

Differences and similarities between the user persona for a consumer of fatty and skimmed concentrated yoghurts

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Preface

This dissertation for the bachelor of business science is about the differences and similarities between the user persona for a consumer of fatty and skimmed concentrated yoghurts. I have written the dissertation to graduate from my dual degree program International Food Business (IFB) of Aeres University of Applied Science and the Dalhousie University in Nova Scotia.

The dissertation consists of a consumer survey for people who eat concentrated yoghurts. The research contributes to a better understanding of the target audience of fatty dairy products and the target audience for skimmed dairy products. This understanding also helps designers from large dairy companies during the testing and creation of new products. It helps defining who a product is being created for and can show the necessities for the people from a user-centred point of view.

I want to thank my thesis coach Cynthia Akkermans for guiding me through the process.

I hope you enjoy reading my dissertation.

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Summary

The Netherlands is known as a dairy country. The production and consumption of milk, yoghurt, butter, and cheese has been a part of a long standing tradition. There is a large assortment of yoghurt and quarks, varying from 0% to 10% fat, and from plain quark to a vast array of flavors. A lot is known already about the intrinsic characteristics of these dairy products, but current research provides little to no information about who consumes these products. Therefore this research focuses on who consumes skimmed and full-fat concentrated yoghurt. For these categories a user-persona is being created and analyzed.

For this research a consumer survey is conducted, this survey is about the preferences consumers have and their value behind this choice. The main question this research provides an answer to is “What are the differences and similarities between the user persona of a consumer of fatty and skimmed concentrated yoghurts”. These differences are found in the choice of product and the motives behind the choice of skimmed, semi-skimmed, and full-fat concentrated yoghurts. Next to this there are noticed differences in age, gender, and level of education.

The reasons for respondents preferring skimmed concentrated yoghurts have to do mainly with the nutritional values, skimmed concentrated yoghurt is lower in calories, and comparable in level of protein. The reasons for respondents choosing full-fat concentrated yoghurt are often the taste and structure of the product. Some people also prefer the full-fat concentrated yoghurt as they get a more saturated feeling from it. Next to this, there are also significant correlations found in the time of the day the product is consumed. The main similarities between these categories are that both choose taste and structure as important when describing what they consider important for their favorite concentrated yoghurt.

On the short term, this research contributes to a better understanding of the target audience of full-fat concentrated yoghurts and the target audience for skimmed concentrated yoghurts. It can help large dairy companies during the testing and creation of new products. It helps define who a product is being created for and can show the necessities for the people from a user-centered point of view. On the long term, the personas are relevant to large dairy companies in the Netherlands as it creates a visual image of the actual consumer with all the belonging characteristics. This visual image can be used during paid promotions via social media channels, where companies can set filters for who gets to see the commercial. This will increase the efficiency of the commercials and therefore can reduce the costs for the companies.

1. Introduction

The Netherlands is known as a dairy country. The production and consumption of milk, yoghurt, butter, and cheese has been a part of a long-standing tradition. The characteristics of grassland with grazing cows and windmills are inseparable from the traditional Dutch landscape (ZuivelNL, 2020). The Netherlands is small considering its geographic size of 41.534 km² and has a population of 16.8 million people. Despite these small numbers, the Netherlands has been a dominant trade and commercial player in Europe and in the world (Philippot et al., 2011). The milk production in the Netherlands has 14 billion kg of milk as of 2019 (Kwakman, 2021). The total value of dairy exports is 7.8 billion which makes the dairy sector account for 7% of the national trade surplus. In 2019, the Dutch share in the world dairy trade amount accounted for almost 5%, which puts the Netherlands in 5th place among the world's largest dairy exporters (Kwakman, 2021).

Dairy products are seen as the foods that can provide nutrition and health in the western world. This is why the dairy industry is evolving continuously and developing to fulfill the current consumer demands as well as the demands in the future (Park, 2018). There are two very broad trends putting high pressure on the dairy industry; the trend where people get more conscious about their diet and the future, which means that people want to have good nutrition in an environmentally friendly way (Behrens et al., 2017). The other trend is the plant-based trend where people buy more plant-based or non-dairy milk alternatives for several reasons, such as lactose intolerance, cow-milk allergies, and sustainability (Winpenny et al., 2017).

In addition, there are 3 minor trends starting with the increase of health awareness, which leads to more conscious food choices (Xu et al., 2021). Secondly, there is the trend for more convenient products. People are busy, but still want a product that is easy and fast to consume (McCarthy et al., 2017). And thirdly is the healthy hedonism trend, in which people eat healthy overall, but let themselves have a treat or snack from time to time (Salzman, 2016).

With the increasing health awareness, the market for quark, yoghurt, and skyr in the Netherlands is growing. According to van Gelder (2021) the turnover for quark grew from 72 million euros to 80 million euros between 2017 and 2019. In the Netherlands, it has been reported that large dairy producers are launching products that include a high-fat percentile, for example, Arla Skyr introduced a creamy skyr variation last year with 5% fat (Arla Foods, 2022a), Arla organic has come with a double creamy yoghurt with 8% fat in 2022 (Arla Foods, 2022b), Campina just launched the Greek-style yoghurt with 10% fat (Campina, 2022). In the world market the Greek-style yoghurt, which is yoghurt with often 10% fat in it, is expected to make an increase from 8.57 billion euro turnover in 2020 to 12.3 billion turnovers in the world in 2024 (Shahbandeh, 2021). This means that the market for fattier dairy products is expected to increase, but no research can be found about the motives or the values of consumers which drives this increase.

This report shows a consumer perspective on the percentage of fat in concentrated yoghurts. In the Netherlands, there is a large assortment of yoghurt and quarks, varying from 0% to 10% fat, and from plain quark to a vast array of flavors. This report is focused on the question; of why people are buying a concentrated yogurt with a certain amount of fat, and what the motives are for buying this product. With this question in mind, this research attempts to create a user persona for these two categories.

This research includes three phases. The first phase is focused on gathering information from consumers, this is done via a survey. Then the collected data is analyzed, and the data is transferred

into viable information. As a final result, a persona is formed of a typical buyer and the varying percentages of fat in the products they purchase.

This research starts with the definitions and the current available information on this research topic, which are described in the theoretical framework. Then the main research questions and sub-questions, that this research aims to answer, are provided. Finally, the materials gathered from the survey are compiled with the methods used to conduct and analyze the collected data.

1.2 History of the Dutch dairy industry

The focus of this study is on the consumers' perception on the percentage of fat in dairy products. In the Netherlands, there is a large assortment of yoghurt and quarks, varying from 0% fat to 10% and from plain quark to a lot of different tastes. This report is focused on the question of why people are buying a dairy product with a certain amount of fat, and what the motives are for buying this product.

To get a better understanding of the dairy industry, a brief history of dairy consumption is given. The roots of dairy consumption start with raw milk. Scientists have discovered that farmers in Britain and Northern Europe may have been among the first to begin milking cattle for human consumption. These milking activities started around 6000 B.C. when the ability to digest milk was gained between 5000-4000 B.C. (ProCon.org, 2020). Around 3000 B.C. the technique of processing milk was discovered which extends the shelf life of the milk. The first milk products were butter, cheese, and fermented milk (Fox, 2011). The history of dairy processing in the Netherlands began around 300 B.C. when nomadic tribes arrived from central Asia into Europe. The land was ideal for rearing cattle as it not only provided space for grazing but also had polder soil which was highly suitable for grass production. The specialization of dairy products increased in the Netherlands between the 13th and the 16th century but was not industrialized until the mid-nineteenth century (Philippot et al., 2011).

According to Kwakman (2021) the total number of dairy farmers has been on the decline in the Netherlands, but the volume of dairy enterprises has increased. In the Netherlands, domestic dairy sales have steadily decreased over the past couple of years, where products such as milk, buttermilk, and ready-made custards have decreased the most. On the other hand products such as yogurt, quark, and UHT milk have increased in sales as well as in turnover (Kwakman, 2021).

