Linnæus University
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Bachelor thesis in peace and development studies

The process towards environmental sustainability and the influence of perceptions

- A comparative qualitative case study on perceptions of pro-environmental consumption among students at Linnaeus University

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Abstract

Consumption is a major contributor to environmental harm, and also one area where the Swedish performance is in urgent need of improvement. While it is well known that changes are needed on all societal levels for sustainability to be realized, it is unclear whether the population is aware of which changes that refers to, since the impacts from individual consumption remain high. Previous research has identified psychological, cultural, social, and economic determinants as barriers to change, however, removing those barriers will not be sufficient if it results in changes entailing only marginal environmental benefits. The question that initiated this research is whether common people in Sweden can identify which changes are efficient enough to provide visible results, or if the current environmental discourse generates misperceptions, hindering concrete change. Meeting the objective to contribute to the identification of obstacles to sustainability by studying the perception of pro-environmental consumption among potential adopters, a qualitative interview-based case study was conducted on students at Linnaeus University in Växjö, Sweden. The research followed an abductive approach, whereby primarily the Diffusion of Innovations theory was used for structure and interpretation. The findings reveal several barriers to sustainability associated with individual perceptions, including perceptions of the concept of pro-environmental consumption as complex, a perceived lack of trustworthy information from authorities, a perceived abundance of misleading information from profit-driven actors, as well as some controversy on where to place responsibility. Alongside this, misperceptions of environmental impacts from consumption were revealed, whereby accurate perceptions and environmental education were somewhat correlated. While highlighting an unrecognized but concrete issue, this research involves a small sample, suggesting that further research is required.

Key words

Sustainable development, individual perceptions, pro-environmental consumption, pro-environmental behavior, diffusion of innovations

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Abbreviations

BIG – Behavior-impact Gap

DOI – Diffusion of Innovations

LNU – Linnaeus University

LCA – Lifecycle assessments

PEB – Pro-environmental behavior

PEC – Pro-environmental consumption

PECB – Pro-environmental consumer behavior

SDG – Sustainable development goals

UN – United Nations

UNEP – United Nations Environmental Programme

1 Introduction

1.1 Introduction to the topic

Our world is getting better, and worse. Poverty has fallen, while inequality has increased. Global life expectancy is higher than ever, but so is the number of refugees. Life-saving technology has been invented, yet, humans are killing the planet (UNHCR, 2019; Roser, 2017; UN, 2020a).

We are currently in an era where climate change is threatening current and future life on this planet, and the status quo must be challenged for this path towards devastating destruction to be redirected. To emphasize the impact of modern human activity on the climate, the contemporary historical period has by some scholars been called the Anthropocene Epoch, replacing the "*holo*" in the official time period Holocene, with the Greek name for "man": *anthropo* (National Geographic Society, 2019).

Human activity has a significant impact on the earth, including pollution, deforestation, and environmental overexploitation. A shift in the world system towards prioritizing the environment is clearly needed for our species survival, and to tackle this, 17 interlinked goals for sustainable development were formulated by the United Nations. Aiming for social, economic and environmental sustainability, the goals range from ending poverty and hunger to protecting life on land and below water. Behaviors must change on the global level as well as among individuals, where the latter is the chosen topic for this research (UN, 2020b). By targeting one part of SDG 12; consumption, and indirectly also SDG 13, climate action, this thesis will aim attention towards the individual aspect, more specifically, pro-environmental consumer behavior; *"behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world"* (Agyeman & Kollmuss, 2002, p.240).

Although Sweden per se is responsible for a small amount of the total global emissions, the need for 4,2 planets to enable everyone to adopt our lifestyles, leaves us with one of the largest per capita footprints in the world (Swedish Society for Nature Conservation, 2019). As a result of household consumption, import-related greenhouse gas emissions stay continuously high, and currently amounts for a higher number than our domestic emissions (Smart city Sweden, 2019). 75-95 percent of the chemical pollution and close to two-thirds of the greenhouse gas emissions from Swedish consumption takes place outside of Sweden, mainly connected to the areas of food, transport and construction, according to the Stockholm Environment Institution (2019).

A change in consumption is clearly needed for the Swedish population to be sustainable, but to expect everyone to change every part of their lifestyle is not realistic, and such hopes would not likely be realized. However, with rightfully placed focus on behavior changes that have large environmental benefits, a few effective modifications could have great impact. But for this to be possible, the population must be aware of what environmental impacts consumption has.

1.2 Research problem and relevance

Politics, media and economic interests all interfere in a debate that should be led by scientists, which decreases the chance of the public to adequately respond. While the interest in sustainability has increased, Swedes tend to lack knowledge about it. If people do not have the right information to make effective choices, meaning, the ones make a real difference, that will automatically stagnate the process (Insight Intelligence, 2019; AFRY, 2020).

Since an increase of sustainable behavior only can be accomplished when there is an understanding of what hinders the population from acting accordingly, an understanding of all possible obstacles is needed. While adoption of behaviors has been thoroughly studied, perceptions of pro-environmental

behavior itself have not received much attention. It is therefore not clear whether consumer choices among the Swedish population are based on correct information, or on misperceptions from the contemporary problematic environmental discourse. For Sweden to move towards sustainability, making sure that the population have accurate perceptions is the first step, which does not seem to be the case. Researching perceptions among local consumers can therefore contribute to an initiating view on what is currently missing among the research on this subject, as well as identifying factors to consider in future policymaking.

1.3 Objective and research questions

The objective of this thesis is *to contribute to the identification of the obstacles to sustainability by studying the perception of pro-environmental consumption (PEC) among potential adopters*. By that, this study will contribute to current research on how Sweden can realize established sustainability goals. To achieve this, the following research questions were formulated:

- What is the perception of PEC among students at LNU?
- Is perception of PEC correlated with study area?
- How do perceived environmental impacts from various consumption choices relate to actual impacts?

