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**Perceptions of Finnish adolescents on ecologically  
sustainable food consumption**

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<p>The food system is not in a sustainable state. The current ways of producing and consuming food are significant contributors to climate change and biodiversity loss. In order to be able to feed the growing population of humans and ensure the living conditions on the Earth in the future there needs to be a sustainable transition in the food system. In this study, consumer-centric approach towards understanding how the transition to more ecologically sustainable food system can be made is taken. It is essential to take this bottom-up approach to the larger transition in ecological sustainability from the adolescents viewpoint, as they are the consumers of the future, and in early stages in creating their independent food consumption patterns. In addition, there is an apparent need for research on adolescents perceptions on the topic. Therefore three research questions were opposed: Firstly, are Finnish adolescents interested in ecologically sustainable food consumption? Secondly, what does ecologically sustainable food consumption mean for them? Thirdly, how would they change their food consumption habits in order to make it more ecologically sustainable?</p> <p>Research questions were approached qualitatively by collecting the data in eight online focus groups. Participants in the focus groups were 16 to 25 years-old Finnish adolescents. The data was analysed with discourse analysis. As the theoretical background for this research was in sustainability transitions, the results were organized by using the Five O's framework, which consists from objectives, obstacles, options, opportunities and outcomes.</p> <p>According to the study, this sample of Finnish adolescents were interested in ecologically sustainable food consumption. They were convinced of the possibility that an individual consumer can make a difference through his/her consumption choices. From the adolescents viewpoint, ecologically sustainable food consumption was mostly about reduction of animal-based food products, and the emphasis was on reducing meat eating. The adolescents mentioned also the importance of local and organic food. Food waste did not have that big of a role in relation to ecologically sustainable food consumption, but it was mentioned in a context, that people should buy food only as much as they need. Food should not be wasted. Small carbon footprint and less plastic in food packaging were mentioned as well. The adolescents were willing to change their habits to more ecologically sustainable in many ways, but still they were not willing to compromise radically their current ways of consuming food. In the present everyday life, it was mainly about reducing meat intake and favoring local and organic food products. Still poor taste and structure of meat alternatives, in addition to high price of ecological food in general were seen as the central obstacles. In order to be able to change their ways of consuming even more ecologically in the future, adolescents stated that less-animal based diets should be normalized. There was also a need for reliable and clear information.</p>			
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<p>Ruokajärjestelmä ei ole kestävällä tasolla. Tämän hetkiset tavat tuottaa ja kuluttaa ruokaa vaikuttavat merkittävästi ilmastomuutokseen sekä biodiversiteetin köyhtymiseen. Jotta olisi mahdollista ruokkia kasvava ihmispopulaatio ja taata elinkelpoiset olot maapallolla tulevaisuudessa, meidän täytyy pyrkiä muuttamaan ruokajärjestelmämme kestävämmäksi. Tässä tutkimuksessa lähtökohta on siinä, miten muutos kohti ekologista kestävyttä voidaan tehdä kuluttajien kulutustapoja muuttamalla. Lähtökohtana tässä yksilötasolta lähtevässä muutoksessa ovat nuoret, sillä he ovat myös tulevaisuuden kuluttajia ja vasta kehittämissä omia itsenäisiä kulutustapojaan ruoan suhteen. Lisäksi aiheen tiimoilta on hyvin vähän tuoretta tutkimustietoa. Tutkimuksen tavoite on vastata kolmeen tutkimuskysymykseen. Ensimmäiseksi, ovatko suomalaiset nuoret kiinnostuneita ekologisesta ruoankulutuksesta? Toiseksi, miten he käsittävät ekologisesti kestävä ruoankulutuksen? Kolmanneksi, miten he muuttaisivat ruoankulutustottumuksiaan ekologisesti kestävämmiksi?</p> <p>Tutkimuskysymyksiä lähestyttiin laadullisin metodein. Data tutkimukselle kerättiin kahdeksasta fokusryhmähaastattelusta, jossa osallistujina oli 16-25-vuotiaita suomalaisia nuoria. Lopuksi data analysoitiin diskurssianalyysillä. Tutkimuksen teoreettisen tausta oli kestävässä siirtymäteoriassa, täten tuloksia mallinnettiin viiden O:n viitekehyksellä.</p> <p>Tutkimuksen tulokset osoittivat, että tämä otos suomalaisista nuorista oli kiinnostunut ekologisesti kestävästä ruoankulutuksesta. Lisäksi he uskoivat yksilön kykyyn vaikuttaa omilla kulutustavoillaan. Ekologinen ruoankulutus merkitsi nuorille erityisesti lihan kulutuksen sekä muiden eläinperäisten tuotteiden vähentämistä. Nuoret mainitsivat myös lähiruoan ja luomutuotteiden tärkeyden. Lisäksi esiin nousi myös ruokahävikki, mutta sitä ei koettu suureksi tekijäksi suhteessa ekologisesti kestävään ruoankulutukseen. Ruokahävikki mainittiin siinä kontekstissa, että ihmisten tulisi ostaa ruokaa vain sen verran, kun he sitä kuluttavat. Pieni hiilijalanjälki sekä vähäinen muovin määrä elintarvikepakkauksissa nousivat myös esiin. Nuoret ilmaisivat olevansa halukkaita muokkaamaan ruoankulutustapojaan, mutta eivät halunneet tehdä niissä radikaaleja muutoksia. He painottivat erityisesti lihan kulutuksen vähentämistä sekä lähiruoan ja luomun kulutuksen lisäämistä. Keskeisinä esteinä lihan kulutuksen vähentämiselle oli lihaa korvaavien tuotteiden huono maku ja rakenne, sekä ekologisesti kestävien ruokatuotteiden yleisesti korkeampi hinta. Nuoret painottivat myös, että tulevaisuudessa kulutustottumusten muokkaaminen ekologisesti kestävämmiksi vaatisi sellaisten ruokavalioiden normalisoitumista, jotka sisältävät vähemmän eläinperäisiä tuotteita, sekä luotettavan ja selkeän tiedon lisäämistä.</p>			
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# 1 Introduction

The Earth is facing serious problems, at the same time there is ongoing loss in biodiversity and the problem with emerging climate change, which are partly caused by food production and consumption (Willet et al., 2019). The interrelation of these topics has gained significant amount of attention in both scientific literature as well in the public media (e.g. SYKE, 2020; Saavalainen, 2019). WWF stated in the Living Planet Report (2020), that our current ways of consuming are affecting seriously the biodiversity of the Earth, meaning we are losing animal species faster than ever before. Whereas according to EAT Lancet report (2019) we should shift towards more less-animal based diets in order to be able to feed the growing population of the world, and to maintain the living conditions in the Earth viable.

It is evident that the transition towards more sustainable food system is needed and consumers with their food choices and food consumption patter have a significant role in facilitating the sustainable future (Springmann et al., 2018). Therefore, we need to explore the current food consumption patterns in more details and identify paths to enable transition towards sustainable food system (Spaargaren, Oosterveer & Loeber, 2012). In this study, the interest is targeted to adolescents, the ones' who are going to concretely see the effects of the climate change on this planet. The reason for the choice are twofold. First, the adolescents are at the age in which their values and attitudes towards sustainable food consumption are forming along with the food consumption habits, which will be reflected in their future behaviour (Kamenidou, Mamalis, Pavlidis & Bara, 2019). Second, adolescents are the one's who will be living in the world affected by climate change and will concretely see the effects.

## 1.1 Background of the research

Global food production currently creates a danger for the climate and the stability of the ecosystem (Garnett, 2013; Scarpato & Simeone, 2013; Tilman & Clark, 2014; Whitmee et al., 2015). Food production is also one of the main drivers of environmental degradation, biodiversity loss and water extraction (Foley et al., 2011). The global food system makes a notable contribution to greenhouse gas emissions in all stages of the supply chain (Garnett, 2013), meaning agricultural production and processing, distribution, retailing, home food preparation and the waste produced from it (Annunziata & Scarpato, 2014). The biggest risk for the environment is the agricultures primary production,

because of the land use in field cultivation and livestock farming (Steinfeld et al., 2006). Meat and other animal-based products have the biggest effect on agriculture's GHG emissions (Weber & Matthews, 2008). Different animals farmed give different contributions for the state of the climate (Gonzales, Frostell & Carlsson-Kanyama, 2011). For instance, red meat is commonly the biggest burden for the environment, whereas chicken or fish breeding contribute less (ibid). When comparing the carbon dioxide equivalents the emissions from the livestock industry can be compared to the entire planet's car-, train-, and airplane-emissions (Steinfeld et al., 2006). Reason for this is methane, which is produced in the digestion of the ruminants but also nitrous oxide emissions, which originate from fertilizer production and is released from the fields (ibid).

In order to achieve a sustainable food system, it is essential that agriculture and biodiversity go hand in hand (FAO, 2010). Biodiversity, in relation to food and agriculture, consists of many dimensions (FAO, 2019) including domesticated plants and animals raised in crop, livestock, forest and aquaculture systems, harvested forest and aquatic (ibid). In addition, the wild relatives of domesticated species and other wild species harvested for food and other products are also included (ibid). The Global Assessment Report on Biodiversity and Ecosystem Services (2019) implies that the loss of biodiversity can be referred to as very serious as climate change proceeds. A central problem here is that little knowledge exists about how the current biodiversity loss is going to influence the Nordic countries, Finland for instance (ibid). Already it has been noticed that there has been a reduction in the variety of grown crops as well in domesticated animals (ibid).

Intensification in agricultural production and current consumption patterns in Western countries are determinants for the worry about the state of the environment (Garnett, 2008), one central reason for this is excessive red meat consumption in Western countries (Willet et al., 2019). According to Bryngelsson, Wirsenius, Hedenus and Sonesson (2016), the carbon footprint in food-related emissions can be reduced in two ways. The first is changing and innovating new production or distribution technologies and the second is creating a change in food consumption (ibid). According to Allievi, Vinnari and Luukkanen (2015) sustainability challenges in the food system demand changes and they should be addressed by adapting three different strategies in efficiency, sufficiency and consistency. According to Huber (2000), the strategy of efficiency is linked with technological improvements, which generally are aiming to increase economic growth in relation to businesses and industries, meaning that for instance the same amount of food could be potentially produced with less energy, which would contribute positively to climate. Therefore, it is considered to be in the

interests of food production side (Rawles, 2010). The strategy of sufficiency is contrary to efficiency, it is about lowering the consumption to appropriate level (Huber, 2000). This could also indicate re-organizing the base and amount of food products consumed (Allievi et al., 2016). Meaning reduction of animal-based food consumption (Allievi et al., 2016) or diminishing food waste (Godfray, 2011). The strategy of consistency is aiming towards vegetarianism in relation to food, emphasizing its contribution to both ethical and environmental considerations (Allievi et al., 2016). As the research is seeking ways to make positive contribution to environment by discovering ways to incorporate more sustainable consumption pattern among consumers, the emphasis is both strategies of sufficiency and consistency.

There is no clearly agreed definition for sustainable food consumption (Annunziata & Scarpato, 2014; Kamenidou et al., 2019). Sustainable food consumption could be referred as wider term, which includes all the environmentally-sound food choices and practices e.g. favoring organic food (Verain et al., 2012), local food (Scalvedi & Saba, 2018), reduction of meat consumption (Redman & Redman, 2014) as well reduction of food waste (Clemente, Pérez-Sánchez, Ribal, Sanjuán & Escobar, 2013). As stated by Kamenidou et al. (2019) sustainable food consumption is commonly studied from a point of view of certain practice, therefore it needs to be discovered more holistically as a whole. Because of that, it is the starting point for this research. According to Sargant (2014) sustainable food consumption can be the result from deliberate or unconscious actions of consumers, who buy sustainable products and as a consequence they balance the consumption and waste reduction. In other words, they minimize the effect of their consumption patterns on the environment. Still it has to be noted that even though the consciousness of the people in food sustainability issues has been increasing, it does not necessarily mean that it would directly reflect on people's daily food choices (Vermeir & Verbeke, 2006; Verain et al., 2012). Verain et al. (2012) state that consumption is nowadays not seen as a phenomenon opposite to sustainability, it is also important to acknowledge what is being consumed. Therefore, it is evident that there is a need for finding consumption patterns that make food consumption more sustainable, and therefore consumers have a central role in creating the transition towards more sustainable food system (Sargant, 2014; Vittersø & Tangeland, 2015).

According to Mäkelä (2003), the existing food culture has an effect on how the individual consumes food. The way that the food culture is constructed is affected by values, attitudes, habits and routines of individuals, in addition to the construction of the society, political systems and the economy in general (ibid). For instance, the consumption of meat is highly culturally constructed (Kakriainen,



Mononen & Silvasti, 2006). Vinnari (2010) researched in his doctoral thesis *The past, present and future of eating meat in Finland* the cultural context of meat eating in Finland. People's preferences on what to eat depend highly on the habits and history, which are created in the culture (ibid). Besides that, eating choices also derive from personal values and preferences of the individual (ibid). Similarly, Salonen and Helne (2012) state that the behavior of individuals and adaptation to plant-based diet are influenced by social factors, for instance the habits and routines, which are generated in certain social groups.

From the viewpoint of the consumers, sustainable food consumption is not that straight forward. Siegrist & Hartmann (2019) state, that typically consumers are not completely wrong, but strongly biased when evaluating the environmental impacts of different food products. According to earlier research (de Boer, de Witt & Aiking, 2016; Tobler, Visschers & Siegrist, 2011) many consumers underestimate the environmental effects of animal farming. Consumers for instance estimate that packaging materials are more harmful for the environment than meat production (Tobler et al., 2011). Responsibly fished fish or naturally produced organic meat are commonly seen, as more sustainable options, and the consumers are willing to consume them as well (ibid). Still when making the purchase decisions, price is one of the most important determinants, which might become an obstacle for increased sustainability (ibid). Meat substitutes and replacing meat are commonly related with negative perceptions (ibid). According to Tobler et al. (2011), consumers who consider environmentally friendly options as important, are typically more willing to eat seasonal products, such as fruits and vegetables. Reducing meat consumption is generally the least favorable option when it comes to environmentally friendly food consumption. Reasons why consumers think that their meat consumption should be reduced tend to be related to consumers' personal health of and ethical issues (ibid).

## **1.2 Research problem and research questions**

In this research, the intention is to scrutinize what are the preconditions for creating a transition towards ecologically sustainable food system from the viewpoint of adolescents. There is very little recent literature about adolescents' perceptions on the topic. However, this age group is particularly interesting as they represent future consumers and as they are in a situation in their lives when they are moving away from their homes, starting an independent life and making important decisions on

their personal life style. By using the sustainability transition as the theoretical background it is possible to evaluate larger societal change, starting from the individual level of consumers.

Research questions are framed as follows:

1. Are the Finnish adolescents interested in ecologically sustainable food consumption?
2. What does ecologically sustainable food consumption mean for them?
3. How would they change their food consumption habits in order to make it more ecologically sustainable?

Answers to these questions are found by conducting online focus groups and analyzing the material collected with discourse analysis.

