Generation Y in Germany – A change in knowledge about nutrition and eating behavior

Konstantin Kraft

27.10.2014

Degree programme

Author	Year of entry
Konstantin Kraft	2013
Title of report	**Number of pages and appendices**
Generation Y in Germany – A change in knowledge about nutrition and eating behavior	52+4
Supervisors	
Juuso Kokko, Pekka Lampi	

The aim of the thesis is to discover on one side the eating behavior of Generation Y and on the other side their knowledge about nutrition. In addition to that the thesis find a connection between both.

Nutrition is the science of the nutrients in food. Nutrients are daily needed by the body to keep up all bodily related processes. Nutrients can be grouped into energy providing nutrients and non energy providing nutrients. The nutrition also refers to the nutrient value of the food. At the end of the nutrition chapter, there will be guidelines for a healthy and balanced diet.

Generation Y consists of people born between the years 1980 and 2000. This generation is characterized by various influences such as globalization, of technology and brand growth. The hierarchy of needs by Maslow will underline the needs of this generation and will demonstrate the high need of health awareness. A big fragment of the health awareness is nutrition.

In order to understand the knowledge and eating behavior, quantitative research was conducted. The target group of the thesis is the Generation Y in Germany. The questionnaire is divided into three segments. The first segment is to gather basic information, the second segment is a quiz about nutrition and the third part is to understand the eating behavior. The questionair has been distributed on social media over ten days (01.10.2014 – 10.10.2014) and the number of responses is 109.

The Generation Y strives for health. For this reason the health awareness of this generation is higher than in all generations before. The Generation Y tries to find the perfect work life balance and to improve the individual well-being. Nutrition naturally plays a big role in the procedure of fulfilling the needs of health awareness. It can be clearly recognize that there is a connection between knowledge about nutrition and eating behavior. This can be the advice for this generation that they have to start to know more about nutrition, which help them to fulfill the need of health awareness.

Keywords

Generation Y, Nutrition, Eating behavior, Knowledge about nutrition

Table of contents

1 Introduction

The former US president Benjamin Franklin (1806) once said" In general, mankind, since the improvement of cookery, eats above twice as much as nature requires." Even though this quote is more than two hundred years old, there is much truth in this statement. In consideration of latest study for Germany, it can be determined, that for children, teenagers and young adults about one of five is overweight. For people over 20 years, according to the study, about 64 percent of the men and 49 percent of women in Germany are overweight. (Möckl 2014.) Looking at the results of the study, Benjamin Franklin's statement has not lost it's meaning. The people eat more than needed. The science has to start to understand the eating habits of people. This study provides a better overview of the eating behavior.

The thesis has several limitations. First, the target group is the latest generation, which is called Generation Y. A second limitation is that the thesis will only focus on the people of the Generation Y in Germany. It is targeted to the eating behavior of this generation and describes their knowledge of nutrition. Further on it will be a tried to find a connection between the knowledge about nutrition and the eating behavior.

1.1 Research aim and research question

The research aim of the thesis is to research both the eating behavior of Generation Y and their knowledge about nutrition. Further on the research will concentrate on how does knowledge about nutrition affect the eating behavior. Therefore the thesis will first present basic information about nutrition and after that a profile of Generation Y will be introduce. Main part of the research is to find a connection between eating behavior and knowledge about nutrition.

According to the topic, a research question has been developed. The research question is in two steps, which is presented in the following graph.

Which role does nutrition play in your daily life?

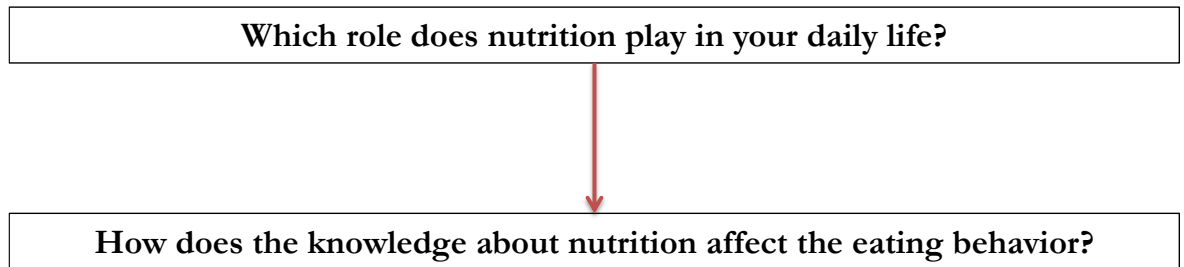| **How does the knowledge about nutrition affect the eating behavior?** |
|:---:|

Figure 1. Research Question

According to the research question, the structure of the thesis is established. As mentioned before the research question has two parts, the first step of the question will handle the nutrition part and how the daily life of Generation Y affected by that. The second step is to find the connection between eating behavior and knowledge about nutrition. It is important to answer the first research question than the second one, because the second is based on the first. The structure will guide the reader through the thesis and gives a clear and easy to understand overview about the topic. The theoretical framework will provide the required background to understand the topic.

1.2   Research method in brief

This chapter will give a short overview of the research method used, further information can be found in Chapter 4. To get an overview of this topic, a quantitative survey is the most suitable research method. This decision gives the reader an overview of the target group and helps him to understand the point of view. The survey will be answered by people of the Generation Y, who are living in Germany. The questionnaire is divided into three segments. The first segment is to gather basic information, the second segment is quiz about nutrition and the third part is to understand the eating behavior. A quantitative research enables an overview with less detailed answers, but from a larger group.

The strategy of the research is to create a user friendly survey, which can be answered quick and easily to gain as much data as possible. In order to distribute the survey to the target group, it was published on Facebook. This approach of distribution helps to gather as much data as possible. The survey has been distributed over ten days and the number of responses is 109.

1.3 Outline of structure

The introduction chapter will give a brief overview of this thesis. It will give information of the background of the topic and why it is relevant for people to understand daily nutrition and eating habits. This chapter will present the main research questions and the purpose of this thesis.

The next chapter focuses on the theoretical framework. Within in the theoretical framework the definition of nutrition will be introduced. It gives important information about nutrition and the relationship to nutrients. This is relevant to understand later the guidelines of a balance diet.

The third chapter will focus mainly on Generation Y and their health awareness and eating habits. First a little introduction about Generation Y is given, after some further analysis the motive of Generation Y is presented. At the end of the chapter there will be some introduction about expectance of food for Generation Y.

Within the methodology chapter an explanation of how the research has been conducted is given. It will explain the research question and it will show the research method. In this chapter also the survey questions are introduced, and why these questions are chosen. The research is then justified, which will include the limitations of the research.

The fifth chapter is describing the data and presents the findings as well the results of the questionnaire. Graphs and table will be given to illustrate the results. Further data analysis will be presented which will be helpful to answer the research question.

In the conclusion the theoretical framework and research results are combined and the research questions are answered. In the end of the conclusion the validity, reliability will be presented as well as the suggestions for further research on this topic.

2 Nutrition

"Nutrition is the science of the nutrients in food and how they are ingested, digested, absorbed, transported, and utilized to build and maintain the body." (National Restaurant Association Educational Foundation 2006, 3.) Nutrients are daily needed by the body to keep up all bodily-related processes. Nutrients are chemicals, which support the body for daily metabolic functions of growth and development. The nutrition also refers to the nutrient value of the food. Nutrients provide energy to the body, which is needed to build body structure and enable many chemical reactions. An improper balance of nutrients or insufficient quantity of them can cause problems in physical and mental development, decrease concentration, increase fatigue and decrease energy levels.

Eventually, what people eat is their choice, although some of them might be limited by their economic situation. Nevertheless people have to understand the importance of nutrients and the right balance of them. To understand the nutrients in the right way, the following chapter will explain the different kinds, effects and structures of the nutrients to the human body. (National Restaurant Association Educational Foundation 2006, 3.)

2.1 Energy providing nutrients

Nutrients can be grouped into the following classes: proteins, lipids (fat), carbohydrates, vitamins, minerals and water. Overall the responsibilities of nutrients are to provide energy, form body structures and regulate body processes. Proteins, lipids (fat) and carbohydrates are essential energy providers.

The energy provided by the nutrients is measured by kilocalorie (kcal or kcalorie, also known as calorie). Kilocalorie is the unit of heat. The physical definition of calories is the amount of heat required to raise the temperature of 1 kilogram of water to 1°C higher. The amount of the daily need of calories is dependent on age, sex and other physiological factors, like activities. (Khan 1998, 15)

2.1.1 Protein

The word protein comes from the Greek word "protos", which means "first". Proteins consist out of a complex structure. This complex structure includes thousands of related substances. Proteins are made out of building blocks with similar structure know as amino acids. It is essential to look closer at those amino acids to understand the structure of proteins. Amino acids are organic substances and consist out of carbon, hydrogen and oxygen. One amino acid consists of an amino group that contains nitrogen. An acid group has always a side group which is connected to one or several atoms. Approximately 20 amino acids are normally found in the nature. Some of the 20 amino acids can be produced by living cells with the help of carbon, hydrogen and oxygen. As soon as all ingredients are available in the living cell, it can produce amino acids which then can link to other amino acids to form protein molecules. If two amino acids join the result is called dipeptide, if three join it is called trioetide and larger number of amino acids, it is called polypeptide. A protein structure may be complicated and may contain one or more polypeptides. It can be visualized as long chains of amino acids that may vary from a few to several hundred amino acids. (Khan 1998, 29-30)
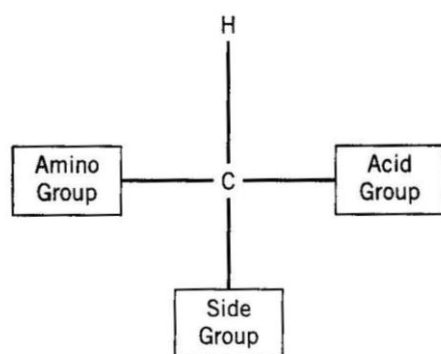

Figure 2. Structure of an amino acid (Khan 1998, 30.)

Proteins are generally not used to create energy like carbohydrates and fats are. Their most important functions are the growth and maintenance of cells. The skeletal muscle, bones, skin collagen (the primary protein of animal and human connective tissue), cartilage, red blood cells, nails and even the heart and liver are made out of

proteins. Also enzymes are partly made out of proteins. Enzymes exist to build or break down essential substance for life. Therefore proteins are necessary components to create body reactions which take place on daily basis. Hormones and antibodies contain proteins which play an important role on regulating fluid and acid-based balance. As a last resort, proteins are used as an energy provider. Although protein contains 4 kilocalories, kcal (17 kilojoules kJ), these calories are not normally used by the body because protein has as described, more important functions, which cannot be executed, if proteins are used to provide energy. (National Restaurant Association Educational Foundation 2006, 87-88.)

Table 1. Amount of protein in food (Khan 1998, 34.)

Food	Serving Size	Protein (grams)
Ground beef	85 g	31
Fish sticks	2 sticks	12
half chicken	breast	27
Egg	whole egg	6
Peach	1	1
Milk	1 cup	8
Cod	100 g	20
Processed cheese	30 g	6

2.1.2 Fat/Lipids

Fat and oils are normally named as lipids. Those are fatty substances which normally do not dissolve in water but dissolve in ether. The structure of lipids is relatively simple. Glycerides are the most common form of lipids. They can be found in the most food products. Two or three fatty acids are attached to one glycerol particle. If one fatty acid is attached to glycerol, it is called monoglyceride, if two are attached it is called diglyceride and three attached fatty acids are called triglyceride. Monoglyeride and diglyceride are common in nature and essentials for the human body. Triglycerides are most of the fats and oils, which account for almost 90 percent of the weight of food. (Khan 1998, 61.)
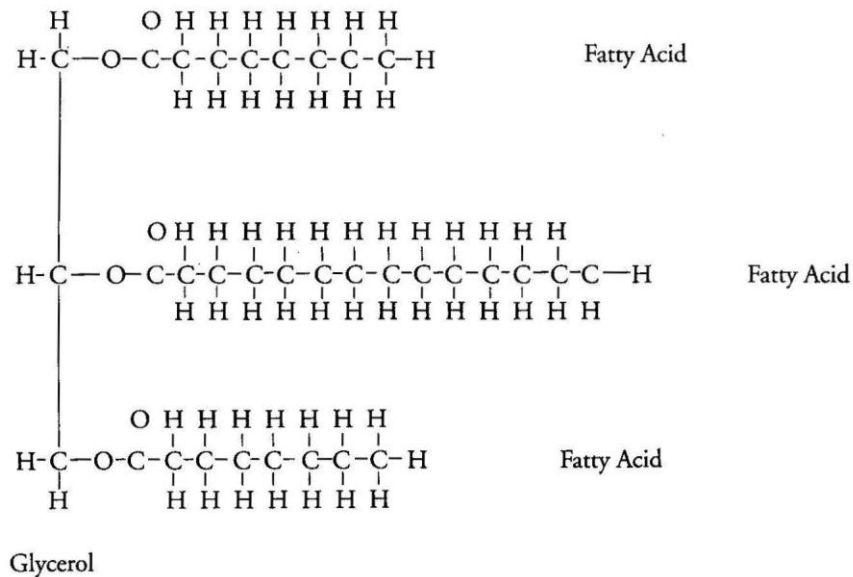
Figure 3. Structure of a triglyceride (Khan 1998, 61.)