1.3 Trends in the Dutch and international dairy industry

Dairy products are the foods that can sustain the nutrition and health of the Western World. The dairy industry has been continuously evolving and developing in order to meet the current consumer demands as well as future demands. The following trends are the main trends occurring in the dairy and food industry (Park, 2018).

- Environmentally friendly nutrition.

The major dairy companies in the western world are focused on providing consumers with sustainable nutrition, through the production of healthy foods produced in a viable manner. This trend is focused on a better understanding as well as cooperation between agricultural production, food processing, nutrition, health, and the impact of this system on the environment. (Behrens et al., 2017).

- Plant-based trend

Plant-based or non-dairy milk alternatives are the fastest-growing sectors in specialty beverages in the area of new product developments worldwide. Health issues such as cow milk allergy and lactose intolerance are drivers of this industry (Winpenny et al., 2017). Plant-based milk alternatives are

more expensive than regular milk, which can serve as an alternative for poor economic groups in developing countries or countries where the milk supply is insufficient.

Besides these major trends which are focused on the supply aspect of the dairy industry, there are also smaller trends that form a baseline with the consumer. There is an increasing health awareness among consumers, this leads to more conscious food choices (Xu et al., 2021). The trend leans toward more convenient products. Everyone is busy, but whether consumers are on the road or working from home, they prefer a convenient but healthy snack (McCarthy et al., 2017). A trend that is evolving in the dairy sector is healthy hedonism. This trend is a way of life where health is at the core, but is also characterized by openness to pleasurable experiences (Salzman, 2016)

1.4 Fats in the human diet

There is a large dairy sector in the Netherlands and the market for quark and yogurt is expected to increase, this study is going to look more into the fat percentage of quark and yogurt. Therefore additional information will be given on the essence of fat in the human diet and how dairy products play an essential role in fulfilling this need. Some research says that the consumption of dairy fat is good for human consumption and health while other research says that dairy fat is not healthy and can have negative effects.

The recommendations for fat intake are widely varied. In the Netherlands, the “schijf van vijf” is known and used as advice for a healthy diet. The schijf van vijf says the following on dairy consumption: the popularity of dairy in the Netherlands is commendable as it lowers the chance of colon cancer and type 2 diabetes, not to mention it is a great source of calcium and vitamin B12. The schijf van vijf ‘s advice is to eat skimmed or semi-skimmed dairy to prevent consuming too much fat (Voedingscentrum, 2017). The WHO has the same advice, to eat dairy but in moderate proportions, preferably skimmed or semi-skimmed dairy products (World Health Organization, 2003).

Fats are essential in the human diet to provide energy but also fat-soluble vitamins such as vitamin A, D, E, and K (O’Brien & O’Connor, 2016). The recommendation for normal fat intake in the Netherlands is between 20 to 40 percent of total fat-based energy (Spaaij & Pijls, 2003). According to O’Brien & O’Connor (2016), milk fat is a good resource of fat as milk fats are built out of triglycerides. In the western diet, these milk fats contribute between 8-10% of the total energy intake (O’Brien & O’Connor, 2016).

The topic of health benefits of dairy fats is highly discussed in the world of research. O’Brien & O’Connor (2016) says that it is difficult to relate individual foods or food categories to the risks of disease without considering the overall dietary habits. There is limited evidence that suggests that individuals with a higher consumption of dairy products have a lower risk of obesity and metabolic syndrome. According to Lee et al. (2018), the total daily food consumption is associated with lowering the risk of MetS components in conditions such as hyperglycemia, elevated blood pressure, Hypertriglyceridemia, and low cholesterol. Lee et al. (2018) also stated that one serving of milk is associated with a 12% lower risk of abdominal obesity, and one serving of yoghurt is associated with a 16% lower risk of hyperglycemia. Other research suggests that yoghurt is an excellent source of protein, fat, probiotics, and calcium (Fisberg & Machado, 2015).

Fat has a significant influence on the health effects of dairy products, but also on the milk quality, nutritional value (Vargas-Bello-Pérez et al., 2020), and sensory characteristics (McCarthy et al., 2017). Typical sensory properties of yogurt can be listed as being creamy, soft, having a semi-solid structure, a spreadable, and slightly acidic sour taste (Lesme et al., 2020). The profile of the fatty acids in milk changes the sensory characteristics of the dairy product (Vargas-Bello-Pérez et al., 2020). Santiago-García et al. (2021) carried out research with 42 participants tasting yogurt with different

percentages of fat in yogurt. The participants did a taste test on non-fat yogurt and reduced-fat yogurt. The results of this test showed that non-fat yogurt scored higher on viscosity level, flavor, and creaminess compared to the reduced-fat yogurt.

This research focused on concentrated yogurt. Concentrated yogurt is a fermented milk product. The manufacture of concentrated yogurt requires partial whey separation in order to obtain the soft, creamy and nutrient-denser products (Sumarmono et al., 2019). Concentrated yogurt is sometimes considered a functional milk product, as it has a longer shelf life (Sumarmono et al., 2019).

1.5 Consumer perception of fat

According to the researcher, there are two related studies done on the topic of consumer knowledge and perception of dairy/ dietary fats. The first one was entitled: “Consumer knowledge and perceptions of milk fat in Denmark, the United Kingdom, and the United States” (Vargas-Bello-Pérez et al., 2020). This study researched the knowledge and perception of milk fat of consumers from Denmark, the United Kingdom (UK), and the United States (US). These research findings on the perception of milk fat were as follows; Milk fat was perceived as healthy or very healthy by 10% of respondents from the UK, 19% in the US, and 6% in Denmark. Additionally, 35% of respondents in Denmark, and 15% in the UK and in the US viewed milk as neither healthy nor unhealthy. Whereas only 5% of respondents in the UK, US, and Denmark) viewed milk fat as unhealthy. The majority of respondents considered milk fat as tasty (46% in Denmark and UK and 56% in the US). In addition to these findings, Vargas-Bello-Pérez et al. (2020) found that the nutritional benefit of milk was the most important reason for the respondents to perceive milk fat as healthy. Cholesterol levels were an important reason for perceiving milk fat as unhealthy; this finding was significantly higher ($P = 0.015$) in the UK (80%) than in DK (51%) and the US (64%)” (Vargas-Bello-Pérez et al., 2020).

The second study was entitled: “Consumer Perception and Insights on Fats and Fatty Acids: Knowledge on the Quality of Diet Fat” (Diekman & Malcolm, 2009), which focused on the knowledge of the consumers. The findings of Diekman & Malcolm (2009) were that knowledge about fat was conflicting, including which fats have health benefits; 59% of respondents thought fat should be avoided, 65% believed a low-fat diet is a healthy diet, and 38% claimed to avoid foods containing fat. Respondents were aware of different types of fats but were unable to identify which ones were healthier.

1.6 Consumer research

According to the research by (US Consensus, 2018), 40 percent of marketing experts base their decisions on consumer research. In total 90 percent of the marketing experts agree that understanding consumer decisions is essential to the success of a business (ThinkwithGoogle, 2017). US Consensus (2018), also states that the better a customer is understood, the more likely the business is to meet and exceed customer expectations. Therefore, the goal is to create two user personas for the categories of consumers who prefer skimmed concentrated yoghurts, and people who prefer full-fat concentrated yoghurts. “User personas are archetypical users whose goals and characteristics represent the values of the larger population” (Faller, 2021). These personas should include the values, characteristics, and demographics of the average user of the product. The results are presented in personas, because a persona give a “face” to the user and is inexpensive, is unbiased, and can reach a large group of people. The user persona will represent the group of users of the dairy products. The user persona is a method used to increase stakeholders' understanding of the audience, customers, and users of the product or service (LeRouge et al., 2013).

After conducting research, more is known about the perspective and knowledge of dairy fat and products containing both high and low levels of dairy fats.