## **2 Ecologically sustainable food consumption**

Before approaching ecological sustainability in the food system itself, it is important to take into consideration that sustainability or sustainable development is a concept, which has varying meanings, and it is commonly understood differently by different actors (Hopwood, Mellor & O'Brien, 2005). Sustainable development received largely attention at the end of the 1980s, when the report *Our Common Future* was published by the United Nations World Commission on Environment and Development (UN, 1987). According to the report, the definition for sustainable development was “development of the human kind should be sustainable in a way, that it will fulfill the needs of the present without taking the ability to fulfill the needs of the future generations” (UN 1987, p. 15).

The construct of sustainability can be defined with three pillars: economic, social and ecological (Gibson, 2006; Goodland & Daly, 1996; Hunkeler & Rebitzer, 2005). According to Goodland and Daly (1996) economic sustainability is about “maintenance of capital”, whereas social sustainability is about “systematic community participation and strong civil society”. Hence, economic growth and social welfare should not be achieved by exploiting the scarce natural resources infinitely, only to a point which is in a sustainable level (ibid). There has been criticism towards this, for instance Hopwood et al. (2005) state that the idea of sustainable development is a human-centered view of the inter-relations of these three pillars, aiming to economic growth with the cost of the environment. Griffins et al. (2002) state that it has to be understood that humans are part of the environment, meaning we cannot continue exploiting the environmental resources aimlessly. In this study the focus is on ecological and strong sustainability. Strong sustainability is rooting for the change in values of the people and companies and emphasizing that the different equities e.g. scarce natural resources and both social and economic resources supplement each other, but cannot replace one with another (Neumayer, 1999). It can be said, that strong sustainability and the strategy of sufficiency presented in the previous chapter are interrelated, as they are both emphasizing the idea of change in the amount of materials consumed.

### **2.1 Ecological sustainability in the food system**

Factors important in relation to ecologically sustainable food consumption are biodiversity, dietary shift towards more plant-based diets, favoring local and organic food, and reducing food waste

(Meltzer et al., 2019). Within the next paragraphs relevant aspects of these viewpoints are being presented.

In order to ensure ecological sustainability in the food system it is crucial to take the biodiversity into account (FAO 2010). Biodiversity of the food system is affected by the variety of crops and breeds, land use, and most importantly relation to this study, consumption choices of the consumers (Räsänen et al., 2014). The diversity of the food system correlates positively to its capability to adapt and recover from changes (Kahiluoto & Himanen, 2012). Biological diversity increases the stability of different ecosystems, and the ability to recover from unexpected disturbance, and therefore it ensures the continuity of life in the Earth (Mönkkönen, 2004; Holling, 2001). Adequate level in biodiversity is a starting point also for functional ecosystem services, they are connected to wellbeing of the humans as well (FAO 2010). For instance bee keeping, gathering of different kinds of natural products, hunting and fishing benefit from the biodiversity (Lappalainen, 1998). Typical way to picture or measure the biodiversity is to measure the amount of endangered species (Räsänen et al., 2014). The living planet report from WWF (2020) states that there is average 68% decrease in the populations of mammals, birds, amphibians, reptiles and fish, measured by the time between 1970 and 2016. In order to improve the condition of the biodiversity of earth as well as tackle the climate change, there is evident need to consider certain ways of consuming food, for instance dietary shifts towards less-animal based diets (ibid).

Meltzer et al. (2019) have conducted a study, which emphasizes environmental sustainability perspectives of the Nordic Diet, also in the case of Finland. They see sustainability as a great motivator for dietary shifts that are health promoting in addition to being sustainable (ibid). Their emphasis is mainly on increasing the use of plant-based food products and reducing animal-based food in peoples' diets. Willet et al. (2019) together with the EAT-Lancet Commission (2019) state, that if we want to ensure sustainability of the planet, we need to move to more plant-based diets. This so-called 'planetary diet' includes legumes, nuts, unsaturated oils, and large amount of vegetables (ibid). As animal based protein sources, a moderate amount of seafood and poultry is included in the diet, but not at all, or just small amount of red meat, processed meat, added sugar, refined grains and starchy vegetables is recommended (ibid). Springmann et al. (2018) acknowledge the potential in flexitarian diets as well. This means especially replacement of environmentally intensive foods, meat for instance with more plant- based foods (ibid). According to Risku-Norja, Kurppa and Helenius (2009) the most effective transformation on the ecological sustainability in Finland would be

switching to vegan diet. It would reduce agricultural emissions by 34%, when comparing it to the average meat-containing Finnish diet.

Diminishing the food miles by favoring local food can also be considered to be a way of improving ecological sustainability of the food system (Räsänen et al., 2014). Relatively wide definition for local food is that it is food, which is produced and consumed in the same region (MMM, 2013). According to Lewis and Mitchell (2014) that the main argument in favor of local food is that when food is transported from a longer distance it creates higher levels of GHG emissions, which then contribute to climate change. In the case of local food, the transportation distances are short, and therefore fossil fuels are consumed less (Mäkipeska & Sihvonen, 2010). On the other hand, in the worst case the lack of combined transportation may lead to a situation where there is multiple shipments (ibid). It should be taken into account how the consumer get the end product (Foster, Green & Bleda, 2007) is it for instance delivered by cars consuming fossil fuels. It is important to take into consideration that local food production still affects the environment (Räsänen et al., 2014).

In the context of Nordic countries organic farming is also one of the acknowledged ways of producing food in an ecologically sustainable way (Meltzer et al., 2019). The core idea in organic farming is, that the agricultural system uses only ecologically-based pest control and biological fertilizers, which are commonly derived from animal and plant waste and nitrogen-fixing cover crops as well (Clark & Tilman, 2017). Organic farming uses less pesticide compared to conventional agriculture (ibid). It has been argued that it can increase soil organic matter and reduce soil erosion, as well as diminish nitrate and phosphate from leaching into both groundwater and surface water (ibid). Organic farming also recycles plant and animal waste cogently (ibid). Central problem with organic farming is that the food cost tends to be higher to consumers compared to products from conventional agriculture, and the yields are typically 20-25 per cent lower (Reganold & Wachter, 2016). Hence, organic farming demands larger area in order to produce the same amount of food as in conventional agriculture (Brantsæter et al., 2017). On the other hand Meltzer et al., (2019) state, that if the dietary recommendations mentioned above would be followed, organic production could also meet the needs of food for the Nordic population. Reduced meat consumption would lower the need of animal fodder and therefore rendering sufficient organic crop levels (Lacour et al., 2018). Still it has to be acknowledged, that organic farming cannot just simplistically be favored over conventional farming (Meltzer et al., 2019). In the case of Finland the total amount of arable land used to organic farming was 13,5% (Pro Luomu, 2019). In this decade organic sales have approximately doubled, and in 2019

organic products were sold in retail stores for 368 million euros (ibid). Even though the numbers sound promising the market share for organic products was only 2,6 % in the year 2019 (ibid).

The food waste has also impacts on environment (Graham-Rowe, Jessop & Sparks, 2014; Göbel, Langen, Blumenthal, Teitscheid, & Ritter, 2015). According to Griffin, Sobal, and Lyson, (2009) food waste is regarded as a 'loss of food', which is placed at the end of food supply chain, meaning distribution, retail and final consumption. The biggest part of this food goes to waste because of the households and consumers (Parfitt, Barthel & Macnaughton, 2010). It has been roughly estimated, that approximately 20 to 30 per cent of food bought by the consumer is thrown away (Halloran, Fischer-Møller, Persson & Skylare, 2018; Stancu, Haugaard & Lähteenmäki, 2016). Alexander et al. (2017) suggest that over-eating should also be taken into account when considering food losses in the food system. The study indicates that over-eating plays as big role as food waste originated from consumers (ibid). Average Finnish consumers provides 23 kg of food waste yearly (Silvennoinen, Koivupuro, Katajajuuri, Jalkanen & Reinikainen, 2012). It has been said, that food waste contributes more negatively to environment than for instance food packaging (Salo et al., 2019). In the next chapter 2.2 common beliefs on ecologically sustainable food consumption in relation to the consumers are discovered.

## **2.2 Consumers and ecologically sustainable food consumption**

According to Lazzarini, Zimmermann, Visschers and Siegrist (2016) food production and consumption in the households' causes one-third of their environmental impact. Therefore, it is important to discover the patterns behind it. Worsley, Wang, Ismail and Ridley (2014) state, that when it comes to food consumption in general, people are commonly interested in a wide scale of cooking-related topics, for instance learning to cook in a cheap, tasty and healthy ways, as well as learning also about using seasonal products, reduction of household food waste and utilizing leftover food in cooking. However, there are also many aspects that are not as commonly discussed, such as e.g. the environmental footprint of food production.

Consumers have different perceptions on what is a good and ecological way to consume food. Vanhonacker, Van Loo, Gellynck and Verbeke (2013) state that typically, many consumers underestimate the ecological impact of animal production, and believe that bigger negative

contributors to climate are transportation, energy use and general consumption in the society as well waste. Malek, Umberger and Goddard (2019) found out in the study that only two out of five meat consumers believe that farming of dairy and meat products are factors contributing to the climate. According to the research by de Boer et al. (2016) and Tobler et al. (2011), consumers are not fully aware of what the link between livestock production and climate change is. On the other hand, Sanchez-Sabate and Sabate (2019) state opportunistically that many consumers actually are aware of the impacts of meat production and consumption on this planet, and they are positive towards reduction of meat eating for environmental reasons. Pohjolainen, Tapio, Vinnari, Jokinen and Räsänen (2016) state that consumers and their ways of consuming meat vary widely. Some consumers do not acknowledge the problem with meat and its contribution to the state of the food system, whereas others do understand the seriousness of the problem, but still fail to shift these thoughts into actions (ibid).

According to the study by Vanhonacker et al (2013), well-known ecological alternatives for general meat consumption are organic meat and sustainable fish. Despite that, generally the willingness to pay for organic meat is lower than willingness to consume these products (ibid). It is relatively common, that consumers are not in favor of alternatives that completely ban or replace meat in the diet (ibid). According to Latvala et al. (2012) half of the meat-eating consumers participating in their study stated, that in the future they were not willing to cut their meat consumption at all, because they had already reduced consumption of beef and pork. Similarly to Vanhonacker et al. (2013) part of the participants were not completely willing to give up eating meat, but they were ready to make changes in their diets to reduce meat consumption and to increase the intake of vegetables (Latvala et al., 2012).

Latvala et al. (2012) note that when the study is based on self-reported data, there was a possibility that the result might not be in line with actual consumption data. Other notion from the same study was that when considering the future consumption intentions of consumers it has to be acknowledged that actions in the future are more uncertain compared to the reflections in the past, as not all intentions to change the existing consumption patterns become reality (ibid). The study from Sanchez-Sabate & Sabate (2019) high light the importance to understand that generally people are willing to answer in ways that are socially desirable, instead of ways how they act in real life. These notions are also valid in this research.

According to Neville, Tarrega, Hewson and Foster (2017) among meat reducers, the most favorable types of meat substitutes are the ones, which mimic the real meat and have meaty flavour, color, and structure. Studies also suggest that there are differences between genders in their attitudes towards reducing meat in their diets. According to Sanchez-Sabate & Sabate (2019) typically, the consumers who have already taken steps towards reducing the intake of meat are young females, ecology-oriented and determined to reduce eating meat but not willing to give it up completely. Whereas Judge and Wilson (2019) state, that male consumers are typically more against vegetarian and vegan diets, compared to female consumers.

Being able to compare what the environmental effects of food consumption are is not an easy task for consumers. Niva, Mäkelä, Kahma and Kjærnes (2014) state that when considering sustainable food consumption activities consuming less meat was the most unfavorable option, and buying local food was the most favorable one. De Boer et al. (2016) state, that commonly consumers think that it is more sustainable to buy local food or to favor seasonal fruits and vegetables, than reduce the intake of meat. On the other hand, Kemp, Insch, Holdsworth and Knight (2010) state that only a few consumers really chose the local food product, because it contributes less negatively to the environment. Tobler et al. (2011) found out, that typically consumers think, that avoiding superfluous packaging in food products is one of the biggest impacts you can make in order to be more environmentally friendly. They also typically think that purchasing of organic food and diminishing consumption of meat were the least impactful choices for the environment (ibid). What comes to food waste according to Watson & Meah (2013) consumers did not acknowledge the connection between food waste and environmental concerns, for instance GHG emissions. Parizeau, Massow and Martin (2015) state, that consumers partly understand the effects of food waste on the environment but it is primarily understood, as a social and economic problem. Stancu et al. (2016) state, that despite the fact that avoiding food waste is suggested to be one of the most promising initiatives for decreasing the environmental impact of food waste, a gap in understanding the relation between consumers' attitudes and their behavior related to food waste exists. It should be emphasized more, that all the actors in the food chain have an important role in reducing the food waste. Borrello, Caracciolo, Lombardi, Pascucci and Cembalo (2017) state similarly, that still fairly little is known about how willing consumers are to take part in circular economy, meaning for instance taking part in tackling the food waste problem in Western countries.



As stated before many consumers are willing to shift their food consumption towards more ecologically sustainable, but still many different obstacles can be identified. A study from Kemper (2020) indicates that commonly consumers who are willing to change their diet towards less meat based diet, are stressed about the nutrition (e.g. getting enough protein and iron) from the alternatives, as well as food preparation skills. They saw, that educating oneself on the new information and learning new skills took much time and effort (ibid). Similarly to Kemper (2020) study from Marsh, Munn and Baines (2013), state that there is a common belief, that it is difficult to get enough protein and other nutrients from a vegetarian diet. Because of the sacrifices for health and environmental gain, the consumers typically are more willing to reduce meat consumption, instead of eggs and dairy (Kemper 2020), as they exist in so many products. According to Sanchez-Sabate and Sabate (2019) one possible obstacle in reducing the meat eating could be the lack of food preparation skills when it comes to meat substitutes (ibid). Because consumers are rarely willing to give up on the pleasure what the meat gives them (Lea & Worsley, 2008), the taste of the meat alternatives should therefore be at least as good as in meat products. According to Aschemann-Witzel, Varela and Peschel (2019), the texture and taste in meat alternatives were commonly negatively associated compared to real meat products among the consumers. Annunziata & Scarpato (2014) state, that even tough consumers express their willingness and interest in buying environmentally sustainable food products in the end the food choice commonly depends on the price and even on the brand of the food product. Graverly and Fraser (2018) state that the placement of meat alternatives in grocery stores seems to have an effect on the purchase decision of consumers. The options should possibly be placed next to other protein options, so that it is easier for a consumer who is willing to reduce meat, to see all the possible option existing in the markets (ibid). In relation to obstacles identified towards ecologically sustainable food consumption, the lack of information plays a significant role (Vermeir & Verbeke, 2006; Vecchio & Annunziata 2013). Many studies present, that lack of knowledge and confusion towards sustainable food consumption correlates in consumers understanding of the logos and labelling in food products (Aschemann-Witzel al., 2013; Pelletier, Laska, Neumark-Sztainer & Story, 2013). According to Lazzarini et al. (2016) costly labels in the food products won't necessarily solve the problem with information and consumers understanding on sustainable food consumption. The study suggests, that consumers' misconceptions as well as ways of promoting environmentally sustainable food purchasing should be addressed more profoundly (ibid). Also Siegrist and Hartmann (2016) state, that by increasing the knowledge about the environmental impact of food might have a positive effect on encouraging consumers towards more sustainable food consumption. Since the food choices consumers make are affected by the individuals habits, motivation, targets, believes and

attitudes, let alone social norms it can be said that changing the food habits is difficult and slow (de Boer et al., 2016).