Lipids provide 9 kilocalories kcal (37 kilojoules kJ), therefore lipids are the strongest provider of energy for the human body. Adipose tissue is the largest storage for energy in the form of fat. The lipids are stored in the body in different places and in different amounts varying from person to person; furthermore it depends on gender, genetics and total weight. The adipose tissues are essential because they surround the organs to cushion them. They are located under the skin to build an insulation to protect the human against the cold in the winter. (Leas 2008, 48.) Another function of lipids is to absorb fat-soluble vitamins or spare body protein that is used for energy, or as a part of every cell membrane to shape and give them a structure. Lipids are the base of many hormones. The two most special ones are leptin and adiponectin. Leptin plays a key part in creating appetite and adiponectin stimulates the body to burn fat cells to gain energy. (Leas 2008, 47.)

Table 2. Amount of fat / lipids in food (Khan 1998, 64 - 65.)

Food	Serving Size	Fat/Lipids (grams)
Butter	one spoon	8
Ice cream	2 scoops	13
Peanuts	50 g	25
Walnuts	50 g	31
Egg	whole egg	6
Bacon	5 stripes	33
Coconut oil	30 g	25
Beef	100 g	25

2.1.3 Carbohydrate

The word carbohydrate is put together from the words carbon, hydrogen and oxygen, which are the components of it.
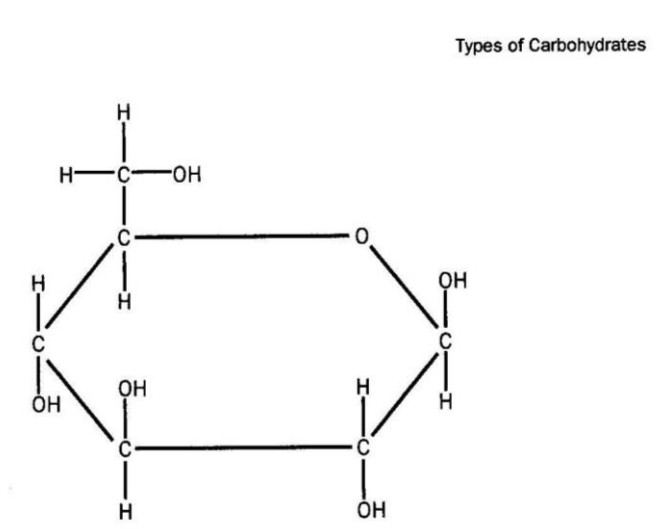
Types of Carbohydrates

Figure 4. Structure of glucose (Khan 1998, 43.)

Actually carbohydrates belong to the family of saccharides, which is commonly known as sugars. A distinction is made between monosaccharide, also referred to as a simple sugar, disaccharides, also referred to as double sugar, and polysaccharide, which refers to a complex sugar. Sugars (primarily glucose) are formed in green plants during the process of photosynthesis. Monosaccharides are the building blocks of carbohydrates.

Examples of simple sugars are glucose, fructose, and galactose. Glucose, also called dextrose or blood sugar is the simplest form of carbohydrates that is used by the human body to gain energy. Fructose, which is known as fruit sugar, is component of all fruits and imparts its sweetness to many plant foods. Galactose is a component of milk sugar and therefore mostly found in milk and milk products. Simple sugars have only one molecule, but they can join another simple sugar molecule to build disaccharides. For example glucose and fructose can chemically bond together to a new sugar called sucrose. Sucrose is known by everyone as table sugar and is the sugar of daily use. Another combination can be glucose and galactose which then builds lactose. Lactose is milk sugar and therefore a component of milk and other milk products. Both sucrose and lactose are used extensively in food preparation to gain sweetness or all kind of different flavors. Like disaccharides, many monosaccharides can join to build polysaccharide, which is known as a complex structure. Examples of polysaccharide are starches, dextrins and fiber. (Khan 1998, 41-42.)

Carbohydrates are the most important provider of energy for the human body. One gram of carbohydrates provides about 4 kilocalories kcal (17 kilojoules kJ).

Table 3. Amount of carbohydrates in food (Khan 1998, 46-47.)

Food	Serving Size	Carbohydrates (grams)
Lima beans	1 cup	40
Potato (baked)	1 (medium size)	51
Apple	1 (medium size)	10
Bagel (plain)	whole bagel	38
Cherry pie	1 slice	69
Yogurt	1 cup	46
Ice cream	2 scoops	37
Pasta (spaghetti)	1 cup	40

2.2 Non Energy providing nutrients

Besides those nutrients, that provide energy for the human body, there are also other nutrients, which do not provide any energy. Those nutrients are still indispensable for life. Examples of these nutrients are fibers, vitamin and minerals.

2.2.1 Fibers

Fiber is another type of carbohydrates, but it cannot be broken down by the human digestive enzymes. Therefore fibers do not provide any energy to the human body. The main functions of fibers are to provide a feeling of fullness or satiety in the stomach. Fibers take some time to leave the stomach, so a person has this feeling for a longer period of time. This effect is important to people who want to lose or control their weight. Fibers can be found in whole grains, nuts and vegetables. (National Restaurant Association Educational Foundation 2006, 73.)

2.2.2 Vitamin

Vitamins are subdivided into two categories: water soluble and fat soluble vitamins. The solubility of vitamins in water or in fat influences how they are consumed in food and utilized within the body. The main difference between those two types is that water soluble vitamins cannot be stored and fat soluble can be stored. Examples of water soluble vitamins are B and C vitamins. Examples of fat soluble vitamins are A, E, D and K vitamins. (Khan 1998, 73.)

2.2.3 Minerals

Minerals are real chemical elements. Examples of minerals are calcium, chlorine, chromium, copper, fluorine, iron, magnesium, manganese, molybdenum, phosphorous, potassium, selenium, sodium and zinc. These minerals have all kind of difference functions in the body. Examples therefor are sodium and potassium that work together

to regulate the heartbeat and calcium, along with phosphorus and magnesium, which are helping to make the bones strong and healthy.

Minerals are divided into two groups: trace minerals and major minerals. This grouping doesn't describe the importance for the body but the daily needed amount. Major minerals are needed in larger amounts than trace minerals. A good example of a major mineral is calcium. It helps to maintain normal blood pressure and as mentioned before healthy bones. An example for a trace mineral is iron. The amount needed is way less than the amount of calcium but has the same importance to the body because it is a part of hemoglobin. The easiest way to intake minerals is through food. (National Restaurant Association Educational Foundation 2006, 131.)

2.3 Guideline of daily diet

There are different approaches to find in several text books for a guideline of a healthy and balanced daily diet. This chapter will give an overview over the different approaches and try to simple it up.

The body needs energy for breathing, moving, digesting, growing, and all the other maintenance functions. The right amount of energy is given by reference values, which are provided by the German Nutrition Society. As discussed in the chapter of energy providing nutrients before, there are two energy providing nutrients proteins (4 kcal per gram), fat/lipids (9 kcal per gram) and carbohydrates (4kcal per gram). In addition to these, it is also important to mention alcohol, which provides 7 kcal per gram of energy for the human body. The right amount of energy for every individual is calculated in two steps. First the basic metabolic rate (BMR) and second the physical activity level (PAL). (Dr. med. Kluthe 2014.)

The BMR defines the amount of energy the body requires per day to complete rest and to sober up for maintaining its required functions (e.g. during sleep). (Dr. med. Kluthe 2014.) The formula to calculate is:

- Men:
  BMR = 66 + (7.13 * weight in kg) + (5 * height in cm) - (6.8 * age in years)
- Women:
  BMR = 655 + (9.6 * weight in kg) + (1.8 * height in cm) - (4.7 * age in years) of the body

Depending on the physical activity, the guideline for the energy supply may vary. The measure of physical activity is the PAL-value. For adults the PAL-values is related to work and recreational activities. PAL-values are various from 1.2 to 2.4. The PAL value can change several times during the day due to different activities, therefore an average PAL-value has to be calculated and will multiply with the basic metabolic rate.

- PAL-value 1.0 sleeping
- PAL-value 1.2 for a sitting or lying lifestyle, no leisure activities, e.g. old, infirm or bedridden people, wheelchair
- PAL-value of 1.3 to 1.5 for a sitting activity with little or no leisure activities, e.g. Office workers, computer work, precision engineers, teachers
- PAL-value of 1.6 to 1.7 for a sedentary occupation with some standing and walking activities, eg Students, laboratory technicians, assembly line workers, drivers
- PAL-value of 1.8 to 1.9 for mainly standing and walking activities, e.g. retailers, artisans, mechanics, waiters, housewives
- PAL-value of 2.0 to 2.4 for hard and strenuous, physical occupation, e.g. Athletes, construction workers, forestry workers, farmers, miners

Table 4 shows as small extract of the basic metabolic rate and the PAL-value to understand the total amount of energy needed by a human body. The BMR is calculated with the data of an average person. (Massholder 2014.)

Table 4. Total amount of energy needs (Dr. med. Kluthe 2014.)

Age (Years)	Weight in kg		Basic metabolic rate in (kcal/day)		Total amount of energy needs with a PAL-value 1.45	
	male	female	male	female	male	female
15 till 19	67	58	1.820	1.460	2.639	2.117
19 till 25	74	60	1.820	1.390	2.639	2.016
25 till 51	74	59	1.740	1.340	2.523	1.943
51 till 65	72	57	1.580	1.270	2.291	1.842
above 65	68	55	1.410	1.170	2.045	1.697

Summarizing the first step of guidelines for a daily diet, every human body needs a certain amount of energy to sustain basic physical functions like breathing, moving, digesting, growing, and all the other maintenance functions which is multiple with the PAL-value.

The second step builds up on the first one. Most food contains a mixture of different nutrients, for example bread is high in carbohydrates, but also contains protein and fat. Meat for example contains out of a mixture of protein and fat. It's is important for a balanced diet to find the right mix. Even a healthy diet has nothing to do with strict waiver of certain sweet or fatty foods. However, there are differences in the quantity of carbohydrates, fats and proteins and these differences either have a positive or a negative effect on our body. Figure 5 shows a good balance of nutrients for adults. The proportion can vary under different circumstances like for example weight loss or muscle training. The guideline for a balance diet is 50 % Carbohydrates, 35 % Fat, and 14 % Protein and if alcohol is part of the daily diet than not more as 1 %. (Wills 1988, 12 - 13.)
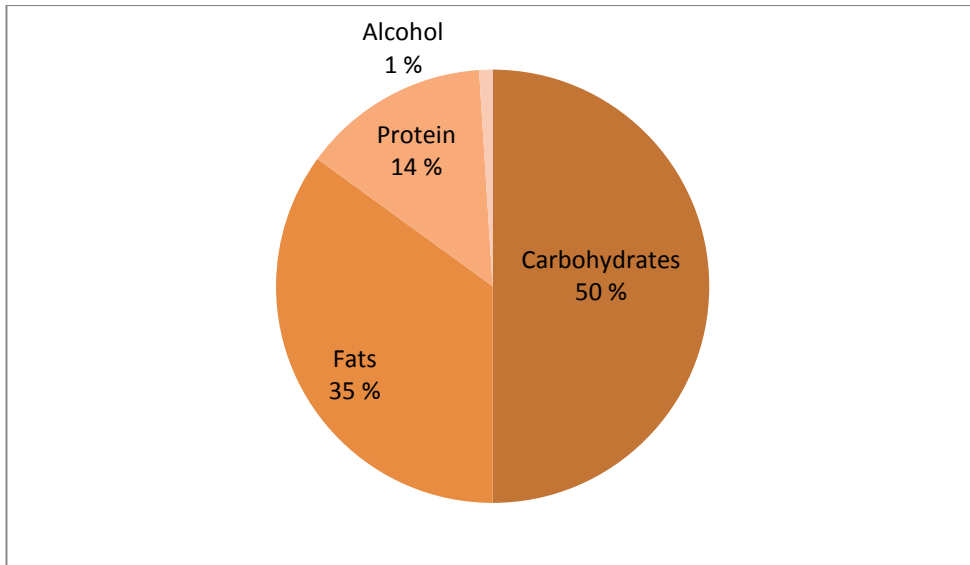
Figure 5. A good balance of nutrients for adults (Wills 1988, 13.)

3 Generation Y

Generation Y is also named as Millennials or Digital Natives, those people are born between the years 1980 and 2000. This generation is characterized by various influences such as globalization, of technology and brand growth. Generation Y distinguish from the previous generations the "Babyboomers" and "Generation X". For example the Babyboomers, who are today between age 50 and 60, emphasized ordered structures and hierarchies to create safety at work. Whereas Generation Y attaches great importance to a sustainable, meaningful, pleasurable job that fits their way of life. Generation Y has grown up with technology and so they are used to computers. They use of Facebook, Twitter and Blogs are on daily routine and it is the normal way of communication. (Valentine & Powers 2013, 605.)

Many members of "Generation Y" are well educated and now looking for jobs on the labor market. By 2020 50 % of the workforce worldwide will consist of people out of the Generation Y. According to a report by the German Federal Ministry for Education, the number of students has almost doubled since 1993. Due to the demographic change the number of young people however decreases. This can be an advantage for the candidates, as the competition in the labor market reduces. The demand for skilled workers is rising; therefore the candidates can formulate their wishes already at interviews. (Siefer 2013.)

For people of the Generation Y a healthy work-life balance is often more important than their work success. A survey during the financial and economic crisis showed, that young graduates on average wanted to spend less time at work. The result of the survey was that the job should especially promote personal development. (Siefer 2013.)