What is still unknown is the motives and demographics of people buying concentrated yogurts, the reason why consumers buy full-fat or skimmed concentrated yogurts, and what the differences are between these categories? That is what this study aims to discover.

To get an answer to this question the main and a set of sub-questions are provided.

The main question will be: What are the differences and similarities between the user persona of a consumer of fatty and skimmed concentrated yoghurts.

To get an answer to this main question, four sub-questions are set.

Sub-question 1: What are the important values of people consuming fatty concentrated yoghurts? This question will help understand more about why people are choosing a fatty concentrated yoghurt. This question aims to answer what the most important values are for people buying fatty concentrated yoghurts.

Sub-question 2: What are the important values of people consuming skimmed concentrated yoghurts? This question will help understand more about why people are choosing skimmed concentrated yoghurt. This question aims to answer what the most important values are for people buying skimmed concentrated yoghurts.

Sub-question 3: How do the demographics influence the consumer preference for the fat percentage in concentrated yoghurts? This question aims to answer the differences in the demographics between the category of people who prefer fatty concentrated yoghurts and the people who prefer skimmed concentrated yoghurts. Which creates a better understanding of the differences between these categories.

Sub-question 4: How do the characteristics of a persona appear for people consuming skimmed and full-fat concentrated yoghurts? This sub-question aims to show what the characteristics of the persona look like. In this question, the collected data will be used to show the characteristics of a user persona of people who eat skimmed and full-fat concentrated yoghurt.

The user persona will represent the group of users of the concentrated yoghurts. The researcher is aware that dairy has an elastic user group meaning that a lot of different people will eat it. All the gathered information from this research contributes to creating the user persona per preference category (fattier or skimmed dairy products). The combination of the main values of the consumer, together with the created persona is creating a visual image of the actual consumer with all the belonging characteristics, and contributes to a deep understanding of the target audience of fatty dairy products and the target audience for skimmed dairy products. This understanding assists designers from large dairy companies during the testing and creation of new products. It will help define who a product is being created for and can show the necessities for the people from a user-centred point of view (Faller, 2021).

2. Materials and Methods

2.1 Materials

The data is collected by a survey. This survey is done online and sent with a google survey. Therefore, a computer with internet is essential. For the analysis of the collected data, Spss is needed.

The validity and reliability are essential to ensure the integrity and quality of a survey instrument, extract relevant information, and draw an accurate conclusion. In this research, the reliability means that the survey is representative of the focus group, and is unbiased. Validity is focused on the data that is collected being satisfactory with what was meant to be collected (Wright, 2021).

The validity and reliability are essential to gathering the right data but without participants, the research is invalid. Surveys should be designed effectively but are also applied to a minimum number of participants. The survey is sent out on bigger social media platforms like Facebook, LinkedIn, and Instagram. This survey is also sent out to sizable email groups such as the students of the Aeres University of Applied Science in Dronten. The reason for this is to have the data collected by participants that have been randomly selected to represent the larger group (adults in the Netherlands). The survey is placed on these substantial social media platforms to reach as many people as possible and to achieve a more random sample group. This group should have similar and proportional characteristics to the larger represented population. The minimum number of participants is always a discussion point, therefore different calculations will be adapted with the following criteria as a base:

- A population size of 13.700.000 so that the researchers can draw a conclusion based on all adults in the Netherlands.
- A 7% margin of error
- A 95% confidence level

Two filters were used (bahar, 2021) and 200 respondents (Van Bennekom, 2018) to calculate the sample size which gave 195 respondents as a result. Therefore, this study aimed to achieve at least 200 useful respondents for the survey. A response is considered as useful only when the responder regularly eats quark, yogurt, Greek yogurt, or skyr and completes the survey. The entire survey has to be answered, which means that all questions have to be filled in.

2.2 Data collection

To answer the research questions a survey is conducted. This is an online consumer survey that is targeted at people who eat concentrated yoghurts. To find an answer to the questions this research collected quantitative as well as qualitative data. The researcher has chosen to combine this as the survey has a focus on the consumers' values and opinions which are qualitative questions. The survey also included multiple-choice questions which consist of demographic questions as well as preferences which are quantitative questions (Baarda, 2014). To get the right responses to answer the research question, the survey is built on 4 different phases. The questions are focused on gathering information about the perception and values of the consumer on a certain fat percentage in concentrated yoghurts.

The research focuses on concentrated yoghurt. Concentrated yoghurt is a fermented milk product. The manufacture of concentrated yoghurt requires partial whey separation in order to obtain the soft, creamy and nutrients denser products (Sumarmono et al., 2019). The main focus of the study consists of the following concentrated yogurt products: Quark, yogurt, special yogurts such as Greek yogurt or Turkish yogurt, curd, and skyr.

The first phase is used to target the proper audience. In this stage the question “are you eating concentrated yogurt regularly” are asked (regularly refers to at least once a week). This is a question with a nominal answer option “Yes” or “No”. When the responder answers no, the survey ends. When the responder answers yes, the survey continues to the second phase involving questions focused on the demographics of the responder.

Demographics is the part of the survey where the researcher examines the quantifiable statistics of a particular responder. For this research, the demographics are used to characterize the respondents to form a reliable result and persona. The demographics are essential to finding the similarities and differences in demographics between the two category groups. The demographic questions are, dependent on the question, asked as an ordinal or nominal multiple-choice question. The demographics which are asked for in the survey are: gender, age, latest achieved education, and the city they live in. With these demographics, the persona can be made more specific and a better understanding of the customer can be gained.

After questions about demographic information, the survey continues by attaining information about the dairy consumption and preferences of the participants with questions as:

- How often do you eat concentrated yogurts?
- At what time of the day do you mostly eat dairy?
- What is your favorite dairy product?
- Why do you prefer this type of dairy product?

The answers to these questions form a better understanding of the dairy consumption and preference of the responder and are necessary to form the persona. These questions are mostly close-ended questions except for “why do you prefer this type of dairy product?”. The results of these questions are used to answer the first and second sub-question.

The fourth phase pertains to the question which is focused on the fat percentage in concentrated yogurt and is a close-ended question. The options are skimmed, semi-skimmed, and full-fat concentrated yogurts. The follow-up question is an open question of why they prefer this type. The last question is what they consider most important when consuming concentrated yogurt. This is an open question as to not direct the responders in a certain direction and conduct the survey in an unbiased manner.

2.3 Data Analysis

The collected data is analyzed through different statistical methods in Spss. Every conducted close-ended questions are analyzed according to the methods shown in this chapter. The open-ended questions are analyzed descriptively.

This part is described how the collected data is analyzed and transformed into an information source, to answer the following sub-questions:

- “What are the most important values of people consuming fatty concentrated yoghurts?”
- “What are the most important values of people consuming skimmed concentrated yoghurts?”

These sub-questions are analytically analyzed, where the given answer to the question “What type of concentrated yoghurt do you prefer?” is used as a dependent variable. The answer to this question creates the categories used for further analysis and comparison.

The most important criteria when evaluating the results for this question is whether the open answers given by the people are also the answers that the research is aiming to collect. Moreover, it is important to only use the data from the right category.

For the third sub-question, the collected and analyzed data is shown in a table. For this table, the same categories are used. For the first two sub-questions, the data is focused on the different choices and values people have towards a certain percentage of fat. The third question is focused on the possible differences and similarities in the demographics between the two categories.

For the fourth sub-question, the collected and analyzed data is transformed into information to create an archetypical user for both categories.

For the statistical analysis of the close-ended questions, the question “What type of dairy product do you buy most often?” creates the categories. This question is used as an independent variable, and the possible answers, skimmed, semi-skimmed or full-fat are used as a category. The other questions in the table are used as dependent questions. Which statistical test is used for the particular questions is stated in table 1.