Niva and Timonen (2001) state, that consumers have difficulties in comprehending their role when it comes to improving the sustainability of the environment by their consumption choices. Instead of taking actions towards more sustainable consumption choices, consumers rely on the producers and companies to take the actions on improving the conditions of the environment (ibid). Macdiarmid, Douglas and Campbell (2016) state that it is common for instance in relation to meat reduction, that consumers do not believe that their individual reduction would make a difference, because others are not doing the same. According to Heiskanen, Mont and Power (2014) people's ability in taking responsibility goes together with societal actors, who people are expecting to take actions in improving the sustainability. These societal actors could for instance be governments or other institutionalized operators. Niva et al. (2014) conclude that commonly consumers who have already taken actions in reducing meat consumption for ecological reasons are expecting the actors from the supplier side to take actions in diminishing the environmental impacts of animal production. In order to succeed in this consumers typically demand also that some political measurements are implied in order to encourage these actions (ibid). In the next part 2.3, the intention is to discover adolescents as consumers of the future, and their perspective on sustainable food consumption.

### **2.3 Adolescents and ecologically sustainable food consumption**

According to John (2008), teenagers are in a reflective state of socialization, where also, their consumption patterns are evolving; therefore, it is an important moment to discover their perceptions in relation to food consumption. Stanes, Klocker and Gibson (2015) also agree that young adulthood is a critical time for establishing certain independent lifestyles and practices. When children reach the stage of adolescence they become more concentrated on the social meanings of consumption. This includes the willingness to shape their own identity and to give their own input on the expectations of different social groups (John, 2008). According to Story, Neumark-Sztainer and French (2002), usually adolescence is the most rapidly changing time of the persons' lifespan, which also has many multifaceted transitions. Many changes, such as physical, developmental and social occur and, have an effect on, among other things, the eating behavior and nutritional health of the youngsters (ibid). Families tend to play a big role on this (ibid). Family in general is an institution, which commonly is

the main provider of food (ibid). It also has an impact on what kind of attitudes young people have on food, and on their food preferences (ibid). Story et al. (2002) state that families share some common values, which tend to affect the eating habits for the whole lifetime. According to Heinonen (2006), the adolescents commonly have the ability to influence on family's food choices with their opinions and preference. A survey about youngsters spare time conducted in the year 2009 showed, that 53 percent of the participants, can completely decide what they eat and when they eat. 25 percent of the participants said that they can affect a lot on what they eat and when (Myllyniemi, 2009), in this research it is important to be critical towards the results because it is based on the self-reported data of the participants, similarly as in the study from Latvala et al. 2012. One potential situation to develop new food consumption patterns could possibly be when the adolescent moves out from the family home. According to Fischer et al. (2017), 17-25 year-olds are usually in the stage of moving out, and leaving their childhood family households, which increases the responsibility of the young person her/himself, and develops opportunities to create a household of their own. Vantamay (2018) states that there is a difference between university students and school students, commonly university students are already living by themselves and able to make independent consumption decisions, whereas school students are more affected by the consumption decisions of their parents.

Autio and Wilska (2003) have researched Finnish adolescents and their understanding about their consumption in general, and its effects on the environment. According to the study, Finnish adolescents' perceptions on the consumption in general reflect to the overall picture of the Finnish society (ibid). The research emphasizes, that it is important to study the topic even though so-called green consumerism is often said to be overly highlighted among consumers and the consumers might not act according to what they say (ibid). Halkier (2001) states that it is common that consumers may say that they are positive towards making changes in their consumption patterns towards sustainability, but are not really ready to make radical changes. The main findings from the research from Autio and Wilska (2003) were that the majority of Finnish adolescents saw the environmental problems as a threat, and were aware of how high standards of living affects the environment. Majority was also willing to give their input in improving the environmental conditions (ibid). However, only one fourth answered that they feel like they were consuming responsibly (ibid). Similar findings have also been made by other researchers more recently (Haanpää & Roos, 2014; Pekkarinen & Myllyniemi, 2017). According to adolescents, environmentally friendly consumption is about recycling waste and recycling in general, and favoring environmentally friendly products (Autio & Wilska, 2003). Green consumerism is commonly seen as one of the ways of consumption

among others (ibid). Moisander (2008) state, that environmentally friendly consumption is no longer related to environmental activism as it used to be in the 1970s and 1980s; it is considered more of a responsible and rational way of consuming. Differences between girls and boys vary, and girls are commonly regarded to be more interested in environmental issues compared to boys (Autio & Wilska, 2003) Similar results has also been reported from study by Torbjönssona (2011) in the context of Swedish adolescents.

There is a need for research on sustainable food consumption and adolescents. The same indication was made in the study by Kamenidou et al. (2019), which was researching sustainable food behaviour from the point of view of the Greek university students. Sustainable food consumption was mainly about favoring seasonal fruits and vegetables and purchasing locally produced food, in the context of these results it is important to acknowledge the origin of the participants in this research (ibid), for instance in Finland the results may vary significantly due to different dietary patterns in the Finnish culture. McBey, Watts and Johnstone (2019) found out in their study, that adolescents and young parents are more willing to make dietary shifts to more vegetarian based diets compared to older people. Whereas Kemper (2020) states, that commonly adolescents are more willing to try new things in relation of reducing meat consumption, compared to older generations. Regarding the transition towards diets including less meat, the obstacles are similar in different generations. When comparing adolescents to the adult generation, these factors are for instance health, environment and cost (ibid). Sogari, Velez-Argumedo, Gómez and Mora (2018) state that when making dietary shifts, adolescents saw that stress and time constraints play a significant role in obstacles. Still it has been stated by Fenekes et al. (1998), that typically adolescents are influenced by the food choices made in their close social surroundings. This could have either positive or negative effects on ecological food consumption. Sogari et al. (2018) emphasizes that adolescents are commonly affected by parental food behaviour as well as the eating habits of friends. Kemper (2020) states similarly in relation to meat reduction, where the adolescents are typically pushed towards reducing meat by their friends, flat mates, and social media.

### 3 Sustainability transitions

When the intention is to tackle complex environmental challenges by approaching the problem holistical theory, sustainability transition theory can be considered as one potential approach (Shove & Walker, 2007). For this research it gives a more holistical starting point, compared for instance to theories generally adapted to consumer behavior. These complex environmental challenges covered by the transition theory are for instance contemporary environmental problems, such as climate change, biodiversity loss, and depletion of resources (clean water, oil, forests, fish stocks, etc), which are all presenting notable challenges in the society (Geels, 2011). These problems are addressed by diving deep into structural changes in transport, energy, agri-food and other systems (Elzen, Geels & Green, 2004; Grin, Rotmans & Schot, 2010; Van den Bergh & Bruinsma, 2008). They require systematic changes, are typically identified as ‘socio-technical transitions’, as the systems mentioned above include wide range of configurations such as technology, policy, markets, consumer practices, infrastructure, cultural meaning and scientific knowledge (Elzen et al., 2004; Geels, 2004). These factors are reproduced, sustained and transformed by actors within the systems, including for instance firms and industries, policy makers and politicians, civil society, engineers, researchers, and finally consumers (Geels, 2010).

According to Loorbach, Frantzeskaki and Avelino (2017) the disciplines which are typically used in transition theories are for instance demography (demographic transition), ecology (ecosystem transitions), psychology (development transitions), and physics (phase transitions of substances). The construct of transition can be defined in different ways. According to Loorbach et al. (2017) “transition can be referred to a nonlinear shift from one dynamic equilibrium to another”, whereas Spaargaren, Oosterveer and Loeber (2012) state, that transitions are more or less structured processes of change, with identifiable pattern through certain time period. This means, that transitions in general, are usually complex and not that straight forward.

The term sustainability transitions is nowadays more and more used to cover large-scale societal changes, referred as “grand societal challenges” (Loorbach et al., 2017). These kind of sustainability transitions are intended to break the existing institutions and other stable configurations, which are facing challenges in sustainability, and create opportunities for more extreme, systematic change (ibid). One of the most known examples from this kind of transformation is the energy transition, which started in the 1970s, when it was argued that societies need to shift their sources of energy away from the fossil fuels to more renewable sources of energy (Geels, 2011). Later, sustainable

transition has been used e.g. to identify problems with industrialized food consumption and production, which are central reasons why the food system is in unsustainable state (Spaargaren, 2011).

Rip, Schot and Kemp (1998) introduced the model of Multi- Level Perspective (MLP) to study transition. The MLP pictures the transition as non-linear process, which has three interacting levels (ibid). *Niche level* is the place for radical innovations (ibid). Niches are typically protected spaces, for instance R&D laboratories or smaller market niches where potential users have special demands, and therefore they are willing to support emerging innovations (Geels, 2011). In the niche level, there are actors, such as entrepreneurs or start-ups who are willing to replace the existing regime with their niche innovations (ibid). *Regime level* can be regarded as forming the deep structure and aiming for the stability of an existing socio-technical system (Geels, 2004). This includes rules, which orient and coordinate the general activities in certain social groups that reproduce the different elements of socio-technical systems (Geels, 2011). These rules in the regime are for example “cognitive routines, capabilities, shared beliefs, competences, lifestyles, regulations, and legally binding contracts” (ibid). The third level is the landscape, and it can be referred to as an exogenous construct, which has an influence on both niche and regime levels (Rip & Kemp, 1998). *The landscape level* includes “political ideologies, demographical trends, societal values, and macro-economic patterns” (Geels, 2011). This level changes slowly compared to the others (ibid). Geels (2004) complemented the theory with explanation of path dependency and lock-in of existing systems of technology among specific technologies (ibid). These kind of lock-in mechanisms can for instance be “scale economies, sunk investments in machines, different infrastructures as well competencies” (Geels, 2011). Consumer lifestyles and preferences can also be regarded as lock-in mechanisms (ibid).

The MLP renders the society through technological transition, where as in this study the change affects the whole society, and especially people’s values and practices towards more sustainable food consumption. Transitions can be regarded as an outcome, which is something unexpected (Loorbach et al., 2017). It involves different actions and changes. These eventually lead to new structures, which were not premeditated (ibid). For instance, we can only state that there is an urgent need for creating a more sustainable food system, but it is not possible to predict beforehand if the adolescents are willing to change their consumption patterns towards more sustainable ones.

Transition research has approached the large-societal changes from different standpoints, for instance technological, institutional, social, ecological, economic and cultural (Loorbach et al., 2017). Typically, the transition is set from the perspective of the central societal problem, but also the solution to the problem can be the starting point (ibid). Most of the sustainability transition research have had a normative goal, where the intention is to understand the transition fundamentally (ibid). In transition studies three distinctive research approaches can be utilized: socio-technical, socio-institutional, and socio-ecological (Loorbach et al., 2017). This research is approaching the sustainability transition from the socio-technical point of view, similarly to the MLP.

The MLP is opposed with criticism due to its strong mechanistic approach to sustainability transitions through states and market actions (Hinrichs, 2014). Köhler et al. (2019) state that the transition research community is lacking to have a practical impact, and should proceed better in engaging the real-world actors, e.g. consumers. This should be done by top-down policy making and engaging with local initiatives (ibid). Grin et al. (2010) state that human behavior is essential to the analysis of social change, and therefore it should be seen as more central factor in the conceptual models, which are used in the transition studies. According to Spaargaren et al. (2012), transitions are processes of change. They have a specific focus, which is put forward and defended, by certain groups of human agents. This makes it possible to explore everyday practices and food consumption related to sustainability transition, and also take into account the actors and institutions in the system (ibid). This is possible through diving deep into habits, practices and attitudes related to food (ibid). Hinrichs (2014) states, that as the MLP provides more vertical approach to sustainable transition more so called social practices approach is needed to cover change from a horizontal level, by analyzing for instance people's everyday practices. Another point that emphasizes the need to gain a deeper understanding about adolescents perceptions on ecologically sustainable food consumption is, that Spaargaren et al. (2012) also point out that nowadays the idea of 'farm to fork' has turned the other way around to 'fork to farm', meaning that there has been an inversion in the food chain. By this, they mean that instead of the wide institutional or governmental approach, the societal change should also be discovered from the individual level, from bottom-up. It has been pointed out that it is important to acknowledge consumers' food preferences and practices in order to fully understand how the transition can be made (Bos et al., in Spaargaren et al., 2012). By keeping this in mind, framework for this study is presented in the next chapter.

## 4 Framework of the research

The framework for this research is adapted from both Loorbachs (2010) transition management cycle and Vinnari & Vinnari's (2014) sustainability transition framework the Five O's.

Loorbachs (2010) transition management cycle (see Figure 1.) is a governance framework; its core idea is to address persistent societal problems, especially in Western industrialized countries. The model emphasizes, that in a successful transition, it is important to have specific networks of actors and clear decision-making processes (ibid). The framework originates from common notions from complex systems theory, and partly from new forms of governance that are linked into a new governance approach (ibid). The model has for instance been adapted to implementation of circular economy (Cramer, 2020). In the model, there are three kinds of governance activities: strategic, tactical, and operational (Loorbach, 2010). The first activity strategic is in other words, the transition arena where forerunners create a small network of experts with different backgrounds (ibid). These forerunners can for instance be actors from governments or businesses, consultants, scientists, and NGOs. They have various perceptions of the central problem and different ideas for how to solve it. These different viewpoints are subsequently integrated to enable forming a common goal for the transition (ibid). Second activity is tactical (ibid). It includes the transition agenda, which translates the idea of the transition into more precise images from the transition in addition constructing the transition paths (ibid). Focus of the activity is in the structural barriers, for instance regulatory, institutional, and economic conditions, consumer routines, physical infrastructures and specific technologies (ibid). The third activity is the operational level, where transition experiments and actions are implemented (ibid). Those experiments should fit within the context of the vision itself and to those transition paths that are developed (ibid). The fourth activity is called reflexive (ibid). It is about evaluating, monitoring and learning (ibid). Monitoring should happen within the actors considering their behavior, networking activities, alliance forming and responsibilities on the transition arena, in other words the results from the third activity are being evaluated (ibid). Also, the transition agenda should be monitored by taking into account the actions, goals, projects and instruments that all have agreed on (ibid). Cramer (2020) state that in addition to sequential shape of the transition cycle, the activities should also be in a cyclic order, as well the activities should be better indicated in order to create more diverse picture with the transition cycle, for instance about the implementation of initiatives of circular economy.