Self-actualization is very important for people of the Generation Y in their professional and private life. This requires a perfect work-life balance for them, 80 % require from their employer a balance in working life. Many of today's 20-to-30-year-olds have learned from their parents working habits that too much work can make them sick. Increasing fatigue during the working day, often termed the burn-out, is a terrible

example of a lack of work-life balance for them. Many firms have realized those kind of problems and adopted different kind of programs, like child care or fitness work out. (Siefer 2013.)

3.1 Hierarchy of needs of Generation Y

The classic model of the hierarchy of needs is created by Abraham Maslow. It describes human needs and motivations and tries to explain them.
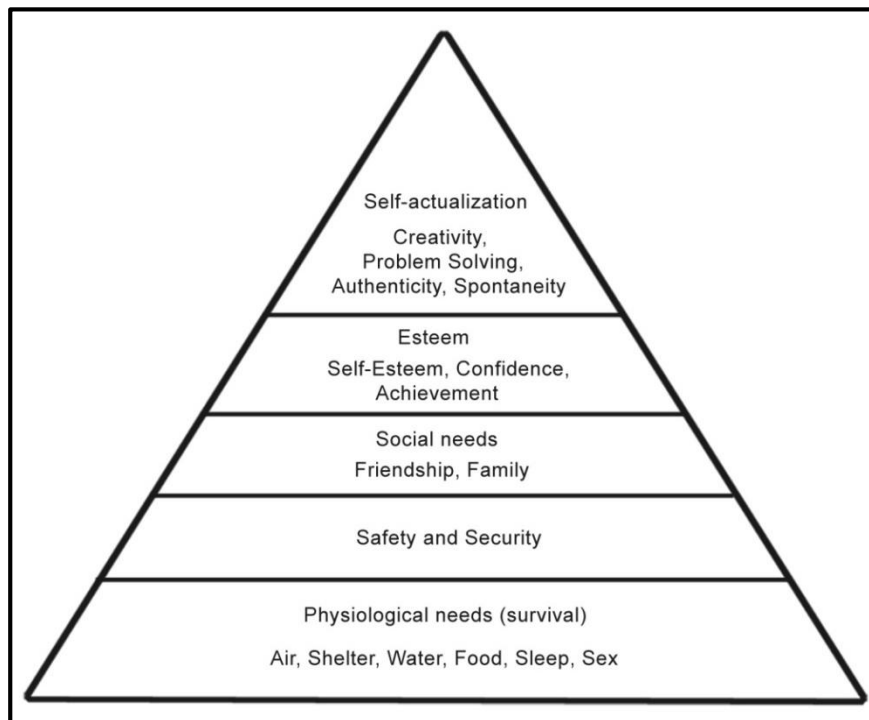
Figure 6. Model of Maslow hierarchy of needs (Chapman 2014.)

As portrayed in figure 6, the following list will explain the different Levels of Maslows' (1943) hierarchy of needs

- Physiological needs: This level of needs deals with the basic necessities of human survival like food, clothing and shelter.
- Safety and Security: Once the first level needs are met, a person feels the need to have a life of security where safety in all aspects of life is ensured.

- Social needs: This deals with the innate need to feel as if one belongs in a chosen social group and in various other relationships that are a part of human life. There is a need to be accepted or otherwise people are prone to negative effects like depression & loneliness.

- Esteem: Deals with the need to feel good about oneself and getting recognition from others. A lack of these needs will result in an inferiority complex and helplessness.

- Self-actualization: Becoming the best one can be. Here the need is to maximize ones potential.

This classic model by Maslow will be now used and adapt to the description of Generation Y from the chapter above. This will further help to understand the human needs and motivations of this generation.
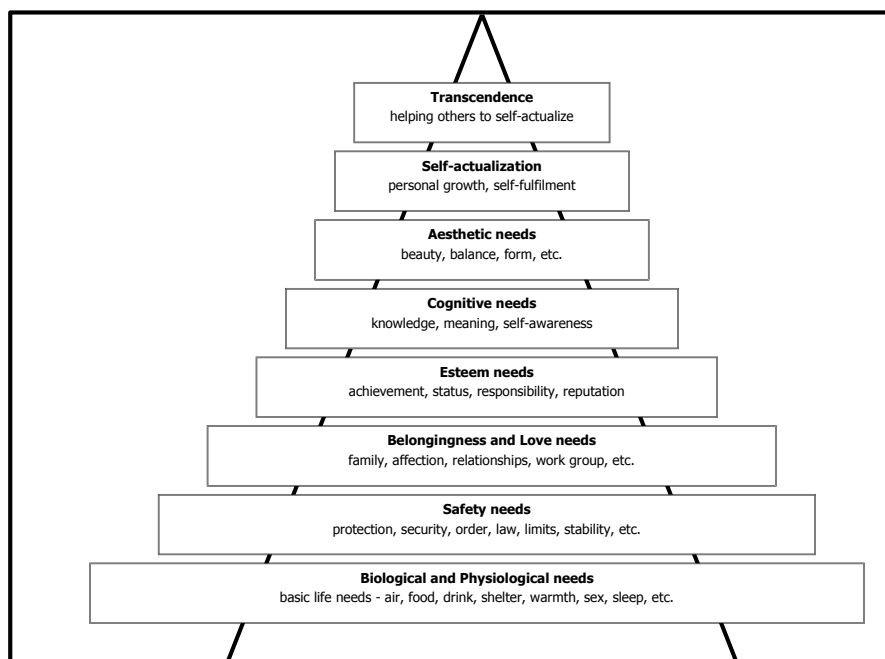

Figure 7. Maslow Model for the Generation Y (Chapman 2014.)

Looking at the new model, the basic structure is still there but three new stages can be found, Cognitive needs, Aesthetic need, Transcendence. Looking at the structure the first four levels, Physiological needs, Safety need, Belonging and Love needs and Esteem needs are the same as in Maslow's model. Some differences though have to be mentioned. In Level 3 Belongingness and Love needs are very important for

generation Y people. As mentioned before, time for friends and family plays a more important role than their work success. Löhr (2013) agrees with that as well and even goes one step further and titles the Generation Y as "the couldn't care less generation". A generation, which does not care about work and status and so family, friends and relationship, become more important. Therefore the next Level (4) "Esteem needs" is unimportant in life of Generation Y, but still it is next step to achievement of Transcendence.

The next level of the model is Cognitive needs. Cognitive needs describe, how important knowledge is for the Generation Y, but not just knowledge, which is need for work is important it goes further on. It is more about knowledge, which can be useful in free time, this is even more important. Self-awareness, as part of the Cognitive needs, is not one of the biggest strength of Generation Y. Employer complaining about self-awareness of generation Y, because it is not anymore benefit for the company. Volunteering work has become almost standard in Generation Y, but often it is primarily to polish the curriculum vitae.

The following step is Aestetic needs, which helps the Generation Y to achieve the most important step, Self-actualization. As mentioned above Self-actualization is important for people of the Generation Y in professional as well as in private life, which requires a perfect work-life balance. Löhr (2013) agrees with that and says about this level, looking the veteran managers, who are tired of being asked by the young people to the observance of the 37.5-hour week. The Generation Y is ready to work, in exceptional cases, sometimes through the night, but after that they want to have the next day off. Work-Life-Balance is one of the key word of this Generation.

Self-actualization, as mention above, is the most important thing for the Generation Y that wants to have a lot time for the family and has little interest in the career. This model even shows one step further Transcendence, which means helping others as self-actualization. Generation Y is therefore the generation with the greatest strives for self-actualization compared to all the previous generations. (Löhr 2013; Siefer 2013.)

3.2 Health awareness of Generation Y

People of Generation Y have learned from the people of the previous generations that working too hard can cause illnesses. A new word burn-out has been created, due to the fact that there is an increasing number of exhaustion caused by long working days and a lack of work-life balance. For Generation Y burn-out is not an option since a healthy work-life balance is one of the key issues of this generation and therefore the awareness of health plays an important role. (Rebling 2008.)

The Future Institute of Germany (Zukunftsinstitut) defines every year the newest mega trends, one of this mega trend is, according to the most recent study (Health Trends 2013), wellness and health. In Germany, the health sector has approximately eleven percent of the gross domestic product (GDP) and about four million jobs that are important economic factors have picked up on this trend. Also the food and sport industry have picked up on the physical well-being trend and made it to a central marketing theme. This trend has currently changed into a consumer and lifestyle product. New words such as life-work balance and patient autonomy have found their way into the everyday phrasing. For the improvement of individual well-being and quality of life, consumers are increasingly willing to spend money even on healthcare products or services (individual therapy concepts). A study showed that 75 percent of all Germans want to take more care of their bodies. (Rebling 2008.) However, not many behave accordingly to that. Only about 50 percent of Germans stood on the scale in the last quarter. Only 30 percent are worried about their cholesterol levels, less than a quarter are paying attention to their pulse. Health still has become a social hot topic and is currently a favorite in the media programs, TV-health channels, Social-Media channels, fitness blogs and wide range of printed media, which is now used as E-Books. (Rebling 2008.)

This all of course has affected the generation Y. For the Generation Y where the awareness of health already plays a big role, health awareness became due to the mega trend, even a bigger thing. For the Generation Y health is an exclusive sign of success and modernity. The latest Youth Study (2010) found out that Generation Y has a constant decline of smoking, they are trying to stay fit and they attend preventive

medical checkups to check their health. To maintain health is the most important thing. (Dückers 2012.) For this reason millions of people in over 6000 fitness and health clubs are working out to stay in shape. For People of Generation Y the need of a healthy Work-Life-Balance and a good health is so great that it is very common work out three to four times a week for approximately two to three hours in a fitness and health club after work. (Weckler 2013.)

In addition to the daily sports activity it is very important for Generation Y to have a healthy diet. Innovative products for the sustainable improvement of health are required to meet the rising health consciousness. A healthy and balanced diet and enough exercise are expected by the generation Y. Already with simple measures, like the daily amount of calories, will affect the Generation Y positive and influences everyone's individual health. (Weckler 2013.)

3.3   Generation Y and Food

Food is a big part of the health awareness; the Generation Y has a good understanding of it. Food became the focus of many social media portals and TV. The different media channels have a lot of impact on the eating behavior and the needs of Generation Y as illustrated in Chapter 3.1, have formed the eating habits of this generation. (Nelson & Zeratsky 2011.) Nelson & Zeratsky (2011) have described the eating habits of Generation Y as follows:

- Food has lost it's significance, so cereals are a snack food and not just for breakfast anymore.
- Food has to be handy, normal sandwiches are not handy enough anymore, they are now cut to nugget-size pieces, which can be popped into the mouth while running.
- Eating time is getting more and more ambiguous, so different meals are getting combined as "linner", which stands out for a combination of lunch and dinner.
- Food has to be available 24 hours, 7 days a week.

- Food has become more portable and it is eaten everywhere.

Within those eating habits there are different kinds of profiles of Generation Y. These profiles are the outcomes of the eating habits, which have been created by the needs of the Generation Y. The profiles of people and their eating habits have been described in a Study "Collegiate Gen Y Eating: Culinary Trend Mapping Report" (2012, in Martens 2012) as follows:

- Profile 1: The Meatless People - More and more people are changing their eating habits to less meat or even meatless, the spectrum is from flexible vegetarian to vegetarian to vegan and even raw diets.

- Profile 2: Student Food - inexpensive, handy and nourishing

- Profile 3: Fruit & Vegetable Discovery – Generation Y explores a total new world of fruits and vegetables. This food the most common ways, which those kinds of people eat are fruit snacks, to-go salads and produce-centric beverages, like smoothies.

- Profile 4: Asian Love Affair – Young Generation Y people have grown up with a global cuisine. The food from the home country is not enough anymore. Generation Y has the desire for new and exotic food. The flavor is the primary driver, but there are other factors like the quality, easy way of customizing and possibility for vegetarians.

- Profile 5: Italian & Mexican: Familiar Comfort – Friends and colleges are exploring new food and new cuisine, for this profile this is too stressful. Those kinds of persons need a bit more comfortable, something familiar, warm and filling. Italian and Mexican cuisines provide this kind of surrounding.

- Profile 6: On-the-Go - "Easy to make." "Portable." "Eat quickly." "Eat while walking" Food must be handy, fast and easy to eat.

Beyond the thoughts of health awareness, comes the hydration need of the human body. Generation Y does not only concentrate on the needed amount of water for work and study but also takes account to the amount needed for weight balancing exercises such as walking, running, dancing. It is easier to keep a healthy weight than to try and loose unwanted kilos. The daily hydration supports that. (Howard 2011.)

For Generation Y classical fast food or junk food, with a lot of fat and almost no nutritional value, is not an option. Those unhealthy fats would increase the cholesterol and triglycerides (unhealthy blood fats) and contribute to clogging up the arteries. The high levels of salt in junk food will unbalance the electrolytes and increase blood pressure. This is not in the way of health awareness, if people eat fat, than they should be eating healthy fats, such as Omega 3, which is found in eggs, salmon and sardines. Those healthy fats, will support brain functionality by reducing inflammation and help maintain healthy sperm. There is a link between the memory of the brain and high blood pressure. Lots of sodium in your diet will naturally increase blood pressure. When blood pressure increases the blood flow to the hippocampus is significantly reduced. (Howard 2011.)

Generation Y aims for food, that contains high amounts of iron and calcium. Red meat, peppers and green leafy vegetables are great sources of iron. All of these are part of healthy eating and a low fat diet. Good sources for calcium are goat milk products and soya products, which are also part of healthy diet. The main function of calcium is to form hard tissue in the body. This makes it essential for the growth and formation of bones and teeth. The function of iron is the oxygen transport, oxygen uptake and cell functions. (Howard 2011.)

