Norwegian University of Life Sciences

Master's Thesis 2022 30 ECTS
Faculty of Landscape and Society

Analysis of Attitudes and Norms: Students' Plant-Based Eating Behaviours in a Finnish Lower Secondary School

Lotta-Julia Lehti
International Environmental Studies

The Department of International Environment and Development Studies, Noragric, is the international gateway for the Norwegian University of Life Sciences (NMBU). Established in 1986, Noragric's contribution to international development lies in the interface between research, education (Bachelor, Master, and PhD programmes) and assignments.

The Noragric Master's theses are the final theses submitted by students in order to fulfil the requirements under the Noragric Master's programmes "International Environmental Studies", "International Development Studies" and "International Relations".

© Lotta-Julia Lehti, May 2022
lottajulia.lehti@gmail.com
Noragric Department of International Environment and Development Studies
The Faculty of Landscape and Society
P.O. Box 5003
N-1432 Ås Norway
Tel.: +47 67 23 00 00
Internet: https://www.nmbu.no/fakultet/landsam/institutt/noragric

DECLARATION

I, Lotta-Julia Lehti, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been included at the end of the thesis. This work has not been previously submitted to any other university for the award of any type of academic degree.

Lotta-Julia Lehti
14 May 2022

ACKNOWLEDGEMENTS

Although this thesis carries my name on it, it has involved several individuals without whom this study would not exist. Firstly, I would like to thank my supervisor professor Ola Westengen for your great guidance, wise insights, and inspiring teaching at NMBU. Besides, my study advisor Anette Virtanen who has been patiently helping me throughout my years at NMBU deserves a special acknowledgement. Thank you, Anette, for all your help and support, without you I would have not gone this far with my studies at NMBU.

Secondly, I would like to thank Tiirismaa school's principal Kari Turpeinen for enabling me to carry out this study at my old lower secondary school in Lahti. In addition, I owe a debt of gratitude to Teija Valaja, a teacher at Tiirismaa school and the mother of my good friend, for all your effort and willingness to help me organise the interviews and recruit participants. A special thanks also go to all students and canteen staff at Tiirismaa school who participated in this study. It has been an honour to interview every one of you.

Finally, I would like to thank my family, especially my mom and dad, for all your love and support that has enabled me to stay focused on my studies. Your patience and ability to listen have carried me through the difficult times during the COVID-19 pandemic. Besides, my mother has been my biggest inspiration for writing this thesis. Thank you for all the fruitful conversations, ideas, and trust. It truly means a lot to me.

ABSTRACT

Despite meat eating's negative environmental and health outcomes, meat-heavy diets dominate the current food culture in Finland. However, in the past decade, plant-based eating has become a trending topic due to the increasing environmental and health concerns. Consequently, plant-based diets have been promoted by several means in which Finnish schools have an important role in educating and accustoming students to plant-based eating by offering plant-based school lunch options for all students. Despite this progress, students' willingness to eat plant-based school lunch options has remained low. Thus, this thesis aims to study how attitudes and subjective norms toward plant-based eating could improve students' willingness to eat plant-based foods. To study this, the thesis applies the Theory of Reasoned Action, which emphasises the role of attitudes and subjective norms in one's behaviour. The study follows a qualitative research method based on semi-structured focus group interviews which involve twelve students from Tiirismaa lower-secondary school in Lahti, Finland. Besides, document analysis and personal communications with relevant sources are used. The thesis analyses the results according to the theory and characteristics of the data in a thematic analysis. Firstly, the students' attitudes toward plant-based eating are analysed in relation to four different outcomes: environmental outcomes, animal welfare, health-related outcomes, and taste of plant-based foods. The results show that animal welfare motivated the students the most to eat plant-based foods, whereas environmental outcomes to a lesser extent increased the students' willingness to eat plant-based foods. In contrast, health-related outcomes and taste divided the students' opinions radically between the students who were familiar with plant-based diets and those who were less familiar with plant-based diets. Secondly, the students' subjective norms toward plant-based eating are analysed according to how norms among the students' friends and family members, as well as social media, have influenced them. Family members were found to affect the students' eating behaviours the most, while friends and social media had no significant effect on the students' dietary habits. Thirdly, linkages between the students' attitudes and subjective norms are analysed. Norms among the students' family members were found to have a strong influence on the students' attitudes toward environmental and health outcomes as well as opinions on the taste of plant-based foods. Thus, this thesis concludes that the students' eating behaviours are mostly influenced by norms among their family members which, in turn, shape the students' attitudes toward plant-based eating. At last, the thesis recommends that schools should take more responsibility in educating students on the benefits of plant-based eating as this could provide a more even starting point for all students to decide on the adaptation of plant-based eating habits.

TABLE OF CONTENTS

1. Introduction

Shifting away from meat-heavy diets toward more plant-based eating habits is broadly considered beneficial to both planetary and human health. On a global level, current food systems cause approximately 20- 30 per cent of global human-made greenhouse gas emissions of which livestock alone creates around 14.5 per cent (Garnett et al., 2016). Despite the increasing awareness of meat production's environmental burden, traditional meat-based diets dominate the current food culture in Finland (Päivärinta et al., 2020). The national meat consumption rate has drastically increased from the 1950s up to the recent years (Clausnitzer, 2021). In 2020, Finns consumed approximately 79 kilograms of meat per capita, which is two kilograms less than the highest record in 2018 (Clausnitzer, 2021). Consequently, red meat and dairy products covered over half of the food-related carbon footprint of an average Finn in 2018 (Kalaniemi et al. 2020; Sitra, 2018). As 80 per cent of food production's environmental load comes from primary production, food choices are central to the state of the environment (Kortetmäki et al., 2021). Meat and especially beef production have a significantly higher carbon footprint compared to plant-based foods due to the energy loss in a longer food chain and additional methane emissions from ruminants (Petrovic et al., 2015). Moreover, livestock production requires significantly larger land areas compared to plant-based food production, which accelerates several environmental problems such as deforestation, nutrient leaching, and biodiversity loss (Pohjolainen et al., 2016). Therefore, rapid changes in food production and dietary choices are urgently needed to limit the current environmental burden and its serious consequences (IPCC, 2021).

Besides the environmental stress from food production, meat-based diets have been linked to several health issues such as chronic diseases, type 2 diabetes, and colorectal cancer (Päivärinta et al., 2020; Willett et al., 2019). Respectively, the replacement of animal protein with plant protein has been associated with improved cholesterol levels, dietary fatty acid composition, and lower total mortality (Cacau et al., 2021; Päivärinta et al., 2020). The EAT-Lancet Commission emphasises that diets including high intakes of red meat are the most typical cause of diseases, and they pose a higher risk of mortality than alcohol, drug, and tobacco use combined (Willett et al., 2019). Thus, the EAT-Lancet Commission sets healthy diets including a diversity of plant-based foods as a major goal for global food systems (Willett et al., 2019). Despite this, plant-based foods cover less than a third of the total protein intake of an average Finn, whereas weekly consumption of red and processed meat exceeds the EAT-Lancet Commission's recommended range of 0-200 g over three times in Finnish men and twice in women (National Institute for Health and Welfare, 2018; Päivärinta et al., 2020, Willett et al., 2019). The alarming situation calls for a transition

toward healthier and more sustainable dietary habits, in which the replacement of meat-based protein with plant-based protein sources has an essential role (Päivärinta et al., 2020; Willett et al., 2019).

The Finnish National Agency for Education, the Ministry of Environment and several individuals from the environment, health, and education sectors have shown initiative to develop the Finnish school meals toward healthier and more sustainable dietary recommendations (Ministry of the Environment, 2019; Finnish National Agency for Education, 2022). Finnish school lunches are an outcome of the unique welfare structure as they offer warm, daily meals for students in all basic education levels (Lombardini & Lankoski, 2013; Finnish National Agency for Education, 2022). School lunches have become compulsory in Finnish comprehensive schools in 1943, and currently, municipalities are obliged to provide free school meals that cover about one-third of daily nutritional requirements for all students from elementary to high- and vocational schools (Finlex, 2022; Lombardini & Lankoski, 2013). Thus, Finland has been a pioneer in the World Food Programme's mission to ensure that all school-aged children have access to school meals (World Food Programme, 2022).

Besides the importance that school meals have for national welfare, school lunches are currently recognised as an important part of sustainability education by the Finnish National Agency for Education (Finnish National Agency for Education, 2022). As most Finns eat at school during the time they grow up, school meals educate students to adopt a certain food culture, which has long-term effects on the food-related national carbon footprint (Finnish National Agency for Education, 2022). The past decades have proven that school lunches can be adapted to recent health recommendations and demands (ELO-säätiö, 2019). For example, dietary diversity has rapidly increased since the 1960s and food waste campaigns have been running since the 2010s in Finnish schools (ELO-säätiö, 2019). During the past decade, plant-based options that include dairy and eggs have also become available for all students as sustainability has become an increasingly emphasised criterion for school meals (Kouluruoka.fi, 2022; Finnish National Agency for Education 2022). This shows exemplary progress toward healthier and more sustainable food culture that many countries could learn from (Kouluruoka.fi, 2022; Finnish National Agency for Education, 2022; World Food Programme, 2022). Despite the promising development, most students continue to choose traditional meat-based school lunch options (Kouluruoka.fi, 2022; Finnish National Agency for Education, 2022).

1.1. Structure of the Thesis

This thesis examines students' eating behaviours in six chapters, of which chapter one offers an introduction to the entire study. Chapter two covers a literature review, which introduces existing studies on Finnish school meals, and recently included plant-based options on them. Chapter two continues to introduce existing studies on Finnish adults' motives for dietary choices and for adopting vegetarian diets. Finally, chapter two introduces ongoing projects in Finland which have a similar focus to this thesis. Based on the identified knowledge gaps, chapter three covers the research questions and theoretical background of the study. Chapter four covers the materials and methods of the study, followed by chapter five on combined results and discussion that analyses the findings based on the theory and existing data. Finally, chapter six concludes the entire thesis and provides recommendations to Finnish schools based on the findings.

2. Literature Review

2.1. Finnish School Meals

To understand students' eating behaviours during school lunches, the Finnish Ministry of Social Affairs and Health has conducted a continuous reporting on lower secondary school students' eating behaviours in certain schools since 1988 (Urho & Hasunen, 2003). School meals and their health outcomes on lower secondary school students have also been studied in several healthcare degree theses. In these studies, the school lunch system has been generally considered important for students' health education as it provides healthy and nutritious foods and promotes diverse and regular eating habits (Urho & Hasunen, 2003; Hartikainen & Airaksinen, 2009; Lindstedt, 2019). However, the previous studies show that only a minority of students eat all parts that belong to a school meal including a main dish, salad, bread, and milk (Urho & Hasunen, 2003; Hartikainen & Airaksinen, 2009; Lindstedt, 2019). Considering this, Hampinen and Piiroinen (2018) have investigated reasons that lead students not to eat all parts of school meals in their thesis. The taste was stated as the main reason for leaving out certain foods, and the oldest students were skipping school lunches most often (Hampinen & Piiroinen, 2018). In addition, students' eating behaviours were affected by their gender, family background, and friends as concluded in several studies (Urho & Hasunen, 2003; Hartikainen & Airaksinen, 2009; Lindstedt, 2019).

2.1.1. Plant-Based Foods on Finnish School Meals

The effects of increasing plant-based foods on school meals have been studied in multiple schools as natural experiments. Kaljonen et al. (2018) carried out a yearlong study in three Finnish comprehensive schools in different municipalities in which the schools added an optional vegetarian dish as part of their lunch. Schools were able to arrange their canteens in a way that suited them best, and the municipalities were able to develop recipes and foods according to their preferences and existing practices (Kaljonen et al., 2018). Similarly in 2019, the Finnish National Agency for Education and the Ministry of the Environment ran a Kouluruoka 2030 -trial that investigated if a school lunch menu with halved carbon footprint is feasible in two municipalities (Kokeilun paikka, 2022; Ministry of the Environment, 2019). In both experiments, students were involved in developing menus and discussing their food preferences (Kaljonen et al., 2018; Kokeilun paikka, 2022). On the contrary, Lombardini and Lankoski (2013) ran a study of a weekly mandatory vegetarian day in 33 schools in the Helsinki School District including all school levels. The experiments concluded that a plant-based school lunch menu with halved carbon footprint is achievable, but replacement of traditional options with plant-based alternatives remains challenging (Kaljonen et al., 2018; Kokeilun paikka, 2022; Kortetmäki et al., 2021; Lombardini & Lankoski, 2013).