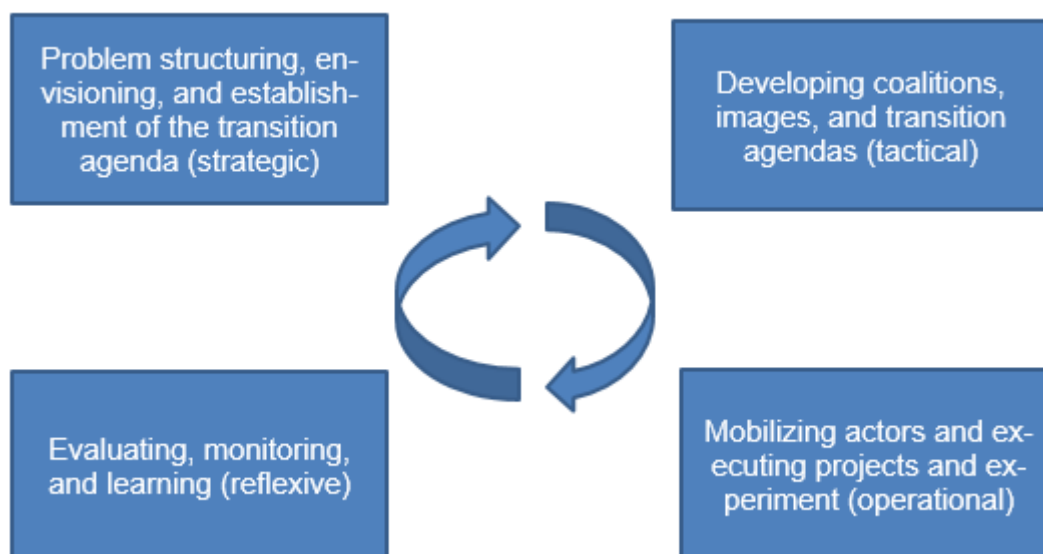


Figure 1. Transition management cycle (Loorbach, 2010)

The sustainability transition framework Five O's from Vinnari & Vinnari (2014) is partly based on Loorbach's (2010) transition cycle (See Figure 2.). The model is specifically aiming at managing the transition towards plant-based diets (Vinnari & Vinnari). The model emphasizes sustainability instead of sustainable development, which means that it refers also to strong sustainability by taking into consideration environmental, economic and social perspectives, in addition to animal protection and culture (ibid).

Vinnari & Vinnari (2014) summarize, that Loorbach's (2010) transition management cycle lacks in providing concrete solutions to specific problems, and does not have a systematic method for selecting the forerunners. In addition there is also a problem with identifying obstacles related to the transition field, and developing solutions to overcome them (Vinnari & Vinnari 2014). Based on this criticism, Vinnari & Vinnari (2014) have developed the framework further in order to be better suited in the context of reducing dairy and meat consumption in the Western countries. They state that an impactful framework for governing sustainability transition could be considered as heuristic, which means systematic listing of options (ibid). When the complete world of practices is considered, it has to be understood that certain options do not exist, because outcomes from various actions can always differ on the context in which they are placed (ibid). According to Geels (2011), a practical sustainability transition framework will mainly recapitulate the important dimensions of an issue and

helps to define the relevant questions, which should be asked from the participants in the transition arena. In order to have a successful sustainability transition critical barriers that prevent the transition from occurring need to be identified (Vinnari & Vinnari, 2014). In addition, the different points for intervention should be brought up (ibid).

Based on these acknowledgments the Five O's framework (See Figure 2.) is first outlining the dimensions of sustainability and the *objectives*, which are associated and relevant to the issue (Vinnari & Vinnari, 2014). The second part identifies the important *obstacles* that are possibly preventing the transition from occurring (ibid). The third part is discovering *options* how those obstacles could be overcome by governance activities (ibid). In the fourth part threats and *opportunities* of those governance activities are been evaluated (ibid). In the last part outcomes from the selected governance activities are been estimated (ibid). The framework also highlights, that it is important to see the sustainability transition as a continuous process (ibid). After summarizing the basic ideas from Loorbach's (2010) transition management cycle and Vinnari & Vinnari's (2014) Five O's framework it could be said, that both of the models are emphasizing governance and intended to be used as tools in the political decision-making and market interactions.

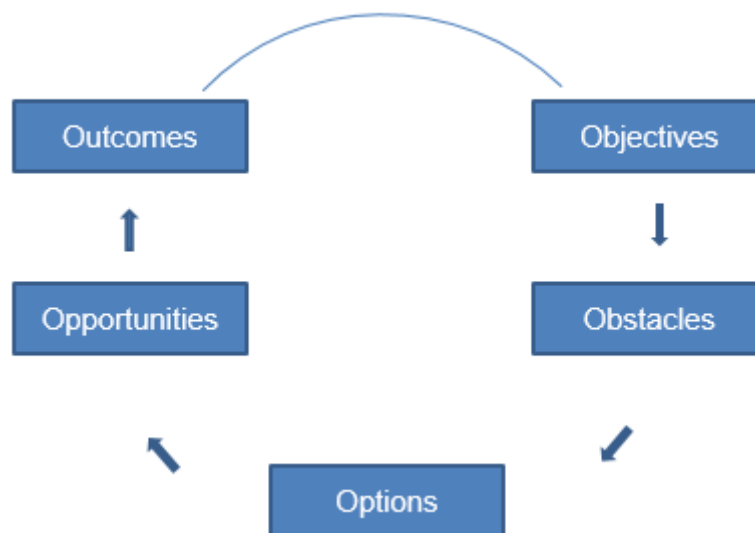


Figure 2. Framework for sustainability transition, the Five O's (Vinnari & Vinnari, 2014)

For this research, the framework is adapted from Loorbachs (2010) management cycle and the framework for sustainability transition from Vinnari & Vinnari (2014), in order to be able to study the transition from the viewpoint of individual consumers. The aim is also to address the argument opposed towards sustainability transition, and the MLP that the approach is not covering the actions in practice and that it would be recommended to approach the transitions from a bottom up and horizontal point of view, including the everyday practices of consumers (Spaargaren et al., 2012; Hinrichs, 2014). Therefore, instead of focusing on management of the government, which is common in the transition research, the chosen forerunners in this study are adolescents. They represent future consumer in which role they are in the center of sustainable transition in the food system. In order to emphasize the role and responsibility of individual consumers, this research applies five O's dimensions from the framework from Vinnari & Vinnari (2014). First, the objectives are discovered, meaning what is ecologically sustainable food consumption for the adolescents. Secondly, options in the present everyday life for consuming food in a more ecologically sustainable way are discussed. That is, under which conditions the adolescents would change their current consumption habits to more ecologically sustainable ones. In the third part, the obstacles in relation of moving towards more ecologically sustainable consumption are identified. The opportunities dimension frames the ecological consumption in the context of the future, meaning that how would the adolescents evaluate future situations or conditions that would result in a transition towards more sustainable food consumption. Lastly, the outcomes dimension aim at answering to the research questions presented.

## **5 Research methods and materials**

The aim of this research is to gain understanding to three research questions. Firstly, are the Finnish adolescents interested in ecologically sustainable food consumption? Secondly, what does ecologically sustainable food consumption mean for them? Thirdly, how would they change their food consumption habits in order to make it more ecologically sustainable? Therefore, the approach of this research is qualitative. The central aim for the use of qualitative methods is, according to Hirsjärvi & Hurme (2001) in gaining deeper understanding about the related topic. The perceptions of the adolescents on ecological food consumption were investigated with online focus group discussions. The material is analyzed with discourse analysis.

### **5.1 Approach of the research**

According to Hirsjärvi, Remes and Sajavaara (1997, p.152), qualitative research describes the real life as it is. In qualitative research the concept diverse reality is emphasized (ibid) It also takes into account that reality cannot be divided into pieces because the consequences reflect each other (ibid). This makes it possible to find out diverse relations about topic of interest (ibid). In qualitative research, the aim is to discover the topic as holistically as possible (ibid). Hirsjärvi and Hurme (2001) state, that the ultimate goal for qualitative research is to achieve a deep fundamental understanding about the related topic among the persons interviewed.

According to Koskinen, Alasuutari and Peltonen (2005, p. 31-33) qualitative research works by analyzing individual cases. The most important thing is the interaction between the researcher and a single study (ibid). Characteristic for qualitative research is to specify individual cases in relation to the people who take part, or give meanings to the issues (ibid). According to Alasuutari (1994) the intention of qualitative research is not in generalizing the results, it is about observing individual cases, and as a consequence to increase the understanding of the topic researched. Qualitative research proceeds inductively, favoring naturally occurring matters, instead of the situation where the researcher actively produces the material (Koskinen et al., 2005), meaning that the researcher is observing the researched topic objectively.

## 5.2 Research methods

For this study the methodological approach is depicted in figure 3. The process started with selecting a suitable method for data collection (online focus groups). Secondly, the participants were recruited, and afterwards the data was collected in online focus groups. Lastly, the data was analyzed with discourse analysis (see section 5.2.4).

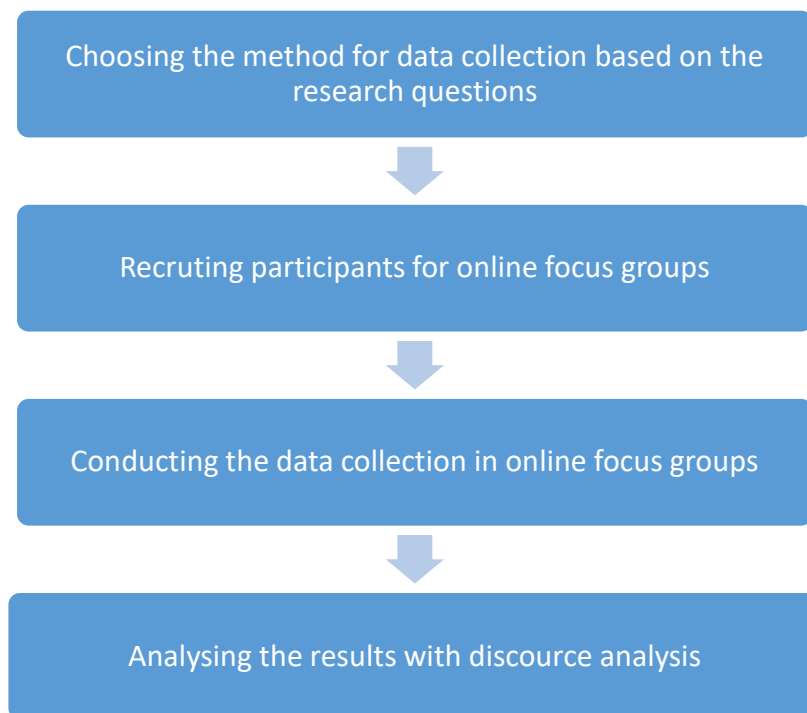


Figure 3. Methodological approach of the study

### 5.2.1 Online focus groups

According to Morgan (1997), focus group discussions in general are useful for the situation, where not much is known about the topic or research field, therefore it can be regarded as a suitable method to discover perceptions of the adolescents on ecologically sustainable food consumption. The intention is to produce new research questions and hypothesis based on the point of views of the participants (ibid). Focus groups are a good way to learn of and from the participants (ibid). Mäntyranta and Kaila (2008) state, that focus groups are a very flexible research method, which can be used to discover answers to many different research questions.

According to Bloor (2001), in the focus groups the interest is pointed to the meanings of the phenomena and to the processes how these meanings are produced. On the other hand, Kitzinger and Barbour (1999) state that focus groups are a suitable method when experiences, opinions, hopes, wishes, expectations or matter of worries on the topic are in the interest of the researcher. Focus group discussions usually have six to eight participants, but the number of participants may vary depending on the researched topic (Morgan, 1997). The focus group has also a moderator, who takes care that the conversation flows from one theme to another (ibid). An important factor is also that the moderator needs to strive for objectivity while guiding the conversation (ibid).

In recent years, due to the relatively prompt improvement of internet facilities, the use of online focus groups has increased (Steward & Shamdasani, 2017). The method provide new opportunities, for instance in inclusion of participants from varying geographical locations enable more diversion in samples (Steward & Shamdasani, 2017; Stewart & Williams, 2005). According to Woodyatt, Finneran and Stephenson (2016) traditional face-to-face focus groups and online focus groups have minor differences when it comes to content or quality of the collected data. They also state, that online focus groups are typically more favorable to candid discussions of sensitive subjects (ibid). According to their experience it is common that online discussion groups provide a larger word count in a shorter time compared to face-to-face focus groups (ibid), Fox, Morris and Rumsey (2007) discuss the potential of online focus group in the scope of sample consisting of younger participants. The younger population is familiar with online communication, thus they might be more relaxed in the discussion as the technology is not an issue. However, it is important to remember that technological failures can occur in online communication, such as loss of connection (ibid). Fox et al. (2007) bring forth, that this method provides real time discussions, commonly with multiple moderators, and with a number of participants even up to eight persons. This method is the closest replication of face-to-face focus groups (ibid). Steward and Williams (2005) note that the method can be less suitable option for those who are not feeling that comfortable or fast with computers. This can be expected to be more the case with older participants as typically adolescents are comfortable with computers. Still difficulties can arise if the speed or frequency of the topic change is too fast (ibid). In the online focus group discussions the moderator should take care of this and pay attention to the speed (ibid).

### 5.2.2 Data collection

The research data was collected through video chat platform called Microsoft Teams. The online focus groups were held in May 2020. There were 24 participants. In order to protect the identities of the participants, each of them were coded in a consistent way (see Table 1.). For instance 7P3, where the number 7 stands for the focus group the participant was in, and the P3 stands for third participant that specific group.

The participants were recruited from altogether five high schools, and universities in Finland. Invitations to the focus group discussions were sent via teachers or directly through email lists, and the participants enrolled on a voluntary basis. Participants were invited from different regions of the country, resulting in six focus groups in Southern Finland, one in the central part and one in Northern Finland. Each group had from two to four participants. Among the participants, 15 were female and 9 were male. The participants were 16 to 25-year-olds. The aim was to keep the groups small, in order to maintain a good flow in the discussions, and to get everyone involved. Each focus group took approximately from 45 minutes to one hour. The researcher moderated all groups personally in order to gain deep understanding about the topic.

In every focus group, the discussion followed similar logic (see Attachment 1. Interview guide). Intention of the interview guide was to lead the discussion flow with the support of specific questions. After creating general discussion around the topic of food consumption with the first question, in the second question, the intention was to ask similarly about ecologically sustainable food consumption, as Autio and Wilska (2003) asked from the adolescents what environmentally friendly consumption is in general for them. In this study, the question were framed slightly differently: “When considering food and its environmental burden, what thoughts does the topic ecological sustainability arise to you? Does these thoughts affect the way you consume food?”. At the same time the second question was based on the framework Five O’s objective dimension (Vinnari & Vinnari, 2014). The third question was adopted straight from the Five O’s framework options dimension (Vinnari & Vinnari, 2014). Therefore, the participants were asked would they be willing to frame their food consumption habits to more ecologically sustainable ones, and how could this be done. The fourth questions was based on the study from Niva and Timonen (2001) to the questions. The study was about the consumers’ ability to comprehend the positive contribution, which their consumption could make on the environment. In relation of this study, we wanted to ask from the adolescents their opinion on,

can the individual make a difference to the ecological sustainability of the environment by consuming more ecologically sustainably. The fifth questions was framed based on the Five O's framework obstacles dimension (Vinnari & Vinnari, 2014). Lastly, the sixth questions was framed based on the Five O's framework opportunities dimension, aiming to discover the perceptions of the adolescents on ecologically sustainable food consumption in the future (Vinnari & Vinnari, 2014).