Table 1. statistical test per survey-question

Independent question	Question	Nominal or ordinal	Method of analyzing
What type of dairy product do you buy most often?	What is your gender?	Nominal	Chi2
“	What is your age?	Scale	One-way ANOVA
“	What is your highest achieved education?	Ordinal	Kruskal Wallis
“	How often do you eat quark, yoghurt, or skyr?	Ordinal	Kruskal Wallis
“	At what time of the day do you eat quark, yoghurt, or skyr most often?	Nominal	Chi2
“	Do you buy your own groceries?	Nominal	Chi2
“	What is your favorite concentrated yoghurt?	Nominal	Chi2

The results from the open questions are described in a table where the results are shown per category. This table will clearly show the collected data per category which makes it easy to compare.

The questions are as follows:

- Which city are you currently living in?
- What do you like most about this product?
- Why do you prefer this type?
- What do you consider important when buying a quark, yoghurt, or skyr?

2.4 How the persona is created

From these sub-questions, the data is analyzed and described. This data is used to create a persona from a typical user of a certain product. This is a semi-fictional character-based persona which is based on the data collected from the survey. The persona is created by using the questions focused on the demographics to divide the people who prefer fattier products from the people who prefer skimmed or 0% fat. The demographics filled in by these two groups are analyzed where the most given answers are used to create the semi-fictional buyer for that segment (Faller, 2021).

The user persona is made from the inspiration of the UCD (user-centered design) model which is “the process of building insights about users’ experience through usability testing and other forms of user research into product development” (Barnum, 2021). The UCD model includes four basic tenets, 1) the user is placed at the center of the design 2) Focusing early on the users and their tasks, 3) the usability is measured empirically 4) designed with real users (LeRouge et al., 2013). The persona represents the larger group of users. The persona is described in a one-page document including the behavior patterns, attitude toward the certain dairy product, background information, and further demographics. Some of the information is fictional to create a more realistic character (Faller, 2021).

3. Results

The survey had a total amount of 340 respondents, of which 316 can be considered useful respondents. The response is considered useful when the respondent eats concentrated yoghurt at least once a week, and all the multiple-choice questions are filled incorrectly.

The survey was distributed via Instagram, Facebook, LinkedIn, and Mail. The survey was sent to 3071 people and answered by 340 people which means that 11% of the people who have seen the survey, answered the survey.

These 316 respondents have an average age of 33.98 where the oldest respondent being 77 and the youngest being 12 years old. The respondents came from 133 different cities in the Netherlands, and the majority living in Flevoland and Gelderland. 38 respondents came from one of the 10 biggest cities in the Netherlands with at least 1 respondent from every city.

3.1 Important values for consumers of concentrated yoghurts

Sub-question 1 and 2 are combined in the results. These sub-questions will help to understand more about The choices people make between skimmed concentrated yoghurt or fatty concentrated yoghurt. This part of the result aims to determine what the most important values are between the different categories, skimmed and fatty concentrated yoghurts.

3.1.1 Respondents' favorite concentrated yoghurt product

The respondents were asked to give their preference for the type of concentrated yoghurt they preferred the most. These answers are broken down into three different categories.

- In total 99 people preferred skimmed concentrated yoghurt
- In total 109 people preferred semi-skimmed concentrated yoghurt
- In total 108 people preferred full-fat concentrated yoghurt

A total of 316 people filled in their preferences for a product. In the following table, the preferences for a certainly concentrated yoghurt are compared to the preference for a specific fat percentage. In the table it can be seen that people who prefer skimmed concentrated yoghurts are most likely to have quark as their preferred product. People who prefer full-fat concentrated yoghurt are most likely to select Greek yoghurt as their preferred product.

Table 2. favorite concentrated yoghurt per category

Type of yoghurt	Skimmed	Semi-skimmed	Full-fat	Total
Greek yoghurt	20	37	58	115
Quark	42	25	17	84
Skyr	16	9	7	32
Curd	-	2	-	2

A Chi-square test was used to evaluate whether there are significant differences between the fat content preferred and the respondents' favorite type of concentrated yoghurt. The test value is 43.081 and the p-value (asymptotic significance) is .001 which means that there is a significant difference.

In the following table, the reasons why respondents prefer their favorite product can be seen. The structure of the product and product itself are favorable when combined with fresh fruits. This was important for both groups who prefer skimmed and full-fat concentrated yoghurt. In addition to this, the combination of the macro nutritional values is important among some of the respondents who prefer skimmed concentrated yoghurts. The people who prefer full-fat concentrated yoghurt find it important to have a satiated feeling after eating.

Table 3. what people like about their favorite product per category

Reason why	Skimmed	Full-fat
Taste	47	50
Structure	19	18
Good to combine with fruit	5	6
Combination of nutrients	15	-
Saturated feeling	-	6

The preferences of people depend on the percentage of fat which is in the product, but is also depends on what product people prefer.

- Respondents who chose Quark as their favorite product, consider taste, the ability to combine quark with fruit or muesli, and the structure as important values.
- Respondents who chose Greek-style yoghurt as their favorite product, consider taste and a creamy/ thick structure as important values.
- Respondents who chose skyr as their favorite product, consider nutritional values as high in protein and low in fat and the taste as important values.

Table 4. what is considered important per favorite concentrated yoghurt

Reason why	Quark	Greek style yoghurt	Yoghurt	Skyr
Taste	24	57	51	15
Structure	14	36	16	8
Health reasons	6	1	3	9
Good to combine	7	-	6	-

3.1.2 Why do people prefer a certain fat% in concentrated yoghurt.

The question of whether people prefer skimmed, semi-skimmed, or full-fat concentrated yoghurt creates the categories which are used to analyze all the results in the next section. The following table shows why the respondents prefer this percentage of fat% in their concentrated yoghurt.

For this question, major differences can be noticed. The reasons respondents preferred skimmed concentrated yoghurts have to do mainly with health and the nutritional values. Skimmed concentrated yoghurt is lower in calories and comparable in level of protein.

The reason for respondents choose full-fat concentrated yoghurt is the taste. Other answers given are health and the structure of the product.

Table 5. Why people prefer a certain fat% in concentrated yoghurt

Reason why	Skimmed	Full-fat
More taste	7	63
Healthier	23	10
Low in calories	44	-
Structure	-	14
combination of nutrients	11	12
Saturated feeling	-	7

3.2 Influence of demographics on the consumer preference for concentrated yoghurt

The third sub-question “How do the demographics influence the consumer preference for the fat percentage in concentrated yoghurts?” aims to provide more insight into the demographics of the respondents, and to determine whether or not there are significant differences in demographic preferences.

3.2.1 Gender

In total 316 people filled in their gender. There were 202 female and 114 male respondents. In the following table, it can be seen how the preference for a type of concentrated yoghurts is divided by gender.

The male respondents chose the skimmed or full-fat concentrated yoghurt more often than semi-skimmed. Female respondents mainly chose a semi-skimmed or full-fat concentrated yoghurt whereas the skimmed concentrated yoghurt was their least favorite.

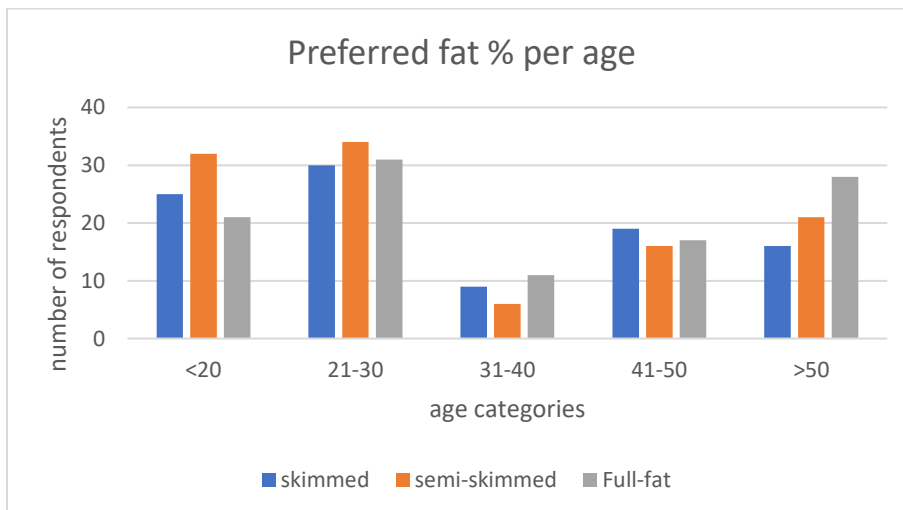
Table 6. division of the preferences of gender

Type of concentrated yoghurt	skimmed	Semi-skimmed	Full-fat
Male	43	31	40
Female	56	78	68

A Chi-square test was used to evaluate whether there are significant differences between the fat content preferred between males and females. The test value is 5.123 and the p-value (asymptotic significance) is .077 which means that there is no significant difference.