Students' unwillingness to eat plant-based options due to the lack of vegetarian recipes that were accepted by the students and feasible to prepare in all preparing institutions were stated as the main challenges in studies by Kaljonen et al. (2018), Lomabardini and Lankoski (2013) and the Finnish National Agency for Education and the Ministry of the Environment (Kokeilun paikka, 2022). Moreover, a study by Kaljonen et al., (2018) reveals that consumption of plant-based options was significantly lower in rural schools compared to schools in urban areas, and boys were less willing to choose plant-based options compared to girls. The increased food waste due to the plant-based options was considered another major problem in all studies (Kaljonen et al., 2018; Kokeilun paikka, 2022; Kortetmäki et al., 2021; Lombardini & Lankoski, 2013). In addition, forced restriction of food choices decreased the amount of food taken by the students on mandatory vegetarian days in the short- and medium-term (Lombardini & Lankoski, 2013). The study by De Costa et al. (2017) supports this finding arguing that a controlling approach to children's eating has shown to affect their eating behaviours negatively and in the opposite direction to that which was intended, whereas actively engaging them in meal planning has shown to positively affect children's eating behaviours.

2.2. Motives for Dietary Choices Among Finnish Adults

Motives for dietary choices have been studied among the adult population in Finland. In a study by Vainio et al. (2016) health and weight control were found to be the most common reasons for choosing plant-based options over meat-based options. Similarly, health-related outcomes and the origin of food were ranked the highest motives in a study by Lehikoinen and Salonen (2019) on food consumption behaviours among Finnish adults. Also, the social status and group that participants belonged to significantly affected their willingness to adopt sustainable diets (Lehikoinen & Salonen, 2019; Vainio et al., 2016). Middle-aged men with a lower education level and people that were not familiar with plant-based protein options were the most reluctant to adopt more sustainable eating habits (Lehikoinen & Salonen, 2019; Pohjolainen et al., 2015).

Vaarasto (2021) argues that mental images of the ideal food deriving from social and cultural norms partly explain differences in eating behaviours among social groups. For example, meat has been connected to affluence, power, and strength whereas plant-based foods were considered to have a lower monetary and nutritious value which made them less desired in the traditional Finnish culture (Vaarasto, 2021). Moreover, meat and animal-based diets have been strongly connected to masculinity, which partly explains the differences in eating behaviours of Finnish men and women (Parker, 2020; Vaarasto, 2021). The studies conclude that food consumption behaviour is linked to social identities and cultural images, and motivated by personal objectives such as health and weight loss to a larger extent than environmental concerns (Lehikoinen & Salonen, 2019; Pohjolainen et al., 2015; Vainio et al., 2016).

2.2.1. Motives for Adopting Vegetarian Diets Among Finnish Adults

Salonen and Helne (2012) have studied Finnish university students' ability to adopt vegetarian diets. According to their study, social groups and habits were the main barriers for university students to switch to vegetarianism (Salonen & Helne, 2012). Surprisingly, vegetarianism was considered feasible, but less important compared to other aspects of sustainable development (Salonen & Helne, 2012). Therefore, the authors suggest that supporting information about the benefits of plant-based eating is required to overcome the social and habitual barriers (Salonen & Helne, 2012).

Theses studies by Väätäjä (2019) and Keskinen (2017) support the previous findings from vegetarians' viewpoints. The interviewed Finns with vegetarian diets mentioned various reasons for adopting more sustainable eating habits including ecological and ethical concerns,

health factors, and social aspects (Keskinen, 2017; Väätäjä, 2019). Thus, social acceptance, knowledge and beliefs can create positive attitudes toward plant-based eating, which were found to have an even stronger influence than the actual benefits when becoming interested in vegetarianism at first (Keskinen, 2017). Typically, the respondents were driven by a certain motive toward vegetarianism, but the motives multiplied along with the respondents' empirical knowledge of vegetarianism (Väätäjä, 2019). Even though plant-based food consumption was stated to be an individualistic choice among the respondents, Väätäjä (2019) notes that there seems to be a strong group identity among people who identify themselves as vegetarians (Väätäjä, 2019). Self-expression and identification with social groups were especially found to affect young people's dietary choices (Keskinen, 2017). Keskinen (2017) points out that social aspects were both encouraging respondents toward more sustainable diets, but also creating strong barriers and situations in which the respondents felt uncomfortable due to their dietary preferences.

2.2. Ongoing Studies

Besides the past studies, several ongoing projects are actively searching for solutions to a dietary transition toward a more plant-based food culture. Multiple Finnish institutions including universities, schools, and day-care centres aim to replace meat foods with plant-based options under different projects which are tailored for each specific context (Finnish Institute for Health and Welfare, 2022; Tasty School, n.d.; University of Helsinki, 2021). For example, Finnish Institute for Health and Welfare runs an ongoing FoodStep project, which aims to adjust the served foods in 23 day-care centres according to the recent health- and sustainability recommendations (Finnish Institute for Health and Welfare, 2022). Moreover, the project aims to advance food education, reduce food waste, and assess the financial and environmental impacts of the shift toward a more plant-based diet (Finnish Institute for Health and Welfare, 2022). Altogether, the project involves four hundred children and surveys families, decision-makers, and workers in food service and early childhood education and care between the years 2021 and 2024 (Finnish Institute for Health and Welfare, 2022). Despite the broad group of stakeholders, children's willingness to shift toward plant-based diets is less focused, which in turn, would be a prerequisite for older students to adopt plant-based eating habits as shown in the previous studies.

3. Research Questions and Theoretical Background

3.1. Research Questions

The previous studies on plant-based school meals have mainly focused to measure to what extent students eat plant-based options. However, motives other than the taste of plant-based foods were less emphasised in the previous experiments on students' eating behaviours during school meals. On the contrary, the existing studies on Finnish adults' food consumption behaviours show that the taste of food was a less significant reason for them to adopt more sustainable diets. Instead, attitudes and social acceptance were shown to affect the eating behaviours of Finnish adults toward and away from plant-based eating. Based on these findings, it is likely that students' eating habits are similarly driven by attitudes and subjective norms including social expectations, beliefs, and knowledge of ecological, ethical, and health-related outcomes of dietary choices. Thus, to improve students' willingness to adopt a more sustainable school lunch diet it may be useful to examine the following question among students who at least occasionally choose plant-based options over regular school lunch options.

How do attitudes and subjective norms affect students' behaviours to choose plant-based school lunch options in Finland?

To answer this question, the following sub-questions are asked:

1. *How do beliefs about outcomes and their evaluations affect students' attitudes toward plant-based eating?*
2. *How do normative beliefs and motivations to comply with them affect students' subjective norms toward plant-based eating?*
3. *What are the linkages, if any, between the attitudes and subjective norms toward plant-based eating among the students?*

3.2. The Theory of Reasoned Action

To study students' attitudes and subjective norms toward plant-based eating, I apply the Theory of Reasoned Action that was first introduced by Ajzen and Fishbein in 1975 (Ajzen & Fishbein, 1977). The Theory of Reasoned Action provides a logical framework to measure linkages between attitudes toward a behaviour, subjective norms, behavioural intentions, and actual behaviour as shown in Figure 1 (Ajzen & Fishbein, 1977). According to the theory, attitudes toward behaviour and subjective norms create behavioural intentions that most likely predict whether one will perform a certain behaviour or not (Yzer, 2017).

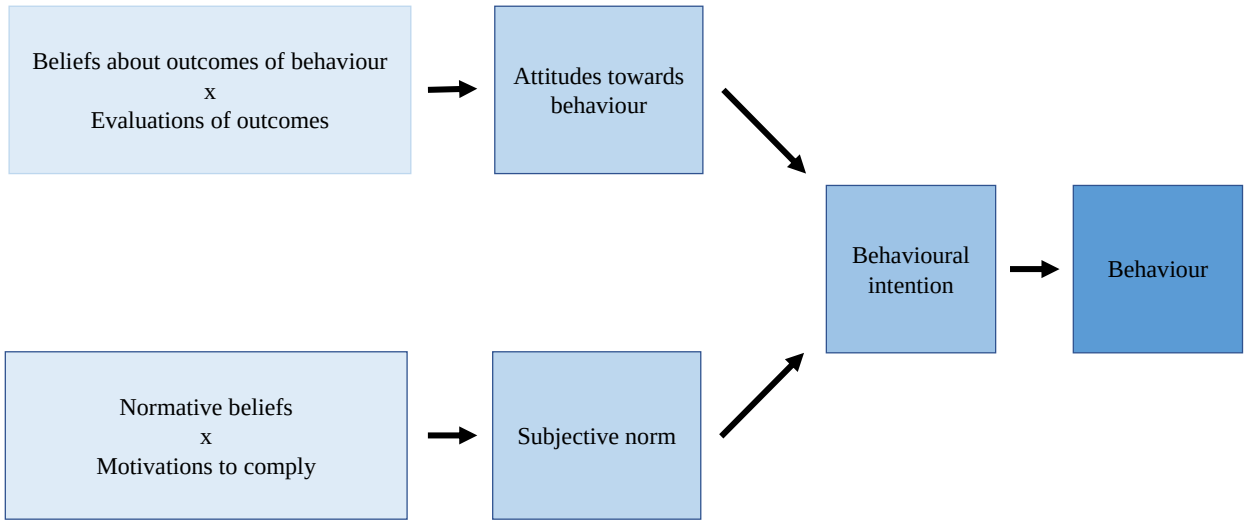
Attitudes consist of one's overall evaluation of certain behaviour and its likely consequences (Yzer, 2017). Specifically, attitudes are based on behavioural beliefs of one's subjective probability that performing behaviour will cause a certain experience or an outcome, for example following a plant-based diet (the behaviour) may improve one's health (the outcome) or be challenging in social situations (the experience) (Ajzen, 2020). Behavioural beliefs usually form positive and negative outcomes which affect how favourable one evaluates a certain behaviour e.g. in terms of good and bad (Yzer, 2017). Evaluation of outcomes can be shaped by past experiences, perceived knowledge, and cultural- and moral values, which all affect one's attitude toward behaviour.

Subjective norms, in turn, consider how one expects other people to behave, and approve or disapprove of a certain behaviour (Yzer, 2017). In other words, subjective norms can be understood as normative beliefs based on perceived social pressures, and their impact on one's behaviour (Ajzen, 2020). Normative beliefs can be either injunctive or descriptive which together form the overall perceived subjective norms (Ajzen, 2020). Injunctive normative beliefs refer to how one expects a certain individual or group to approve or disapprove of a certain behaviour, for example, family members' perceived acceptance of plant-based eating (Ajzen, 2020). Descriptive normative beliefs, on the other hand, refer to how one expects important others to behave themselves, for example, family members' perceived eating behaviour (Ajzen, 2020). Finally, the extent to which one is motivated to comply with normative beliefs forms the influence that subjective norms have on one's behaviour.

Despite the clear distinction between attitudes and subjective norms, the line between these variables may be challenging to draw in cases where social environments affect one's perceived knowledge or moral values, etc., and the other way around. For this reason, the third sub-research question focuses on examining possible linkages between attitudes and subjective norms. Thus, this study follows Ajzen's (2020) understanding of attitudes and subjective norms as explained in this chapter.

Figure 1

Illustration of the Theory of Reasoned Action (Ajzen & Fishbein, 1977)



Note. The figure is adapted from Brewer et al. (1999).