Table 1. Information of the participants in online focus groups

Group	Code	Place of Residence	Gender	Age	Size of the household	Lives at home Yes/No	Education
1	1P1	Espoo	Female	17	6	Yes	Undergraduate
1	1P2	Espoo	Male	17	4	Yes	Undergraduate
1	1P3	Espoo	Female	16	4	Yes	Undergraduate
1	1P4	Helsinki	Female	16	4	Yes	Undergraduate
2	2P1	Espoo	Male	16	4	Yes	Undergraduate
2	2P2	Kirkkonummi	Female	16	4	Yes	Undergraduate
3	3P1	Ii	Female	16	5	Yes	Undergraduate
3	3P2	Ii	Male	16	4	Yes	Undergraduate
3	3P3	Ii	Male	16	4	Yes	Undergraduate
3	3P4	Ii	Female	17	4	Yes	Undergraduate
4	4P1	Espoo	Male	22	2	No	Bachelor of Business and Administration
4	4P2	Espoo	Female	20	2	No	Baccalaureate
5	5P1	Tampere	Female	24	2	No	Bachelor of Health Sciences
5	5P2	Kuopio	Female	22	2	No	Bachelor of Health Sciences
5	5P3	Helsinki	Female	25	2	No	Bachelor of Food Sciences
6	6P1	Kokkola	Female	24	2	No	Vocational qualification in Business and Administration
6	6P2	Kokkola	Male	18	3	Yes	Dual qualification high school and Vocational Business and Administration
7	7P1	Espoo	Male	16	6	Yes	Undergraduate
7	7P2	Espoo	Female	17	6	Yes	Undergraduate
7	7P3	Espoo	Male	18	4	Yes	Undergraduate
7	7P4	Espoo	Female	19	6	Yes	Baccalaureate



8	8P1	Helsinki	Female	25	1	No	Master of Economic Sciences
8	8P2	Helsinki	Male	24	5	No	Bachelor of Health Sciences
8	8P3	Helsinki	Female	24	2	No	Master of Economic Sciences

### 5.2.3 Discourse analysis

Discourse analysis was used as a method for analyzing the data collected in online focus groups. According to Pietikäinen and Mäntynen (2009, p. 14-20) discourse analysis is about theorizing the language in relation of reality, existing world and acting in certain situations as language is always part of the constructed society. The discourse analysis favors the functional perception of the language, from the researcher viewpoint the significance of the language is bounded in time, and produced in social interactions (ibid). Jokinen, Juhila & Suoninen (1993) define discourse analysis as research of language usage or other way of transmitting meanings, where the analysis is targeted on how the social reality is been produced in social interactions.

According to Pietikäinen and Mäntynen (2009) the construct of discourse refers to two issues. Firstly, it can be referred to as larger entities, meaning that the usage of the language is organized to represent these entities (ibid). Secondly it can be referred to as the actual usage of the language in certain situation (ibid). Discourse analysis is a loose framework (Potter & Wetherell, 1987, p. 175), which can be used together with different kind of focuses and methods (Jokinen et al., 1993). According to Pynnönen and Takala (2014) the basic feature describing the discourse analysis is interpretive, and the method is commonly used for revealing different meanings and different representations as well.

The language can be referred to as linguistic, discursive and social (Pietikäinen & Mäntynen, 2009). When conducting a discourse analysis the researcher urges to find the regularity of the language and social interaction, but also the variation between these actions (ibid). According to Juhila and Suoninen (1999, p. 238) by examining the language it is possible to interpret for instance those cultural resources, which the actors use, as well those habits by which the actors construct the institutions and different roles (ibid). In addition it is possible to interpret those rhetoric ways by which the actors justify their perceptions and solutions (ibid). For the discourse analysis, it is also

important to define the context of the research. According to Jokinen et al. (1993) the context of the research can for instance be framed by the preconditions, which have been central for producing the data for intended researched topic.

Pynnönen (2013) suggests, the discourse analysis can be approached as a process, which step by step dives deeper into the material. First part of the discourse analysis is called textual. The researchers relation to the text is analytical, and the text is approached in an empirical way (ibid). Second part of the discourse analysis is interpretive and it aims to understand the text and discourses in a wider perspective (ibid). The understanding is targeted to the meanings, which the text and the discourse representing it has on its context (ibid). The material can be placed to situations, intertextuality and to its context in society, in this way the meanings are reflecting towards the material and from the material to their context as well (ibid). As end products new representations are born (ibid).

The main goal for content analysis is to help to organize the material into compact and clear shape, without losing the information within (Puusa, 2011, p. 117-121). Content analysis is one way of conducting the discourse analysis for the text (ibid). In the interpretative analysis, the intention is to frame the discourse and discover how certain phenomena is produced (Juhila & Suoninen, 1999, p. 212-213). The researcher and the material collected are discussing, and the researcher makes the material speak in a way, that is suitable for the aim of the research and for the research question (ibid). The material provides different ways to read and interpret, but the basis for the analysis is in the material itself, and the core for the interpretation should be found there (ibid). Heracleous and Marshak (2004, p. 176) states, that interpretative analysis is not only based on the subjective point of view of the researcher. The idea is to aim to something through the discourse identified, and by that different perceptions, values and believes of the actors are being expressed (ibid). Discourse builds the social reality in a goal-oriented way (ibid). According to Hardy, Harley and Phillips (2004) the focus in the interpretative analysis is on the social context, and the discourse, which is maintaining this. Research is intended to create understanding of the context and research the material, which provides the comprehension of the whole picture (ibid). Therefore, single texts should not be micro-analyzed for this purpose (ibid). The researcher should think in a constructionist way in this: the research is aiming to discover how the wider discursive contexts have been created and developed, and what they permit (ibid).

#### **5.2.4 Processing of the material and the path analysis**

Textual analysis of this research started after the focus group discussions. The recordings were listened and transcribed into text form (in total of 43 A4 pages). The names of the participants were removed as stated already in the section 5.2.2. Analysis of the material can be regarded as a process, which starts already when the discussions are ongoing and the conversations are being transcribed into a textual form. Still, before the actual analysis, the text needs to be formed in a more clear form as part of the textual analysis. Textual analysis was conducted while transcribing the text. The text was transcribed concentrating in the content produced in the discussions, not for instance to pauses or to talking out of turn. The discussions were transcribed word-for-word. Afterwards non-relevant topics discussed in relation to research questions were left out.

The interpretative analysis in relation of this research was intended to deepen the understanding of the context ecologically sustainable food consumption and discourses in it. As the analysis was based on the produced content itself, the concentration was strictly in the produced material. The material was read through multiple times at the same time keeping in mind the research questions. The main discourses were identified from the text in relation to the framework created. Frequent topics that were highlighted in the text were coded by underlining. Lastly, the discourses were organized to the framework to create a clear outcome of the ecological food consumption of the adolescents. The intention of this research is not in comparing for instance the differences of the perceptions between adolescents in different regions, or the differences between gender, but to create an understanding of the viewpoint of this age group as a whole.

## 6 Results

In this chapter, the results from the study are being presented. Firstly, the section 6.1 presents the identified discourses on ecologically sustainable food consumption in more detailed. Secondly, in the section 6.2 the results are being summarized and pictured in the chosen framework.

### 6.1 Identified discourses on ecologically sustainable food consumption

#### 6.1.1 Objectives

The construct of ecologically sustainable food consumption seemed to be familiar for the adolescents. According to them, ecologically sustainable food consumption is about reducing the consumption of red meat and other animal based food products and also about buying locally produced food instead of food that is transported from the other side of the globe. Food waste had also a clear meaning in relation to ecologically sustainable food consumption for the adolescents. Typically, the issue was brought up in the context that people should buy food only as much they need and are able to consume. In the conversation, the adolescents mentioned also small carbon footprint and food packaging, which did not contain a lot of plastic. The impact of meat production to the environment seemed to be relatively clear to adolescents because meat consumption was one of the first things which came their minds when they were asked about what ecologically sustainable food consumption means to them. On the other hand, biodiversity was not mentioned, although it is a significant feature when it comes to ecological sustainability of the food system (Meltzer et al., 2019).

“At least what I know about meat production is that it is a burden for the environment, so if it could be reduced also the carbon footprint would be diminished.” 4P1

“I sometimes go to the store and buy the groceries on behalf of my family. The factors which I concentrate on while collecting the groceries is, that I don’t buy too much food. And of course there is some other points, for instance that avocados are very bad for the environment. But still, I don’t know too much about that.” 1P2

“I think that the food being animal based is not so good for the environment. When buying fresh products it should be locally produced,, meaning that we should buy more Finnish food. It would be better for the environment that the food would not be transported from the other side of the world.” 1P1

“We buy a lot of Finnish food. And animal based products we do use also, but if I could choose myself, I would try to eat plant-based food products more.” 1P3

Similarly as in the research from Autio & Wilska (2002), majority of the adolescents expressed their willingness to consume in a more ecologically sustainable way. Still it is important to note, that although the consumers are expressing the willingness to do so, they might act according to their sayings (Halkier, 2001).

“The biggest reason for my vegetarian diet are the environmental reasons. I think that the effects of food production for the environment are significant, it is a interesting topic but there is a lot to do still.” 5P2

“Of course I’m interested in consuming more ecologically sustainable—“ 8P1

“—We still have to live here after all, so if we ruin the planet it will also directly affect us also.” 2P1

Others were relatively neutral, and thought that their input on ecologically sustainable food consumption was already in a quite good level, because they did not consume anything excessively.

”In our family we don’t think that much about the consequences, that come from the food. But I still think that we have so good variety in the food we eat, and we don’t eat too much from any of the sectors.” 2P1

However, there were also participants who stated strongly that they had no interest in ecologically sustainable food consumption.

“I am not interested at all. Or like yes of you think about it, and you rather buy the Finnish tomato if they are the same price. But I pretty much never think while eating minced meat, that how much is the carbon footprint in this. I don’t think about that, I just think that the food should be healthy and that you get the benefits out of it. I’m not interested in that environment stuff.” 3P1

The adolescents showed strong positivity towards the idea of an individual really making a difference when it comes to changing the food consumption into more ecologically sustainable. This was the opposite to the study from Niva & Timonen (2001), which stated that consumers typically have difficulties in acknowledging their role in relation of environmentally friendly consumption.

“At least I think I have and remarkable influence by the way I consume. Because If I would eat meat five times a day there would be difference of hundreds kilos of difference per year. So yes I think that an individual can make a difference.” 5P1

“I think, that yes an individual can make a difference to the bigger picture. Because one individual starts doing something and it can also teach it to the others.” 2P1

“I think all the phenomena’s and changes start from the individual,that is even historically proven. It just demands a small group of committed people. I don’t want to believe, that individuals actions did not matter.” 8P1

--“ I like to believe, that the one purchasing decision of the individual has a bigger effect. It is not just a single purchasing decision.. --“ 8P3

On the other hand there were comments about how slowly the consumption patterns usually change, therefore they should also be framed by the governments for instance with legislations. This goes hand in hand with the study from Heiskanen et al. (2014), where it is stated, that commonly people’s ability in taking responsibility goes together with societal actors, for instance the government, whom the people are expecting to take actions in improving sustainability.

”I believe that an individual can make a difference, because bigger group consists from individuals. On the other hand, the change is happening too slowly and therefore the governments and other bigger institutions should create legislations for the consumers, so that they would consume more ecologically and environmentally friendly. But yes I think that an individual can make a difference, otherwise it would make no sense.” 5P3

It was also acknowledged, that consumers should not be the only ones making the changes towards more ecological food consumption, the companies should take a bigger role in that as well. This is similar finding to study from Niva et al. (2014), who stated that commonly consumers who have already taken action in reducing meat consumption for ecological reasons, are also expecting the actors from the supplier side to take actions in diminishing the environmental impacts of animal production.

”Well, I think that the bigger changes should come from there where the food is produced. But still I think that individuals can also change the bigger picture by the decisions they make when they buy from the stores.” 3P4

### **6.1.2 Options**

When discovering the options how the adolescents would change their present food consumption in order to make it more ecologically sustainable a large variety of obstacles could be discovered. The discourse of meat reduction was seen as central in the discussions, and reducing meat eating was in fact the most common option in order to consumer food more ecologically sustainably. This is in line with the study from Sanchez-Sabate and Sabate (2019). Typically, the intention was not completely

giving up eating meat, but to reduce the consumption of meat significantly. As Vanhonacker et al. (2013) had stated in their previous study, in general consumers are not in favor of options where meat would be completely banned. Of course, there were participants who said they had been vegetarians for a long time, and who were making small steps towards being completely vegan. Still the majority of the participants considered themselves to be meat reducers.

“Of course I could always shift my diet to more plant based from the vegetarian one. But I don’t actually even use a lot of eggs or dairy products in my diet anyways, but still those could be the changes that I could do.” 5P2

On the other hand, the participants were aware that meat from different animals have a different effect on the environment. Therefore, many of the participants were willing to replace the red meat for instance with chicken. They thought that it was not that big of a compromise because they liked the taste anyway. As a result, it could be also said that adolescents understood that different meat products had different contribution on the environment.

“I could replace the red meat with chicken, because I just like it. It is not that big of a sacrifice. Also I could eat more veggies.” 2P2

Reduction of food waste was not seen as a new option to improve their ecologically sustainable food consumption, because in the majority of the participants’ households it was already taken care of, and it was something that was considered as self-evident among the adolescents. Therefore, food waste was not a topic, which was deepened in the conversations. One reason for why the food waste was not brought up in the discussions could be, that as majority of the participants lived at home, they might not be the ones who were taking actions towards tackling the food waste problem.

“I guess I could concentrate more on food waste, but in the end we really don’t even generate it that much in our household.”5P1

“Me and my roommates are pretty strict in relation to food waste, we don’t generate that much, because we see it as a waste of money. Also uneaten food is the most un-ecological thing there is.” 5P2

The participants saw the social discourse as an aspect, which can create opportunities in certain everyday situations. Somebody had for instance introduced new vegetarian food products for one participant, or somebody had affected positively on their food purchasing behavior. This finding is similar to Fenekes et al. (1998) and Kemper (2020) who stated that adolescents are influenced by the food choices, that are made in their social surroundings.

”My sister said, that we could try textured soy protein granules, and that it would be nice to taste it. I got interested, because my sister also said that it would contain a lot of protein, something like 50 grams per 100 grams or so. I guess that was kind of a deal breaker, and I was willing to try it.” 3P2

“I guess that has affected slightly on my food consumption behavior, that my ex-girlfriend was a vegan.” 8P2

“If I go to the store with my girlfriend, we usually buy vegetarian food.”7P3

Some adolescents stated that they were not willing to give up eating meat, but instead emphasized strongly on minimizing the usage of plastics and transportation and they were willing to buy organic and locally produced food. These results were partly in line for instance with study from Tobler et al. (2011), where consumers stated that avoiding excessive packaging in the food products was one of the biggest impacts the consumer can make in order to be environmentally friendly. However, the interest in organic food were different from the results of the same study (Tobler et al., 2011). When the participants were emphasizing the interest in buying local food to be more sustainable, the result was similar to studies from de Boer (2016) and Niva et al. (2014). These statements were especially from the adolescents who said not to be willing to cut their meat consumption, but they still were willing to do something for the environment.

“Well for me the one thing is locally produced food. We eat relatively much of meat, and that is the case. But then we try to compensate it with other things.” 3P3

Next, the obstacles on ecologically sustainable food consumption were identified.