4 Methodology

After presenting the theoretical framework with on the one side the nutrition part and on the other side the Generation Y, this chapter now will introduce the research to the topic about "Generation Y in Germany – A change in knowledge about nutrition and eating behavior. Repeatedly the figure 8 will clarify of the research question and the structure of it.

> **Which role does nutrition play in your daily life?**
>
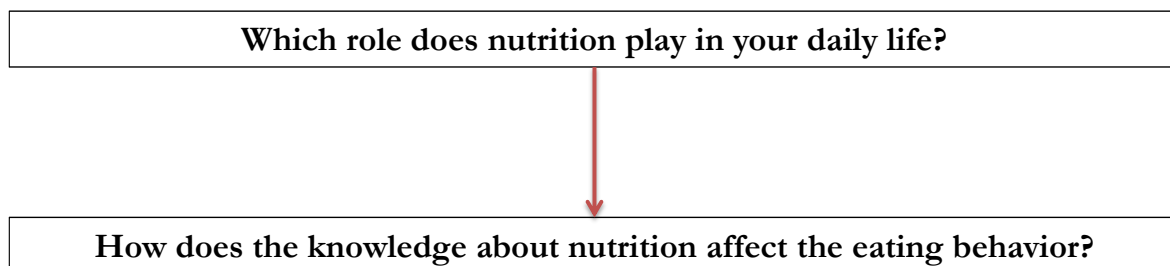> **How does the knowledge about nutrition affect the eating behavior?**

Figure 8. Research Question

The theoretical framework is based on secondary research to obtain the information of experts on the field of nutrition and Generation Y. For writing the theoretical framework different kind of sources like books, articles and statics have been used. The experts provide necessary background information, and where articles allow the newest findings about the Generation Y and their eating behavior.

In the following chapter the primary research will be explained and thus divided in to the research approach and research strategy. After that a detail description of the approach of the research will be presented. At the end the structure of the questionnaire and the limitation will be introduce.

4.1 Research approach

Primary research is based either on qualitative research or quantitative research but the right way for the primary research depends on the research topic and has to be chosen wisely. Qualitative research methods are observation, unstructured interviews or life histories. The results are normally presented in form of quotations or descriptions. The amount of the data is less than in a quantitative research therefore it's called qualitative research. (Wilkinson 2000, 7-8.)

The topic of this work is Generation Y – A change in knowledge about nutrition and eating behavior, and the idea behind this work is to get an overview about the knowledge of nutrition and the eating behavior of Generation Y. A wide overview of Generation Y will give a quantitative research. Therefore the primary research will be a quantitative research with help of a survey to make sure to gain a wide overview over this complex topic. (Wilkinson 2000, 7-8.)

The research approach of this thesis is, as mention above, quantitative research. Laboratory experiments, surveys, structured interviews or tests are the most common ways for a quantitative research. An important fact about quantitative research is that the date is well structured, which allows a statistical analysis. This will help to measure the knowledge of nutrition and will show the eating behavior of Generation Y, as well the connection of knowledge and eating behavior. (Wilkinson 2000, 7-8.) This approach will support to quantify data and calculate how many people made a particular point. The results of data will be statistical analysis through the use of SPSS. SPSS provides assistance to show various connections of particular answers with particular answers. (Brotherton 2008, 175 – 176) The results will be used to answer the second research question.

4.2 Research strategy

The research strategy is based on a study of Mahshid Pirouznia. In the study was determined, the knowledge about nutrients and the resulting eating behavior of pupils of the eighth, ninth and tenth class. In order to achieve results a test was used, which was based on 30 questions on the eating behavior and 25 questions about the knowledge of nutrition, for the question the Likert-type scales have been used. (Pirouznia 2001, 63.)

For this study the same kind of instrument have been used, but due to the fact that there are some limitations, some changes had to been done. In the study of Mahshid Pirouznia, there have been three targets groups and the aim was to determine the change between those target groups. In this study there is only one target group the Generation Y, it's more about the change within the group not in the relationship to others. The test in this study is more of a questionnaire, with some similarities to a quiz. Due to the limited amount of time and the study had to be as efficient as possible, the questionnaire has been designed short, to control the amount of data and to be able to analyses the data faster.

4.2.1 Questionnaire

Questionnaire depends on the information from the respondents. The accuracy of what respondents say depends on their honesty and on the clear format and structure of the questionnaire. The questions of the questionnaire are supposed to affect the respondent in a friendly and helpful way. (Veal 2006, 231 – 232.) Therefore the questionnaire is divided into three segments. The first segment is to gather basic information, the second segment is a quiz about nutrition and the third part is to understand the eating behavior. The questionnaire is designed in German to help the respondents and to avoid any misunderstandings.

The first question asks for the age, the second question asks for the gender and the third question for the employment of the respondents. All of these questions were closed questions and their task was to ensure that the quizzed target group (Generation Y) is answering this questionnaire.

The second segment, questions four to nine, was a quiz about the knowledge of nutrition. The questions were chosen randomly from different school books and had different level of difficulty, all of the questions were closed questions to make the answers easier to compare. Question four asked about how a daily diet should look like in matters of the right proportion of nutrition. Question five asked about the energy provided by nutrition. The next question, number six, was about the construction of nutritious. Question seven was about fibers, different answers were given and the respondents had to choose the right answers. Question eight dealt with the distinction of vitamins. The last question of the quiz was about minerals. The respondents had a list and had to pick the right minerals from the list.

The third segment, questions ten to fifteen, were about the eating behavior of the respondents. Question ten, asked about what people eat, if they eat meat or if they are vegetarian etc. Question eleven was about the in chapter 3.3 mentioned eating behaviors of Generation Y. The next question, number twelve, asked what people prefer to eat. Question thirteen was about eating, the eating behavior in general and if people pay attention to their food. Question fourteen was a yes/ no question about iron and calcium in the respondents' daily diet and the last question, number fifteen, were reading the nutrition labels on food. The whole questionnaire can be found translated into English in the attachment.

For the questions Likert scale is applied. Likert scale is named, after the psychologist Rensis Likert, who invented it. The respondents are asked to indicate their agreement or disagreement with a statement. The Likert scale has four items in this questionnaire. The items are named and have values as follows: strongly disagree (1), disagree (2), agree (3) and strongly agree (4). All questions are formulated in the same positive way, so the score does not have to be change throughout the questionnaire. The respondents will be quantified in form of average rank. (Veal 2006, 263 – 265.)

4.2.2 Limitations

In this research there are some limitations, this is necessary to do an efficient research. It limits the work to a certain target group and helps the researcher to gather only necessary information for the work. The researcher wrote this work in Germany but had due to the fact that there was no library for hospitality materials, a limited access to books for his work.

Nevertheless the aim was to answer the research question through primary and secondary research. Due to the fact that the Generation Y is quite young in history, it's coherent that there is not a huge amount of sources and opinions about Generation Y, which limits the secondary research. Therefore the researcher aims to answer the research mainly through personal findings in the primary research.

The primary research is limited on the Generation Y in Germany, to give the work a certain target group, the researcher is part of this generation, which explains the selection of specific target groups. Besides the research is from Germany and it was foreseeable that the work is written in Germany, this explains the second limitation on only Generation Y in Germany. Readers can argue that the research question cannot be only answered through the questionnaire, but the research had only a determined time to write this thesis and therefore the researcher could not carry out a further investigation. It is obvious that the 109 responds of the questionnaire will not give an exact opinion of Generation Y in Germany, but it will give some impressions of it.

4.3   Description of procedure

The whole concept of this thesis was to work as efficient as possible. The reason for that was the limited amount of time. Therefore the questionnaire was distributed over the internet to get a decent amount of respondents in the fastest and the most efficient way. The questionnaire went through a test run with five people, which were part of the target group. After positive feedback was given, the questionnaire was distributed. The following chapter will explain the steps more detailed.

The questionnaire was based on the theoretical framework and was distributed over the internet. The use of an online tool was necessary. The researcher used the website "Umfrage online", which is a German site to design questionnaires. This tool allows the respondents to answers the questionnaire through the web and mobile device, such as cell phones and tablets. As mentioned in Chapter 3 Generation Y is also named as the digital natives, therefore this generation has a great understanding of the Internet and social media. Due to this fact, it is to assume that everyone was able to answer the questionnaire. The design of the questionnaire was simple and clear to raise the level of efficiency. At the beginning of the questionnaire was a short introduction, to clarify the purpose of the questionnaire.

The questionnaire was opened on the 1st of October 2014 and closed on the 10th of October 2014. The link was published on Facebook and people were asked to participate in the questionnaire. The link was posted several times (1st, 4th, 6th and 8th of October) to get gather a decent amount of respondents, in addition to that friends help to share the link to get more respondents. In the first four days almost 80% of the total respondents answered the questionnaire. At the end of those ten days the total number of 109 respondents was achieved, it is to mention, that with more time a higher number of respondents could have been achieved.

5 Data collection

This chapter will present the findings of the primary research, which are the results of the questionnaire. This chapter is divided into four subchapters. First the profile of the respondents, second, the results of the knowledge quiz, third the findings of the eating behavior and finally further data analysis.

5.1 Profile of respondents

Overall 109 participants took part in the questionnaire. As mentioned in the Methodology chapter this thesis focuses on Generation Y. To ensure that the profile of the respondents fits, the questionnaire asks for their age right at the beginning. The questionnaire was open for 10 days and all the participants were asked kindly to answer it anonymously.
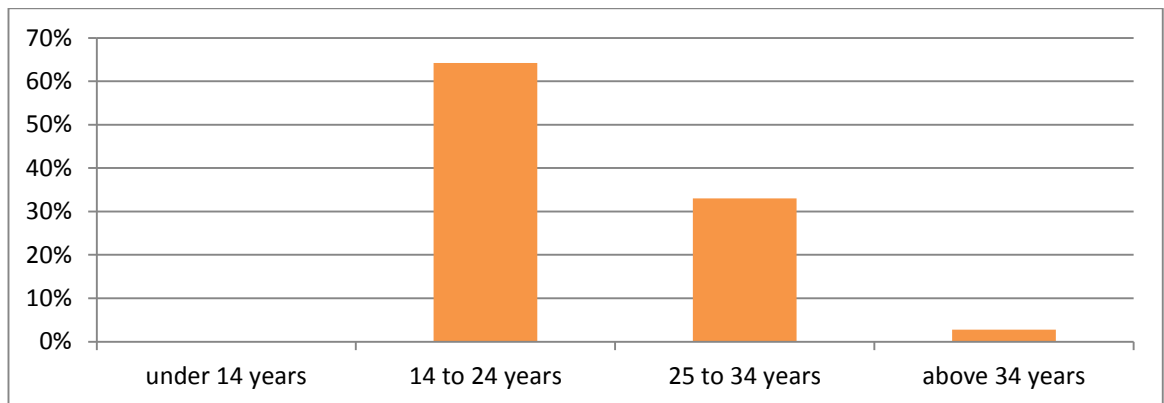
Figure 9. Question one, Age (N = 109)

The Generation Y are people born in the years between 1980 and 2000, that means in the year 2014 these people are between age 14 and 34. The result of the first question demonstrates that only 2,8 % are out of this range.
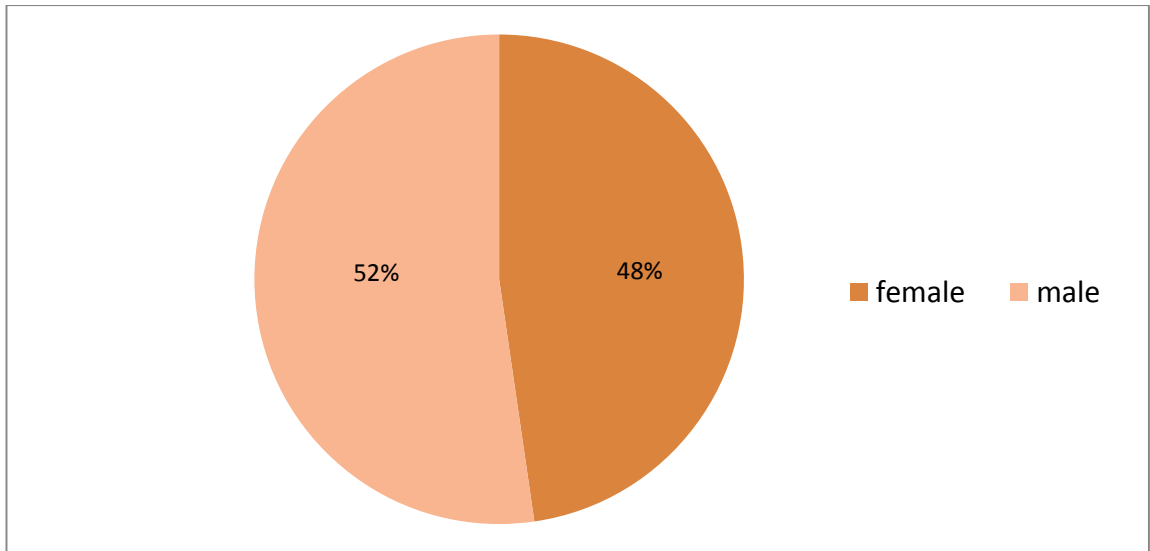
Figure 10. Question two, Gender (N = 109)