3.3. Applications and Limitations of the Theory

Even though attitudes and subjective norms have mostly been sufficient to explain human behaviour, in some cases, a third variable is needed to predict behaviour in situations where one does not have complete control over certain barriers to performing a certain behaviour (Tommasetti et al., 2018). Therefore, the Theory of Reasoned Action was later extended to include perceived behavioural control as a third variable in the Theory of Planned Behaviour by Ajzen (1991). However, in this research students have equal opportunities to choose between plant-based and regular school lunch options as these are equally available to all students (Kouluruoka.fi, 2022). When people have perfect volitional control to perform a certain behaviour, and they believe that they are capable to do so if they desire, perceived behavioural control becomes irrelevant as explained by Ajzen (2020). Thus, in this research, the Theory of Reasoned Action is chosen to predict students' eating behaviours.

The Theory of Reasoned Action and the later extended Theory of Planned Behaviour are among the most influential consumer behaviour theories that have been used in a wide range of studies including environmentally responsible consumption, food preferences, and healthy eating habits (Ackermann & Palmer, 2014; Brewer et al., 1999). For example, Grønhøj et al. (2013) have applied the Theory of Planned Behaviour in their study on Danish adolescents' healthy eating

habits, and Tarkiainen and Sundqvist (2005) on organic food consumption in Finland. Moreover, Beaulieu and Godin (2011) have applied the theory to predict students' likelihood to stay for a school lunch in Canada. In turn, the theory of Reasoned Action has been particularly applied to study food preferences in similar settings to this study in which participants have a volitional control to choose based on preferences (Ackermann & Palmer, 2014; Brewer et al., 1999). However, neither of the theories have been applied to study students' eating behaviours in Finnish schools nor attitudes toward plant-based diets in Finland.

Despite the widespread use of the Theory of Reasoned Action and Theory of Planned Behaviour, the theories have been criticised to have an insufficient number of variables to explain behaviour (Tommasetti et al., 2018). Due to this possible limitation, various studies have included additional variables such as past experiences, moral obligations, refusal skills, and perceived ease of use (Tommasetti et al., 2018). Especially habits and routines create automatic reactions that together with behavioural intentions guide behaviour (Salonen & Helne, 2012). This has been considered in the Theory of Interpersonal Behaviour by Triandis in 1977, which includes additional categories for emotional effects, facilitating conditions, and habits based on past experiences (Salonen & Helne, 2012). Despite the Theory of Reasoned Action's possible limitations to capture all aspects that affect behaviour, it includes required variables to study attitudes and subjective norms which this study focuses on.

4. Materials and Methods

4.1. Study Design

This study applied a qualitative research method based on semi-structured focus group interviews to analyse students' attitudes and subjective norms toward plant-based eating in a Finnish lower secondary school. A qualitative research method fits for the aim to understand students' eating behaviours and specify the reasons for them (Bryman, 2012, p. 380). Focus group interviews allow a researcher to select individuals that are known to have a certain experience, and thus to be able to discuss it with other group members (Bryman, 2012, p. 501). In this study, support from other group members may have facilitated the interview situation by making it more comfortable for students compared to individual interviews. According to Bryman (2012, p. 501), focus group interviews may encourage participants to broaden their perspectives while reflecting on other group members' views and experiences. Participants may be challenged to argue their views and explain

them in more detail, which may even cause participants to change their opinion during the interview (Bryman, 2012, p. 501).

The interviews followed pre-selected topics that covered (1) students' eating habits, (2) social environments, such as friends, family, and social media, and how these affect students' eating behaviours, and (3) how students' attitudes toward plant-based eating were shaped by environmental factors, animal welfare and health-related aspects including students' physical capabilities, appearance, and mental health. Finally, students were asked to comment on (4) plant-based options served at a school. Besides the pre-selected topics, participants were encouraged to generate their own questions and discuss issues that were important to them. The interviews took place in the last week of January and in the first week of February 2022 on a zoom video call due to the COVID-19 restrictions. The students that were at the school during the scheduled interview participated together from one electronic device in an empty classroom. The interviews took around forty-five minutes, and the students were able to use class time for participation. However, participation was not affecting the students' school performance. In addition to the focus group interviews, the school principal, canteen staff, and the teacher who was responsible for recruiting students were asked about school-specific data via email and phone calls. Finally, document analysis of the relevant policy papers, media reports, etc. was also done before the interviews.

The interviews were electronically recorded on zoom and on a phone. The recordings were transcribed from word to word, which is typical for a qualitative interview method (Bryman, 2012, p. 482). As the interviews were in Finnish the selected quotations were translated into English from the transcriptions. Translations aimed to maintain the original meanings of the spoken language, which required careful attention to linguistic nuances in both languages. The data were analysed according to a thematic analysis, which aims to identify and examine themes in the collected data (Howitt, 2013, p. 175). Themes can be understood as certain patterns or repeating categories in transcribed data to help a researcher to understand and organise them (Howitt, 2013, p. 175). In thematic analysis, themes are usually identified and revised in several rounds of coding as done in this study (Howitt, 2013, p. 175).

The first round of coding identified positive and negative aspects of plant-based eating from the transcribed data. The second round concentrated to identify attitudes and subjective norms within the positive and negative aspects mentioned by the students. On the third round of coding, positive and negative attitudes were further categorised in themes related to (1) environment, (2) animal welfare, (3) health-related aspects and (4) taste, whereas positive and negative social norms were categorised in themes related to (1) friends, (2) family members and (3) social media. On the fourth round of coding, beliefs about outcomes and outcome evaluations were identified from

themes under attitudes, and normative beliefs and motivations to comply with them were identified from themes under subjective norms. As the identified themes derived from the theory and characteristics in the data, this study combined data- and theory-led approaches in its thematic analysis (Howitt, 2013, p. 189). Finally, linkages between attitudes and social norms, and their sub-categories, were carefully analysed.

4.2. Study Population

The study population included lower secondary school students who were regularly eating school meals. Lower secondary school is part of the Finnish compulsory education and therefore it involves students from different backgrounds and interests (Ministry of Education and Culture, 2021). The usual age of lower secondary school students is between 13 to 16 years old, which was estimated to be old enough for students to be able to explore and elaborate on reasons that impact their dietary choices. As the research aims to find both positive and negative aspects that affect students' plant-based eating behaviours, the sample consisted of purposely selected students who at least occasionally choose to eat plant-based options over the regular school lunch option (Bryman, 2012, p. 418).

Due to the limited scope of the study, the sample was selected from one lower secondary school in Lahti, which is an average size city in Southern Finland with about 12000 inhabitants (Lahti, 2021). The city of Lahti has shown exemplary progress in reducing meat-based foods by one-third in schools and day-care centres between the years 2018 and 2020 (Etelä-Suomen Sanomat, 2021). Besides, Lahti is one of the participating municipalities in the current FoodStep project, which aims to further develop the transition toward plant-based diets in early childhood education and care (Finnish Institute for Health and Welfare, 2022).

Tiirismaa lower secondary school was selected as it represents an average lower secondary school in Lahti with around 460 students (K. Turpeinen, personal communication, January 2022). The school locates in the city centrum and includes students from different parts of Lahti. Plant-based lunch options have been available for all students at Tiirismaa lower secondary school since 2017 (Tiirismaa school canteen staff, personal communication, January 2022). In addition, the regular school lunch menu includes a weekly vegetarian day for all students (Tiirismaa school canteen staff, personal communication, February 2022). Despite the school's aim to increase the consumption of plant-based foods among the students, plant-based options are served at a separate allergy section in the Tiirismaa school canteen due to the insufficient space at the main serving line (Tiirismaa school canteen staff, personal communication, February 2022). According to

the canteen staff, consumption of plant-based options has varied yearly without notable trends (Tiirismaa school canteen staff, personal communication, January 2022).

4.3. Sample Selection

The sample was selected from Tiirismaa lower secondary school students who at least occasionally eat plant-based options instead of the regular school lunch options. Students who met the sample criteria were able to identify themselves by raising their hands when asked by their teacher in a class. The teacher informed the students about the opportunity to participate and gave the consent forms for volunteers to fill and sign together with their guardians. All volunteers who returned the signed consent form were included in the sample, which consisted of twelve students in total, ten of them girls and two of them boys. The small sample size shows that few students were eating plant-based options at Tiirismaa lower secondary school, which was confirmed by the teacher recruiting participants. Boys were especially few in number, which is seen in the sample's unequal gender representation. The volunteered students were fourteen- to sixteen-year-olds from eight and ninth grades, and they were further divided into three focus groups according to their classes.

4.4. Ethical Considerations

Data collection and analysis respected the privacy of the participants, and their willingness to participate. The participants were informed about the purpose of the research, how their data will be used, and their rights to withdraw their data at any stage of the research process. In addition, the participants were required to fill in a consent form together with their guardians before the interviews. The consent form included detailed information about the study, data use, and the participants' privacy and rights, as well as information on how to correct or withdraw their data after the data collection. For this reason, the participants were able to keep the consent forms after sending a picture of a signed form. The participants were given an opportunity to ask questions directly from me, or through the teacher who was responsible for recruiting volunteers. All data was stored and managed anonymously according to the Norwegian Centre for Research, and securely deleted after the research process. Finally, all participants, including the Tiirismaa school principal, canteen staff, and the teacher who was responsible for recruiting participants, were invited to read the published thesis and thanked once more for their participation.

4.5. Limitations of the Study

As with most studies, this study is subject to limitations that may have affected the trustworthiness of the results. The truthfulness of the data, *credibility*, is the most critical possible limitation, as it affects all further steps in a research process (Bryman, 2012, p. 390). Triangulation of different sources, data collection methods, and consideration of different theoretical perspectives have been done to improve the credibility of the study (Bryman, 2012, p. 390). However, the COVID-19 pandemic has hampered the exchange of ideas and perspectives among peer students and the university staff. Despite the regular online meetings with the supervisor, it would have been helpful to have assisting observers and analysts to spot the blind spots and to reflect on ideas.

The credibility of the participants' data should be considered with caution, as it may be subjected to bias due to the interview situation, other group members and personal aspects. The online interview situation may have felt uncomfortable for some of the participants despite the aim to ease the situation. Similarly, some of the participants may have felt unwilling to discuss the topics among the group members, which is a possible downside of focus group interviews (Bryman, 2012, p. 501). Due to the different personalities and experiences, some of the participants talked more, while others agreed more with what was said. In addition, some of the participants may have (unconsciously) avoided radically different opinions from the group consensus, which is common in such situations. Even though the provided data may have been less personal or variable than it would have been in one-to-one interviews, member checking was applied to improve its credibility (Bryman, 2012, p. 390). As the interpretations of the data were shared with the participants, the participants had an opportunity to clarify, correct, and give additional comments to the conclusions.

Another major limitation of the study was the insufficient sample size for the generalisation of the results (Bryman, 2012, p. 392). The sample size of twelve students provided insight into the aspects that affected these specific students' plant-based eating behaviours at school. Thus, the results of the study were unique to the sample and insufficient to provide valid conclusions to other lower secondary school students in Finland. For more generalisable results, a significantly larger sample size from several lower secondary schools in different municipalities in Finland would have been required. In other words, a larger sample size would have improved the *transferability* of the findings to other contexts (Bryman, 2012, p. 392). Besides, an equal gender- and grade division of the sample could have described students in Tiirismaa lower secondary school more evenly. However, the results of the study aim to provide a thick description of the data that enables readers to make their judgments of its transferability to other cases (Bryman, 2012, p. 392).

A thick description of the analysis is also provided to improve the *dependability* of the study, which refers to the findings' consistency and repeatability (Bryman, 2012, p. 392). As the interviews were in Finnish, some aspects may have gotten lost in translations to English. In addition, my values and positioning may have affected the coding and analysis of the results. As an eager supporter of sustainable and healthy eating, my personal opinions challenged the *confirmability* of the study to a high extent (Bryman, 2012, p. 392). To separate my reflections from the research process, I have been aware of the risks and paid careful attention to my objectivity. As the only researcher, communication with the supervisor and other triangulation efforts have been significant for the confirmability of the study (Bryman, 2012, p. 392).