3.2.2 Age

In total 316 respondents filled in their ages. The average age of the respondents was 33.98. To analyze the influence of age on the preferences of the type of concentrated yoghurts, the ages are categorized as follows; 10-20, 21-30, 31-40, 41-50, and 50+. In the graph, the preferences of the ages are made visual. The difference which can be seen in the graph is that in the oldest category (50+) full-fat concentrated yoghurts are the most popular. In the youngest category (10-20) full-fat concentrated yoghurts are least preferred. In addition to this, the average age for skimmed concentrated yoghurt is 32.92 whereas the average age for full-fat concentrated yoghurts is 35.68.



*Figure 1. preferred concentrated yoghurt * age categories*

A Chi-square test was used to evaluate whether there are significant differences between the fat content preferred between the different age categories. The test value is 7.093 and the p-value (asymptotic significance) is .527 which means that there is no significant difference.

3.2.3 Achieved education

In total 316 people filled in their highest achieved education. The categories which had the most responses were people who finished their high school and/or bachelor's degree. In the following table, we observe how the preference for concentrated yoghurt is divided by the highest achieved education. What can be seen in the table is that people who have a higher education are more likely to choose a skimmed or full-fat concentrated yoghurt and people who are lower education tend to choose the semi-skimmed yoghurt. Skimmed concentrated yoghurt is most often preferred by people finishing a bachelor's degree. Full-fat concentrated yoghurt is also preferred by people having a bachelor's degree, but for the people who finished a master's degree, the biggest percentage choose full-fat concentrated yoghurt.

This altered when male respondents were analyzed. The largest number of male respondents who finished high school as the highest level of finished education preferred full-fat concentrated yoghurts.

Table 7. division of the preferences for the type of fat % over the achieved education

Education	Skimmed	Semi-skimmed	Full-fat	Total
No education	1	5	0	6
Primary school	1	2	2	5
Highschool	27	39	30	96
MBO	23	23	24	70
Bachelors	37	26	36	99
Masters/PhD	10	14	16	40

According to the Pearson Chi-Square test, the test value is 12.767 and the asymptotic significance (p-value) is .237 which means that there is no significant difference in the preference of the fat percentage in concentrated yoghurt between people with different educational levels.

3.2.4 How often do people eat concentrated yoghurt products?

In the survey the question how many times a week do you consume concentrated yoghurt, is answered 316 times. Most of the respondents do eat concentrated yoghurts 2-3 times a week or 4-6 times a week. The results are very different for all.

- The categories for the people who eat concentrated yoghurts once a week are almost the same.
- The people who eat concentrated yoghurt 2-3 times a week mostly prefer semi-skimmed or full-fat concentrated yoghurts.
- The people who eat concentrated yoghurts 4-6 times a week prefer skimmed or semi-skimmed concentrated yoghurts.
- The people who eat concentrated yoghurts everyday prefer skimmed or full-fat concentrated yoghurts.

According to the Pearson Chi-Square test, the asymptotic significance (p-value) is .056 which means that there is no significant difference in the preference of the fat percentage in concentrated yoghurt and how often the product is eaten.

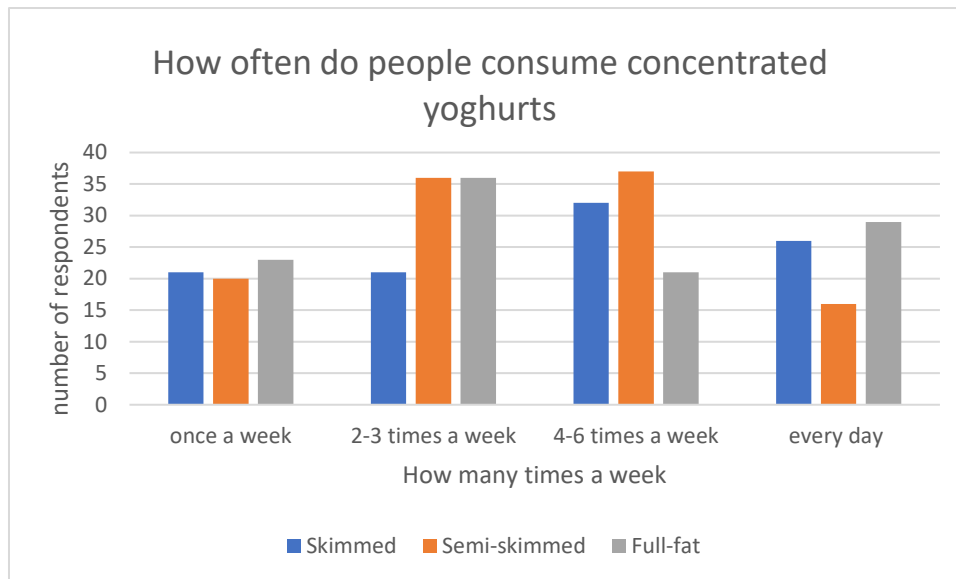


Figure 2. how often do people consume concentrated yoghurts

3.2.5 Moment of the day

16 respondents indicated the specific of the day in which they consume the concentrated yoghurt product. Most of the concentrated yoghurt is consumed during breakfast (57%) and the least likely time of consumption is during lunch (6%) or as a snack (13%).

According to the Pearson Chi-Square test, the asymptotic significance (p-value) is .001 which means that there is a significant difference in the preference of the fat percentage in concentrated yoghurt and the time of the day in which the product is consumed.

This difference is noticed mainly at breakfast where consumers who consume skimmed concentrated yoghurt eat concentrated yoghurts as breakfast or lunch. People who prefer full-fat concentrated yoghurts eat concentrated yoghurts the most during desert.

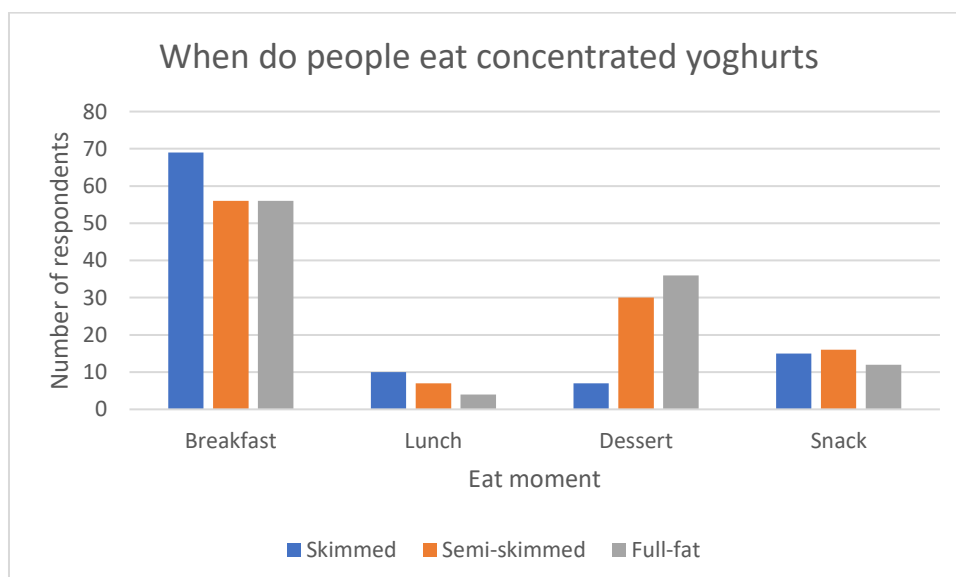


Figure 3. When do people eat concentrated yoghurts

3.3 Personas represent a typical user of skimmed and full-fat concentrated yoghurt

This sub-question provides a visual explanation of how the data can be used. The following data from the survey is used to create two personas which represent a typical user of skimmed concentrated yoghurts and a typical user of full-fat concentrated yoghurt.