1.4 Structure

The following part of this thesis will be initiated with a chapter on relevant background information on the topic, providing an overview of consumption in relation to sustainability, as well as of the current situation in Sweden. Necessary definitions will also be outlined to clarify the conditions of this research. Further, a review of existing research in this area is presented. Earlier

studies are evaluated and information that currently missing is highlighted. By pointing out a gap in prevailing literature, the necessity of this research is justified. In the subsequent chapter, the selected analytical framework is described. The Diffusion of Innovations theory is the primary theoretical tool, and how it is used for structure and interpretation is explained. Two additional concepts, individual-blame bias and a problem of many hands, and how they were applied in the analysis of the findings, are also included.

The chosen research method, a comparative qualitative interview-based study, is described in the succeeding chapter. Aspects that are discussed include, but is not limited to, the sampling method, interview guidelines, essential ethical aspects, the process of thematic analysis, and the validity and reliability of the results. Following chapters consists of a presentation of the findings, whereby the research questions are answered without further analysis. The last section consists of an analysis of the findings, with increased focus on the analytical framework, as well as an inclusion of secondary sources to enable a discussion from various perspectives.

2 Background and definitions

2.1 Background

After decades of outsourcing carbon-intensive production to other countries, the blame for environmental destruction tends to largely be placed on developing countries where production has increased rapidly (Malik & Lan, 2016). However, both official statistics, environmental politics and the general public tends to neglect consumption-based emissions, and when that variable is added to the equation, severely smaller per capita environmental footprints are revealed for producer-countries. Meanwhile, taking consumer-related impacts into consideration show large per capita environmental footprints for many developed countries, connected to the high frequency of importing

goods and services. Many countries that are large emitters often produce items that are exported, meaning that the emissions are a result of the demand abroad. Of the total human impact on the earth, around two-thirds is traced back to household consumption, whereof rich countries are responsible for larger per capita footprints than poorer countries (Ivanova et. al. 2015).

Among the Swedish population, sustainability is generally seen as important. According to Swedish Environmental Protection Agency (2018), 95% of the population believe that Sweden will be affected by climate change and almost 80% believe that individual actions can slow it down. In the Swedish Trade Federation's consumer survey of 2019, the majority, ranging from 70-89%, of the respondents stated that sustainability was an important influencing factor for consumer choices (Svensk Handel, 2020). Additionally, Swedish consumers buy more organic and locally produced food, with concerns for the environment and the climate as the motivation (Livsmedelsföretagen, 2017). However, any striking results are yet to be seen, and like many other European countries, *"Sweden faces significant challenges linked to the goal of contributing to, and achieving, sustainable consumption and production environmentally, socially and economically, at home and abroad."* (UN, 2017). While both interests and actions seem to undergo a transformation, the outcome has not changed, implying a gap between behaviors and impacts (Csutora, 2012).

According to a study developed by NOVUS, Gapminder and AFRY (2020), every other swede has no or little knowledge of the SDGs. In another study conducted by Insight Intelligence (2019), 77% of the swedes found it hard to know whether a company or an organization is sustainable, and knowledge and money were regarded the largest obstacles to being sustainable in general. At the same time, around 60% stated that their own lifestyle is sustainable, while believing that others are not. This indicates both a widespread

overestimation of one's own degree of sustainability, and a general lack of knowledge on the subject.

While climate issues and sustainability are receiving increased attention, the impacts from Swedish consumption are not decreasing, resulting in the million-dollar question being 'why?'. First, what should be considered is that responses to surveys often are exaggerated or overestimated, which would imply that the interest in sustainability is not as high as stated. Another influencing factor may be the well-known psychological phenomenon where attitudes do not always match actual behaviors, the value-behavior gap. This is also discussed in other terminology such as value-action gap, intention-behavior gap or attitude-behavior gap, and simply refers to the difference between what people perceive as important to do, or intend to do, and what they decide to do. This implies that even if the population has honest interest in sustainability, it may not be reflected in actual behavior and attitudes may remain just attitudes (Carrington, Neville & Whitwell, 2014).

With this in mind, there are still large groups of people who both intend to, want to, and actually do, make conscious consumption choices with the goal to decrease environmental impacts. This demonstrates a will to engage in pro-environmental behavior, and while the intentions are good, this course of action is not effective since the results for some reason remain absent.

One factor that may hinder actual sustainability is the greenwashing that has infiltrated all parts of the contemporary debate, which refers to when actors mislead consumers with deceiving claims of environmental performance or environmental impacts (Burbano & Delmas, 2011). Big corporations, especially connected to the fossil fuel industry, have invested enormous sums on misleading branding for decades, consciously distorting scientific findings and hindering policies, to ensure that climate-related issues do not obstruct the expansion of their profit-driven operations. In general, high-impact behaviors

such as severely decreased consumption would negatively impact the profits for many corporations, which implies that there is an agenda for promoting low-impact behaviors that maintains the flow of capital (InfluenceMap, 2019; Mulvey & Shulman, 2015).

Simultaneously, the need for change is urgent since we are running out of time. If even the persons who let environmental aspects determine consumption choices fall victims for greenwashing and deceptive advertisement, the question arises of how the greater majority can be expected to make sustainable choices. It is therefore of utter importance to understand if, and how, phenomenon's such as greenwashing, misleading encouragement and deceiving commercial impact individuals' perception of PEC.

While consuming less would be the objectively most effective way to minimize environmental damage, the consumption that is perceived as necessary for individuals should consist of products and services that have substantial environmental benefits. Today, there is an abundance of "sustainable" or "green" alternatives, which can make it rather difficult to maneuver in the jungle of available options. While focus has shifted towards consuming differently, at least to some degree, the risk is that the most popular individual changes result in only marginal differences in environmental impacts. When switching to electricity efficient light bulbs, choosing the organic milk or installing waste sorting systems are presented as groundbreaking changes, people are led into a false sense of being pro-environmental, reflected in the tendency among swedes to overestimate their own sustainability. High-impact actions such as having fewer children, changing to a plant-based diet, or living car-free are neither mentioned nor encouraged as much as low-impact actions, and this misplaced focus will not result in the needed environmental effects. For example, adopting a plant-based diet is four times more effective than comprehensive recycling, and eight times more effective than upgraded light bulbs. When low-impact

consumption changes are portrayed as equally, or more, effective than high-impact changes for decreased environmental impact, the result will inevitably be an inaccurate picture of what sustainability is (Wynes & Nicholas, 2017).