5. Results and Discussion

5.1. Description of the Sample

The total sample of twelve students included even amounts of fourteen- (4), fifteen- (4), and sixteen- (4) year-old students, of which ten were girls and two were boys, as shown in Table 1. Eight of the students were omnivores, three not eating red meat, and one following a lacto-ovo-vegetarian diet. At school, four of the students were eating plant-based options occasionally (0-1 times per week), three sometimes (1-2 times per week), three often (3 times per week), one usually (4-5 times per week) and one always (5 times per week). The sample was further divided into three different focus groups according to the students' classes. As the students' eating behaviours varied significantly between the focus groups, Figure 2 provides a visual representation of the students' diets and consumption of plant-based options at school in addition to Table 1.

The first focus group included four girls, three sixteen- and one fifteen-year-old from the ninth grade. In the first group, all participants were omnivores, two sometimes eating plant-based options at school (1-2 times per week), and two occasionally (0-1 times per week). The second focus group included three girls and one boy, all fourteen-year-olds from the eighth grade. In the second group, two of the participants were omnivores, one not eating red meat, and one following a lacto-ovo-vegetarian diet. Respectively, a person with a lacto-ovo-vegetarian diet was always eating plant-based options at school (5 times per week), a person not eating red meat often (3 times per week), and another of the omnivores occasionally (0-1 times per week). However, the other of the omnivores was usually eating plant-based options at school (4-5 times per week), which differed from her diet at home. The third focus group included three girls and one boy, one sixteen- and the other fifteen-year-olds from the ninth grade. Two of the participants were omnivores, one

eating plant-based options at school often (3 times per week) and one sometimes (1-2 times per week). Another two of the participants were not eating red meat, one of them ate plant-based options at school often (3 times per week), and one occasionally (0-1 times per week) and rather skipping the main dish on the days when red meat was served.

Table 1

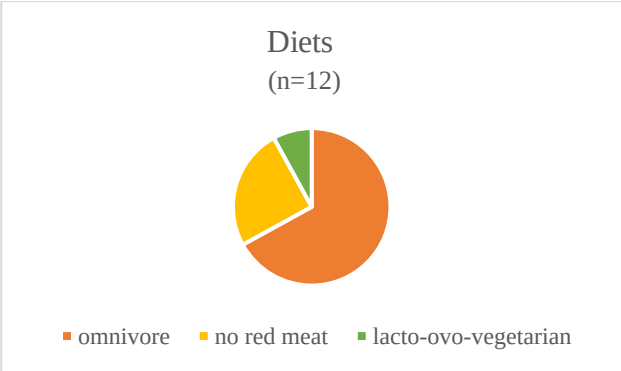
Description of the Sample

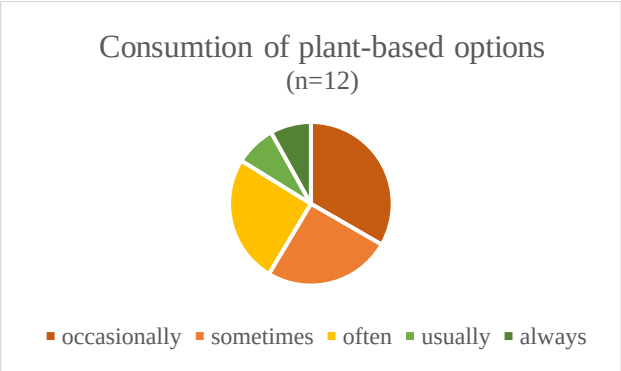
	Group 1	Group 2	Group 3
Age	15	14	15
	16	14	15
	16	14	15
	16	14	16
Gender	female	male	male
	female	female	female
	female	female	female
	female	female	female
Diet	omnivore	omnivore	omnivore
	omnivore	omnivore	omnivore
	omnivore	no red meat	no red meat
	omnivore	lacto-ovo-vegetarian	no red meat
Plant-based options (times/week)	occasionally (0-1)	occasionally (0-1)	occasionally (0-1)
	occasionally (0-1)	often (3)	sometimes (1-2)
	sometimes (1-2)	usually (4-5)	often (3)
	sometimes (1-2)	always (5)	often (3)

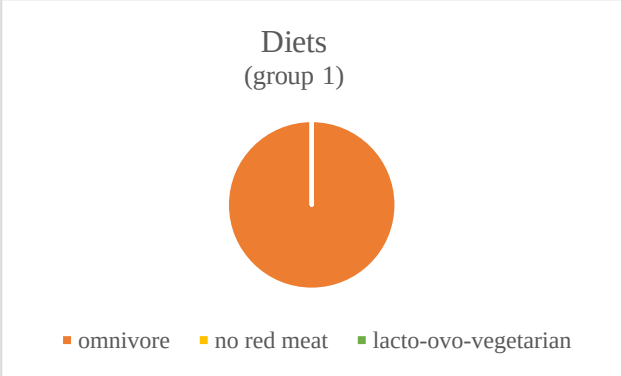
Note. Description of the students in three focus groups according to age, gender, diet, and consumption of plant-based options at school.

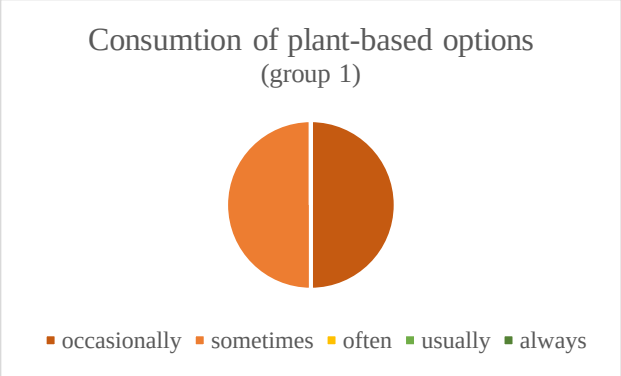
Figure 2

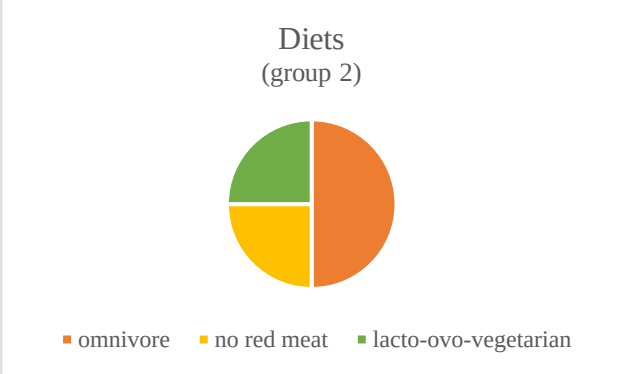
Eating Behaviours of the Sample

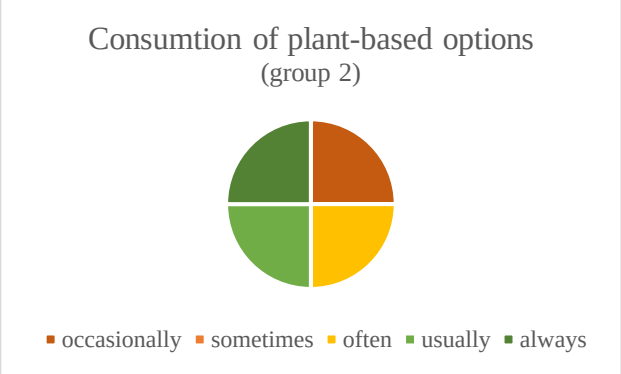


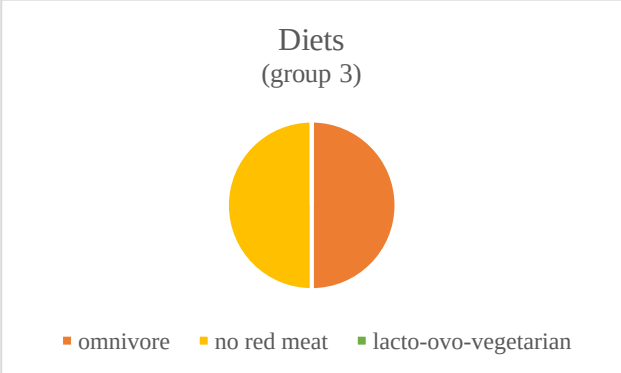


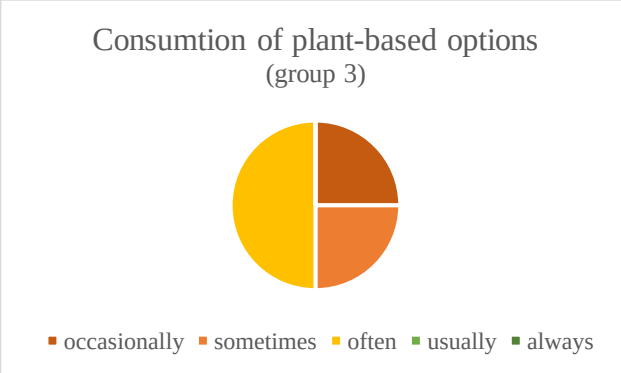












Note. Pie charts illustrating the students' diets and consumption of plant-based options at school (times/week).

5.2. Attitudes Toward Plant-Based Eating

5.2.1. Beliefs About Environmental Outcomes

The students believed that plant-based diets were generally better for the environment compared to meat-based diets. However, only four of the students named reasons for this, while others agreed with what was said. Thus, most of the students seemed to have difficulties providing concrete examples or naming the most significant environmental outcomes. Besides, some of the mentioned aspects revealed that the students' beliefs about food production's environmental outcomes were based on rather vague knowledge, as shown in the following comments:

> *I think it [meat eating] affects the environment quite negatively because I have watched all that how meat production really is, so that tells quite a lot about why I'm vegetarian.*

> *It [plant-based eating] is a lot more sustainable for the long term, and it would not cause that thing… carbon dioxide? . . . Sustainability is very important so that the generation after us would know and could do things better and so on.*

> *Water use is a lot bigger in meat foods and so plant-based foods are better for that.*

In comparison, meat production's greater land use compared to plant-based food production, which is one of the essential differences between plant- and animal-based foods' environmental outcomes, was clearly described by one of the students:

> *Probably it [plant-based eating] has quite positive effects if these big meat farms are reduced and that land where food is grown for livestock is replaced to grow food for humans, so I think plant-based foods are more environmentally friendly per se.*

In addition, students in two of the groups mentioned that also certain plant-based foods affect the environment negatively due to long-distance transportation. As for the students' other comments on environmental outcomes, this was agreed upon by all group members.

> *But it depends where that plant-based food is made, for example, if it's made somewhere else in the world and then brought to Finland it's a bit… [negative for the environment].*

> *But then one must think that soy and all these things might need to be transported from abroad by plane to Finland so it may not always be domestic… So domestic is maybe the best option for the environment.*

Although the students' knowledge of food production's environmental outcomes was variable and missing some essential aspects, such as energy demand and -loss in food chains, nitrogen and phosphorus runoffs, and methane emissions, the students touched on multiple environmental aspects which indicates that they had received some information about food production's environmental outcomes. Moreover, most of the students mentioned that environmental aspects motivate them to eat plant-based foods, while three of the students stated environmental reasons as their main motivation for plant-based eating. However, the students' comments revealed that environmental outcomes were often mixed with animal welfare and even human rights when they were asked how environmental outcomes affect their eating behaviour:

> *That's why I started eating plant-based foods because I don't like the idea that animals are killed.*

> *…and then I could say that it [plant-based eating] is also more humane because there's less of all that neglecting [of animals]. But then one should know precisely where that soya comes from, and if it comes from that kind of place where human rights are not followed.*

In particular, animal welfare was considered as part of the environmental outcomes among most of the students, and these were mentioned together and used as synonyms by several students. For this reason, it is challenging to make conclusions about the impacts that purely environmental outcomes had on the students' eating behaviours. Besides, judgments about the students' environmental awareness should be considered with caution as most of the students agreed with other group members when asked how they believe food production affects the environment. Thus, some insights or significant knowledge gaps may have got lost in a group consensus even though each person was separately asked for their opinion.