The questionnaire was answered almost equally from male and female respondents; in total the numbers of the results are 57 to 52 answerers. Since the result is almost balanced, it helps to make a general statement about the Generation Y.
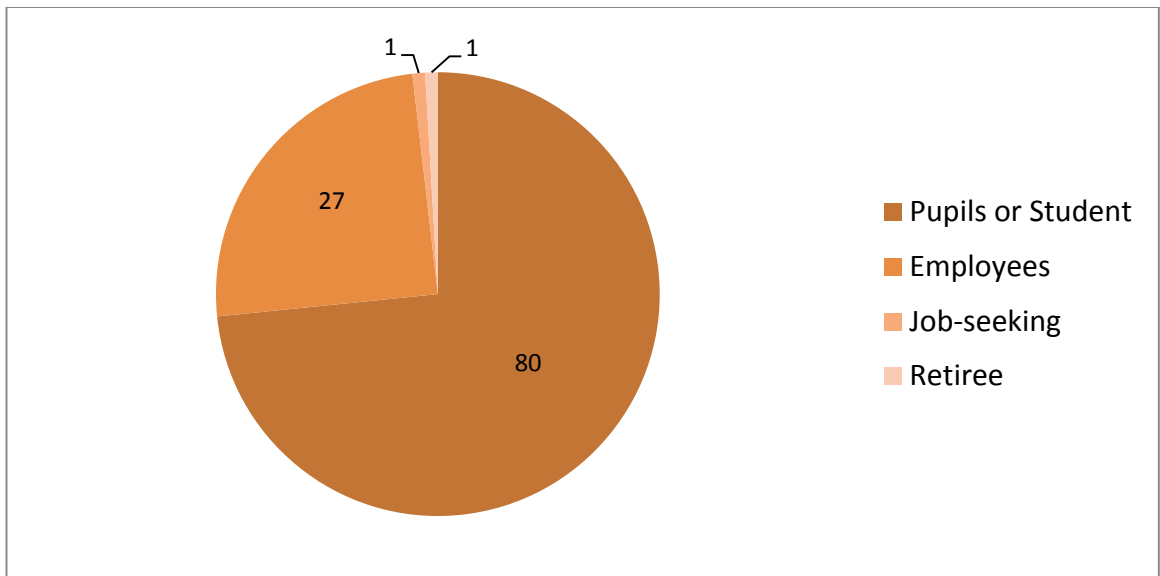

Figure 11. Question three, Occupation (N = 109)

The results of this question give the reader a good impression of the type of people who have answered the questionnaire. It turns out that a large majority consists of pupils and students, but this is not surprising since, as already mentioned, the target group is between 14 and 34 years.

5.2 Results of the quiz

This chapter will now present the results from the quiz on nutrition. It is used to get a feeling about the knowledge in the generation Y on nutrient existent. The questions for the quiz were gathered from different text books and have different levels of difficulties.

The first question was about a balanced diet; how should the proportion of nutrition look like? The right answer is 50% carbohydrates 15% protein 35% fat

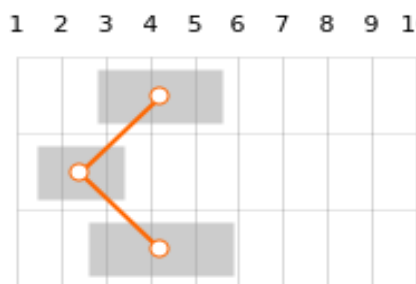		0 % - 10 % (1)		11 % - 20 % (2)		21 % - 30 % (3)		31 % - 40 % (4)		41 % - 50 % (5)		51 % - 60 % (6)		61 % - 70 % (7)		71 % - 80 % (8)		81 % - 90 % (9)		91 % - 100 % (10)		Ø	±
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%		
Carbohydrates	3x	2,75	8x	7,34	21x	19,27	37x	33,94	18x	16,51	17x	15,60	4x	3,67	1x	0,92	-	-	-	-	4,20	1,41
Fat/Lipids	22x	20,18	36x	33,03	35x	32,11	15x	13,76	1x	0,92	-	-	-	-	-	-	-	-	-	-	2,42	0,99
Protein	2x	1,83	12x	11,01	25x	22,94	27x	24,77	21x	19,27	10x	9,17	9x	8,26	2x	1,83	1x	0,92	-	-	4,24	1,62

Figure 12. Question four, A balance diet (N = 109)

The results of the question shows a great disagreement, due to this difference of opinion can be determined only an approximate result. The approximated result is 40% carbohydrates 20% fat and 40% protein. This result is not the right approach, but more protein and less carbohydrate are not too bad.

The next question was about how much energy is provided by the nutrition and the respondents had to pick the wrong statement, which in this case was that 1g Carbohydrates produce 1 kcal.
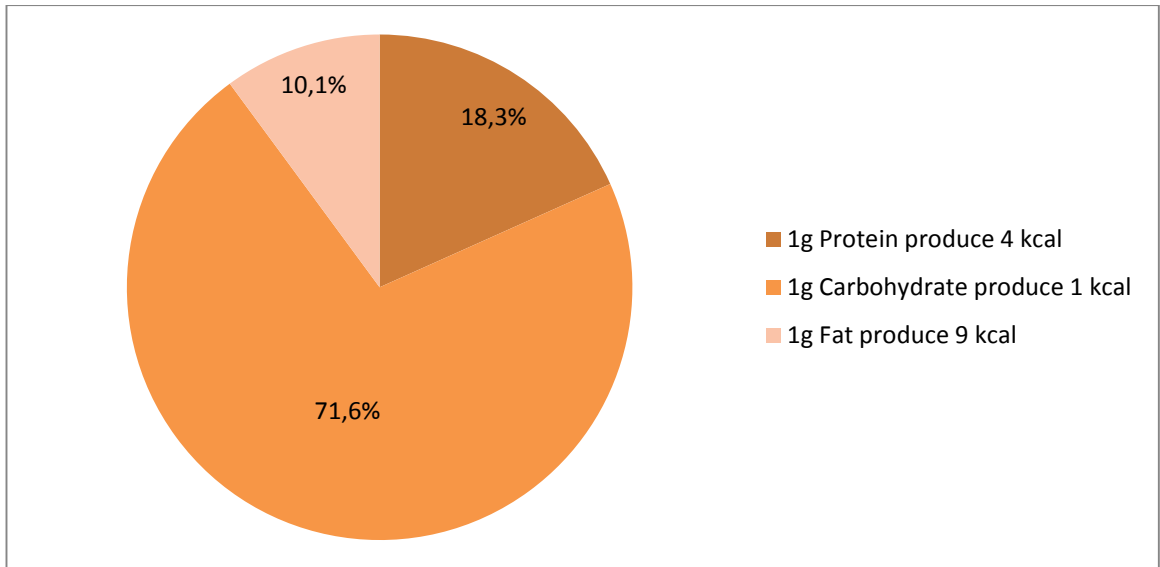
Figure 13. Question five, energy providing nutrition (N = 109)

The results shows that the 71,6 % of the 109 respondents have answered this question correctly.

Question six was focusing on the structure of nutrition. The respondents had to pick the right answer to the right nutrient. The right answer for carbohydrates is saccharide, for fat the right answer is fatty acids and glyceride and for protein the correct answer is amino acids.

Table 5. Question six, component of nutrients (N = 109)

	carbon	saccharide	fatty acids and glyceride	amino acids	water and sugar
Component of carbohydrates are	23,8 %	35,8 %	6,4 %	3,7 %	30,3 %
Component of fat are	0,0 %	8,3 %	87,2 %	3,7 %	1,0 %
Component of proteins are	5,5 %	5,5 %	3,7 %	83,5 %	1,8 %

Most of the respondents found the right answer for fat (87,2 %), as well as for proteins (83,5 %). The correct answer for carbohydrates is saccharide, which was answered by most of the people (35,9%), but the result is not as high as with fat and protein. It is to mention that the answers may confuse the respondents, because carbon is a chemical element of carbohydrates but not a stand-alone component. Furthermore are Carbohydrates sugars but water is not a component of it. Those two answers may have confused the respondents which could explain why there were quite high results. (23,8 % & 30,3 %).

The next question, number seven, was about fibers. The respondents had to pick the right answer, which in this case would be: Fibers should be eaten plenty, because they serve our health.
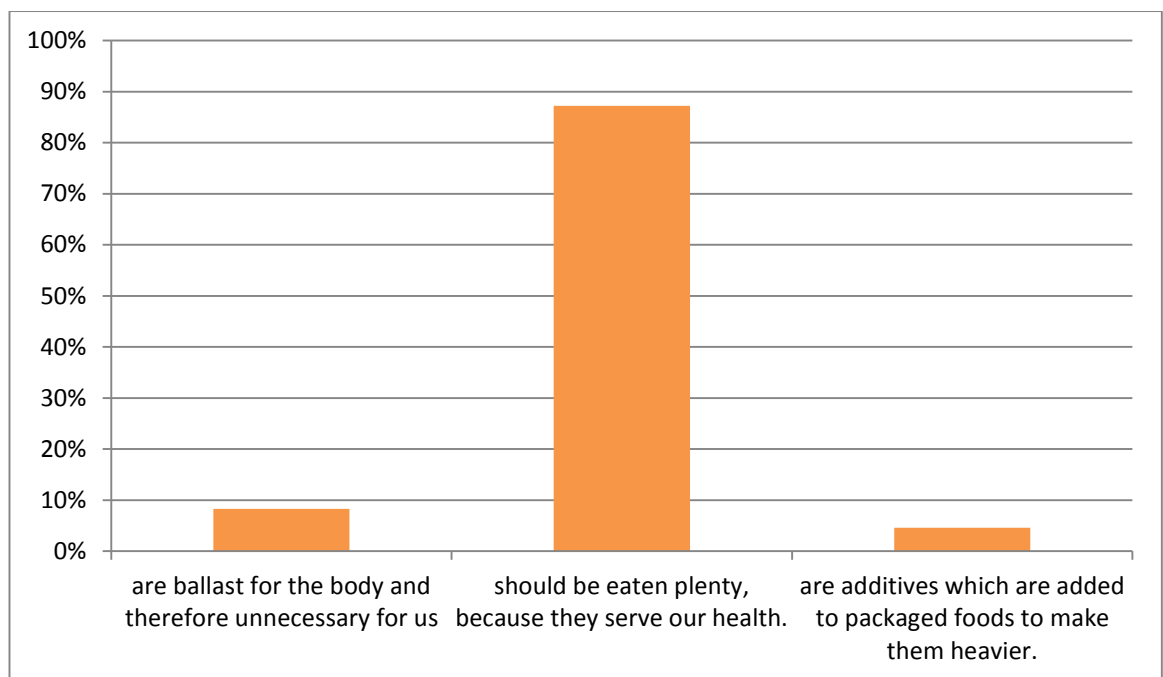

Figure 14. Question seven, fibers (N = 109)

Out of the 109 respondents 87,2 % answered this question correct. This shows that the Generation Y has some understanding of fibers, but certainly the question was not one of the hardest in the quiz.

Question number eight was about vitamins and how they are subdivided, the correct answer in this case is water soluble and fat soluble.
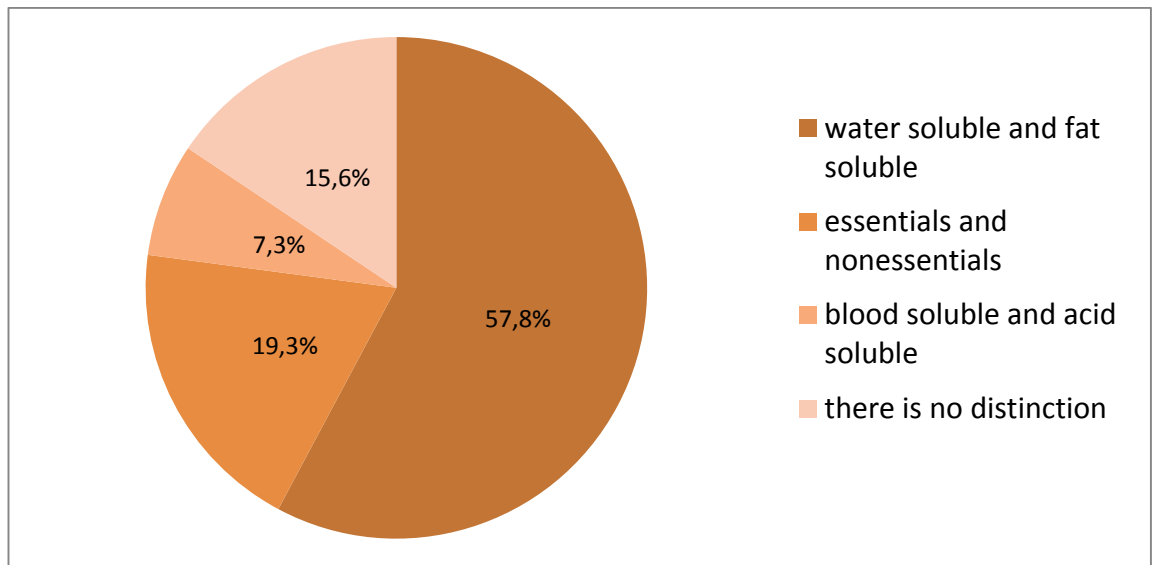

Figure 15. Question eight, vitamin (N = 109)

More than half of the respondents (57,8 %) answered this question correctly, but compared to questions five and seven the results are not as high. It can be concluded that the Generation Y knows about Vitamins but it's not so important to understand how they function.