Stated in relation to the Swedish Environmental Goals (2020), the parliament, government, authorities, municipalities, companies, voluntary organizations and private individuals must all take responsibility and commit to reaching the goals, while the challenges we see are global, the solutions are local. With regards to sustainable consumption, somewhere, or maybe everywhere, the process is stalled. We are not moving in the right direction, and this research will examine if one cause of this can be that people have an incorrect perception of what pro-environmental behavior is.

2.2 Definitions

Sustainability is repeatedly mentioned in this research and can be defined in numerous ways. In sustainable development, economic, social and environmental sustainability are emphasized. Certainly, the all three dimensions are interconnected, but to clarify that this study is focused on environmental sustainability, the following definition has been referred to; *"meeting the resource and services needs of current and future generations without compromising the health of the ecosystems that provide them"* (Morelli, 2011, p.5). For further distinction, the term pro-environmental was chosen instead of sustainable in the interviews, to avoid any confusion when collecting data. Pro-environmental is defined as "*behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world"* (Agyeman & Kollmuss, 2002, p.240). By highlighting the environmental aspect in the interviews, the aim was to prevent economic or social aspects impacting answers to a degree that would make the research misrepresentative. In the following chapters, the terms 'pro-environmental' and 'sustainable' will be used interchangeably.

A definition of consumption was also regarded as important. By excluding expenditures on charity and alike, the interviewees were informed of consumption as "*everything that you buy, use or eat, and also pay for, in your everyday life*". This includes products and services, such as food, clothing, technological items, electricity, and water use, car and fuel, airplane travel, etc.

The terms high-impact and low-impact actions have been used to separate consumption choices depending on their environmental impact. *High-impact* refers to actions that entail minimum environmental consequences, which therefor have a high impact if one wants to be pro-environmental. This includes having fewer children, living car-free, avoiding airplane travels and adopting a plant-based diet. *Low-impact* includes actions that do not have substantial environmental benefits, such as recycling or taking shorter showers. In following chapters, these terms are used in connection to consumer choices and behaviors (Wynes & Nicholas, 2017).

3 Literature review

In recent decades, the issue of how to tackle climate change has gained popularity among researchers all over the world. There is an abundance of studies on sustainability in connection to all parts of the society, from the real estate and electric power industry to toy- and clothing production. Stepping down from the corporate level, research has also been conducted on individual behaviors such as green consumerism and climate activism. There are quantitative and qualitative studies from sociological, economic and psychological perspectives, resulting in several models, theories and frameworks, constructed with the aim to understand how we best can tackle the negative consequences of human activity. The answers are many to the question of why people go beyond caring or worrying about the environment

in theory, to changing their behavior in practice. Multiple factors seem to be included, both internal and external, which simultaneously influence each other. Results vary depending on what behavior is studied, where the study is conducted and what the target group looks like. Contextual circumstances and local conditions also tend to impact what the findings show, and there is not one single factor, one theory or one model, that currently can explain the phenomenon alone (Trudel, 2018).

Among the most comprehensive research related to this research is the meta-analysis by Hines et. al. (1987) on responsible environmental behavior, and a follow-up on that study by Bamberg & Möser (2007). The former analyses over 300 studies, and the latter over 40, whereof both show a stable correlation between some specific variables and pro-environmental behavior in general and concludes that both self-interest and pro-social motives are driving factors. Intentions to act were predicted by perceived behavioral control, attitude and personal moral norm, of which the advantage, the degree of difficulty and the indication of moral obligation related to the pro-environmental option compared to the other option determined the intended choice. While problem awareness was not the main indicator, it was stated to be an indirect determinant of intention.

Agyeman & Kollmuss (2002) contributes to the subject with a model of the gap between the possession of environmental knowledge and responding behavior mentioned in the introduction, which incorporates a variety of variables, external factors; such as economic, cultural, social, and institutional, and internal factors; knowledge, motivation, values, awareness, locus of control and priorities. They also include habits in their model, which often is neglected in similar research. Some criticism of early linear models is also presented, stating that more knowledge does not automatically lead to pro-environmental behavior. Instead of associating environmental knowledge and

pro-environmental behavior directly, it is added to a complex that illustrates drivers and barriers to the goal, PEB.

In another undertaking of how to explain PEB, Steg et. al. (2014) developed the integrated theoretical framework for encouraging pro-environmental behavior (IFEP), targeting behavioral change. After claiming that environmental behavior often creates a conflict between hedonic (satisfaction) and gain (benefit) goals, and normative goals, they evaluate the paths that can be taken to reduce these conflicts, either by decreasing the hedonic/gain-costs of pro-environmental choices, or by strengthening normative goals. Simplified, this can be done by increasing what people perceive as positive associations (e.g. low prices or easy access) to pro-environmental options, and by that, decreasing the risk of hedonic and gain factors hindering environmental action. The other way is by strengthening pro-environmental norms, on which the authors stated that *"observing others respecting injunctive norms strengthens normative goals and increases the likelihood that people act upon other injunctive norms and their (biospheric) values…. norm support cues seem to promote prosocial (and pro-environmental) actions more generally"* (Steg et. al., 2014, p.109-110) referring to a field experiment where observing a person voluntarily removing other people's litter decreased the likelihood of the observer to litter.

Gifford & Nilsson's review on the impact of personal and social factors on pro-environmental behavior (2014) further explores the area. They agree that PEB is too complex to be explained by one model or theory and lifts the strengths of meta-analyses such as the ones mentioned above. An important observation that is made is that most of all studies on the subject concerns reported behavior, not actual behavior, emphasizing an additional gap in this subject. They conclude their review by stating that among the numerous influencing factors, the following attributes would likely result in PEB for a person: possession of accurate knowledge of the environment and its problems

and potential solutions, an open, agreeable and conscientious personality, consequence-awareness, liberal and post-material values, and the feeling of responsibility. Their take on the role of environmental knowledge confirmed that there is a significant inconsistency, whereupon some environmental problems are well known and acted upon, while others are far from it. This is argued to be negative for environmental action, since *"making informed pro-environmental choices is difficult if one has incorrect or no knowledge*" (Gifford & Nilsson, 2014, p.142).