- The gender is based on the differences found in gender for the choice and the type of concentrated yoghurt.
- The age used in the persona is based on the noticed difference in age in the choice of the type of concentrated yoghurt. Further analyses are done where only men are selected. In the following chart, the number of respondents is divided into 2 age groups to see a broader difference between the age of the respondents and the chosen category.

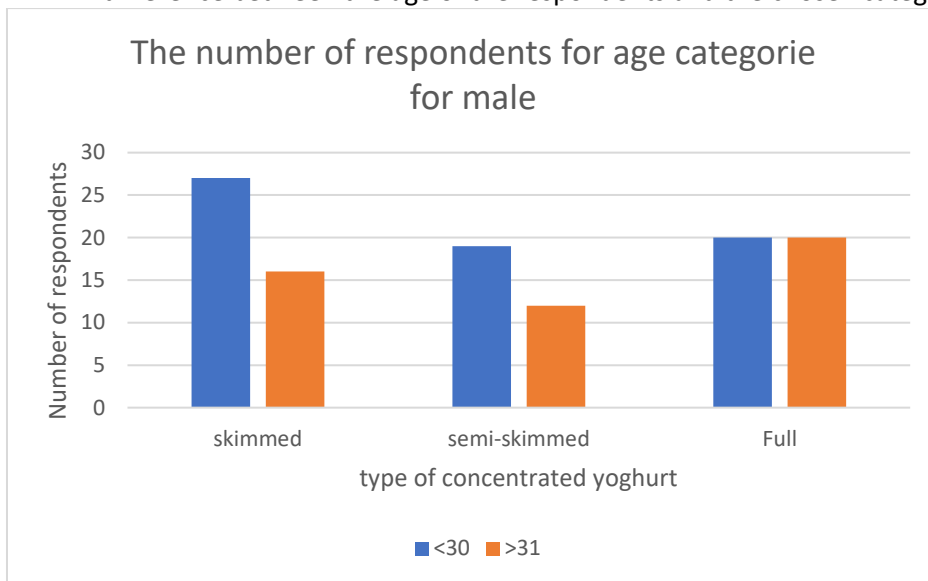


Figure 4. Number of respondents for age category for male

- The level of a finished degree is based on the difference found in the level of the highest finished degree. For this graph, only male respondents are used as the two personas are both males.

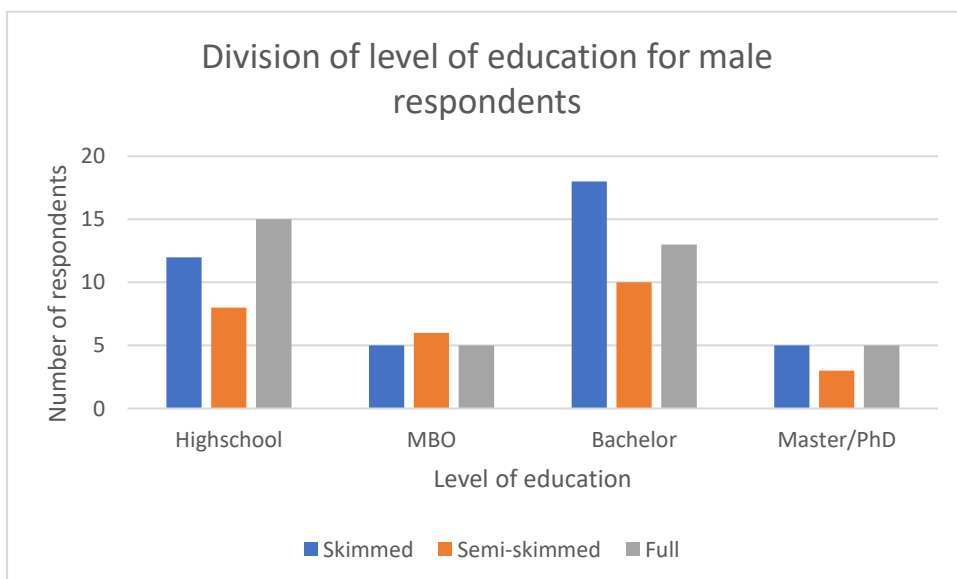


Figure 5. Division of level of education for male respondents

- The quotes are actual quotes from respondents listed in the survey.

3.3.2 Skimmed persona

Patrick Cruyff



- Male
- 23 years
- Highest education: Bachelor's degree
- Quotes for choosing skimmed products:
 - o "High in protein, low in fat, good fuel for the muscles"
 - o "Full-fat products are heavier on the stomach. Skyr is for me the perfect product to add some fruits or nuts without added sugars or other chemical additions."
- Consumes it daily for breakfast
- Preferred products: Quark and Skyr
- Habits:
 - o Goes to the gym
 - o Just started his own business
 - o Prefers healthy products and tracks the number of calories

3.2.3 Full-fat Persona

Albert-Jan van der Wiel



- Male
- 55 years
- Highest education: Master's degree
- Quotes
 - o "This yoghurt is natural and less processed in the factory. Besides this, I think full-fat products have more taste than skimmed yoghurt"
 - o "I prefer full-fat yoghurt is perfectly creamy and rich in taste"
- It is a perfect breakfast, and sometimes we eat the yoghurt as a dessert
- Preferred product: Greek-style yoghurt
- Habits:
 - o Works hard in his career in the research department of a food company and teaches on the side
 - o Enjoys spending time with his kids, and family
 - o Prefers taste over calories

4. Discussion of results

The objective of the research was to gain more knowledge on the main values and the demographics of the consumer and to make a persona with this information. Data were collected via a consumer survey and using these data, two user personas were created. The combination of the main values of the consumer together with the created persona will create a visual image of the actual consumer with all the belonging characteristics

4.1 Relevance of the results

4.1.1 Subquestion 1&2

The first two sub-questions were about the preferences for a concentrated yoghurt and a certain fat percentage and why they have these preferences. A significant correlation was found in the choice for the type of concentrated yoghurts and the fat content preferred. Consumers preferring skimmed concentrated yoghurts chose quark most often as their favorite product, while consumers who prefer full-fat concentrated yoghurt prefer more Greek yoghurt as their favorite product.

The reasons for respondents preferring skimmed concentrated yoghurts have to do mainly with health and the nutritional values, skimmed concentrated yoghurt is lower in calories and comparable in level of protein.

The reason for respondents choosing full-fat concentrated yoghurt is the taste. Other answers given are the structure, health, and the easiness of combining the product with of the product.

The results and information gathered in the first two sub-questions is meant for large dairy companies in the Netherlands, and can be helpful during the development of new products. This is an example of working with the end-goal in mind. It starts with who is the target group, what do they like, and finishes with what product do they want.

4.1.2 Subquestion 3

The results which are described in the third sub-question provide more knowledge about the demographic characteristics of the respondents, and if there is a significant difference in demographic preferences between the categories.

The time of day when people are eating concentrated yoghurt was evaluated and a significant difference was found for this moment and content preferred: most consumers preferring skimmed concentrated yoghurt consume concentrated yoghurt for breakfast and during desert full-fat concentrated yoghurts are most preferred. People who prefer skimmed concentrated yoghurts eat concentrated yoghurt the most during breakfast and lunch, while people who prefer full-fat concentrated yoghurts eat concentrated yoghurts the most during desert.