The last question of the quiz, number nine, was about minerals. The respondents had to pick minerals from a list, but in the list all of them are minerals, therefore all of them are correct.
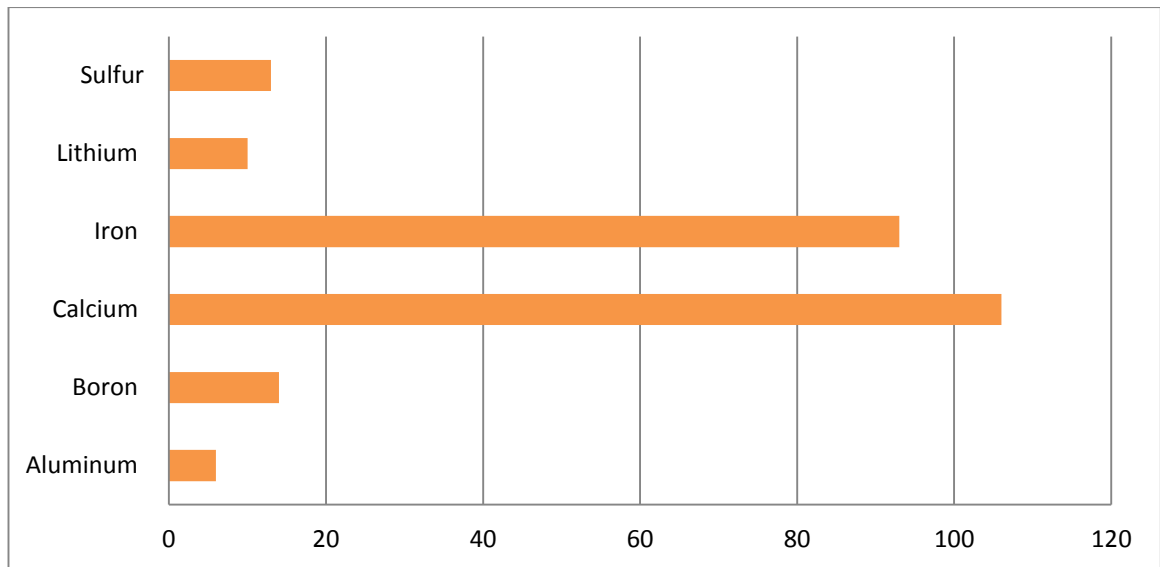
Figure 16. Question nine, minerals (N = 109)

It is not surprising that the minerals known as iron (93 replies) and calcium (106 replies) got more replies than the somewhat unknown as lithium (10 replies) or aluminum (6 replies). It can be concluded that Generation Y knows the familiar minerals, but when going in deeper into the subject much ignorance exists.

The results of the quiz show that the people of Generation Y have some basic knowledge about nutrition and some understanding of it. The results of question five, seven and eight support that thesis. Generation Y has a different conception about the right proportion of nutrition. Unfortunately, it is to be noted that no one has answered the quiz completely right. Two respondents answered the question four and five right but had some mistakes later on. Due to the fact that the results are not poor, it demonstrates that the Generation Y has some interest in this topic, but if it goes deeper into the subject some ignorance exists. As mentioned in Chapter 3.1 part of the Cognitive needs is knowledge for the Generation Y. It is knowledge further on the one, which is required for work. For Generation Y it has become more about knowledge, which can be useful on their free time. Part of this knowledge, which is useful in their free time, was shown in this quiz. The knowledge about nutrition is present and due to that it will help the Generation Y to proceed with their aspiration of health awareness.

5.3 Presentation of the findings

This chapter will now present the findings about the eating behavior of Generation Y. It is certain, that the 109 respondent of the questionnaire will not give an exact opinion of Generation Y in Germany, but it will give some impressions of their eating behavior.
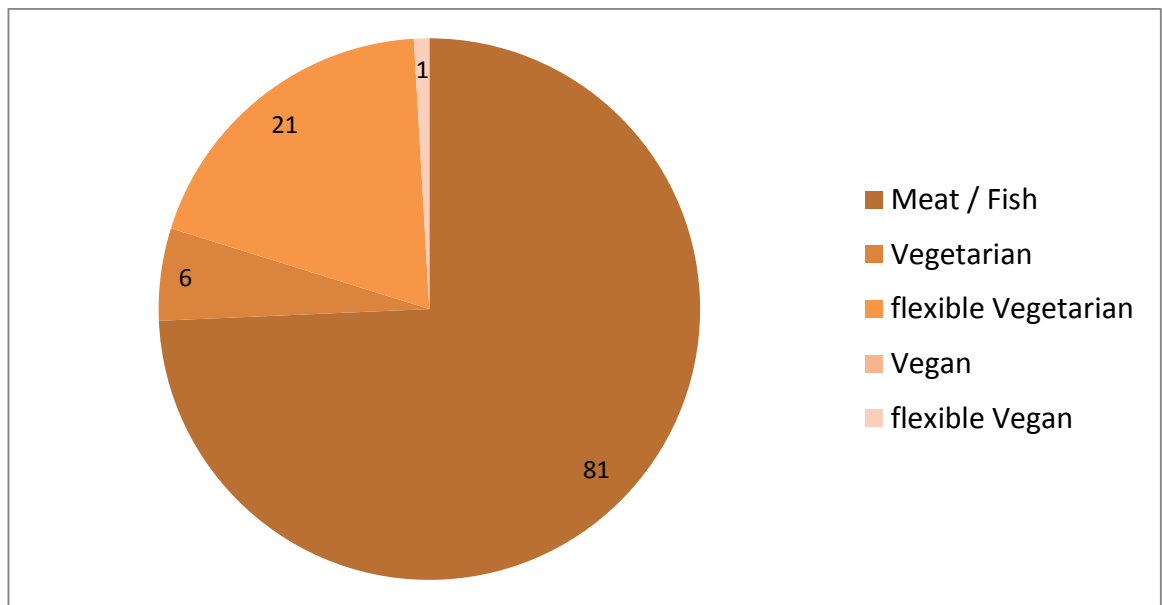

Figure 17. Question ten, eating-habit (N = 109)

Figure 17 shows the eating-habit of the respondents. It is not surprising that most of the people still eat meat/fish in this case it is 74,3 %. It is nice to see that new trends like flexible vegetarian, which means those persons, are vegetarian but they still like to eat meat sometimes, becoming more popular. As well it was surprising that there was at least on flexible vegan within the respondents, which means this person is vegan but likes to eat vegetarian food sometimes.

Table 6. Question eleven, Statements about Food (N = 109)

	Totaly Disagree		Disagree		Agree		Totaly Agree		
	N	%	N	%	N	%	N	%	Ø
Food has lost his significance, so cereals are a snack food and not just for breakfast anymore.	38	34,9%	25	22,9%	29	26,6%	17	15,6%	**2,23**
Food has to be handy.	22	20,2%	33	30,3%	42	38,5%	12	11,0%	**2,40**
Meal times are combined, e.g. Lunch with dinner.	32	29,4%	22	20,2%	37	33,9%	18	16,5%	**2,38**
Food has to be available 24 hours, 7 days a week.	26	23,9%	28	25,7%	24	22,0%	31	28,4%	**2,55**
Food has become more portable and it is eaten everywhere.	7	6,4%	17	15,6%	39	35,8%	46	42,2%	**3,14**

Table 6 now show the results from the mentioned statements in chapter 3.3 about food for Generation Y. Looking at the average of the statements one (2,23), two (2,40) and three (2,38) are all under the midpoint which is 2,5. This means more people disagree with this statement than agree. However, it should be noted that the results are very close and very deflected in both directions and therefore the result found are close to the center at the end. Statement four has an average value of 2,55 which means it's very close to the midpoint and so people of Generation Y have a neutral opinion about this statement. The last statement is the only one, where the respondents are, even 42,2% totally agree with statement. This is highest value in the whole table.

Table 7. Question twelve, preference when eating (N = 109)

	more	a bit	neutral	a bit	more		Ø
	N	N	N	N	N		
Meat Dishes	40	29	17	12	11	**Meatless Dishes**	2,3
Organic Products	30	34	29	12	4	**Supermarket products**	2,3
Local food	18	28	38	13	12	**International food**	2,8

Table 7 now shows the preference of food when Generation Y is eating. The midpoint is at 3 and considering the average results from the first two statements, it is to assume that Generation Y preference Meat Dishes and Organic products. A preference of Generation Y for meat dishes is not surprising, since the majority are meat eater, see figure 17. The favor of biological products is very likely from the health awareness of Generation Y. The last statement has no clear favor emerges there is little preference in eating local food.

Table 8. Question thirteen, Statements about eating behavior (N = 109)

	Totaly Disagree		Disagree		Agree		Totaly Agree		Ø
	N	%	N	%	N	%	N	%	
I'm trying to lose weight.	37	33,9%	22	20,2%	32	29,4%	18	16,5%	**2,3**
I pay attention to the daily amount of calories supplied.	50	45,9%	20	18,3%	22	20,2%	17	15,6%	**2,1**
I try out new dishes.	6	5,5%	11	10,1%	49	45,0%	43	39,4%	**3,2**
I look for organic products.	15	13,8%	31	28,4%	38	34,9%	25	22,9%	**2,7**

Now considering the eating behavior of Generation Y, it should be noted that the opinions are very different. The midpoint is again by 2,5. The first statement as an average value of 2,3 , so it is close to the midpoint but still under it and so the respondents disagree with it. In the second statement a lot of respondents (50) totally disagree with this statement and so it is not surprising that the average value is at 2,1.

The third statement is the other way around a total of 92 respondents agrees or even totally agrees with this statement. In the last statement the majority also agrees with it, in total 63 respondents agree or even totally agree.
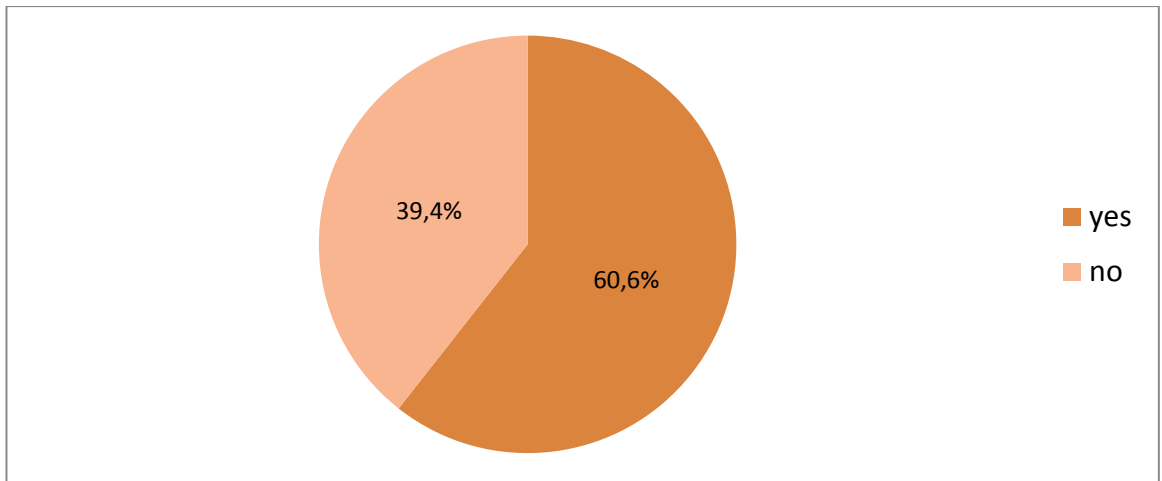

Figure 18. Question fourteen, iron and calcium in the diet (N=109)

This figure is relying on the mentioned statement in chapter 3.3, that Generation Y aims for food, which contains high amounts of iron and calcium. Now asking Generation Y directly, if they pay attention in their daily diet, 60,6% of the respondents have answered this question with yes. It is therefore to assume that this is a true statement.

Table 9. Question fifteen, Statement about food labels (N = 109)

	Totaly Disagree		Disagree		Agree		Totaly Agree		
	N	%	N	%	N	%	N	%	Ø
I pay attention to the ingredient labels of foods.	12	11,0%	24	22,0%	33	30,3%	40	36,7%	**2,9**
I note the nutrient values in food.	23	21,1%	26	23,9%	36	33,0%	24	22,0%	**2,6**

The last question is about the labels of food products. Generation Y is paying attention to the labels of ingredients. It may come for the rise of health awareness, due to the fact that people want to know, what is in their food. The nutrient values are not as

important as the ingredient label. The average value is at 2,6 which is close to the midpoint of 2,5, therefore the Generation Y is neutral about this statement.

5.4   Further Data Analysis

The first research question" Which role does nutrition play in your daily life?" is answered through the results of the quiz and can be found in chapter 6. For the second research question" How does the knowledge about nutrition affects the eating behavior?" further data analysis is required, which will be discussed in this chapter. For the further data analysis an analysis tool, SPSS, has been used.

First, the three respondents who are outside of the age range are separated from the results to get a more precise result, which leads to 106 respondents. The second step was to determine how the knowledge of nutrition is defined. Due to the fact that the answers to question number four were so wide spread and question nine was not answered correctly by many participants, therefore questions five, six, seven and eight are benchmarking questions. Respondents, who answered those questions correctly, are considered with knowledge about nutrition. In total 18 respondents out of 106, have answered those questions correctly. In third the step the benchmarks for the eating behavior haven been chosen and to compare the eating behavior question ten, twelve, thirteen and fifteen have been selected. Now the eating behavior of people with knowledge of nutrition and people without knowledge of nutrition will be compared.