A deeper dive into the role of knowledge is performed by Coyle (2015), who explains its importance in the National Environmental Education & Training Foundation's report on environmental literacy. Correlations between knowledge and action are outlined, with the conclusion that information is crucial for effective solutions. Further, it was stated that *"In the future, many leading environmental problems, ranging from water quality to ecosystem management, will require the efforts of more skilled non-experts acting as individuals, through small business, or as community leaders"* (Coyle, 2005, p.79). With complex environmental challenges standing before us, he argues that the majority population on the earth must be part of the solution. The report includes a discussion on how simple awareness is not enough, rather a deep understanding, substantial knowledge, skill possession and field application are all needed. When a person moves beyond awareness to what is described as "environmental literacy", they are undoubtedly more likely to engage in PEB. The author also argues that individuals must make constant decisions that have various degrees of environmental impact, and those decisions should be founded on correct knowledge, not misconceptions. Coyle (2015),

In much research, a mixture of social, economic and cultural factors hinders individual behavior change, and the attitude-behavior gap is often referred to. Knowledge is frequently stated as one of many equally influencing factors,

however, that knowledge is often assumed to be either correct knowledge, or lack of knowledge. Whether people possess incorrect information that is perceived as accurate knowledge in the person's mind is rarely discussed. The question of whether lay people, meaning non-experts, even know what pro-environmental behavior is, is far from thoroughly studied. However, among the few studies that touch on the issue, Reynolds et. al. (2010) concluded that despite improvements since the 90's, many U.S. individuals in 2009 still had several incorrect beliefs about climate change, and Robelia & Murphy (2012) pointed to the widespread confusion in numerous countries on significant issues, such as the greenhouse effect and the ozone layer. Groundwater, water shortages and water use in food production was also stated to be far from correctly understood, and they emphasize the need for more documentation of misconceptions, which highlights the relevance of this research.

With one question being whether people's knowledge of PEB and the environmental impacts of consumption matches the reality, the second issue is whether incorrect views of environmental impacts will result in inefficient counteracts, and thereby also the absence of preferred results. This part is also far from satisfactorily explored, but out of the few researchers who touch on this, Moser & Kleinhückelkotten states; *"individuals with high pro-environmental self-identity intend to behave in an ecologically responsible way, but they typically emphasize actions that have relatively small ecological benefits"* (Moser & Kleinhückelkotten, 2018, p.627*).* Accordingly, they found that individuals with a sustainable self-image, still contribute to unsustainable outcomes.

Csutora (2012) has also raised this issue, whereby a comparison revealed that voluntary "green action" did not result in smaller ecological footprints. A change in consumption towards what was perceived to be more environmentally friendly did not necessarily lead to less environmental harm, which was formulated as a behavior-impact gap (BIG). One possible cause

mentioned in her study relates to the objective of this research, namely that marginal pro-environmental activities are more promoted than high-impact activities, creating misperceptions among the population. Since high-impact activities often are politically sensitive, it is likely that focus will remain on low-impact changes, which can be summed up as *"political acceptability dominates over ecological effectiveness"* (Csutora, 2012). This stand will be further elaborated in following sections of this thesis.

With that said, there is a gap in current research whereby it remains unclear whether people have the correct perception of PEC, and if inaccurate perceptions hinder behavior change and/or results in misplaced focus when a change in behavior is initiated. Perceptions are and will always be shaped by the surroundings, and this research will therefore focus on how students at LNU perceive PEC and consumption-related environmental impacts. This will enable a discussion about how perceptions relate to established facts and the influence of the current atmosphere in the Swedish environmental debate. By that, this thesis will contribute to the understanding of what obstructs sustainability in Sweden and enable identification of topics for future research.

4 Analytical framework

4.1 Theoretical framework

While many studies on sustainability and consumption have focused on internal and external causes connected to the consumer, this research will instead primarily focus on the perceived characteristics of PEC itself. The *Diffusion of Innovations* (DOI) theory has therefore been used to shape the research and will operate as a lens when interpreting the findings. This theory originates from the work of Emerett Rogers in 1962 and describes how innovations diffuse, more specifically, by enabling a mapping of the spread of new ideas or products in a system over time. In this process, certain characteristics of an innovation are connected to whether it is adopted early,

late, or at all. In the case of this research, pro-environmental consumption is the innovation and students are the adopters.

The characteristics stated as determinant for an innovations adoption rate is: *Relative Advantage* - the perception of whether the innovation is seen as favorable compared to the one it replaces, *Compatibility* - how the innovation fits into the values and needs of the adopter, *Complexity* - if the innovation is easy or difficult to understand and use, *Trialability* - the extent to which adopters can test the innovation before committing to it, and *Observability* - if adopters can see concrete results from others using the innovation. Assuming that PEC is the goal, reaching an understanding of how these characteristics are perceived by laypeople is an important step towards reaching that goal.

Further, Rogers describe the process of adoption in a five-stage model. A successful adoption would start with an individual gaining knowledge of the innovation, followed by them forming a positive attitude towards it, and then deciding to engage and thereby adopt it. Further, the individual would put the innovation into use and lastly conforming it by reinforcing usage. The first two steps of this process will primarily be of interest in this research, the stage where an individual is exposed to the innovation's occurrence and the stage where they form an attitude towards it. Stage three will somewhat be included, the choice to adopt or reject the innovation.

The innovation does not need to be objectively new, only new to the perceiver. Pro-environmental consumption includes both objectively new features, such as new energy-efficient technologies, but also well-established components such as second-hand shopping, which can be perceived as new to people when first encountering it. This theoretical lens is therefore suitable when studying the adoption of PEC. The DIO theory is also more fit for studying the process of adopting new behavior, than to prevent or end behavior, thus it will not be used to understand how to directly encourage the abolishment of non-

sustainable behavior, rather to contribute to the understanding of the complex process of adopting PECB (Rogers, 2003).