The findings on the students' beliefs about food production's environmental outcomes resonate with the previous studies among Finnish adults. Both the students and Finnish adults in the studies by Keskinen (2017) and Väätäjä (2019) stated that environmental reasons motivate them to eat plant-based foods. However, environmental aspects alone were less likely to cause a shift toward a plant-based diet among Finnish adults (Keskinen, 2017; Väätäjä, 2019). This can be also seen from the students' comments as the students who mentioned environmental reasons as their main motivation for plant-based eating, were in fact likely to consider other aspects, such as animal welfare and human rights, together with environmental outcomes. Moreover, cultural norms and recent trends, such as taking care of the environment, may have affected the students' ideas on ethically right behaviours. Thus, a behaviour that is considered good in the Nordic culture may have

influenced the students' ideas on food production's environmental outcomes even without a strong knowledge base for one's beliefs.

Considering the findings according to the Theory of Reasoned Action, attitude toward a behaviour consists of beliefs about outcomes as well as their evaluations (Ajzen & Fishbein, 1977). As the students' beliefs about food production's environmental outcomes were rather vague and based on partial knowledge, it is logical that the students' evaluations of the outcomes of their dietary choices were also rather weak and nonspecific. More precise knowledge of food production's environmental outcomes could perhaps strengthen the students' beliefs, and importantly, make the students trust that their beliefs were correct. Consequently, this could strengthen the students' ideas on the outcomes that their dietary choices have on the environment, which in turn could affect the students' attitudes toward plant-based eating.

5.2.2. Beliefs About Animal Welfare

Meat-eating and its outcomes for animal welfare were known and well understood by the students. The students were aware of the current meat industry, and its possible harm to animals' living conditions, health, and overall well-being. In addition, the students were able to question the ethicalness of killing animals for people's food, as shown in the students' comments when asked how animal welfare affects their eating behaviour:

> *At least then [when eating plant-based foods] I know that it has not come from some terrible conditions . . . In a way, I have been taking a step toward better [conditions] for animals.*
>
> *Then [when eating plant-based foods] I know that animals are not hurt for people's food.*
>
> *If one thinks that some animals are being killed without any other reason to die than that people would get food, then I think it's a much better option to choose plant-based foods.*
>
> *That's why I started eating plant-based foods because I don't like the idea that animals are being killed . . . And I never got that some dogs are being eaten, so already since little I have been like "ugh that's something one cannot do".*

Although most of the students were eating meat occasionally or more often, many of them stated that when they were thinking or being reminded of aspects related to animal welfare, they felt less willing to eat meat. However, most of the students stated that this was temporal, and did not make

them change their eating behaviours in the long term. Thus, the students' beliefs on meat eating's outcomes for animal welfare were often in contradiction to their actions.

> *Sometimes if I think too much that this meat has once been alive, then I get that kind of moment that I cannot eat meat for a few weeks. I just got that very disgusting feeling that it has once been a living animal.*
>
> *At first, I couldn't eat cow meat or beef without thinking about that living animal, and then it really disgusted me. As I still eat chicken, my little brother has this annoying habit that he tells me how that chicken has once been running, and then I'm just "I'm not eating anymore". It just always ruins it.*
>
> *I'm a big animal lover and sometimes I get a bad feeling like "oh no, that my food here has once been a living animal".*

Considering the Theory of Reasoned Action, the students' evaluations of the outcomes for not eating meat could perhaps explain their behaviours that contradicted most of the students' beliefs. For example, the students could strongly believe that killing animals for human food is unethical, but they may have thought that their eating behaviour is insufficient to stop meat industries from killing animals. On the other hand, the students may simply not be thinking about the origin of meat foods, as these are often highly processed and alienated from their origin. Despite this, ten of the students considered that animal welfare motivated them to eat plant-based foods, and five of them named animal welfare as their main reason for eating plant-based foods. In comparison, only two of the students mentioned that animal welfare did not affect their eating behaviour. Thus, aspects related to animal welfare had a strong positive impact on the students' willingness to eat plant-based foods.

In contrast to previous findings on Finnish adults, animal welfare had a major influence on the students' willingness to eat plant-based foods, whereas health reasons had a significantly stronger impact on Finnish adults' eagerness to eat plant-based foods on average (Lehikoinen & Salonen, 2019; Vainio et al., 2016). However, the age difference between the lower secondary school students and the adult population could partly explain the different motives for plant-based eating. Besides, recent trends and changes in food culture are also likely to explain different motives between the generations.

Similar to environmental outcomes, cultural norms may have influenced the students' ideas on ethically right behaviours, such as treating animals well and avoiding their suffering, which may have affected students' attitudes toward animal welfare. This shows a significant limitation of the Theory of Reasoned Action which defines attitudes and subjective norms as disconnected entities, even though cultural norms affect both of them. In fact, cultural context could

be understood as a subjective norm that also affects one's attitudes. However, as culture has such a strong influence on our thinking, it would be extremely challenging to self-report the extent to which it affects one's behaviour. For this reason, this study does not include cultural context as a separate subjective norm, but it recognises its influence within all the studied categories.

5.2.3. Beliefs About Health-Related Outcomes

The students considered meat-heavy diets, especially red meat, unhealthy compared to vegetable-rich diets. Despite this, the students did not consider plant-based diets to be necessarily healthier than an average omnivore diet. In all groups, the students agreed that plant-based diets can be unhealthy in the same way as any other diets, and these are more prone to contain insufficient amounts of energy, protein, and certain nutrients compared to an average omnivore diet. In particular, lack of proteins and certain nutrients, such as iron, were stated as major challenges with plant-based diets. Besides, one of the students mentioned that athletes may require additional protein from meat.

> *You get proteins from meat, so [on a plant-based diet] it may be difficult to find foods from which you get minerals and some things.*
>
> *…But on the other hand, you don't get so much protein from plant-based foods, and then you must take some vitamins and nutrients.*
>
> *One might not get so many nutrients [from plant-based foods] as from meat, and isn't it so that you might not get so much iron from plant-based foods?*
>
> *I have a few athletes in my family, and they of course need to eat quite a lot of protein which they try to get from meat.*

Insufficient energy intake on a plant-based diet was also mentioned by three of the students. The students acknowledged that this was mainly due to the poorly planned diet or too small portions sizes:

> *My dad said that he doesn't really get full [on a plant-based diet].*
>
> *I was totally vegetarian a year ago and I realised that I didn't eat enough, and I should have eaten more because I felt dizzy sometimes.*

…And then on a totally vegan [diet], one must maybe eat a bit more and more often. Other ways one feels tired and does not have the energy to do things.

Despite the challenges, a well-balanced plant-based diet, with ideal energy-, protein- and nutrient intake was considered the healthiest option by the students:

But I don't think I totally agree that plant-based foods are somehow healthier, although it has more staff from vegetables. But I think that a well-balanced diet is the best.

If one eats [plant-based foods] in a way that getting enough protein is considered, then I think it affects [physical capacity] in the same way as normal food. But if one eats even a bit too little then it does affect [physical capacity].

Most of the students were sometimes thinking about the health outcomes of their dietary choices, but only four of the students mentioned that health reasons motivate them to increase plant-based foods in their diets. This differs from the previous findings among the Finnish adults who were mainly motivated to eat plant-based foods due to health reasons (Lehikoinen & Salonen, 2019; Vainio et al., 2016).

For me maybe health and wellbeing [motivate for plant-based eating]. When you get all vitamins from vegetable foods that motivates.

Unexpectedly, the students who were motivated to eat plant-based foods due to health reasons mentioned that health outcomes also discouraged them from following plant-based diets. This contradictory situation was explained by the students' insufficient knowledge and understanding of nutritional aspects and different plant-based protein sources. Thus, the students felt that switching to a fully plant-based diet, without sufficient nutritional understanding, could affect their health negatively:

It's difficult to balance a plant-based diet because you would need to get enough protein and that's a bit… when you don't understand how to eat more different plant-based proteins, it [a plant-based diet] may even be a health risk.

The students' eating habits seemed to affect their opinions on plant-based diets' health-related outcomes. Four of the students who considered that plant-based diets could even pose a health risk were occasionally eating plant-based foods, whereas the students who were eating plant-based foods more regularly did not consider plant-based diets risky. Instead, the students who were most

familiar with plant-based diets mentioned that after some difficulties at the beginning, it has been rather easy to maintain a balanced and healthy plant-based diet:

> *At first, it was a bit like what else I should eat, but then when I found things [dietary supplements] that I take as an extra, it has been quite easy.*

> *Others who would like to try [a plant-based diet] may feel that they need meat. But when you just learn and know what to add to your meals [it's rather easy to follow a plant-based diet].*

In addition, the students who were most familiar with plant-based diets were able to identify other positive outcomes of plant-based eating, such as improved skin conditions and a positive impact on their mental health. In comparison, the students who were eating plant-based options less regularly were not aware of changes in their appearance or mental health.

> *Maybe my skin has slightly fewer impurities…*

> *My skin is a lot better, especially when I started eating even more plant-based foods.*

> *Mentally, I just feel so much better when I eat foods that feel right to me.*

> *It [plant-based eating] just makes me feel good.*

The students' comments demonstrated the importance that evaluations of the outcomes have for one's attitude as the Theory of Reasoned Action describes. The students' beliefs about plant-based diets' health outcomes were two-folded; a plant-based diet could be very beneficial for one's health, but at the same time it could pose a health risk. Even though this was generally agreed upon by the students, their attitudes about plant-based diets' health outcomes for themselves differed significantly due to different outcome evaluations. Most of the students who were familiar with plant-based diets considered that plant-based eating would result in positive outcomes for their health, whereas the students who were less familiar with plant-based diets considered that plant-based eating would rather cause negative outcomes for their health due to their insufficient knowledge on plant-based nutrition. Thus, the students' previous experiences and practical knowledge impacted their evaluations of the outcomes that plant-based eating would cause for them. Due to the different outcome evaluations, the students' attitudes toward plant-based diets' health outcomes differed between the students who were familiar and those who were less familiar with plant-based eating.

5.2.4. Beliefs About Taste

The taste of plant-based foods divided the students' opinions radically. Four of the students considered plant-based foods tastier than meat foods, which was their main reason for plant-based eating from other positive aspects:

> *Sometimes I think that in a way this [eating plant-based foods] is better, but mostly it is because of the taste.*
>
> *Now it [plant-based eating] is mostly because I don't really like the taste of red meat.*
>
> *The main factor [for plant-based eating] is the taste. For example, I think that vegetarian pizza is a lot better than meat pizza.*

On the contrary, the taste of plant-based foods significantly discouraged the other four students from eating plant-based foods. Especially the taste of plant-based options served at school gained critique from most of the students, even from the students mostly eating them. Four of the students who were less familiar with plant-based diets considered plant-based options at school rather weird because of the ingredients, texture, seasoning, and/or appearance:

> *I think their [plant-based foods at school] seasoning is quite interesting. Sometimes there's a lot of weird spices in them, and then that food that could actually be tasty tastes weird because it's so spicy.*
>
> *Usually, I have no idea what the school's plant-based foods are…*
>
> *And when you taste the school's plant-based foods you still don't know what they are.*

In addition, most of the students mentioned that plant-based options at school seemed to lack effort from the menu planners and canteen staff, which was making them less attractive. For example, two of the students emphasised the dryness of the food, and four of the students often repeated foods on the menu. Moreover, two of the students mentioned that plant-based options were poorly advertised for students at the school.