For the comparison standard deviation is applied. Standard deviation allows measuring the deviation of two groups and gives the results a meaning. For both the target groups the average value of the Likert scale is calculated. The standard deviation of it, will give the reader an impression of how those values relate to each other. It's clear that a higher deviation will show that there is a stronger connection between knowledge and eating habits. The definition of a connection is when the deviation is higher than 0,5. (Morris 1993, 99.)

with knowledge

22,2%

5,6%

72,2%

without knowledge

1,1%

19,3%

5,7%

73,9%

- Meat / Fish
- Vegetarian
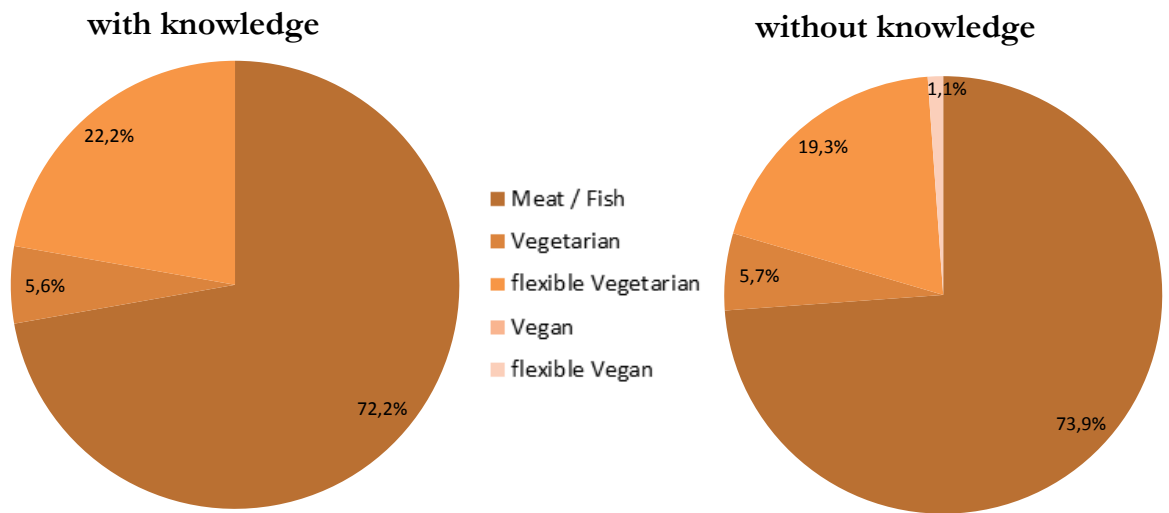- flexible Vegetarian
- Vegan
- flexible Vegan

Figure 19. Eating behavior (N = 106)

Considering the way of diet can be hardly found significant distinction. People, who are eating meat / fish, are around 73 % in both groups. That indicates that about 27 % of people are not eating meat /fish. In both groups there are a high amount of flexible vegetarians.
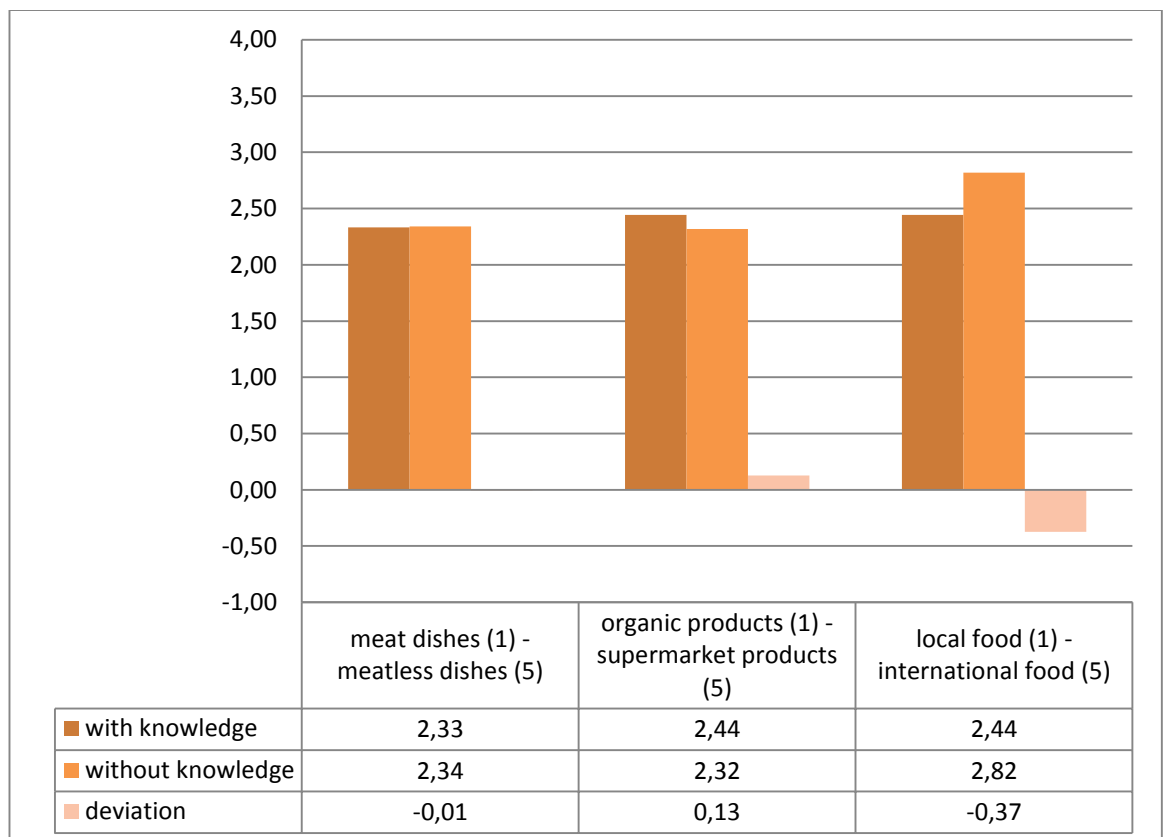

	meat dishes (1) - meatless dishes (5)	organic products (1) - supermarket products (5)	local food (1) - international food (5)
with knowledge	2,33	2,44	2,44
without knowledge	2,34	2,32	2,82
deviation	-0,01	0,13	-0,37

Figure 20. Preference when eating (N = 106)

Figure 20 presents the question twelve, where the respondents had to choose what they prefer. Now presenting the average values of both groups, the midpoint is at 3. For the first two statements there is no significate deviance to notice. In the last statement it seems that people with knowledge of nutrition prefer more local food than international food. This may have to do that regional food, is considerate as healthier as international food and has therefore better standing.
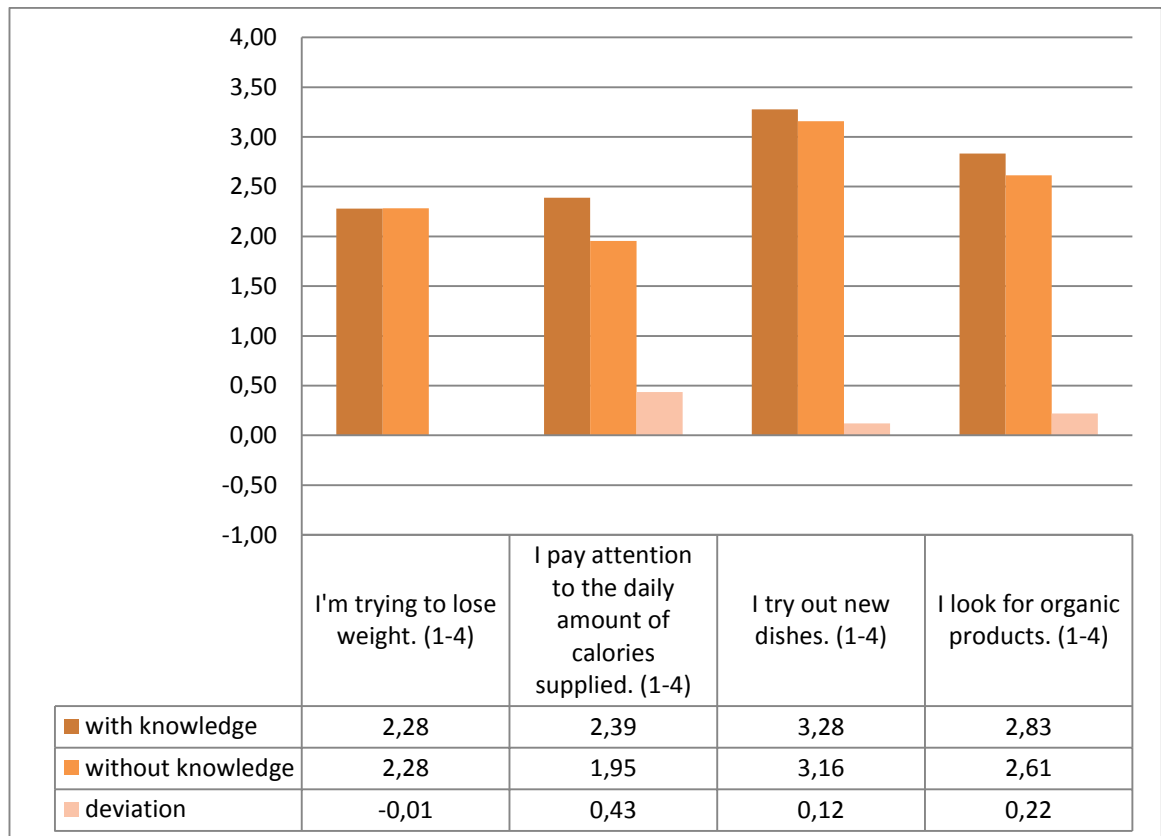

	I'm trying to lose weight. (1-4)	I pay attention to the daily amount of calories supplied. (1-4)	I try out new dishes. (1-4)	I look for organic products. (1-4)
with knowledge	2,28	2,39	3,28	2,83
without knowledge	2,28	1,95	3,16	2,61
deviation	-0,01	0,43	0,12	0,22

Figure 21. Statements about eating behavior (N = 106)

Figure 21 shows the evaluation of the statements of question thirteen. The average values will be used to compare the two groups. For the first statement now significate changes are noticed. The second statement demonstrates some really surprising results, due to the fact that people with knowledge about nutrition pay more attention to the daily amount of calories than people without knowledge. The deflection is by 0,43 points. The third statement does not show major deviation. Therefore this statement has no further importance. The deviation in the last statement is not surprising due to the fact of the results of figure 20. People with knowledge prefer local products more, and there is always a strong relationship between local product and organic products.

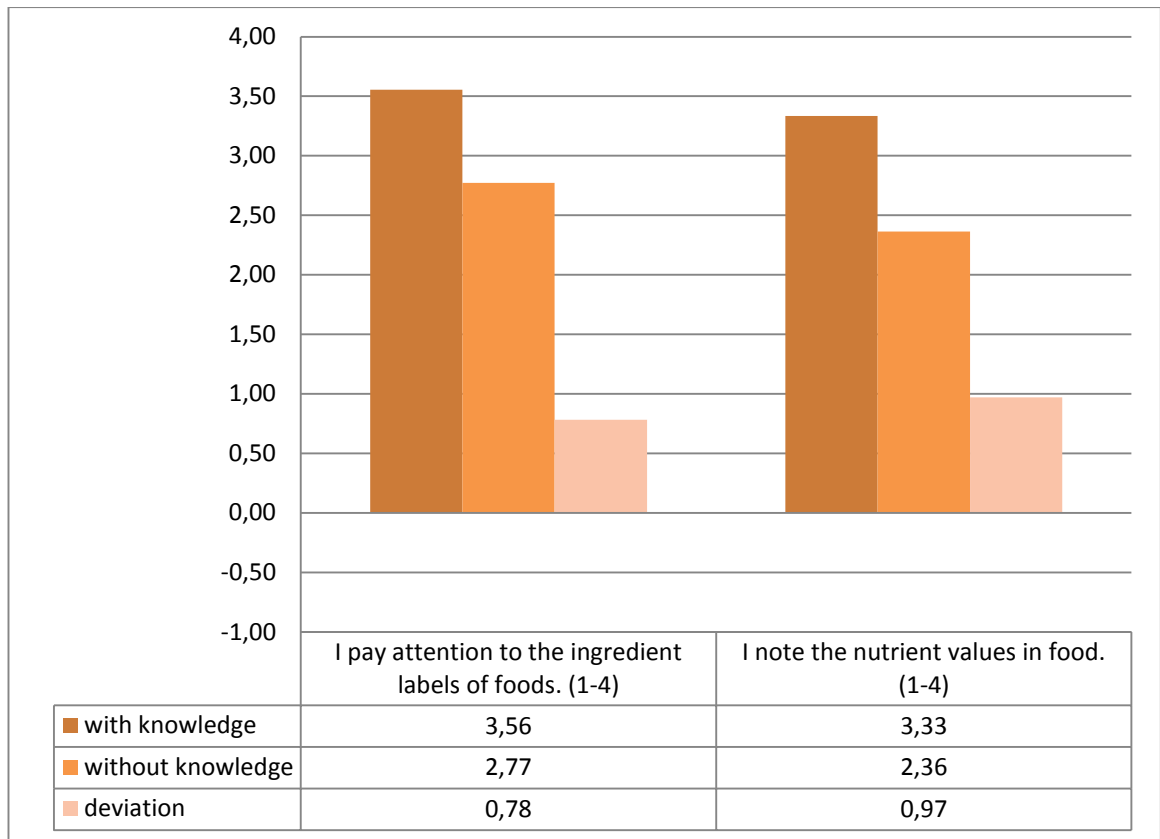|	I pay attention to the ingredient labels of foods. (1-4)	I note the nutrient values in food. (1-4)
with knowledge	3,56	3,33
without knowledge	2,77	2,36
deviation	0,78	0,97

Figure 22. Statement about food labels (N = 106)

The last figure number 22 shows the most surprising results of the questionnaire. In both statements, there are big deviations. People with knowledge pay more attention to the ingredient labels of food, the deviations is at 0,78 point. The second statement, that people note the nutrient value in food, has the highest deviations with almost 1 point (0,97). It can be concluded that people with knowledge pay more attention to the nutritional values than people without knowledge.