Another part of the DOI theory regards *the Individual-Blame Bias*. This refers to when individuals are blamed for problems, instead of holding the system of which they are a part accountable. Rogers argue that individual-blame is overly emphasized in diffusion research, as well as in social research overall, while seeing the whole system as responsible has been underestimated. Moving beyond individual-blame and including system-blame as well, can help identifying the contextual factors that contribute to maintaining the problem. While this research indeed targets individuals, perceptions are the result of our settings, and by researching perceptions, faults in our system (system-blame factors) can be revealed (Rogers, 2003).

4.2 Additional Concepts

Alongside this theory, the findings will be discussed in relation to some concepts, to enable a richer discussion. (Gill et. al. 2008). What has been recognized as relevant for this study are mainly two concepts that relate to behavioral choices. First is *the problem of many hands* (Van de Poel et. al. 2012) which will be elaborated in relation to responsibility. This concept targets five aspects; capacity, causality, knowledge, freedom and wrong-doing, which are described as historically being the conditions to whether it is realistic to hold a person responsible for, what they call, *a problem of many hands.* They further elaborate their own position and concludes that when an agent contributes to an undesirable outcome, is not under compulsion to do so, and does what is regarded as wrong in the context of a normative framework, moral responsibility can be ascribed. This concept will together with *the individual-blame bias* be applied to the analysis of responsibility.

The second concept that will be discussed in relation to the findings is the *Behavior-Impact Gap* mentioned in the literature review, with the connected

sub-concept of escape strategies, where minor low-impact changes retrieve attention while high-impact actions are ignored (Csutora, 2012).

Applying this analytical framework to the research can contribute to the identification of preferable measures for increased sustainable consumption, since policy efficiency is stated to be determined by what strengths and weaknesses adopters connect to. The five characteristics, *Relative Advantage*, *Compatibility*, *Complexity*, *Trialability* and *Observability*, were used to shape the interview guide and constitutes the basis for interpretation of collected data, this to ensure that the findings includes the participants perceptions of all of them. Through this, characteristics that were perceived as barriers to adoption of PEC can be sorted out. Additionally, perceptions of responsibility will be analyzed in relation to the *individual-blame bias* as well as to *the problem of many hands*. Eventual differences between the two target groups will be discussed throughout the analysis, which also contains a comparison between perceived environmental impacts of various behaviors and their actual environmental impacts.

5 Methodological framework

In this chapter, the selected research method will be presented. This includes a description of the process, from how the interviews were conducted and the thematization of the material, to an explanation of how the data were interpreted and an outline of chosen secondary sources.

5.1 Research method

Contributing to the wide range of research on pro-environmental behavior, this study followed an abductive approach to enable recontextualization from a slightly unique perspective. In abductive methods, events are ascribed meaning in relation to a larger context. In this case, PEC was the ‘event’ that

were researched, and the context was the analytical framework. In this framework, the relative success of increased PEC was determined by how adaptors perceive its characteristics. Using the DOI theory and the additional concepts as a guiding framework, both to structure the study and for interpretation, allowed for an examination of PEC in new light. By moving beyond approaches previously used to research the obstacles to sustainability, new connections, relations and associations could be recognized (Danermark et. al. 2002).

With the objective to study the perception of PEC among potential adopters, a qualitative case study was determined to be the most suitable course of action. While quantitative studies on the subject can be helpful in identifying patterns in larger groups, a qualitative study can reach deeper understandings of individual mindsets. There is an overall lack of data on perceptions of all PEB, but since there still are a few examples of the former, the latter is particularly needed and was therefore chosen for this study. The primary source of information was gathered by conducting semi-structured interviews. To answer all three research questions and enable an analysis, multiple academic articles and official data were used as secondary sources (Danermark et. al. 2002).

5.2 Sample

Students are the decision makers of the future and their view on what is hindering sustainability is therefore of great importance. Young people are also stated to be most worried about climate change (Amnesty International, 2019), and it is relevant to study whether they understand what we can do about it, as well as if it is reflected in their behavior. Based on that, and due to the geographical constraints, this research was delimited to students at Linnaeus University in Växjö, Sweden. By assuming that few students are involved in production, whereas most people engage in consumption, this

study was also delimited to the part of SDG 12 aiming at consumption, and by that, indirectly also SDG 13. As a current student at LNU, the prerequisites were also optimal for information gathering among other students, e.g. there were no restrictions such as lack of access.

A general insight in perceptions is needed, but to include an additional aspect to the discussion, interviews were conducted on students from two different study areas. The intention behind this decision was to enable a comparison, whereby the possibility that study areas correlate with perceptions of PEC could be examined. As mentioned above, the overall view shows an inconsistency among the Swedish population. We see ourselves as being sustainable and we claim to care about the environment, whereas the outlook rather matches the opposite. Adding the variable of additional higher environmental education enabled a discussion of whether it can help people to maneuver through the contradictory information that surrounds us.

Out of ten interviewees that were contacted, half studied a program including environmental courses and perspectives, namely the International Social Science program, and the other half studied the Economics Program, with much less of an environmental profile. A comparison that includes a wider range of study areas would be useful for a mapping of how study areas impact PEB, but since this research primarily will focus on perceptions in general, and use the field of study as a complimentary factor, representatives from two programs were considered enough for this purpose. In favor of comparability, the two programs that were actively chosen with regards to the large difference in how much of an environmental focus they have.

The conclusion was drawn that the most suitable sampling technique for the research was a two-parted snowball sampling, whereof participants were conducted through one student from each program. This was chosen to be the preferred method to decrease the risk of personal bias when selecting

interviewees, as well as to avoid pre-existing knowledge of the interviewee's personal characteristics, mindsets or position on the subject.

Besides age and education fields, the choice was made to not specify additional sampling criteria. Other aspects, such as gender, have already been thoroughly studied and were therefore not considered to be necessary in this research. Stronger environmental attitudes and concerns are seen among women than among men (Gifford, R., & Nilsson, A, 2014), women also tend to act pro-environmental to a higher degree (Azucena Vicente-Molina, Fernández-Sáinz & Izagirre-Olaizola, 2013; Hunter, Hatch, & Johnson, 2004).