> *Sometimes I feel that there's no effort put on them [plant-based foods at school] and they are just because there must be some [plant-based food].*
>
> *Sometimes it seems that someone has just picked meat pieces away from them [plant-based foods at school] and left the rest to be served. Maybe there could be more effort put into them because we anyway have them.*
>
> *Last week when I ate plant-based food at school it was so dry that I nearly choked on it. They don't usually put effort into them and then they are like dry wood from the bottom of a pan.*

…People are quite cautious to try [plant-based foods] because they think these are monotonous and boring…

Maybe there could be more effort put on them [plant-based foods at school], and they could be better advertised as we anyway have them.

I didn't even know that there are plant-based options at school before I got to know about them during the ninth grade. So, I think they could be better advertised.

Three of the students mentioned that they were also eager to cook plant-based foods at home. In addition to taste, trying out different recipes was part of the positive eating experience for them. One of these students mentioned cooking as his main inspiration for plant-based eating because it positively challenges his previous cooking skills. On the contrary, one of the students mentioned that she felt less motivated to eat plant-based foods because it is challenging to make them tasty.

I feel proud of myself when I manage to make tasty vegetarian foods because it's easy to make good food from meat, but if you don't put any effort into trying to make good food from vegetables, it usually turns out bad. If I make tasty vegetarian food, it just makes me feel good.

…It [plant-based foods] should maybe have more taste, or at least when I have made some tofu it's very hard to make it tasty.

Unlike other categories that described the students' attitudes toward plant-based eating, the taste was mostly influenced by the students' personal preferences instead of knowledge or ethical considerations. However, the students' familiarity with plant-based diets notably affected their opinions about the taste of plant-based foods. The students who were regularly eating plant-based foods considered them tasty, whereas the students who were occasionally eating plant-based foods considered them weird and less tasty on many occasions. This corresponded with the students' eagerness to cook plant-based options as the students who were familiar with plant-based diets considered plant-based cooking easier compared to the students who were less familiar with plant-based diets.

Reflecting the findings of the Theory of Reasoned Action, taste lies outside the theory as beliefs, such as the taste of a certain food, and evaluations of the outcomes, such as the taste of the food when I eat it, are mostly the same. In this way, taste does not completely fall into a definition of an attitude as the theory describes it, which could be seen as another limitation of the theory. Consequently, the results about the taste are not further analysed according to the theory, although the taste was shown to significantly influence the students' eating behaviours.

5.3. Subjective Norms Toward Plant-Based Eating

5.3.1. Normative Beliefs Among Friends

The students' friends at school and outside the school had a neutral, or in some cases negative impact on the students' willingness to eat plant-based foods. Respectively, none of the students were motivated to eat plant-based foods by their friends. Four of the students had a few friends who were eating more plant-based foods, but the rest of the students didn't know anyone within their friend groups:

> *I don't know anyone from my friends who would follow a plant-based diet . . . Maybe they think I'm a bit weird.*

Even though the majority of the students' friends were omnivores, most of them were neutral toward plant-based foods and did not judge or comment on plant-based eating negatively. Moreover, most of the students agreed that eating behaviour neither affected their friendships nor was considered important for their friends:

> *No one is really against it [plant-based eating]. Obviously, everyone is like good if you try it, and no one criticises you if you take them [plant-based foods]. But I don't think they are really excited about it either, at least I don't have [friends that are excited about plant-based eating].*

> *I guess my friends don't care what I eat.*

> *I don't think it [what one eats] really matters, it's other things that matter more.*

Despite the general acceptance, three of the students who were regularly eating plant-based foods described social situations at school and in their free time where they felt discouraged to eat plant-based foods. One of these students mentioned that sometimes on common meals others were not considering her eating preferences. In addition, another of them mentioned that vegetarians and plant-based eaters were often connected to negative stereotypes such as a judgmental attitude toward meat-eaters.

> *But maybe I get most annoyed when we order food because others don't really notice me. For example, when we order some pizza and I say, "could we take something else other than the ones with red meat", everyone is like "why". So that's maybe the most annoying thing about it.*

> *But sometimes I get maybe a bit annoyed when I eat with someone and I choose a plant-based option, I somehow got stigmatised that "now you want that everyone eats plant-based foods". There are a lot of negative stereotypes about plant-based eating that I don't get at all because what one eats doesn't affect that person.*

The same students mentioned that negative stereotypes also existed toward plant-based foods at school, which may discourage other students from trying them. Prejudices toward plant-based foods were mostly connected to the taste and a general belief that plant-based options were healthier compared to the main options. Interestingly, a healthy lifestyle, including food choices, was mocked by some students at school as one of the students described:

> *At school, there are quite a lot of prejudices toward plant-based foods. Somehow people think that no one can eat them even though they have never tried them.*

> *I have maybe noticed that sometimes when I take plant-based food at school someone comes to say that "are you trying to be fit when you take plant-based food or a lot healthier", which is quite interesting because it doesn't mean that it would be healthier or anything.*

The previous studies on Finnish adults' eating behaviours concluded that social acceptance and identification with social groups shaped the eating behaviours of the studied population (Keskinen, 2017; Lehikoinen & Salonen, 2019; Vainio et al., 2016; Väätäjä 2019). Although the same could be expected from teenagers, friends did not significantly influence the eating behaviours of the interviewed students. In fact, the students who were eating plant-based foods were rather exceptional among their friends and they occasionally faced negative prejudices because of their dietary choices. Thus, the students were aware of the normative beliefs that existed among their friends toward plant-based eating, but their motivations to comply with these norms were rather low as they kept behaving differently from their friends.

According to the Theory of Reasoned Action, subjective norms consist of normative beliefs and motivations to comply with them. As previously mentioned, the normative beliefs among the students' friends had a neutral or in some cases negative impact on the students' willingness to eat plant-based foods. Nevertheless, the students were not particularly motivated to comply with these norms, which partly abolished the negative impact that normative beliefs among their friends had on plant-based eating. Therefore, the overall subjective norms among the students' friends did not significantly affect the students' eating behaviours. However, the interviewed students were known to be exceptional among most students, which could partly explain the surprising results. For example, if students who were not eating plant-based options at school would

have been studied about their unwillingness to try plant-based foods, their friends may have had a more significant impact.

5.3.2. Normative Beliefs Among Family Members

Family members had the most significant influence on the students' eating behaviours at home, as well as on their independent dietary choices. Especially the students who were following plant-based diets were usually motivated to do so by their family members. Ten of the twelve students in total followed principally the same diets they have been accustomed to at home, which can be seen from the students' comments that described eating habits in their families as a uniform behaviour:

> *In my family, none of us eat meat but we eat fish.*

> *…at our home, we eat quite a lot of plant-based and vegetarian foods, which goes quite well hand in hand with my family's values.*

> *We try to keep one vegetarian day every week . . . My parents did kind of a lifestyle change that changed our diet quite a lot, for example, we reduced red meat.*

> *We also have a vegetarian day once a week, but now mom has started to make vegetarian foods for us more often.*

All the students that were either lacto-ovo-vegetarians or not eating red meat, had parents who were following the same diet. Respectively, the students whose family members followed omnivore diets were more likely to eat meat foods when making independent dietary choices, for example at school. Despite the general trend, two of the students preferred plant-based foods even though they followed omnivore diets at home like their parents. Exceptionally, another of these students influenced her parents' eating behaviours at home toward a plant-based diet:

> *I talked about it [eating more plant-based foods] with my family, and I realised that my mom and dad thought the same.*

In addition, athlete family members, younger siblings, and males in the family often preferred to have more meat, which separated family members' diets. Especially gender seemed to divide family members' eating preferences as four of the students mentioned their mother being more willing to eat plant-based foods compared to their father. Similarly, two of the students had a big sister who

followed a plant-based diet, while three of the students had a little brother who was unwilling to eat plant-based foods.

> *But we all have quite different diets and quite often we need to make different foods.*
>
> *My mom likes to eat more plant-based foods, and she hardly ever eats red meat. My dad usually eats red meat, and he doesn't like any plant-based stuff . . . My mom doesn't make plant-based foods that she eats herself for me, or she makes a different version of it for me because she knows that I like to eat more meat.*
>
> *My mom aims to eat a lot of vegetables, but she's not a vegetarian. Dad not so much.*
>
> *My dad anyway likes meat foods more, but my mom tries to push them [plant-based foods] to him.*
>
> *My mom is a vegetarian, and my dad avoids red meat. My little brother just eats whatever.*
>
> *Dad and little brother eat meat, but my dad has been trying to get used to eating plant-based foods.*
>
> *My little brother hasn't gotten used to them [plant-based foods], and he thinks they taste bad.*

Gender differences in the students' family members' eating behaviours supported the previous findings in the studies by Parker (2020) and Vaarasto (2021) which emphasised the masculinity around meat-eating. As most of the students' fathers were less willing to eat plant-based foods compared to their mothers, gendered assumptions shaped normative beliefs toward plant-based eating within most of the students' families. According to the students, female members of their families usually stated health aspects as their main reason for plant-based eating, which seemed to be less important for most of the male members of the students' families. This further differentiated normative beliefs between the genders and strengthened the existing masculine and feminine eating habits in most of the students' families.

Besides the gendered eating habits that most of the students were exposed to, family members had a strong effect on subjective norms that shaped the students' eating behaviours. The students with family members who followed plant-based diets gained positive normative beliefs toward plant-based eating, whereas the students with family members who followed omnivore diets were usually more doubtful toward plant-based eating due to the normative beliefs they were exposed to at home. Despite a few exceptions, the students' tendency to follow the same diets they were accustomed to at home shows that the students were strongly motivated to comply with the normative beliefs that existed among their family members. Thus, subjective norms from the students' family members had a greater influence on the students' eating behaviours compared to subjective norms from their friends. The fact that the students were likely to live at home and eat

foods that their parents have provided is likely to explain this. However, it also seems that the students adopted similar food-related values and concerns as their parents especially, which shaped the students' independent dietary choices.

> *My mom motivates me the most [to eat plant-based foods].*

> *Mom and dad are both vegetarians, little sister not, aunt and other cousin are vegans. . . My parents are my biggest motivation [to eat plant-based foods] and in a way, I have learnt from them.*

5.3.3. Normative Beliefs on Social Media

Besides the people from the students' daily lives, most of the students were following different individuals on social media. Seven of the students mentioned that they followed individuals or organisations that shared plant-based cooking ideas and recipes or generally supported plant-based eating. Four of these students have got some good plant-based cooking tips from social media, which motivated some of them to cook plant-based foods:

> *I wouldn't say that they have really affected [my willingness to eat plant-based foods], but I have got some recipes that fit my diet.*

> *On YouTube, there are different cooking videos of which many are plant-based…*

> *I follow a few people on social media who are vegetarians, and I have got some good tips from them.*

> *Well, I follow cooking videos quite a lot, because I cook pretty much. And myself, I follow people that either make vegan or vegetarian foods, but also those who make food from meat.*

In addition, the students agreed that when they see other people eating plant-based foods on social media it slightly motivates them to eat plant-based foods as well. Especially fitness bloggers and influencers were often promoting plant-based diets, as acknowledged by four female students in one of the focus groups. However, the students that were mainly eating plant-based foods emphasised that individuals on social media had a relatively low impact on their eating behaviour.

> *… I see that some people also eat [plant-based foods].*

> *I know that few people whom I follow eat plant-based foods, but it doesn't really affect anything…*

> *I follow some fitness people on Instagram that are often vegetarians.*

Furthermore, animal rights organisations that were visible on social media motivated one of the students toward plant-based eating:

> *I don't follow anyone, but I follow Rights for Animals, from which I have kind of got some influences…*

Despite the students' familiarity with social media, only one of the students mentioned that individuals on social media significantly motivated her to eat plant-based foods. However, this did not seem to have a significant effect on her eating behaviour.

> *When I see some people on YouTube that are somehow living very well and have a happy life, and when it's shown what they eat it's pretty much always vegetarian. It somehow motivates me that I could also try different foods which could even be vegetarian.*

In comparison, most of the students stated that social media had a neutral effect on their eating behaviour, whereas other factors shaped their dietary choices more significantly. Thus, normative beliefs on social media had a neutral or slightly positive effect on the students' willingness to eat plant-based foods. Nevertheless, the students were less motivated to comply with these norms, which lowered the overall influence that social media had on the students' eating behaviours. In other words, subjective norms on social media did not have a significant effect on the students' dietary choices, even though it motivated some of the students toward plant-based eating to a slight extent.

