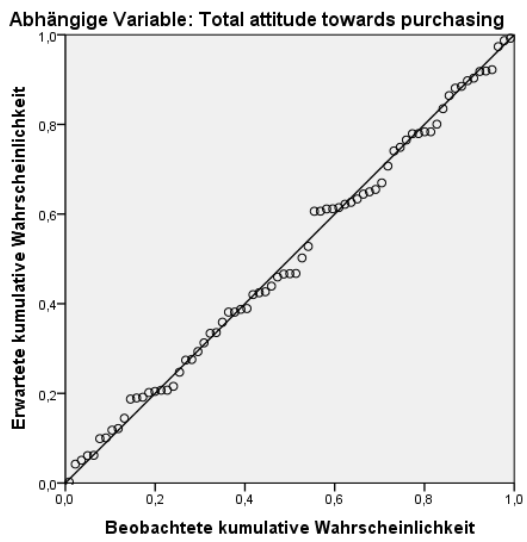
ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.082	3	5.361	15.486	.000
	Residual	23.885	69	.346		
	Total	39.967	72			

Table 39 Variance Inflation Factor Denmark

	VIF
Perceived naturalness additives	1.093
Perceived naturalness organic	1.161
Total perceived health benefits	1.098

Normalverteilungsdiagramm der Regression von Standardisiertes Residuum



Streudiagramm

Abhängige Variable: Total attitude towards purchasing