5.3 Interview structure

To estimate overall perceptions of sustainability, the interviews were initiated with a few questions about the topic in general. This included the SDGs, sustainable consumption and Swedish consumption. Even though the whole interview guide were based on the chosen analytical framework, the second part of the interview targeted the five characteristics from the DOI theory directly (*Relative Advantage*, *Compatibility*, *Complexity*, *Trialability* and *Observability*) (Rogers, 2003). In the third part of the interview, the questions were focused on perceptions of responsibility and the environmental consequences of consumer choices, this to enable the comparison between perceived impacts and real impacts.

5.4 Ethical aspects

As in all cases involving interviews, some ethical aspects had to be considered. Before initiating an interview, the written consent from the interview person was received. The interview was then carried out and recorded over the digital conference service Zoom, after additional verbal consent was confirmed. All interviewees were assured full anonymity, as well as informed of their right to

both avoid answering questions and to cancel their participation in the study at any time.

Another important factor for interviewing is unbiased language, and the interviews were formulated as neutral as possible to prevent both leading questions and interference in the participants' intuitive responses. To ensure that the participants fully understood the subject, they were informed of the chosen definition of the concept *"pro-environmental"* in this research as well as what *"consumption"* refers to. An additional factor that was considered is that the subjects of sustainability, climate change, and personal behavior can trigger guilt among people. Therefore, the need to be careful not to make interviewees feel ashamed for any expressions was considered.

5.5 Thematic analysis

What followed the conduction of interviews was the analysis of the data, whereby a thematic analysis was chosen to be adequate for this research. Following Braun & Clarke's (2006) six-phased approach, familiarization of the data was the first step. I then transcribed the interviews and any statement that was regarded as relevant, either for being unique, recurring or of theoretical interest, was noted. Further, the material was coded, meaning that the statements were summarized into different codes. Out of the created codes, similar ones were combined, of which I developed defined themes to make interpretation easier.

As for the themes, they were identified at a semantic level, meaning that they were organized, labeled, and interpreted from the data without looking for underlying assumptions. This will provide a view of evident patterns without trying to interpret anything into the data that is not clear (Braun & Clarke, 2006). To make the text more concise and avoid unnecessary repetition, the students who studies a program that involves environmental issues will henceforth primarily be mentioned as Group 1, and the students that do not

will be referred to as Group 2. In the analysis, some developed themes concern both target groups, while others were only identified in one of the groups.

For clarification of the thematic process, see table below.

Table 1. Thematic process

DATA EXTRACTION	CODE	**THEME**
"Individual behavior is where it starts" *"Interest determines the direction"* *"Yes, if we change, companies must change"*	Supply and demand	**Recognized responsibility**
"Almost no consumption is sustainable" *"There is no sustainable consumption today"*	Consumption is per se unsustainable	

Table 1. Example of data extraction, coding and creation of themes.

5.6 Outline of determined themes

Based on the theoretical framework and stated research questions, the final themes that was developed in the thematic process are *recognized responsibility*, *denied responsibility*, *complexity* and *misperceptions*.

The following tables demonstrate the codes, themes and which target group they were identified in.

Table 2. Theme 1

Target group	CODE	**THEME**
Group 1	Supply and demand Consumption is per se unsustainable External actors could facilitate change for individuals	**Recognized Responsibility**
Group 2	Individual action has an impact	

Table 2. Theme nr 1, Recognized Responsibility, concerns both target groups.

Table 3. Theme 2

Target group	CODE	**THEME**
Group 2	Individuals are not to blame External actors should initiate change	**Denied Responsibility**

Table 3. Theme nr 2, Denied Responsibility regards only target group 2, students who have not studied environmental issues

Table 4. Theme 3

Target group	CODE	**THEME**
Group 1	Misleading information Hard to know for regular people Lack of information	**Complexity**
Group 2	PEC is a grey zone Information comes from questionable sources Lack of information	

Table 4. Theme nr 3, Complexity, regards both target groups

Table 5. Theme 4

Target group	CODE	**THEME**
Group 1	Incorrect information of high-impact vs low-impact consumption changes	**Misperceptions**
Group 2	Incorrect information of high-impact vs low-impact consumption changes Swedes perceived as more pro-environmental than others	

Table 5. Theme nr 4, Misperceptions, regards both target groups

5.7 Interpretation of data

To answer the presented research questions, the findings were first outlined and described without further discussion. The following chapter however includes an analysis of the findings in relation to the analytical framework. Since sections in the findings often were connected to multiple research questions, I determined that the optimal method would be to analyze the themes separately, instead of structuring the analysis based on the research questions.

The first two themes refer to perceptions of responsibility to engage in PEC, whereby the concepts of individual-blame bias and a problem of many hands are applied to the interview material in this part of the analysis. This is followed by a discussion of the third theme, complexity, mainly from the perspective of the DOI theory. To analyze the last theme, misperceptions, additional sources were needed for a comparison. Impact assessments from UNEP (2010), Ivanova et. al. (2015) and the Swedish Environmental Protection Agency (2018), are therefore included.

This enabled a discussion of the what role perceptions of PEC have in the process towards sustainability, and whether this is connected to chosen education.

5.8 Reliability and validity

The interviews were conducted in Swedish, therefore a translation of interview data was needed. This involves a risk of information getting lost or twisted in translation. To decrease this risk, the material was carefully translated to English with consideration of different suitable synonyms that correctly represent the interviewees expressions.

What also should be clear is that correlation is not to be confused with causality. The findings that show more environmental awareness or correct

knowledge among students studying environmental issues must not necessarily be a result of knowledge accessed through contemporary education. It is possible that students who study environmental issues have preexisting interest or knowledge of the subject.

A third aspect of importance is that the result of qualitative research cannot be generalized. The format of this research included a limited scope and the interviewees in this study do not represent all students from their respective programs. Additional studies are not assured to result in identical results. This is one of this study's weaknesses, whereas a severely larger sample would increase the validity of the results. To decrease the risk of these result showing a random picture instead of common correlations, the findings were cross-checked with other sources. Since several sources stress the importance of knowledge, and the impact of education, the study was despite the small sample decided to be justified. While it may not serve as solid basis, it can encourage further research as well as point to areas of interest.