The differences between normative beliefs and motivations to comply with them could perhaps be explained by the lack of personal connections and interactions with individuals on social media. As the students were able to see others' eating behaviours without being forced to share their own dietary choices, their motivations to comply with the normative beliefs on social media were likely to remain marginal. Even though the previous studies did not concentrate on examining the effects that social media had on Finnish adults' eating behaviours, similar findings could be expected among Finnish adults as they are likely to be more distant from social media and perhaps consider social media less important compared to current teenagers.

5.4. Linkages Between the Attitudes and Subjective Norms Toward Plant-Based Eating

Within the studied categories, animal welfare influenced the students' attitudes toward plant-based eating the most, while family members had the most significant effect on the students' subjective norms toward plant-based eating. Even though family members did not significantly affect the

students' attitudes on animal welfare, they had a remarkable influence on the students' attitudes on environmental and health outcomes as well as on the students' taste preferences. In contrast, the students' friends as well as social media had a minor impact on most of the students' attitudes and eating behaviours. Similarly, the students' attitudes were unlikely to affect subjective norms among their friends and family members, despite one exception among the students who affected her family members' eating behaviours. However, the findings of the study indicate that family members had a dominant effect on the students' attitudes toward plant-based eating in multiple studied categories.

5.4.1. Family Members' Influence on Taste Preferences

The most obvious difference between the students whose family members followed plant-based diets and those whose family members followed omnivore diets was connected to the students' opinions about the taste of plant-based foods. As previously mentioned, the students' familiarity with plant-based foods significantly affected their taste preferences. Despite the diets that the students themselves followed, the students whose family members followed plant-based diets considered plant-based foods less weird compared to the students with family members who followed omnivore diets. In fact, all the students who mentioned taste as their main reason to eat plant-based foods had family members who at least aimed to follow plant-based diets. Besides, the most negative comments on the plant-based foods at school came from the students whose family members were omnivores, whereas the students whose family members were following a lacto-ovo-vegetarian diet or not eating red meat only criticised often repeating foods on the school lunch menu. Thus, family members seemed to have an important role in familiarising the students with plant-based foods and in changing their preconceptions toward them.

Similar to the students' opinions about the taste of plant-based foods, their willingness to cook plant-based foods was influenced by their family members' eating habits. The students who stated that they were eager to cook plant-based foods had family members who followed plant-based diets. Besides, three of the students mentioned that their family members inspired them and shared their knowledge of plant-based cooking. For example, two of these students mentioned that they have got some good recipes from their family members, which motivated them for plant-based eating:

> *My brother motivates me [to eat plant-based foods] because he is eager to try everything new and he has very good recipes. It has motivated me to try new recipes and so on.*

...I cook a lot of [plant-based] foods, and I ask for some good recipes from my mom.

Thus, family members also had an important role in teaching and supporting the students for plant-based cooking, which increased their eagerness to make plant-based foods themselves.

5.4.2. Family Members' Influence on Dietary Health

Perhaps the most influential aspect that family members shared with the students was connected to dietary health. As previously mentioned, some of the students felt discouraged to eat plant-based foods due to the lack of essential knowledge on plant-based nutrition. Interestingly, some other of the students, including the ones who did not eat red meat and who followed a lacto-ovo-vegetarian diet, mentioned that it has been rather easy to maintain a well-balanced plant-based diet with sufficient protein- and nutrient intake. A likely reason for this was that these students had family members who followed the same plant-based diets as them. Thus, the students who did not eat red meat and who followed a lacto-ovo-vegetarian diet learned how to balance and maintain good dietary health from their parents as a natural part of other eating-related aspects. As these students were not required to learn aspects related to plant-based dietary health on their own, they seemed to be more confident with the knowledge they had on plant-based nutrition than the students' who did not have family members who followed plant-based diets.

...But all my family members have supported me in trying to find information on what one should eat on a plant-based diet.

Despite the family members' likely influence on the students' knowledge of plant-based nutrition, two of the students whose family members were not familiar with plant-based eating were rather confident that plant-based diets would not affect their health negatively due to possible limitations on their nutritional knowledge. Instead, these students believed that they could learn about plant-based nutrition on their own and trusted that plant-based options that were designed for the students at school would contain enough required nutrients. Another factor that connected these students was their strong motivation to eat plant-based options due to ethical reasons, which seemed to override their possible health concerns.

I have also started [to follow a plant-based diet] quite recently, so I don't know everything, and I still have a lot to learn. But I don't consider it too hard.

I didn't think about it too much because at least plant-based foods at school should offer enough all nutrients, or at least so they [Lahti's school food providers] say. So, it would be kind of against their principles [not to provide enough nutritious plant-based foods].

5.4.3. Family Members' Influence on Environmental Awareness

In all the focus groups one of the students defined food production's environmental outcomes while others mainly agreed with the mentioned aspects. Although this challenged conclusions about the students' environmental knowledge in total, it showed an interesting connection among the students who were most capable of defining different environmental outcomes; all these students had family members who followed plant-based diets. Even though none of the students mentioned that their family members would have influenced their environmental awareness, it seems that family members who were following plant-based diets had a positive influence on the students' knowledge of food production's environmental outcomes. Consequently, most of the students whose family members were following plant-based diets considered environmental reasons more important in their dietary choices than the students whose family members were following omnivore diets.

6. Conclusions and Recommendations

This thesis aimed to find out how attitudes and subjective norms affect the students' willingness to choose plant-based options over regular school lunch options in a Finnish lower secondary school. Based on the existing studies among Finnish adults, different factors such as health outcomes were found to influence the sample population's attitudes toward plant-based eating. In addition, social aspects seemed to shape the eating behaviours of Finnish adults. Similar to these findings, attitudes and social norms were expected to affect the students' dietary choices at school. Thus, this thesis applied the Theory of Reasoned Action which analyses the role of attitudes and subjective norms in one's behaviour as explained in chapter 3.2.

The students' attitudes toward plant-based eating were analysed in relation to environmental outcomes, animal welfare, health-related outcomes, and the taste of plant-based foods in chapter 5.2. Within these outcomes, animal welfare motivated and impacted the students' eating behaviours toward plant-based eating the most. In contrast, environmental outcomes had a less significant influence on the students' eating behaviours, which was likely to be caused by the students' partial knowledge of food production's environmental outcomes. Instead, taste and health-related outcomes divided the students' opinions radically as some students were motivated and

some were discouraged to eat plant-based foods depending on their familiarity with plant-based eating.

In chapter 5.3. the students' subjective norms were analysed according to how the students' friends and family members, as well as social media, have influenced their plant-based eating behaviours. Family members were found to have the most significant impact on the students' eating behaviours. In particular, family members who followed plant-based diets had a positive effect on the students' willingness to eat plant-based foods. On the contrary, friends and social media had no significant impact on the students' eating behaviours. However, some students mentioned situations in which other students at school had a negative influence on their willingness to eat plant-based foods.

The findings on the students' attitudes and subjective norms toward plant-based eating are summarised in Table 2. However, the table includes only the most distinct characteristics of the data, and therefore it does not provide complete information of the findings. In addition to the findings on the students' attitudes and subjective norms toward plant-based eating, linkages between the findings were analysed. This was significant because the theory defines attitudes and social norms as disconnected entities, even though these are likely to affect one another.

Table 2

Summary of the students' attitudes and subjective norms toward plant-based eating

	Summary of the findings
Environment	- Vague knowledge of food production's environmental outcomes. - Plant-based diets were considered better for the environment than meat-based diets. - Mostly important but did not affect the students' eating behaviours.
Animal welfare	- Meat industries' outcomes for animal welfare were well understood. - Meat industries were considered harmful for animal welfare and animal rights. - Very important, most popular reason to eat plant-based foods.
Health etc.	- Good understanding of healthy eating, but less knowledge on plant-based nutrition. - Balanced plant-based diets were considered healthy but unbalanced as a health risk. - Less important, lack of knowledge on plant-based nutrition discouraged some students.
Taste	- Varying opinions: some liked, and some disliked the taste of plant-based foods.

	- The students who were more familiar with plant-based foods considered them tastier.
Friends	- Few or no friends who followed plant-based diets. - Mostly neutral toward plant-based foods, some negative comments from other students. - Less important, but sometimes discouraged the students from eating plant-based foods.
Family members	- Half of the students had family members who followed plant-based diets. - Health aspects motivated especially female family members for plant-based eating. - Very important, most of the students followed the same diets as their family members.
Social media	- Most of the students followed individuals or organisations that promoted plant-based eating. - Positive picture of plant-based eating. - Less important for most of the students, no significant effect on their eating behaviours.

Note. The students' attitudes toward plant-based eating are summarised in categories of environment, animal welfare, health and taste-related outcomes, and subjective norms in categories of friends, family members, and social media.

Chapter 5.4. examined linkages between the students' attitudes and subjective norms toward plant-based eating. The findings showed that subjective norms were likely to affect the students' attitudes, which was less common the other way around. In particular, norms among the students' family members were found to have a major impact on the students' attitudes toward plant-based eating. The results showed that the students whose family members followed plant-based diets were more likely to consider plant-based foods tastier compared to the students whose family members did not follow plant-based diets. Moreover, family members who followed plant-based diets increased some of the students' knowledge and eagerness to cook plant-based foods themselves. Besides the students' taste preferences, family members who followed plant-based diets were found to increase the students' knowledge of plant-based nutrition, and thus improved the students' ability to maintain a good nutritional balance on a plant-based diet. In contrast, some of the students whose family members were not following plant-based diets believed that plant-based eating could affect their health negatively due to their insufficient knowledge of plant-based nutrition. At last, family members seemed to increase the students' knowledge of food production's environmental outcomes as the students whose family members were following plant-based diets were more able to describe environmental outcomes compared to the students with family members who followed omnivore diets.

To conclude the findings of the study, subjective norms among the students' family members had the most significant influence on the students' plant-based eating behaviours. Norms among the students' family members influenced the students' attitudes toward environmental and health-related outcomes as well as opinions on the taste of plant-based foods. However, among the studied outcomes animal welfare motivated the students the most toward plant-based eating. Interestingly, family members did not seem to affect the students' attitudes toward animal welfare, and thus animal welfare was especially important among the students whose family members were not following plant-based diets.

However, as with most studies, this study design is subjected to several limitations as described in chapter 4.5. Besides the acknowledged limitations of the researcher and study design, the chosen theory was found to maintain significant limitations. Firstly, the theory's description of a behaviour as a sum of attitudes and subjective norms as disconnected entities were shown to be too simplified as the results of the study found multiple linkages between the categories. Secondly, some aspects such as a cultural context were found to affect both attitudes and subjective norms, and therefore it was challenging to apply to the theory. Finally, attitudes such as taste toward plant-based foods lay outside the theory which showed that attitudes were not necessarily caused by beliefs and beliefs about their outcomes as the theory describes.

6.1. Recommendations

Although the results of the study should be considered with caution, the most significant findings could aid in designing policy recommendations that aim to improve students' willingness to eat plant-based foods at school. To begin with, the results of the study have demonstrated that attitudes and subjective norms influence students' eating behaviours to a significant extent. Despite this, the role of attitudes and subjective norms seemed to be less concerned in Finnish schools. In fact, the findings revealed that most of the students who were mostly eating plant-based options at school were influenced by their family members instead of teachings at school. Thus, the Finnish curriculum could focus more on promoting plant-based eating through positive attitudes and subjective norms. For example, schools could further improve students' knowledge of food production's environmental outcomes, plant-based nutrition, and -cooking, as well as provide a social environment that strongly supports plant-based eating. Consequently, students' willingness to eat plant-based options could eventually improve, which, in turn, is required for a dietary transition toward a more sustainable food culture.