### **6.1.3 Obstacles**

The discourses of taste and structure came across as clear obstacles in the conversations with every focus group. As in the study from Aschemann-Witzel et al. (2019) many adolescent agreed, that the taste and structure of vegetarian options, meaning meat alternatives were bad. Currently the taste of meat alternatives was not satisfactory and they are not able to compete with regular meat products. The participants felt that, it was about lowering their preference in taste if they were eating meat alternatives. And they were not willing to make this sacrifice. This finding was similar to Lea & Worsley (2008) who stated, that consumers rarely are willing to give up on the pleasure what eating meat gives them.



“At least I am interested in those so called fake meat products. Those would be great but at least I haven’t seen them too much for instance at Alepa. It would be good if it was clearly said that this product comes from Finland. And actually maybe it does but I just haven’t noticed it. Also the food product being a better choice for the environment would be a factor why I could lower my preference in taste.” 1P2

--“I just refuse to give up eating meat. I have tasted those meat alternatives, but they just don’t taste the same.” 2P1

Discourse of worry about the nutritional intake of vegetarian food was seen as one obstacle, similar to the studies from Marsh et al. (2013) and Kemper (2020). Adolescents were especially worried about the lack of protein in the vegetarian food products, and also if they would get all the vitamins they need.

“Well in the vegetarian food, there is kind of the case, that if it does not contain enough protein which would support my growth, I think there should be something else besides that.” 3P3

“There are so many things what you have to take into account when eating the vegetarian food. Like that, you get all the vitamins. It would just be too hard, you still have to go to school and everything.” 1P4

Still, some adolescents were also fully informed, that vegetarian food can also contain enough protein.

“I know, that you can get a lot of protein from beans.” 4P1

The discourse of price seemed to be important for the adolescents. Central obstacle identified was the high price of the ecological food alternatives, such as meat substitutes and organic food products. This finding correlates with the study from Annunziata & Scarpato (2014), where the consumers express the willingness to buy environmentally sustainable food products, but commonly the price becomes an obstacle. Many of the participants stated, that they would definitely buy for instance organic products if it was the same price as non-organic food, and the same goes with meat substitutes. Hence, the price in is another barrier that fails the created opportunity to taste them.

“I kind of have the image in my head, that the meat alternatives are more expensive” 4P1

“Of course you can eat cheap also in a ecological way, but it is just a fact, that organic food products are more expensive.” 3P2

“—I think there is a lot more of those meat products with different price categories, so you can find easily the cheaper alternative from them. In the case of vegetarian products the situation is not the same.” 1P3

For many of the adolescents lack of food preparation skills when it comes to vegetarian food was also an obstacle. This finding was in line with previous literature from Sanchez-Sabate and Sabate (2019).

“I just don’t know how to make vegetarian food to taste as good as food which includes meat. 4P1

“If I only knew how to make good vegetarian food, I just don’t want to eat tasteless carrot patties” 4P4

Social aspect of food consumption played a remarkable role in the obstacles. Many of the adolescents stated, that they did not want to be a burden when the food was prepared for the whole family and the majority were willing to eat meat.

”I think one of the biggest obstacles is the social context, you just don’t want to be difficult, or get all the hate when you say no to something that is not vegan.” 8P3

“—When there are members in the family who want to eat meat, so then you should buy and prepare too many different products to serve the vegetarian food as well.” 1P4

Traditions and generalized habits played a big role as obstacles. In order to change the existing food consumption habits the participants stated that it demands change as well as gathering new knowledge. Some of the participants stated, that they were just too lazy or too busy to do so.

“I guess I’m just too lazy and busy.—I’m kind of just used to eating meals which contain meat since I was a child. So changing those practices feels difficult.” 5P3

“I feel that I’m used to certain patterns and habits, and changing them is difficult.” 8P2

Even the participants who said that they had switched to vegetarian diet already, acknowledged the fact that the information which they had read years ago was not necessarily correct anymore. So even though they had taken some steps towards more ecologically sustainable food consumption already more and different information would be needed to change the eating habits again. For instance, this was the case when the shift was from vegetarian diet to vegan one.

--“I think I should update the information which I have gained years ago. Because now it is in a certain level.” 8P3

In one group, the participants were not able to concretely identify how they would change their consumption in order to make it more ecologically sustainable. The participants were willing to replace the unsustainable food products with more ecological ones. But were still lacking the

knowledge, on what really are the unsustainable food products in their ordinary food consumption. They emphasized strongly on looking at the labels, when trying to compare which food product was the better option. This could possibly correlate to the confusion around the ecologically sustainable food consumption among consumers (See for instance Aschemann-Witzel et al., 2013; Pelletier et al., 2013).

“I currently would not be ready to change that much, but if there would be a similar product, which would be a better choice I would replace the old one with that. The labels are important.” 7P2

One obstacle was the discourse of lack of information, as also stated in previous literature from Siegrist & Hartmann (2019). There was potential to increase the awareness of the consumers on sustainable food consumption by increasing the knowledge around the topic. Many of the participants said, that they need more information about ecologically sustainable food consumption, which is easy to comprehend, and the facts are not conflicting with each other. Others stated, that there was already information available, but it still was not that clear to them how they should consume in order to make it more ecologically sustainable.

#### **6.1.4 Opportunities**

When discussing about the topic what should change in the future so that it would be easier for the adolescents to change their food consumption habits to more sustainable many of the participants mentioned, that moving out from the family home would make a difference. This result indicates to findings from Vantamay (2018), who state that university students, who live alone have the ability to make independent consumption decisions, whereas younger school students living at home are more affected by the consumption decisions of their parents. This could be regarded as discourse of independency. In addition, this result could be referred to a study from Fischer et al. (2017) who saw this as a potential life event where the adolescent can frame his/her independent consumption patterns in their own households.

“I think in the future more ecologically sustainable food consumption would be easier, if I would move out and be more independent. I think that is the biggest factor.” 1P4

“Exactly that you would live alone, after that I think the only factor affecting on my consumption would be the price.” 1P3

A significant factor related to consuming less animal based products was the liberation of the social atmosphere, where the individual doesn't have to explain the way he or she is eating, the plant based food option would be as normal as the meat alternative.

“Everything should be normalized, that if you would say that you are vegan, people wouldn't assume that you are some kind of a hippy”. 8P1

“I would hope, that the social pressure would disappear. That it would be normal to choose a vegetarian or vegan option in the restaurants. That it would not be a special thing anymore. And the people who eat plant-based food wouldn't be seen as they are trying to be superior to others.” 8P3

Adolescents also acknowledged, that the culture could change in the future, so that if the amount meat consumed would be lower there could be future generations who are used to eating less meat than what we eat today.

--“I have nothing against vegetables. I think it is matter of, that you get used to it. In the future it could be the case, that when less meat is consumer, then the children don't get used eating it.” 2P2

New products to replace meat without compromising from the taste and structure were important for the adolescents. This finding was in line with Neville et al. (2017) who stated, that among meat reducers the most favorable types of meat substitutes are the ones, which mimic the real meat and have meaty flavor, color, and structure. These kind of products would be the ones the adolescents would be willing to buy as well.

The discourse of price came up also in the opportunities, lower prices were important for the adolescents in the future. Commonly they also stated, that a student really don't have that much money and therefore it is important that the ecologically sustainable food options, e.g. meat alternatives are relative low also in price.

“I think the biggest factor also in the future is the economic side.” -- 1P2

Adolescents understood the issue, that if the demand for vegetarian options grows, it will also have a positive consequence on the selection of ecologically sustainable food products.

--“Because the things that people consume, will be ordered more to the stores. Like if people would buy more environmentally friendly products they would be ordered more, and not those which are bad for the environment.” 3P4

A discourse of trust towards the future technologies in producing meat alternatives could be identified.

--“I’m waiting that the technologies would develop so much, that if a true meat eater tries something, which is not meat, and he or she can’t even recognize that.” 8P3

Participants also stated similarly as in the study from Gravely & Fraser (2018) that in the future, the vegetarian options should be placed next to the animal based products, to make it clear which foods could be replaced with a vegetarian option. This way it would be easier for the consumers to get familiar with alternative products, because many participants stated that currently many of the alternative vegetarian products are in their own vegetarian shell, which they seldom stop by.

“The selection of meat substitutes in the store should be presented in a way that they are mixed with regular meat products. If you want to choose the meat alternative it should not be in a place which indicates, that you are then choosing something which is not normal. All the options in the specific food category should be in a same place.” 6P1

## 6.2 Summarizing the results

The data collected gave useful insights for this study. Next, the framework of this study is used to visualize the outcome, meaning the identified discourses on ecologically sustainable food consumption among of Finnish adolescents (See Figure 4).

### *Objectives*

Objectives give the answer to what is ecologically sustainable food consumption for the adolescents. In this study, it was mostly about reduction of animal-based food products, and the emphasis was on reducing red meat eating. Adolescents mentioned also the importance of local and organic food. Food waste did not have that big of a role in relation to ecologically sustainable food consumption, but it was mentioned in a context, that people should buy food only as much as they need. Food should not be wasted. Small carbon footprint and food packaging, that did not contain much plastic were also mentioned. It could be clearly sensed, that adolescents truly believed in the fact, that an individual

consumer can make a difference to ecological sustainability of the food system by consuming food in a certain way. Still it was also acknowledged, that the changes happen slowly and the changes have to also be done from the supplier and governmental side.

### *Options*

Options that adolescents identified on how they would make their present everyday life more ecologically sustainable varied a lot. Majority of the participants were not completely ready give up eating meat completely, but still they were willing to reduce it, especially the amount of red meat consumed. The participants who said that they were not willing to reduce the intake of meat stated to favor local and organic food, and aim to use less food products that included plastic packaging. In addition, some vegetarian participants were aiming to shift their diet towards more vegan by reducing the intake of dairy and eggs. Still there was also participants who were lacking to identify the ways of changing their food consumption to more ecologically sustainable by just stating, that they would replace the ecologically unsustainable food products with more sustainable ones. Adolescents saw different social relations as a good chance for creating options for new ways of consuming vegetarian food. Positive effect was seen for instance in friends or family members who introduce new ways of consuming vegetarian foods or new interesting recipes for vegetarian food.

### *Obstacles*

Social aspect worked as an obstacle for ecologically sustainable food consumption as well. Many participants said, that they don't want to be a burden if the majority of their family is willing to prepare a dish from meat. Also traditions and routines played a central role in the obstacles. Creating new consumption patterns also demands adjusting and collecting new kind of information. The existing culture was considered still to be restrictive when it comes to diets that don't contain animal-based food products. In addition the taste and structure of meat alternatives was evaluated as poor. Majority of the participants said that eating them felt like a compromise, which they were not currently willing to do. For some of the adolescents one obstacle seemed to be lack of food preparation skills, and therefore they did not favor meat alternatives or vegetarian food in general. Many of the participants were also worrying about the nutritional intake of vegetarian diets. They were afraid, that they would not get enough protein and other important vitamins. On the other hand, there were also participants

who said they were aware of the high intake of protein, which some vegetarian products for instance beans and soy protein granules contained. Lastly, price was one central obstacle. Many participants stated that otherwise, they would buy organic food and meat alternatives but they saw that they were too expensive for them to consume.

### *Opportunities*

The discourses about opportunities consuming ecologically sustainably in the future were for instance the normalization of animal based diets. Adolescents were hoping that eating vegetarian or vegan options would not feel like compromises in the future, and that the food choices were not judged as they are today. Adolescents were also hoping that, the prices of for instance meat alternatives would go down, and that the selection would increase in the stores. Nearly all adolescents said that in the future they would like to replace meat with alternative products if they would taste as good as meat, and be on the same price level as meat. Normalization of vegetarian products could be also increased by placing them next to their alternatives at the store. Especially adolescents who are willing to reduce their meat intake would see this as a potential option. In the future, many of those adolescents who were living at home with their families saw the moving out from the family home as a remarkable opportunity in making a shift towards ecologically sustainable food consumption. They mentioned that it was easier to be in charge of the food consumption in general, and make the better choices individually without social pressure coming from the family. Participants were also asking for clear information on what is ecologically sustainable food consumption all about. The information should portrayed in a way that it was easy to understand and would not be in conflict with different information sources.



Figure 4. Outcomes: Identified discourses on ecologically sustainable food consumption



## **7 Discussion and conclusions**

### **7.1 Outlining the research**

The intention of this study was to discover larger societal change bottom-up, starting from individual level by focusing on the perceptions of Finnish adolescents on ecologically sustainable food consumption. The research aimed at answering three research questions. Firstly, are Finnish adolescents interested in ecologically sustainable food consumption? Secondly, what does ecologically sustainable food consumption mean for them? Thirdly, how would they change their food consumption habits in order to make it more ecologically sustainable? In order to find answers to these questions eight online focus group discussions were carried out with adolescents aged between -16 and 25. The results were analyzed with discourse analysis, and portrayed with a support of five O's framework from Vinnari & Vinnari (2014).

According to the results, Finnish adolescents who participated the study showed interest in ecologically sustainable food consumption. For them, ecologically sustainable food consumption was mostly about reduction of the animal-based food products use, especially on red meat. They also mentioned the importance of local and organic food. Participants mentioned as well small carbon footprint and plastic free food packaging. Domestic food waste reduction emerged as one topic as well, but it did not have clear direct link to ecologically sustainable food consumption in participants' minds. It was mainly referred in a context of paying attention to buying food only as much as needed.

Adolescents showed willingness to change their habits towards more ecologically sustainable food consumption in multiple ways. In their everyday life, this tendency manifested mainly as reduction of meat intake and favoring local and organic food products. Despite the aforementioned, they were not willing to make radical compromises of their current ways of food consumption. The reasons were related to poor taste and structure of meat alternatives and high price of environmentally friendly foods in general. In order to change their consumption habits more ecological in the future, the participants stated that less-animal based diets should be normalized, meaning that it eating less animal-based options should not be something that is abnormal, as it is now according to the participants. There was also a need for reliable and clear information about what really is ecologically sustainable food consumption, and what is not. This kind of information should be easy to access,

and could be available for instance in different social media platforms. Information should be trustworthy and it could come from authorities, companies, unions and social media influencers as well. The information should be presented in a clear and interesting way targeting it to adolescents.

## **7.2 Discussion and implications**

Ecologically sustainable food consumption is a wide and complex topic, but it was relatively well understood among adolescents. For them, it was mainly about reduction of meat consumption, buying locally produced or organic food and avoiding excessive plastic packaging. Moreover, domestic food waste and small carbon footprint of food were mentioned. The link between meat production and climate change seemed evident to the study participants, in contrary to studies from de Boer et al. (2016) and Tobler et al. (2011) and Vanhonacker et al. (2013). This could be because of the recent media attention related to the relationship between meat production and environmental sustainability of the food system. On the other hand, relationship between loss of biodiversity and food production did not emerge in the data, although it is one of the key problems of the current food system (FAO 2019). This might be because the construct of biodiversity is difficult to comprehend for the adolescents, let alone what the food consumption causes for the biodiversity.

The adolescents stated that they are not willing to make compromises over their current food consumption to favor environmentally sustainable food consumption. This finding is in line with Halkier (2001). Still they were willing to, for instance include meat alternatives in their diets if the price would be affordable, the products would have similar taste and structure as meat, and they would entail similar social acceptance as meat in the current culture. Similar findings could be found in the study from Kemper (2020). Adolescents were hoping that in the future the less animal- based diets would be more socially acceptable. This indicates that social pressure is among the factors, which is making the current vegetarian eating or reduction of meat consumption difficult. In today's world, the food still holds tight from certain traditions, and they change slowly.