6 Presentation of findings

In this chapter, the result from the interviews will be presented in form of the constructed themes. When compiling the conducted material, consisting of answers from the ten interviews, wide range of perceptions of PEC were found. Some differences were revealed between group 1, consisting of students that have studied environmental issues, and group 2, with students that have not studied environmental issues. However, contradicting perceptions could be identified within the groups as well, showing an overall confusion about PEC. Out of this, what was regarded as most relevant for this research resulted in the four final themes illustrated above; recognized responsibility, denied responsibility, complexity and misperceptions, which now will be thoroughly presented.

6.1 Recognized responsibility

In both target groups, individual responsibility was recognized in the area of consumer behavior, but to a different degree. While none of the stated research questions are directly targeting individual responsibility, its inclusion is justified due to the importance of personal perception of this matter. PEC refers to individuals actively choosing pro-environmental options, and if the mindset among people leans towards that individual action is unnecessary or uninteresting, that must also be the first step when implementing measures to increase sustainability. Starting with the interviewees from group 1, one reoccurring perception regards 'supply and demand', ranging from the idea that if more people buy unsustainable products, more unsustainable products will be produced, to the attitude that companies or other large actors will not change until the consumers do. What resulted in this theme was the overall attitude throughout the interviews, as well as the clear statements that confirmed this. The following statements were made by students from group 1 when asked about individual responsibility to change consumption habits:

> "That is where it starts, with individuals, well you can always implement regulations and so on, but if no one is interested nothing will happen. I really think it is about us individuals, we have to make things happen, and our interest determines in what direction the climate issue moves."

> "Very important, it is like the bystander effect, if everyone thinks 'I do not need to do it because someone else will, what difference does it make if I buy these or those. The more individuals do, the bigger is the chance that we turn this crap around'."

> "… it is primarily individuals who consume extremely much, and it is us who enable companies who produce to continue, so we are the key. Our consumption habits make a difference even with small modifications. And it can also affect others to think again or change their behavior."

In group 2, who have not studied environmental issues, only two of the participants made similar statements, such as:

> "It is very important, it is individuals who make up for a large part of all consumption, we choose what to consume, if everyone make an active choice to boycott non-environmentally friendly companies it would make a big

> difference. Companies would have to change their approach etc. to make money."

All students in group 1 expressed their support for the idea that individuals have responsibility, a mindset seen among some of the participants in group 2.

6.2 Denied responsibility

The opposite perception was common in group 2, which resulted in a second theme important for analysis, denied responsibility. Some of the interviewees mentioned it as:

> "Individual responsibility is very low, I would say, if you compare to large corporations who make up for the largest part of environmental impact."

> "It is unrealistic to have the expectation that individuals should sacrifice things. It is a lot to ask for consumers to do it themselves."

Other answers from this group were somewhere in between, one of the interviewees stated:

> "Individuals have responsibility but only to some extent, as an individual you cannot go that far."

It is clear that the perceptions among the students in group 2 vary, but most of the participants perceived other actors than individuals as mainly responsible.

6.3 Complexity

While all five characteristics from the DOI theory were targeted in the interview questions, answers related to complexity was repeatedly mentioned as obstacles to being pro-environmental. This resulted in the third theme, complexity, which is developed from expressions made by students in both target groups. Many of the respondents expressed that the terms 'pro-environmental' and 'sustainable' are unclear per se and had varying perceptions of their definitions and meanings. When asked about whether PEC is easy or hard to understand and implement, only a few perceived it as being easy, while the majority perceived it as being hard, especially for common

people. Misleading information from external sources such as social media and profit-driven stores was stated to be one cause, but so was also a general lack of knowledge on the subject. Several participants stated that trustworthy sources, from their perception schools, the state, and alike, provide poor information. This is demonstrated by following quotes from students in group 1:

> "I think that this is a concrete problem. It is like organic food; it is not necessarily better? There are many factors that influences, and as a consumer you can be deceived, terms that people are not that aware of are used. Many do not know what the different labels and marks mean."

> "It is complicated. I do not really know, from the perspectives of those who do not keep track of it, it is very hard, and they take the easy way, to know can require making an effort. It can be hard for a common person to understand."

> "As a consumer you can be misled, if it says produced in Sweden on a product for example that can be a lie"

> "You only get information if you search for it yourself, it is not given to you"

> "To know 'what' is good and bad is not hard, the question is 'how' good or bad it is. What is most effective? What makes a big difference? That is the hard part."

The same perspective can be illustrated by the following quotes from students in group 2:

> "It is a grey zone. I can imagine that many tries to hide that they're not as sustainable as they present it to be, they do not release all information, as with electric cars. It is 'very environmentally friendly', but what about the environmental costs of production?"

> "I think it is clear with regards to transportation methods, but hard when it comes to clothes for example, there are no labels. But some shops have started to 'recycle' clothes, or market themselves in 'green' ways, like NAKD and H&M, otherwise it is hard."

> "… it is not well marketed, you are just supposed to 'know'."

6.4 Misperceptions

Misperceptions was chosen to be the fourth theme, and perhaps the most interesting theme for this research. It is to some degree connected to theme three, complexity, since a complex phenomenon easily can be misperceived, especially when there is a multitude of actors trying to influence our perceptions. What should be clarified is that along some misperceptions that has been acknowledged by the participants, what mainly will be presented are statements that clearly is based on misperceptions, but which of the interviewee probably is unaware. Misperceptions were present among both groups, with regards to several subjects. Most of the data that resulted in this theme are connected to questions about Swedish performance in relation to sustainability, and effective high-impact choices in contrast to low-impact choices. Both showed a broad variety of perceptions, with the common denominator of involving misperceptions, simply having an inaccurate picture of reality to some degree. The students with environmental education all stated that Swedish consumption is far from environmentally sustainable, and some high-impact actions, such as a plant-based diet or not driving a car, were mentioned. However, statements on food and transport were often focused on reducing rather than refraining, and was mixed with many low-impact changes, perceived as a priority. The following expressions are among them:

> "That it is produced locally is important, no matter what food you buy, it decreases the distance for transport. Locally is better."
>
> "I'm trying to buy organic, that is not hard at all"
>
> "If you are a vegetarian that is good but if you are not so familiar with making your own patties you may choose soy substitutes, and that is not good for the environment. It is not easy."
>
> "Consumption of clothes is a villain in this case, we buy a lot of clothes that we want in the moment but that we in fact do not need, that is a part where many can change. There is also bad working conditions and large emissions from that industry."