For the variables gender, age, and level of highest achieved education no significant differences were found, although some differences are visible. The male respondents are choosing skimmed or full-fat concentrated yoghurt more often than semi-skimmed. Female respondents are most likely to choose a semi-skimmed or full-fat concentrated yoghurt whereas the skimmed concentrated yoghurt is the least favorite. For age, the oldest category (50+) mostly prefers full-fat concentrated yoghurts. In the youngest category (10-20) full-fat concentrated yoghurts are least preferred. For the level of highest achieved education can be seen that people who are higher educated are more likely to choose a skimmed or full-fat concentrated yoghurt and people who are lower educated tend to choose the semi-skimmed yoghurt more often.

The results and information gathered in the third sub-questions is meant for large dairy companies in the Netherlands, and can be helpful when the target group is to be set. With the significant correlation in the moment of eating the products, companies can use this for the type of recipes they provide on their website. The demographics, gender and age can be used during paid promotions via social media channels, where companies can set filters for who gets to see the commercial. This will increase the efficiency of the commercial and therefore can reduce the costs.

4.1.3 Sub-question 4

The fourth sub-question is about how a typical user looks like for skimmed concentrated yoghurt and full-fat concentrated yoghurt. These persons are based on the data gathered from the survey. The similarities between these persons are that both are male and high educated. This is the case as the male respondents preferred the skimmed and full-fat concentrated yoghurt the most and female respondents preferred semi-skimmed the most. The differences between these persons are the age, favorite concentrated yoghurt, important values, and how often and when the product is consumed.

The person who prefers skimmed concentrated yoghurt is 26 years old and has quark as their favorite product which is eaten daily as a breakfast. The person values the healthiness of the product over taste.

The person who prefers full-fat concentrated yoghurt is 55 years old and has Greek-style yoghurt as their favorite product which is eaten 2-3 times a week, sometimes in the morning but most of the time as a dessert. The person values the taste of the product over its healthiness.

The personas are relevant to large dairy companies in the Netherlands as it creates a visual image of the actual consumer with all the belonging characteristics, that contributes to a deep understanding of the target audience of fatty dairy products and the target audience for skimmed dairy products. This understanding helps designers from large dairy companies during the testing and creation of new products. It helps define who a product is being created for and can show the necessities for the people from a user-centered point of view.

4.2 The methodology

The chosen method to gather the necessary data for this research is a consumer survey. The aim was to have at least 200 respondents with enough respondents for the three categories, skimmed, semi-skimmed, and full-fat concentrated yoghurt. This would statistically lead to a reliable research. After a week, 340 people filled in the survey of which 316 respondents were considered as useful, with enough respondents per category. The use of a consumer survey was effective and respondents from different age groups and regions were able to fill in the survey.

Doing the research went well, although some changes in the questionnaire could have been changed.

- Not asking if the respondent is doing the groceries itself, or what it think is important when buying a concentrated yoghurt. The goal was to make a user persona, this means that the persona is focused on the people who use the product. For this reason, it does not matter who buys the product. This question would have been relevant when a buyer persona was used for the research.
- Changing the question "in which city or village do you live?" to "Do you live in a city or village". This would have added a new dimension about the difference of preferences for respondents from a city and respondents from a village.

By forehand was known that the person spreading the survey would bias the research, as its network is never representative for the whole Netherlands. This is mainly the case in age and gender. The average age was 33.98 and 202 female and 114 male respondents filled in the survey. This bias is tackled by using WhatsApp to send it to older people and using Facebook and LinkedIn which both

have an older using group than other social media channels. Although the age is below average of the Netherlands and the gender ratio is not the same as it is for the Netherlands, enough respondents are gathered for every category to have a reliable and representative research.

5. Conclusions and Recommendations

5.1 Conclusion

This research provides more knowledge on the motives and demographics of people buying skimmed concentrated yoghurt and people buying full-fat concentrated yoghurt. This research conducted a consumer survey in which data were analyzed to create two user personas. The combination of the main values of the consumer together with the created persona will contribute to a visual image of a typical consumer with all the belonging characteristics. That is why this research contributes to a deep understanding of the target audience of fatty concentrated yoghurt and the target audience for skimmed concentrated yoghurt.

In this research, more knowledge can be gained on specific characteristics and values respondents have. The main question this research tries to answer is “What are the differences and similarities between the user persona of a consumer of fatty and skimmed concentrated yoghurts”. Based on the analyzed results of the survey, the major differences are in the choice of product and the motives behind the choice of skimmed, semi-skimmed, and full-fat concentrated yoghurts. Next to this, there are also significant correlations found in the time of the day the product is consumed. Male respondents are choosing the skimmed or full-fat concentrated yoghurt more often than semi-skimmed. Female respondents are more likely to choose a semi-skimmed concentrated yoghurt. For the highest level of finished education can be seen that people who are higher educated are more likely to choose a skimmed or full-fat concentrated yoghurt and that people who are lower educated tend to choose the semi-skimmed yoghurt more often. There is no significant difference found for age, although in the oldest category (50+) full-fat concentrated yoghurts are most popular, while the youngest category (10-20) full-fat concentrated yoghurts are least preferred.

The reasons for respondents preferring skimmed concentrated yoghurts have to do mainly with the nutritional values, skimmed concentrated yoghurt is lower in calories, and comparable in level of protein. This can also be seen in their preference of product which is mainly quark.

The reasons for respondents choosing full-fat concentrated yoghurt are often the taste and structure of the product. Some people also prefer the full-fat concentrated yoghurt as they get a more saturated feeling from it. This can also be seen in their preference of product which is mainly Greek yoghurt, which is often full-fat (10%).

The main similarities were found in why the respondents preferred their favorite type of concentrated yoghurt. Both groups considered the taste and structure of the product as important. This is interesting as taste and structure are exactly where the difference is found in why consumers prefer the percentage of fat in concentrated yoghurt.

With these results, the goal of gaining more knowledge about the motives and demographics of consumers of concentrated yoghurts, why are consumers choosing one over the other category, and what are the differences between these categories, are obtained.

5.2 Recommendation

The results and information which can be gained by reading this research is meant for large dairy companies who do business in the Netherlands. On the short term, this research contributes to a better understanding of the target audience of full-fat concentrated yoghurts and the target audience for skimmed concentrated yoghurts. It can help designers from large dairy companies during the testing and creation of new products. It helps define who a product is being created for and can show the necessities for the people from a user-centred point of view. Next to this the significant correlation in the moment of eating concentrated yoghurts can help companies by providing recipes on their website and social media channels which fit the moment of eating.

On the long-term the personas are relevant to large dairy companies in the Netherlands as it creates a visual image of the actual consumer with all the belonging characteristics, that contributes to a deep understanding of the target audience of fatty dairy products and the target audience for skimmed dairy products. This visual image, can be used during paid promotions via social media channels, where companies can set filters for who gets to see the commercial. This will increase the efficiency of the commercials and therefor can reduce the costs for the companies.

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Appendices 1, Survey

Explanation of who I am and what I do,

I am Krijn Verhoek, studying international food business at the Aeres University of Applied Science. I am currently doing my graduation project. My graduation project is about the consumer perceptions and values for buying a certain amount of fat in their concentrated yoghurt.

What is the purpose of this survey

With the answers to this survey, I will create a clear picture of a consumer of skimmed concentrated yoghurts and full-fat concentrated yoghurts.