Adolescents considered that moving out from the childhood home would enable more ecologically sustainable food consumption in the future. This is in line with Fischer et al. (2017) who have reported that moving out from the childhood household increases the responsibility of the young person, which might also be reflected in change in food choices and consumption habits. This indicates that currently

the parents might play a central role in creating the food consumption patterns at home. In order to create more sustainable transition in the food consumption, actions could be targeted to families alongside the individuals.

From the theoretical point of view, sustainable transition gave a challenging but comprehensive background to the study. Literature on the bottom-up approach in sustainable transition starting from the individual consumer is almost nonexistent. However, this study illustrated the usability of the theory in a more unconventional manner. Despite the fact that the framework Five O's has been used for interventions in the governmental decision making, it gave a good outcome on the adolescents' perceptions on ecological food consumption. The ideas from the adolescents could be helpful for food companies and authorities, which seek ways to support more sustainable food consumption.

### **7.3 Limitations and further research**

The topic of ecologically sustainable food consumption constructed from relatively many sub-topics, such as meat reduction. These topics could be studied individually with the adolescents, and gain deeper knowledge on their behavior and attitudes. The dimension of ecological sustainability could also be complemented with other dimensions of sustainability, such as economic, social, cultural and dimension of animal welfare as well.

As the research method was qualitative, it does not reflect the views of all Finnish adolescents. A quantitative survey based on the results of this study could potentially give a more comprehensive and generalizable understanding of the behavior and attitudes of adolescents. Discourse analysis did not go as deep as in other studies. In the frame of this study, deep linguistic analysis was not deemed necessary to provide answers to the research questions.

## References

- Alexander, P., Brown, C., Arneith, A., Finnigan, J., Moran, D., & Rounsevell, M. D. (2017). Losses, inefficiencies and waste in the global food system. *Agricultural systems*, *153*, 190-200.
- Allievi, F., Vinnari, M., & Luukkanen, J. (2015). Meat consumption and production—analysis of efficiency, sufficiency and consistency of global trends. *Journal of Cleaner Production*, *92*, 142-151.
- All You Need to Know about Mainstreaming Agrobiodiversity in Sustainable Food Systems.  
Available online:  
[https://www.bioversityinternational.org/fileadmin/user\\_upload/online\\_library/Mainstreaming\\_Agrobiodivesity/All\\_you\\_need\\_to\\_know\\_about\\_Mainstreaming\\_agrobiodiversity.pdf](https://www.bioversityinternational.org/fileadmin/user_upload/online_library/Mainstreaming_Agrobiodivesity/All_you_need_to_know_about_Mainstreaming_agrobiodiversity.pdf) (accessed on 30.07. 2020)
- Annunziata, A., & Scarpato, D. (2014). Factors affecting consumer attitudes towards food products with sustainable attributes. *Agricultural Economics*, *60*(8), 353-363.
- Annunziata, A., & Vecchio, R. (2013). Consumer perception of functional foods: A conjoint analysis with probiotics. *Food Quality and Preference*, *28*(1), 348-355.
- Aschemann-Witzel, J., Varela, P., & Peschel, A. O. (2019). Consumers' categorization of food ingredients: Do consumers perceive them as 'clean label' producers expect? An exploration with projective mapping. *Food quality and preference*, *71*, 117-128.
- Aschemann-Witzel, J., Grunert, K. G., van Trijp, H. C., Bialkova, S., Raats, M. M., Hodgkins, C., ... & Koenigstorfer, J. (2013). Effects of nutrition label format and product assortment on the healthfulness of food choice. *Appetite*, *71*, 63-74.
- Autio, M. M., & Wilska, T. A. (2003). Vihertävät tytöt, vastuuttomat pojat—nuorten kuluttajien ympäristöasenteet. *Nuorisotutkimus*.

- Autio, M. M., & Wilska, T. A. (2003). Vihertävät tytöt, vastuuttomat pojat–nuorten kuluttajien ympäristöasenteet. *Nuorisotutkimus*.
- Foster, C., Green, K., & Bleda, M. (2007). Environmental impacts of food production and consumption: final report to the Department for Environment Food and Rural Affairs.
- Bloor, M. (Ed.). (2001). *Focus groups in social research*. Sage.
- Borrello, M., Caracciolo, F., Lombardi, A., Pascucci, S., & Cembalo, L. (2017). Consumers' perspective on circular economy strategy for reducing food waste. *Sustainability*, 9(1), 141.
- Brantsæter, A. L., Ydersbond, T. A., Hoppin, J. A., Haugen, M., & Meltzer, H. M. (2017). Organic food in the diet: exposure and health implications. *Annual review of public health*, 38, 295-313.
- Brundtland, G. H., Khalid, M., Agnelli, S., Al-Athel, S., & Chidzero, B. J. N. Y. (1987). Our common future. *New York*, 8.
- Bryngelsson, D., Wirsenius, S., Hedenus, F., & Sonesson, U. (2016). How can the EU climate targets be met? A combined analysis of technological and demand-side changes in food and agriculture. *Food Policy*, 59, 152-164.
- Clark, M., & Tilman, D. (2017). Comparative analysis of environmental impacts of agricultural production systems, agricultural input efficiency, and food choice. *Environmental Research Letters*, 12(6), 064016.
- Clemente, G., Pérez-Sánchez, M., Ribal, J., Sanjuán, N., & Escobar, N. (2013, July). Influence of agro-food waste on sustainable food consumption. In *LCM 2013*.
- Cramer, J. M. (2020). Practice-based model for implementing circular economy: The case of the Amsterdam Metropolitan Area. *Journal of Cleaner Production*, 255, 120255.

- de Boer, J., de Witt, A. & Aiking, H. 2016. Help the climate change your diet: a cross-sectional study on how to involve consumers in a transition to a low carbon society. *Appetite* 98, 19-27.
- Elzen, B., Geels, F. W., & Green, K. (Eds.). (2004). *System innovation and the transition to sustainability: theory, evidence and policy*. Edward Elgar Publishing.
- FAO, 2010. Sustainable diets and biodiversity –Directions and solutions for policy, research and action. Proceedings of the International Scientific Symposium “Biodiversity and sustainable diets united against hunger”. Proceedings of the International Scientific Symposium. s.109. FAO, Italia.
- FAO, 2019. The State of the World’s Biodiversity for Food and Agriculture; Commission on Genetic Resources for Food and Agriculture Assessments: Rome, Italy, 2019; p. 572.
- Fischer, D., Böhme, T., & Geiger, S. M. (2017). Measuring young consumers’ sustainable consumption behavior: Development and validation of the YCSCB scale. *Young Consumers*.
- Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnston, M., ... & Balzer, C. (2011). Solutions for a cultivated planet. *Nature*, 478(7369), 337-342.
- Food and Agriculture Organization of the United Nations (FAO). The State of the World’s Biodiversity for Food and Agriculture; FAO Commission on Genetic Resources for Food and Agriculture Assessments: Rome, Italy, 2019; p. 572.
- Fox, F. E., Morris, M., & Rumsey, N. (2007). Doing synchronous online focus groups with young people: Methodological reflections. *Qualitative health research*, 17(4), 539-547.
- Garnett, T. 2008. Cooking up a storm - Food, greenhouse gas emissions and our changing climate. – Food Climate Research Network, University of Surrey.

- Garnett, T. (2013). Food sustainability: problems, perspectives and solutions. *Proceedings of the Nutrition Society*, 72(1), 29-39.
- Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research policy*, 33(6-7), 897-920.
- Geels, F. W. (2011). The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental innovation and societal transitions*, 1(1), 24-40.
- Gibson, R. B. (2006). Sustainability assessment: basic components of a practical approach. *Impact assessment and project appraisal*, 24(3), 170-182.
- Godfray J., Charles H. (2011). Food for thought. *PNAS*, 108 (50), 19845-19846.  
<https://doi.org/10.1073/pnas.1118568109>
- González, A. D., Frostell, B., & Carlsson-Kanyama, A. (2011). Protein efficiency per unit energy and per unit greenhouse gas emissions: potential contribution of diet choices to climate change mitigation. *Food policy*, 36(5), 562-570.
- Goodland, R., & Daly, H. (1996). Environmental sustainability: universal and non-negotiable. *Ecological applications*, 6(4), 1002-1017.
- Graham-Rowe, E., Jessop, D. C., & Sparks, P. (2014). Identifying motivations and barriers to minimising household food waste. *Resources, conservation and recycling*, 84, 15-23.
- Gravely, E., & Fraser, E. (2018). Transitions on the shopping floor: Investigating the role of Canadian supermarkets in alternative protein consumption. *Appetite*, 130, 146-156.
- Griffin, M., Sobal, J., & Lyson, T. A. (2009). An analysis of a community food waste stream. *Agriculture and Human Values*, 26(1-2), 67-81.

- Grin, J., Rotmans, J., & Schot, J. (2010). *Transitions to sustainable development: new directions in the study of long term transformative change*. Routledge.
- Göbel, C., Langen, N., Blumenthal, A., Teitscheid, P., & Ritter, G. (2015). Cutting food waste through cooperation along the food supply chain. *Sustainability*, 7(2), 1429-1445.
- Haanpää, L., & Roos, S. (2014). Nuoret luupin alla 2012. Osallisuudesta hyvinvointiin.
- Halkier, B. (2001). Risk and food: environmental concerns and consumer practices. *International journal of food science & technology*, 36(8), 801-812.
- Halloran, A., Fischer-Møller, M. F., Persson, M., & Skylare, E. (2018). *Solutions Menu-A Nordic guide to sustainable food policy*. Nordic Council of Ministers.
- Hardy, C., Harley, B., & Phillips, N. (2004). Discourse analysis and content analysis: Two solitudes. *Qualitative methods*, 2(1), 19-22.
- Heiskanen, E., Mont, O., & Power, K. (2014). A map is not a territory—making research more helpful for sustainable consumption policy. *Journal of Consumer Policy*, 37(1), 27-44.
- Heinonen, V. (2006) Lapsiin kohdistuvan elintarvikemarkkinan suositukset. *Bolus*, 12(2), 9-12.
- Heracleous, L., & Marshak, R. J. (2004). Conceptualizing organizational discourse as situated symbolic action. *Human Relations*, 57(10), 1285-1312.
- Hinrichs, C. C. (2014). Transitions to sustainability: a change in thinking about food systems change?. *Agriculture and human values*, 31(1), 143-155.
- Hirsjärvi, S. & Hurme, H. 2001. Tutkimushaastattelu. Teemahaastattelun teoria ja käytäntö. Yliopistopaino. Helsinki.
- Hirsjärvi, S., Remes, P. & Sajavaara, P. 1997. Tutki ja kirjoita. Kirjayhtymä Oy. Helsinki.



- Holling, C. S. (2001). Understanding the complexity of economic, ecological, and social systems. *Ecosystems*, 4(5), 390-405.
- Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable development: mapping different approaches. *Sustainable development*, 13(1), 38-52.
- Hunkeler, D., & Rebitzer, G. (2005). The future of life cycle assessment. *The International Journal of Life Cycle Assessment*, 10(5), 305-308.
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services (IPBES). Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services (IPBES): Bonn, Germany, 2019
- John, D. R. (2008). Stages of consumer socialization. *Handbook of consumer psychology*, 219.
- Jokinen, A., Juhila, K., & Suoninen, E. (1993). Diskursiivinen maailma: teoreettiset lähtökohdat ja analyttiset käsitteet. *Teoksessa A. Jokinen & K. Juhila & E. Suoninen, Diskurssianalyysi liikkeessä*, 17-47.
- Judge, M., & Wilson, M. S. (2019). A dual-process motivational model of attitudes towards vegetarians and vegans. *European Journal of Social Psychology*, 49(1), 169-178.
- Juhila, K., & Suoninen, E. (1999). Kymmenen kysymystä diskurssianalyysistä. *Teoksessa A. Jokinen, K. Juhila & E. Suoninen (toim.) Diskurssianalyysi liikkeessä. Tampere: Vastapaino*, 233-252.
- Kahiluoto, H., & Himanen, S. (2012). Monimuotoisuudesta sopeutumiskykyä. Ruokaketju uusille raiteille? 2. korjattu versio. <https://jukuri.luke.fi/handle/10024/438258>

- Kakriainen, S., Mononen, T. & Silvasti, T. 2006. Luomutuotteiden kuluttamisen motiivit Suomessa ja Saksassa. Teoksessa T. Mononen & T. Silvasti (toim.) Ruokakysymys. Näkökulmia yhteiskuntatieteelliseen elintarviketutkimukseen. Tampere: Gaudeamus, 131–155.
- Kamenidou, I. C., Mamalis, S. A., Pavlidis, S., & Bara, E. Z. G. (2019). Segmenting the generation Z cohort university students based on sustainable food consumption behavior: A preliminary study. *Sustainability*, 11(3), 837.
- Kemp, K., Inch, A., Holdsworth, D. K., & Knight, J. G. (2010). Food miles: Do UK consumers actually care?. *Food policy*, 35(6), 504-513.
- Kemp, R., Schot, J., & Hoogma, R. (1998). Regime shifts to sustainability through processes of niche formation: the approach of strategic niche management. *Technology analysis & strategic management*, 10(2), 175-198.
- Kemper, J. (2020). Motivations, barriers, and strategies for meat reduction at different family lifecycle stages. *Appetite*, 104644.
- Kitzinger, J., & Barbour, R. (Eds.). (1999). *Developing focus group research: politics, theory and practice*. Sage.
- Koskinen, I., Alasuutari, P., & Peltonen, T. (2005). *Laadulliset menetelmät kauppatieteissä*. Vastapaino.
- Kouki, J. (1999). Lappalainen, I.(toim.) 1998: Suomen luonnon monimuotoisuus. *LUONNON TUTKIJA*, 103, 102-102.
- Köhler, J., Geels, F. W., Kern, F., Markard, J., Onsongo, E., Wieczorek, A., ... & Fünfschilling, L. (2019). An agenda for sustainability transitions research: State of the art and future directions. *Environmental Innovation and Societal Transitions*, 31, 1-32.

- Lacour, C., Seconda, L., Allès, B., Hercberg, S., Langevin, B., Pointereau, P., ... & Kesse-Guyot, E. (2018). Environmental impacts of plant-based diets: how does organic food consumption contribute to environmental sustainability?. *Frontiers in nutrition*, 5, 8.
- Latvala, T., Niva, M., Mäkelä, J., Pouta, E., Heikkilä, J., Kotro, J., & Forsman-Hugg, S. (2012). Diversifying meat consumption patterns: Consumers' self-reported past behaviour and intentions for change. *Meat science*, 92(1), 71-77.
- Lazzarini, G. A., Zimmermann, J., Visschers, V. H., & Siegrist, M. (2016). Does environmental friendliness equal healthiness? Swiss consumers' perception of protein products. *Appetite*, 105, 663-673.
- Lea, E., & Worsley, A. (2008). Australian consumers' food-related environmental beliefs and behaviours. *Appetite*, 50(2-3), 207-214.
- Lewis, M. K., & Mitchell, A. D. (2013). Food Miles: Environmental Protection or Veiled Protectionism. *Mich. J. Int'l L.*, 35, 579.
- Loorbach, D., Frantzeskaki, N., & Avelino, F. (2017). Sustainability transitions research: transforming science and practice for societal change. *Annual Review of Environment and Resources*, 42.
- Loorbach, D. (2010). Transition management for sustainable development: a prescriptive, complexity-based governance framework. *Governance*, 23(1), 161-183.
- Neumayer, E. (1999). Weak versus strong sustainability. *Books*.
- Neville, M., Tarrega, A., Hewson, L., & Foster, T. (2017). Consumer-orientated development of hybrid beef burger and sausage analogues. *Food Science & Nutrition*, 5(4), 852-864.
- Niva, M., Mäkelä, J., Kahma, N., & Kjærnes, U. (2014). Eating sustainably? Practices and background factors of ecological food consumption in four Nordic countries. *Journal of Consumer Policy*, 37(4), 465-484.