6 Conclusion

The purpose of this researcher was to discover the change of eating behavior and knowledge of nutrition by the Generation Y. Therefore this chapter will now summaries the results of the questionnaire and answers the research question. As part of the chapter, there will be a closer look on the validity and reliability of the thesis, further research will be introduced and the learning process of the researcher will be presented.

6.1 Conclusion Research Question

The research question is in two steps. The first step of the research question is:

- Which role does nutrition play in your daily life?

The Generation Y strives for health. Therefore the health awareness of for this generation is so high. (Dückers 2012.) The Generation Y tries to find the perfect work life balance and tries to the improvement the individual well-being and quality of life. (Rebling 2008.) It's to mention that nutrition naturally plays a big role in the procedure of finding the perfect work life balance. The statements of Nelson & Zeratsky (2011), about the eating behavior of the Generation Y, have been presented. The Generation Y has some knowledge about the nutrition, which have been represented in the quiz, but soonest it goes deeper into the topic much some ignorance exists. The Generation Y with this high level of health awareness, does not want to understand more about their nutrition and therefore it's does not really effect the daily life. Regarding the statements of Nelson & Zeratsky and the results of the questionnaire, the following statements can be concluded. The Generation Y still respect the normal eating times and food has not lost his significant, so that for example cereal still part of the breakfast is and not just a snack. Food has to be more handy and so it can be eaten everywhere. In your time, where everything is faster, the nutrition has to keep up with that. Therefore food had to become handier. This will affect the role of nutrition in your daily life.

The Generation Y with their high awareness of health and on their way to find the perfect work life balance pays nutrition just a small role. Food has to become more handy and portable to be eaten everywhere. The Generation Y has to start get more knowledge about nutrition and with that the nutrition will automatically pay a bigger role in their life.

The second step of the research question is:

- How does the knowledge about nutrition affect the eating behavior?

Theoretical framework for this was not provided. Due to this fact this question is based only primary research, regarding the results of the further data analysis. Nevertheless it was inspired by study of Mahshid Pirouznia.

It can be clearly recognize that there is a connection between knowledge about nutrition and eating behavior. People with knowledge pay more attention to the daily amount of calories. Those people know how much calories in a daily diet are healthy and therefore they look after that. The second statement, which can be made about the people with knowledge, they pay more attention to their food. They look after the ingredients labels as well on the nutrient values of food, more than people without knowledge about nutrition.

Knowledge of nutrition clearly affect the eating behavior, on the onside the amount of daily consumed calories. On the other side the food product itself has a higher priority, which leads to that there is more attention paid to the ingredients as well the effect on the body.

6.2   Conclusion Research Topic

The topic of the thesis is" Generation Y in Germany – A change in knowledge about nutrition and eating behavior". The Generation Y proved that there is no change in knowledge about nutrition, although this generation has such a big strives for health. Generation Y tries to ignore the importance of nutrition and still attempts to find the perfect work life balance. This is not possible.

However it was found, that there is a connection between the knowledge about nutrition and the eating behavior. This can be the advice for this generation that they have to start to know more about nutrition, which will improve the eating behavior. This improvement will automatically help this generation to fulfill their need of health awareness.

6.3   Validity and reliability

The chapter validity and reliability is to classify the quality of the results. Validity measures the intensive and correctness of the questionnaire. However Reliability focuses on how trustful the results of the questionnaire are. (Wilkinson 2000, 16.)

Due to the fact the quantitative questionnaire was spread through social media and people had the chance to accesses the questionnaire on a free will, the validity and reliability in this point of view might be high. It is to mention that question number 6 of the questionnaire was a bit confusing, which lowers the level of validity.

In general it is hard to make a general conclusion with only 109 respondents of the Generation Y in Germany. Nevertheless the respondents were willing to give a trustful answer, which gives some impression about the topic of this thesis. However future research is recommended and will be introduce in the following chapter.

6.4   Future research

In order to understand more about the Generation Y and their eating behavior further research have to be conducted. The research of this thesis focused only on the Generation Y in Germany. Therefore it is recommended to the same kind of research in different countries.

In order to get more precise statement of knowledge about nutrition affects the eating behavior more data is required. The 109 respondents give some trend-setting direction but more data is required, therefore it is recommended to do further researcher and collect more data to get higher validity and reliability grad.

Referring to the mentioned study of Mahshid Pirouznia, it was determined to find a connection between eating behavior and knowledge of pupils of the eighth, ninth and tenth class. In this study there have been three target groups compared. In order to do the same further research is recommend on different Generations like the Babyboomer or Generation X and compere the results with the results of this study to get a higher understanding of the link between knowledge of nutrition and eating behavior.

6.5   Learning process

Due to the fact this research was conducted on the personal interest of the researcher, the learning process was very positive. The quantitative research aims to understand more about the Generation Y and their knowledge about nutrition and their eating behavior. The results of the questionnaire have been very interesting and it was very surprising to find a connection between the knowledge about nutrition and the eating behavior, because at the first view the results have been for the researcher very unsatisfying. Therefore further data analysis has been conducted. The resulting outcome was very impressive and was not expected by the researcher. Therefore the researcher is satisfied to find a qualitative result.

However for the researcher it is clear that 109 replies are not enough to make a clear statement for the connection between knowledge about nutrition and eating behavior. Nevertheless the result is considered as trend-setting for this topic.

7 References

Brotherton, B. 2008. Researchin Hospitality and Tourism. London: Sage Publications

Chapman, A. 2014. maslow's hierarchy of needs. URL:
http://www.businessballs.com/maslow.htm. Accessed 29 September 2014

Dr. med. Kluthe, B. 2014. Institut für Ernährungsinformation. URL:
http://www.ernaehrung.de/tipps/allgemeine_infos/ernaehr10.php. Accessed 3
September 2014.

Dückers, T. 2012. Gesundheitsbewusstsein Yoga gegen Burnout, Sex für die
Botenstoffe. URL:http://www.zeit.de/gesellschaft/zeitgeschehen/2012-
03/gentrifizierung-deutschland-leistungsethos. Accesed 3 September 2014.

Franklin, B. 1806. The completet works of Benjamin Franklin . James Cundee.

Howard, P. 2011. Healthy Eating for Generation Y. URL:
http://www.wellbeing.com.au/blog/healthy-eating-for-generation-y/. Accessed 14
September 2014.

Khan, M. A. 1998. Nutrition for Foodservice Managers. New York City: John Wiley &
Sons.

Leas, C. 2008. Fat: It's not what you think. Amherst: Prometheus Books.

Löhr, J. 2013. Generation Y Freizeit als Statussymbol. URL: Frankfurter Allgemeine
Zeitung: http://www.faz.net/aktuell/beruf-chance/arbeitswelt/generation-
y/generationy-freizeit-als-statussymbol-12212620.html. Accessed 6 September 2014.

Martens, C. 2012. Generation-Y Shaping Future Food Trends. URL:
http://www.foodchannel.com/articles/article/generation-y-shaping-future-food-
trends/. Accessed 10 September 2014

Maslow, A. 1943. A Theory of Human Motivation. Psychological Review(50), pp. 370-396.

Massholder, F. 2014. PAL-Wert Lebensmittellexikon.de. URL: http://www.lebensmittellexikon.de/p0002500.php#RelatedArticles. Accessed 10 September 2014

Morris, C. 1993.Quantitative Approaches in Business Studies. London: Pitman Publishing

Möckl, S. 2014. Focus online - Zunehmend Kinder und Jugendliche übergewichtig. URL: http://www.focus.de/gesundheit/ernaehrung/news/gefaehrlicher-trend-fast-ein-drittel-der-weltbevoelkerung-ist-zu-dick_id_3879429.html. Accessed 10 September 2014

National Restaurant Association Educational Foundation. 2006. Nutrition: Nraef Manage First: Competency Guide (NRAEF ManageFirst Program) . Upper Saddle River: Prentice Hall.

Nelson, J. K., & Zeratsky, K. 2011. What food trends define the millennial generation? URL: http://www.mayoclinic.org/healthy-living/nutrition-and-healthy-eating/expert-blog/millennials-food-trends/bgp-20056133. Accessed 10 September 2014

Parmenter, K. 2002. Changes in nutrition knowledge and dietary behavior. Health Education(102), pp. 23-29.

Pirouznia, M. 2001. The influence of nutrition knowledge on eating behavior -the role of grade level. Nurtition & Food Science(31), pp. 62-66.

Rebling, K. 2008. Gesundheitsmarkt im Umbruch. URL: http://109.68.50.141/ges/soz/soz/de3008237.htm. Accessed 3 September 2014

Siefer, C. 2013. Mehr Freizeit, weniger Arbeit: die "Generation Y". URL:
http://www.dw.de/mehr-freizeit-weniger-arbeit-die-generation-y/a-17144117.
Accessed 4 September 2014

Smolin, L. A., & Grosvenor, M. B. 2007. Nutrition: Science and Applications. New
York City: John Wiley & Sons.

Valentine, D. B., & Powers, T. L. 2013. Generation Y values and lifestyle segments.
Journal of Consumer Marketing(30), pp. 597-606.

Veal, A. 2006. Research Methods for Leisure and Tourism. Essex: Pearson Education
Limited

Weckler, C. 2013. Steigendes Gesundheitsbewusstsein im 21. Jahrhundert. URL:
http://www.nutrition-
worldwide.com/health/gesundheit/gesundheitsbewusstsein.php#sthash.eBDATSUf.d
puf. Accessed 4 September 2014

Wilkinson, D. 2000. The researcher's toolkit. London: RoutledgeFalmer.

Wills, J. 1988. The Food Bible. London: Quadrille Publishing Limited.

8 Attachments

Generation Y – A change in knowledge about nutrition and eating behavior

Hello,

my name is Konstantin Kraft and I have studied Hotel, Tourism and Restaurant Management at the Haaga Helia University in Helsinki. This questionnaire is part of my bachelor thesis, which is about the Generation Y (1980 - 2000). It's about investigating the knowledge about nutrients and the resulting eating behavior.

Therefore I ask for your help, that take a few short minutes and answering my questionnaire.

Thank you very much!

1. How old are you?

- o   under 14 years
- o   14 – 24 years
- o   25 – 34 years
- o   above 34 years

2. Which gender do you belong?

- o   female
- o   male

3. What is your occupation

- o   Pupils or Student
- o   Employees
- o   Job-seeking
- o   Retiree

Quiz of nutrition

4. How should the proportion of nutrient look like? (in percent)

in ratio of carbohydrates - fats – proteins

	0%-10%	11%-20%	21%-30%	31%-40%	41%-50%	51%-60%	61%-70%	71%-80%	81%-90%	91%-100%
carbohydrates	o	o	o	o	o	o	o	o	o	o

fats	○	○	○	○	○	○	○	○	○	○
proteins	○	○	○	○	○	○	○	○	○	○

5. Which statement is wrong?

○ 1 g of protein provides 4 kcal.

○ 1g of carbohydrate provides us 1 kcal.

○ 1g of fat provides us 9 Kcal.

6. Structure of nutrients

	carbon	saccharide	fatty acids and glyceride	amino acids
Component of carbohydrates are	○	○	○	○
Component of fat are	○	○	○	○
Component of proteins are	○	○	○	○

7. Fibers ...

○ are ballast for the body and therefore unnecessary for us.

○ should be eaten plenty, because they serve our health.

○ are additives that are added to packaged foods to make them heavier.

8. How distinguish vitamins?

○ water soluble and fat soluble

○ essential and nonessential

○ blood soluble and acid soluble

○ there is no difference

9. What are minerals? (multiple selection possible)

○ Aluminum

○ Boron

○ Calcium

○ Iron

○ Lithium

○ Sulfur

Questions about the eating behavior

10. **How do you eat?**

* flexible vegetarian - mostly vegetarian except meat / fish

**flexible vegans - mostly vegan except for vegetarians

o   meat / fish

o   vegetarian

o   flexible vegetarian

o   vegan

o   flexible vegan

11. Evaluate the statement

	Totaly Disagree	Disagree	Agree	Totaly Agree
Food has lost his significance, so cereals are a snack food and not just for breakfast anymore.	o	o	o	o
Food has to be handy.	o	o	o	o
Meal times are combined, e.g. Lunch with dinner.	o	o	o	o
Food has to be available 24 hours, 7 days a week.	o	o	o	o

12. What do you prefer?

	more	a bit	neutral	a bit	more	
Meat Dishes	o	o	o	o	o	**Meatless Dishes**
Organic Products	o	o	o	o	o	**Supermarket products**
Local food	o	o	o	o	o	**International food**

13. Evaluate the statement

	Totaly Disagree	Disagree	Agree	Totaly Agree
I'm trying to lose weight.	o	o	o	o
I pay attention to the daily amount of calories supplied.	o	o	o	o

	Totaly Disagree	Disagree	Agree	Totaly Agree
I try out new dishes.	○	○	○	○
I look for organic products.	○	○	○	○

14. Do you pay special attention to the intake of iron and calcium in your diet?

○ yes

○ no

15. Evaluate the statement

	Totaly Disagree	Disagree	Agree	Totaly Agree
I pay attention to the ingredient labels of foods.	○	○	○	○
I note the nutrient values in food.	○	○	○	○