To promote plant-based eating at schools the different topics that students should gain more knowledge of could be included in the studied school subjects. For example, food production's environmental outcomes could be better included in environmental studies, aspects related to plant-based nutrition in health studies, and plant-based cooking skills in home economics. Besides, plant-based eating should be considered as any positive action that schools encourage students to follow. In this way, students could receive information and support which would improve their attitudes and subjective norms to be more positive toward plant-based eating. As schools would take responsibility for educating students on the benefits of sustainable diets, all students could have a more even starting point to decide on the adoption of plant-based eating habits. Thus, the following step to improve students' willingness to eat plant-based options at school should focus on examining how positive attitudes and subjective norms toward plant-based eating could be better included in the Finnish curriculum and put into practice. As we have reached the point where our food choices are destroying the planet and our health, we must speed up the dietary transition toward more sustainable and healthy diets. Therefore, I hope this thesis has managed to pave the way for the urgent shift toward plant-based eating in which Finnish schools could have a pioneering role.

REFERENCES

Ackermann, C. L., & Palmer, A. (2014). The contribution of implicit cognition to the theory of reasoned action model: A study of food preferences. *Journal of Marketing Management, 30*(5-6), 529-550. https://doi.org/10.1080/0267257X.2013.877956

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, *2*(4), 314-324. https://doi.org/10.1002/hbe2.195

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological bulletin*, *84*(5), 888. https://doi.org/10.1037/0033-2909.84.5.888

Beaulieu, D., & Godin, G. (2011). Factors predicting staying in school to eat lunch. *Health Education*, *111*(1), 20-33. https://doi.org/10.1108/09654281111094955

Brewer, J., Blake, A., Rankin, S., & Douglass, L. (1999). Theory of reasoned action predicts milk consumption in women. *Journal of the American Dietetic Association, 99*(1), 39-44. https://doi.org/10.1016/S0002-8223(99)00012-7

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

Clausnitzer, J. (2021, July). *Per capita consumption of meat in Finland in selected years from 1950 to 2020.* Statista. Retrieved August 16, 2021, from https://www.statista.com/statistics/612739/annual-per- capita-consumption-of-meat-in-Finland/

ELO-säätiö. (2019, June 27). *Kauha kerrallaan kohti tasa-arvoa*. Retrieved August 16, 2021, from http://www.elo-saatio.fi/blog/2019/06/27/kouluruokailu-suomessa/

Etelä-Suomen Sanomat. (2021, May 24). *Punaista lihaa entistä harvemmin Lahden koulujen ruokalistoilla, suosion muutos näkyy etenkin lukioissa – ”Helposti puolet voi syödä*

kasvisruokaa". Retrieved January 19, 2022, from https://www.ess.fi/paikalliset/4157167

Finlex. (2022, May 3). *Perusopetuslaki*. Retrieved May 12, 2022, from https://www.finlex.fi/fi/laki/ajantasa/1998/19980628

Finnish Institute for Health and Welfare. (2022, January 28). *FoodStep - a sustainable health-promoting model for food services and early childhood education and care*. Retrieved March 22, 2022, from https://thl.fi/en/web/thlfi-en/research-and-development/research-and-projects/foodstep-a-sustainable-health-promoting-model-for-food-services-and-early-childhood-education-and-care

Finnish National Agency for Education. (2022). *Kouluruokailun merkityksestä*. Retrieved April 26, 2022, from https://www.oph.fi/fi/koulutus-ja-tutkinnot/kouluruokailun-merkityksesta

Garnett, T., Benton, T., Nicholson, W., & Finch, J. (2016). *An overview of food system challenges* (Foodsource: chapters). *Food Climate Research Network, University of Oxford*. https://www.tabledebates.org/chapter/overview-food-system-challenges

Grønhøj, A., Bech-Larsen, T., Chan, K., & Tsang, L. (2013). Using the theory of planned behavior to predict healthy eating among Danish adolescents. *Health Education*. *113*(1), 4-17. https://doi.org/10.1108/09654281311293600

Hampinen, T., & Piiroinen, L. (2018). *MIKSI KOULURUOKA EI MAISTU?: Kvantitatiivinen tutkimus kouluruokailusta Valtimon yhtenäiskoulun 4.-9. vuosiluokkien oppilaille* [Bachelor's thesis, Karelia University of Applied Sciences]. Theseus. http://www.theseus.fi/handle/10024/158647

Howitt, D. (2013). *Introduction to Qualitative Methods in Psychology*. (2nd ed.) Pearson Education Limited.

IPCC. (2021). *Summary for Policymakers*. Retrieved August 16, 2021, from https://www.ipcc.ch/report/ar6/wg1/#SPM

Kalaniemi, S., Ottelin, J., Heinonen, J., & Junnila, S. (2020). Downscaling consumption to a universal basic income level falls short of a sustainable carbon footprint in Finland.

Environmental Science & Policy, 114, 377-383. https://doi.org/10.1016/j.envsci.2020.09.006

Kaljonen, M., Peltola, T., Kettunen, M., Salo, M., & Furman, E. (2018). Kasvisruokaa kouluun–kokeileva tutkimus ruokavaliomurroksen tukena. *Alue ja ympäristö*. *47*(2), 32–47. https://doi.org/10.30663/ay.75114

Keskinen, J. (2017). *" Äiti tarjoaa vieläki joskus grillimakkaraa": Kasvissyöjien kokemuksia omasta ruokavaliosta ympäröivässä yhteisössä* [Master's thesis, University of Helsinki]. Helda. http://hdl.handle.net/10138/184195

Kokeilun paikka. (2022.). *Kouluruoka 2030*. Retrieved May 12, 2022, from https://www.kokeilunpaikka.fi/fi/kokeilu/kouluruoka-2030

Kortetmäki, T., Pudas, T., & Saralahti, I. (2021). *Kouluruoka 2030: näin ilmastovaikutukset puolitetaan* [Master's thesis, University of Jyväskylä]. JYX-julkaisuarkisto. http://urn.fi/URN:NBN:fi:jyu-202102081468

Kouluruoka.fi. (2022). *Kouluruoka.fi*. Retrieved May 12, 2022, from https://kouluruoka.fi/?stay

Lahti. (2021). *Tilastot*. Retrieved October 14, 2021, from https://www.lahti.fi/kaupunki-ja-paatoksenteko/tietoja-lahdesta/tilastot/

Lehikoinen, E., & Salonen, A. O. (2019). Food preferences in Finland: Sustainable diets and their differences between groups. *Sustainability, 11*(5), 1259. https://doi.org/10.3390/su11051259

Lombardini, C., & Lankoski, L. (2013). Forced choice restriction in promoting sustainable food consumption: Intended and unintended effects of the mandatory vegetarian day in Helsinki schools. *Journal of Consumer Policy, 36*(2), 159-178. https://doi.org/10.1007/s10603-013-9221-5

Ministry of Education and Culture. (n.d.). *Peruskoulu*. Retrieved September 5, 2021, from https://minedu.fi/peruskoulu

Ministry of the Environment. (2019, August 29). *Kansalaisten hiilijalanjälki halki vuoteen 2030 – neljälle ilmastoratkaisulle jatkorahoitusta*. Retrieved August 16, 2021, from

https://ym.fi/-/kansalaisten-%20hiilijalanjalki-halki-vuoteen-2030-neljalle-ilmastoratkaisulle-jatkorahoitusta

National Institute for Health and Welfare. (2018). *Nutrition in Finland – The National FinDiet 2017 Survey*. Retrieved September 6, 2021, from https://www.julkari.fi/handle/10024/137433

Parker, B. (2020). Consuming health, negotiating risk, eating right: Exploring the limits of choice through a feminist intersectional lens. *Journal of Critical Dietetics*, *5*(1), 45-57. 10.32920/cd.v5i1.1336

Petrovic, Z., Djordjevic, V., Milicevic, D., Nastasijevic, I., & Parunovic, N. (2015). Meat production and consumption: Environmental consequences. *Procedia Food Science*, *5*, 235- 238. https://doi.org/10.1016/j.profoo.2015.09.041

Pohjolainen, P., Tapio, P., Vinnari, M., Jokinen, P., & Räsänen, P. (2016). Consumer consciousness on meat and the environment—Exploring differences. *Appetite*, *101*, 37-45. https://doi.org/10.1016/j.appet.2016.02.012

Pohjolainen, P., Vinnari, M., & Jokinen, P. (2015). Consumers' perceived barriers to following a plant-based diet. *British food journal*, *117*(3), 1150-1167. https://doi.org/10.1108/BFJ-09-2013-0252

Päivärinta, E., Itkonen, S. T., Pellinen, T., Lehtovirta, M., Erkkola, M., & Pajari, A. M. (2020). Replacing animal-based proteins with plant-based proteins changes the composition of a whole Nordic diet—a randomised clinical trial in healthy Finnish adults. *Nutrients*, *12*(4), 943. https://doi.org/10.3390/nu12040943

Salonen, A. O., & Helne, T. (2012). Vegetarian diets: A way towards a sustainable society. *Journal of Sustainable Development*, *5*(6), 10. DOI:10.5539/jsd.v5n6p10

Sitra. (2018, March 8). *The carbon footprint of the average Finn*. Retrieved October 20, 2021, from https://www.sitra.fi/en/articles/carbon-footprint-average-finn/

Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes, and intentions of Finnish consumers in buying organic food. *British food journal*. *107*(11), 808-822. https://doi.org/10.1108/00070700510629760

Tasty School. (n.d.). *Food Education for Primary Schools*. Retrieved March 24, 2022, from https://maistuvakoulu.fi/info/

Tommasetti, A., Singer, P., Troisi, O., & Maione, G. (2018). An extended theory of planned behavior (ETPB): investigating customers' perception of restaurants' sustainability by testing a structural equation model. *Sustainability, 10*(7), 2580. https://doi.org/10.3390/su10072580

University of Helsinki. (2021, October 20). *Lounasravintolat ympäri Suomen ovat innostuneet ilmastokestävästä kasvisruoasta*. Retrieved March 24, 2022, from https://www.sttinfo.fi/tiedote/lounasravintolat-ympari-suomen-ovat-innostuneet-ilmastokestavasta-kasvisruoasta?publisherId=3747&releaseId=69922081

Urho, U., Hasunen, K. (2003). *Yläasteen kouluruokailu 2003. Selvitys peruskoulun 7–9-luokkien oppilaiden kouluruokailusta*. Sosiaali-ja terveysministeriö. http://urn.fi/URN:NBN:fi-fe201504224705

Vaarasto, L. (2021). *Kouluruoka kestäväksi planetaarisella ruokavaliolla – hyväksyvätkö lapset kasvisruoan?* [Bachelor's thesis, Tampere University of Applied Sciences]. Theseus. http://www.theseus.fi/handle/10024/500402

Vainio, A., Niva, M., Jallinoja, P., & Latvala, T. (2016). From beef to beans: Eating motives and the replacement of animal proteins with plant proteins among Finnish consumers. *Appetite, 106*, 92-100. https://doi.org/10.1016/j.appet.2016.03.002

Väätäjä, R. (2019). *" No liha on silleen nähty": Fenomenologinen tutkimus kasvissyönnin merkityksistä kasvissyöjille* [Master's thesis, University of Helsinki]. Helda. http://hdl.handle.net/10138/302316

Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., Garnett, T., Tilman, D., DeClerck, F., & Wood, A. (2019). Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems. *The Lancet, 393*(10170), 447-492. https://doi.org/10.1016/S0140-6736(18)31788-4

World Food Programme. (2022). *School Feeding*. Retrieved January 10, 2022, from https://www.wfp.org/school-meals

Yzer, M. (2017). Reasoned action as an approach to understanding and predicting health message outcomes. In *Oxford Research Encyclopedia of Communication*. https://doi.org/10.1093/acrefore/9780190228613.013.255

Norges miljø- og biovitenskapelige universitet
Noregs miljø- og biovitskapelege universitet
Norwegian University of Life Sciences

Postboks 5003
NO-1432 Ås
Norway