1. Do you eat quark, yoghurt, Greek yoghurt, skyr or curd?
 - A. Yes
 - B. No

Questions on the topic of Demographics

2. What is your gender?
 - A. Male
 - B. Female
 - C. Other
3. What is your age?
4. In which city are you living?
5. Highest achieved education.
 - A. No education/ uncompleted basic education
 - B. Primary school
 - C. Highschool (VMBO, HAVO, VWO)
 - D. MBO
 - E. Bachelors
 - F. Masters/ PhD

Background information on dairy consumption

6. How often do you eat a type of concentrated yoghurt?
 - A. Once a week
 - B. 2-3 times a week
 - C. 4-6 times a week
 - D. Daily
7. At what time of the day do you eat concentrated yoghurt most often?
 - A. Breakfast
 - B. Lunch
 - C. Dinner
 - D. Snack
8. What do you consider important when buying a concentrated yoghurt? (more answers possible)

9. Do you buy your own groceries?
- A. Yes
 - B. No
 - C. Sometimes
10. What is your favorite product?
- A. Quark
 - B. Yoghurt
 - C. Greek yoghurt
 - D. Skyr
 - E. Curd
 - F. Other...
11. What do you like about this product? (more answers possible)
12. What type of concentrated yoghurt do you prefer?
- A. Skimmed
 - B. Semi-skimmed
 - C. Full-fat
13. Why do you prefer this type? (more answers possible)

Appendices 2, Spss results

Table x preferred products* preferred fat%

preferredproduct * preferredpercentage Crosstabulation						
			preferredpercentage			
			Halfvol (Semi-skimmed)	Mager (Skimmed)	Vol (Full)	Total
preferredproduct	Griekse Yoghurt (Greek style Yogurt)	Count	37	20	58	115
		Expected Count	39.7	36.0	39.3	115.0
		Standardized Residual	-.4	-2.7	3.0	
	Hangop (Curd)	Count	2	0	0	2
		Expected Count	.7	.6	.7	2.0
		Standardized Residual	1.6	-.8	-.8	
	Kwark (Quark)	Count	25	42	17	84
		Expected Count	29.0	26.3	28.7	84.0
		Standardized Residual	-.7	3.1	-2.2	
	Skyr	Count	9	16	7	32
		Expected Count	11.0	10.0	10.9	32.0
		Standardized Residual	-.6	1.9	-1.2	
	Yoghurt	Count	36	21	26	83
		Expected Count	28.6	26.0	28.4	83.0
		Standardized Residual	1.4	-1.0	-.4	
Total	Count	109	99	108	316	
	Expected Count	109.0	99.0	108.0	316.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43.081 ^a	8	<.001
Likelihood Ratio	42.801	8	<.001
N of Valid Cases	316		

a. 3 cells (20.0%) have expected count less than 5. The minimum expected count is .63.

Table x gender* preferred fat %

gender * preferredpercentage Crosstabulation						
			preferredpercentage			
			Halfvol (Semi-skimmed)	Mager (Skimmed)	Vol (Full)	Total
gender	Man (Male)	Count	31	43	40	114
		Expected Count	39.3	35.7	39.0	114.0
		Standardized Residual	-1.3	1.2	.2	
	Vrouw (Female)	Count	78	56	68	202
		Expected Count	69.7	63.3	69.0	202.0
		Standardized Residual	1.0	-.9	-.1	
Total	Count	109	99	108	316	
	Expected Count	109.0	99.0	108.0	316.0	

Table x chi2 test on gender* preferred fat %

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.123 ^a	2	.077
Likelihood Ratio	5.168	2	.075
N of Valid Cases	316		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 35.72.

Age in categories

Age in categories * preferredpercentage Crosstabulation

			preferredpercentage			
			Halfvol (Semi-skimmed)	Mager (Skimmed)	Vol (Full)	Total
Age in categories	1.00	Count	32	25	21	78
		Expected Count	26.9	24.4	26.7	78.0
		Standardized Residual	1.0	.1	-1.1	
	2.00	Count	34	30	31	95
		Expected Count	32.8	29.8	32.5	95.0
		Standardized Residual	.2	.0	-.3	
	3.00	Count	6	9	11	26
		Expected Count	9.0	8.1	8.9	26.0
		Standardized Residual	-1.0	.3	.7	
	4.00	Count	16	19	17	52
		Expected Count	17.9	16.3	17.8	52.0
		Standardized Residual	-.5	.7	-.2	
	5.00	Count	21	16	28	65
		Expected Count	22.4	20.4	22.2	65.0
		Standardized Residual	-.3	-1.0	1.2	
Total	Count	109	99	108	316	
	Expected Count	109.0	99.0	108.0	316.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.093 ^a	8	.527
Likelihood Ratio	7.172	8	.518
N of Valid Cases	316		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.15.

The effect of achieved education on the preference of type of concentrated yoghurt

achievededucation * preferredpercentage Crosstabulation

			preferredpercentage			
			Halfvol (Semi-skimmed)	Mager (Skimmed)	Vol (Full)	Total
achievededucation	Bachelors	Count	26	37	36	99
		Expected Count	34.1	31.0	33.8	99.0
		Standardized Residual	-1.4	1.1	.4	
	Basisschool (Primary school)	Count	2	1	2	5
		Expected Count	1.7	1.6	1.7	5.0
		Standardized Residual	.2	-.5	.2	
	Geen opleiding afgerond (No education/uncompleted basic education)	Count	5	1	0	6
		Expected Count	2.1	1.9	2.1	6.0
		Standardized Residual	2.0	-.6	-1.4	
	Masters/ PhD	Count	14	10	16	40
		Expected Count	13.8	12.5	13.7	40.0
		Standardized Residual	.1	-.7	.6	
	MBO	Count	23	23	24	70
		Expected Count	24.1	21.9	23.9	70.0
		Standardized Residual	-.2	.2	.0	
	Middelbare school (Highschool)	Count	39	27	30	96
		Expected Count	33.1	30.1	32.8	96.0
		Standardized Residual	1.0	-.6	-.5	
Total	Count	109	99	108	316	
	Expected Count	109.0	99.0	108.0	316.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.767 ^a	10	.237
Likelihood Ratio	13.824	10	.181
N of Valid Cases	316		

a. 6 cells (33.3%) have expected count less than 5. The minimum expected count is 1.57.

How many times a week

timesaweek * preferredpercentage Crosstabulation

			preferredpercentage			
			Halfvol (Semi-skimmed)	Mager (Skimmed)	Vol (Full)	Total
timesaweek	1 keer in de week (Once a week)	Count	20	21	23	64
		Expected Count	22.1	20.1	21.9	64.0
		Standardized Residual	-.4	.2	.2	
	2-3 keer in de week (2-3 times a week)	Count	36	21	36	93
		Expected Count	32.1	29.1	31.8	93.0
		Standardized Residual	.7	-1.5	.7	
	4-6 keer in de week (4-6 times a week)	Count	37	32	21	90
		Expected Count	31.0	28.2	30.8	90.0
		Standardized Residual	1.1	.7	-1.8	
	Dagelijks (Daily)	Count	16	25	28	69
		Expected Count	23.8	21.6	23.6	69.0
		Standardized Residual	-1.6	.7	.9	
Total	Count	109	99	108	316	
	Expected Count	109.0	99.0	108.0	316.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.274 ^a	6	.056
Likelihood Ratio	13.052	6	.042
N of Valid Cases	316		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.05.

When is the product most consumed

when * preferredpercentage Crosstabulation

			preferredpercentage			
			Halfvol (Semi-skimmed)	Mager (Skimmed)	Vol (Full)	Total
when	Lunch	Count	7	10	4	21
		Expected Count	7.2	6.6	7.2	21.0
		Standardized Residual	-.1	1.3	-1.2	
	Ontbijt (Breakfast)	Count	56	68	56	180
		Expected Count	62.1	56.4	61.5	180.0
		Standardized Residual	-.8	1.5	-.7	
	Toetje (Dessert)	Count	30	7	36	73
		Expected Count	25.2	22.9	24.9	73.0
		Standardized Residual	1.0	-3.3	2.2	
	Tussendoor (Snack)	Count	16	14	12	42
		Expected Count	14.5	13.2	14.4	42.0
		Standardized Residual	.4	.2	-.6	
Total	Count	109	99	108	316	
	Expected Count	109.0	99.0	108.0	316.0	

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.103 ^a	6	<.001
Likelihood Ratio	27.534	6	<.001
N of Valid Cases	316		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.58.