- Niva, M., & Timonen, P. (2001). The role of consumers in product-oriented environmental policy: can the consumer be the driving force for environmental improvements?. *International Journal of Consumer Studies*, 25(4), 331-338.
- McBey, D., Watts, D., & Johnstone, A. M. (2019). Nudging, formulating new products, and the lifecycle: A qualitative assessment of the viability of three methods for reducing Scottish meat consumption for health, ethical, and environmental reasons. *Appetite*, 142, 104349.
- Macdiarmid, J. I., Douglas, F., & Campbell, J. (2016). Eating like there's no tomorrow: Public awareness of the environmental impact of food and reluctance to eat less meat as part of a sustainable diet. *Appetite*, 96, 487-493.
- Malek, L., Umberger, W. J., & Goddard, E. (2019). Committed vs. uncommitted meat eaters: Understanding willingness to change protein consumption. *Appetite*, 138, 115-126.
- Marsh, K. A., Munn, E. A., & Baines, S. K. (2013). Protein and vegetarian diets. *Med J Aust*, 199(4 Suppl), S7-S10.
- Meah, A., & Watson, M. (2013). Cooking up Consumer Anxieties about “Provenance” and “Ethics” Why it Sometimes Matters where Foods Come from in Domestic Provisioning. *Food, Culture & Society*, 16(3), 495-512.
- Meltzer, H. M., Brantsæter, A. L., Trolle, E., Eneroth, H., Fogelholm, M., Ydersbond, T. A., & Birgisdottir, B. E. (2019). Environmental Sustainability Perspectives of the Nordic Diet. *Nutrients*, 11(9), 2248.
- Moisander, J. (2008). *Representation of green consumerism: A constructionist critique*.
- Morgan, D. L. (1997). *The focus group guidebook* (Vol. 1). Sage publications.
- Myllyniemi, S. (2009). Aika vapaalla. *Nuorten vapaa-aikatutkimus*, 20-29.

- Mäkelä, J. 2003 Luonnosta kulttuuriksi. Teoksessa: Ruisleivästä pestoon. Näkökulmia muuttuvaan ruokakulttuuriin (2003). (toim.) Mäkelä, J., Palojoki, P. & Sillanpää, M. Porvoo: WS Bookwell Oy.
- Mäkipeska, T., & Sihvonen, M. (2010). Lähirooka, nyt. *Trendistä markkinoille. Sitran selvityksiä*, 29, 79.
- Mäntyranta, T., & Kaila, M. (2008). Fokusryhmähaastattelu laadullisen tutkimuksen menetelmänä lääketieteessä.
- MMM, 2013. LÄHIRUOKAA - totta kai! Hallituksen lähirookaohjelma ja lähirookasektorin kehittämisen tavoitteet vuoteen 2020. Juvenes Print. Saatavilla [https://mmm.fi/documents/1410837/1890227/LocalFood\\_ButOfCourse.pdf/ef43072b-6700-47ad-af7e-5972e7fe046f/LocalFood\\_ButOfCourse.pdf](https://mmm.fi/documents/1410837/1890227/LocalFood_ButOfCourse.pdf/ef43072b-6700-47ad-af7e-5972e7fe046f/LocalFood_ButOfCourse.pdf) (Accessed 01.08.2020)
- Mönkkönen, M. (2004). Suomen metsäluonto—osa globaalia monimuotoisuutta. *Julkaisussa: Kuuluvainen, T., Saaristo, L., Keto-Tokoi, P., Kostamo, J., Kuuluvainen, J., Kuusinen, M., Ollikainen, M. & Salpakivi-Salomaa, P.(toim.). Metsän kätköissä. Suomen metsäluonnon monimuotoisuus. Edita*, 19-47.
- Parfitt, J., Barthel, M., & Macnaughton, S. (2010). Food waste within food supply chains: quantification and potential for change to 2050. *Philosophical transactions of the royal society B: biological sciences*, 365(1554), 3065-3081.
- Parizeau, K., von Massow, M., & Martin, R. (2015). Household-level dynamics of food waste production and related beliefs, attitudes, and behaviours in Guelph, Ontario. *Waste management*, 35, 207-217.
- Pekkarinen, E., & Myllyniemi, S. (2017). Opin polut ja pientareet. *Nuorisobarometri 2017*.
- Pelletier, J. E., Laska, M. N., Neumark-Sztainer, D., & Story, M. (2013). Positive attitudes toward organic, local, and sustainable foods are associated with higher dietary quality among young adults. *Journal of the Academy of Nutrition and Dietetics*, 113(1), 127-132.

Pietikäinen, S., & Mäntynen, A. (2009). *Kurssi kohti diskurssia*. Vastapaino.

Pohjolainen, P., Tapio, P., Vinnari, M., Jokinen, P. & Räsänen, P. 2016. Consumer consciousness on meat and the environment - Exploring differences. *Appetite*. 101, 37-45.

Potter, J., & Wetherell, M. (1987). *Discourse and social psychology: Beyond attitudes and behaviour*. Sage.

Pro Luomu. 2019. Organics in Finland. [https://proluomu.fi/wp-content/uploads/sites/11/2020/05/organics-in-finland-2019\\_english.pdf](https://proluomu.fi/wp-content/uploads/sites/11/2020/05/organics-in-finland-2019_english.pdf)  
(Accessed 27.09.2020)

Puusa, A. (2011). Haastattelu laadullisen tutkimuksen menetelmänä. *Teoksessa A. Puusa & P. Juuti (toim.) Menetelmäviidakon raivaajat. Perusteita laadullisen tutkimuslähestymistavan valintaan. Helsinki: JTO, 73.*

Pynnönen, A. (2013). Diskurssianalyysi: Tapa tutkia, tulkita ja olla kriittinen. *Working paper/Jyväskylä University. School of Business and Economics, (379).*

Pynnönen, A., & Takala, T. (2013). Recognised but not Acknowledged: Searching for the Bad Leader in Theory and Text. *EJBO: Electronic Journal of Business Ethics and Organizational Studies*.

Redman, E., & Redman, A. (2014). Transforming sustainable food and waste behaviors by realigning domains of knowledge in our education system. *Journal of Cleaner Production, 64,* 147-157.

Reganold, J. P., & Wachter, J. M. (2016). Organic agriculture in the twenty-first century. *Nature plants, 2(2), 1-8.*

Risku-Norja, H., Kurppa, S., & Helenius, J. (2009). Dietary choices and greenhouse gas emissions—assessment of impact of vegetarian and organic options at national scale. *Progress in Industrial Ecology, an International Journal, 6(4), 340-354.*

- Räsänen, K., Saarinen, M., Kurppa, S., Silvenius, F., Riipi, I., Nousiainen, R., ... & Mäkinen-Hankamäki, S. (2014). Lähiruuan ekologisten vaikutusten selvitys.
- Saavalainen, H. Selvitys laski, mikä ruokavalio on ekologisin Suomessa. Helsingin Sanomat. 10.05.2019  
<https://www.hs.fi/kotimaa/art-2000006100145.html> (Accessed 15.08.2020)
- Salo, M., Nissinen, A., Mattinen, M., Manninen, K., Dahlbo, H., & Judl, J. (2019). Ilmastodieetti-mihin sen antamat ilmastopainot perustuvat.
- Salonen, A. & Helne, T. 2012. Vegeterian Diets: A Way towards a Sustainable Society. *Journal of Sustainable Development* 5, 10–24.
- Sanchez-Sabate, R., & Sabaté, J. (2019). Consumer attitudes towards environmental concerns of meat consumption: A systematic review. *International journal of environmental research and public health*, 16(7), 1220.
- Sargant, E. (2014). *Sustainable food consumption: a practice based approach* (Vol. 11). Wageningen Academic Publishers.
- Scalvedi, M. L., & Saba, A. (2018). Exploring local and organic food consumption in a holistic sustainability view. *British food journal*.
- Scarpato, D., & Simeone, M. (2013). Euro-Mediterranean integration and competitiveness of the agro-food sector. An empirical analysis in Campania region. *New Medit*, 12(3), 56-64.
- Shove, E., & Walker, G. (2016). Caution! Transitions Ahead: Politics, Practice, and Sustainable Transition Management. *Environment and Planning. A*, 39(4), 763–770.  
<https://doi.org/10.1068/a39310>
- Siegrist, M., & Hartmann, C. (2019). Impact of sustainability perception on consumption of organic meat and meat substitutes. *Appetite*, 132, 196-202.

- Silvennoinen, K., Koivupuro, H. K., Katajajuuri, J. M., Jalkanen, L., & Reinikainen, A. (2012). Ruokahävikki suomalaisessa ruokaketjussa: Foodspill 2010-2012-hankkeen loppuraportti.
- Sogari, G., Velez-Argumedo, C., Gómez, M. I., & Mora, C. (2018). College students and eating habits: A study using an ecological model for healthy behavior. *Nutrients*, *10*(12), 1823.
- Spaargaren, G. (2011). Theories of practices: Agency, technology, and culture: Exploring the relevance of practice theories for the governance of sustainable consumption practices in the new world-order. *Global Environmental Change*, *21*(3), 813-822.
- Spaargaren, G., Oosterveer, P., & Loeber, A. (2012). Sustainability transitions in food consumption, retail and production. *Food practices in transition. Changing food consumption, retail and production in the age of reflexive modernity*, 2-31.
- Springmann, M., Clark, M., Mason-D'Croz, D., Wiebe, K., Boudry, B. L., Lassalle, L., & Jonell, M. (2018). Options for keeping the food system within environmental limits. *Nature*, *562*(7728), 519-525.
- Stancu, V., Haugaard, P., & Lähteenmäki, L. (2016). Determinants of consumer food waste behaviour: Two routes to food waste. *Appetite*, *96*, 7-17.
- Stanes, E., Klocker, N., & Gibson, C. (2015). Young adult households and domestic sustainabilities. *Geoforum*, *65*, 46-58.
- Steinfeld, H., Gerber, P., Wassenaar, T., Castel V., Rosales, M. & de Haan, C. 2006. Livestock's long shadow. Environmental issues and options. – Food and Agricultural Organization of the United Nations. Rome.
- Stewart, D. W., & Shamdasani, P. (2017). Online focus groups. *Journal of Advertising*, *46*(1), 48-60.



- Stewart, K., & Williams, M. (2005). Researching online populations: the use of online focus groups for social research. *Qualitative Research*, 5(4), 395-416.
- Story, M., Neumark-Sztainer, D., & French, S. (2002). Individual and environmental influences on adolescent eating behaviors. *Journal of the American Dietetic association*, 102(3), S40-S51.
- SYKE, Finnish Environment Institute. (2020). Environmental impacts need to be taken into account in nutrition recommendations. Policy Brief  
[https://issuu.com/suomenymparistokeskus/docs/sykepolicybrief\\_food\\_31-08-2020](https://issuu.com/suomenymparistokeskus/docs/sykepolicybrief_food_31-08-2020)  
(Accessed 10.09.2020)
- Tilman, D., & Clark, M. (2014). Global diets link environmental sustainability and human health. *Nature*, 515(7528), 518-522.
- Tobler, C., Visschers, V. & Siegrist, M. 2011. Eating green. Consumers' willingness to adopt ecological food consumption behaviors. *Appetite* 57, 674-682.
- Torbjörnsson, T. (2011). Attitudes to sustainable development among Swedish pupils. *Procedia-Social and Behavioral Sciences*, 15, 316-320.
- Van den Bergh, J. C., & Bruinsma, F. R. (Eds.). (2008). *Managing the transition to renewable energy: theory and practice from local, regional and macro perspectives*. Edward Elgar Publishing.
- Vanhonacker, F., Van Loo, E. J., Gellynck, X., & Verbeke, W. (2013). Flemish consumer attitudes towards more sustainable food choices. *Appetite*, 62, 7-16.
- Vantamay, N. (2018). Investigation and recommendations on the promotion of sustainable consumption behavior among young consumers in Thailand. *Kasetsart Journal of Social Sciences*, 39(1), 51-58.

- Verain, M. C., Bartels, J., Dagevos, H., Sijtsema, S. J., Onwezen, M. C., & Antonides, G. (2012). Segments of sustainable food consumers: a literature review. *International Journal of Consumer Studies*, 36(2), 123-132.
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer “attitude–behavioral intention” gap. *Journal of Agricultural and Environmental ethics*, 19(2), 169-194.
- Vinnari, M., & Vinnari, E. (2014). A framework for sustainability transition: The case of plant-based diets. *Journal of agricultural and environmental ethics*, 27(3), 369-396.
- Vinnari, M. (2010). *Past, present and future of eating meat in Finland*. Turun kauppakorkeakoulun julkaisuja. Sarja A, 3: 2010.
- Vittersø, G., & Tangeland, T. (2015). The role of consumers in transitions towards sustainable food consumption. The case of organic food in Norway. *Journal of Cleaner Production*, 92, 91-99.
- Weber, C. L., & Matthews, H. S. (2008). Food-miles and the relative climate impacts of food choices in the United States.
- Whitmee, S., Haines, A., Beyrer, C., Boltz, F., Capon, A. G., de Souza Dias, B. F., ... & Horton, R. (2015). Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health. *The Lancet*, 386(10007), 1973-2028.
- Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., ... & Jonell, M. (2019). Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet*, 393(10170), 447-492.
- Woodyatt, C. R., Finneran, C. A., & Stephenson, R. (2016). In-person versus online focus group discussions: A comparative analysis of data quality. *Qualitative Health Research*, 26(6), 741-749.

Worsley, A., Wang, W., Ismail, S., & Ridley, S. (2014). Consumers' interest in learning about cooking: the influence of age, gender and education. *International Journal of Consumer Studies*, 38(3), 258-264.

WWF (2020) Living Planet Report 2020 - Bending the curve of biodiversity loss. Almond, R.E.A., Grooten M. and Petersen, T. (Eds). WWF, Gland, Switzerland.

## **Appendix**

### **ATTACHMENT 1. Interview guide**

1. What are the things you keep in mind when consuming food in general (while grocery shopping, at home and in other situations)?
2. When considering food and its environmental burden, what thoughts does the topic ecological sustainability arise to you? Does these thoughts affect the way you consume food?
3. Would you be willing to frame your food consumption habits to more ecologically sustainably ones? How could this be done?
4. Do you think that an individual can make a difference in the ecological sustainability of the environment by changing the way the food is consumed?
5. What are the obstacles that can hinder your food consumption to change towards more ecologically sustainable?
6. What should change in the future, that would make it easier for you to change your food consumption habits to more ecologically sustainable?