The quotes above illustrates a focus on locally produced products, most often mentioned with regards to food, as well as organic/ECO-labelled foods being

important, which I have connected to misperceptions of high-impact vs low-impact consumption changes.

Following statements show claims from interviewees about what others should do that is not perceived as important by the majority, their perceptions of other people's misperceptions:

> "Meat consumption is without doubt the most important thing. It is a huge problem that is rarely talked about. The general Swede has no idea of how big impact the meat industry has on the environment, regarding water use, animal feed and so on."

> "Consumption in general, people must look at what they buy versus what they need."

> "Have fewer children, that is what is most effective. But I guess you cannot demand that. Comprehensive changes that make a big difference are the best in general."

Moving on to group 2, mixed perceptions were identified. As in group 1, several participants mentioned car use and meat consumption, also with focus on reducing rather than refraining, and changes were more common. Alongside this, the view of Sweden as more pro-environmental than other countries was widely supported in group 2, which I have included in misperceptions,

> "You should choose Fair Trade, 'Svanen-märkt' and organic"

> "We are better than rest of the world, you are supposed to be sustainable in Sweden. It is like embarrassing to buy plastic bags now… Poorer countries are way less environmentally friendly, they consume things, emit more toxins when producing stuff. It feels like we have laws in Sweden that says that we cannot produce things in ways that results in much pollutants."

> "Swedes are more sustainable than other countries"

> "I think the ecological footprint I have is so small compared to those who actually affects the environment"

Complementary to the questions about what the interviewee perceives as high-impact changes, questions were asked about low-impact changes, meaning where a change towards a more environmentally friendly option do not result in a substantially difference environmental impact, some interesting statements includes:

> "Food … it has smaller impacts compared to like, shopping, so it is least important"
>
> "Most things, like what you eat"

The students that have studied environmental issues were aware of that Swedish consumption is far from sustainable, and that it is connected to household activity. However, they were not as in line when discussing the difference between high-impact versus low-impact changes. Among the students that have not studied environmental issues, the data showed a perception of Swedes as more pro-environmental than others, besides some incorrect perceptions of consumption-related impacts.

6.5 Answering the research questions

In relation to research question one, *"What is the perception of PEC among students at LNU?".* The answer is, not surprisingly, that it is diverse. However, some clear patterns were found, and are represented by the themes. Starting with perceptions of responsibility to engage in PEC, a visible difference occurred between the two groups. Students that have studied environmental issues all recognized individual responsibility, stating that it is the starting point for change. This perception was only partly supported by group 2, whereby the opposite perception was more common.

Further, when outlining the findings in relation to the characteristics from the DOI theory, a consensus prevailed among the participants concerning *Relative Advantage*. PEC was perceived as the favorable option, except from in terms

of prices. Environmentally friendly products were perceived as more expensive than conventional products, and several interviewees referred to organic foods, electric cars or renewable electricity sources such as sun panels.

All students perceived PEC as *compatible* with their values and needs, which clears this characteristic from the list of potential obstacles, and it will therefore not be elaborated more in this study.

The third characteristic that was examined is *Complexity,* which undoubtedly is perceived as a barrier to PEC. The general picture show that PEC mainly is perceived as complex, difficult to grasp and easily misunderstood. However, a few participants perceived as clear and understandable. Among the students that perceived PEC as complex, the influence of external actors was repeatedly mentioned. Both due to profit-driven companies trying to mislead consumers as well as the lack of adequate knowledge provided by trustworthy actors. Concerning the participants that stated that the subject is easily understood, their responses to other questions demonstrated a contradicting picture where both impacts of consumption and PEC were misunderstood, implying an overestimation of personal knowledge on the subject.

The last two characteristics that were explored, *Trialability* and *Observability* were both perceived positively. In the present context, a high rate of trialability were stated, some associated it with testing new foods or shopping second hand, while others gave collective transport methods as an example. Since neither of these were perceived as obstacles to adoption of PEC, except from additional references to prices, their impact on the adoption of PEC will not be developed further.

The characteristics of interest for analysis, from the perspective of the DOI theory, are *Complexity*, and somewhat also *Relative advantage*, more specifically, the price-aspect.

Concerning research questions two: "*Is perception of PEC correlated with study area?"*, the findings in this case present that it is to some degree. As mentioned earlier, it must not be a direct result from the current education nor represent others from respective education programs, however, there was a visible difference between these two groups. If a person changes their behavior based on misperceptions, and these changes result in no or only marginal in differences environmental impacts, that will not increase sustainability. The first step must be correct information, which were more common among the students who have studied environmental issues. All students from group 1 had correct basic knowledge of Swedish consumption and were aware of PEC's complexity. High-impact changes were mentioned, whereas their perceptions of the difference between them and low-impact behavior changes were somewhat inaccurate. For the students that have not studied any environmental courses, misperceptions about high-impact and low-impact consumption changes were also visible, together with an incorrect view of Swedish consumption and oversimplified perceptions of PEC. Whereas some differences between the two groups are evident, all participants still had some misperceptions of PEC.

The third research question, *"How do perceived environmental impacts from various consumption choices relate to actual impacts?"*, includes a second comparison, meaning that it cannot be answered based on the interview material alone. What can be outlined is the answers from when the participants were asked about low-impact and high-impact behaviors. What is regarded as high-impact will of course vary depending on sources, measurements and context, but for this research, the categorization is based on impact assessments from UNEP (2010) and Ivanova et. al. (2015) on general consumption, and from the Swedish Environmental Protection Agency (2010) on Swedish consumption.

For group 1, some high-impact actions with severe environmental benefits that were mentioned includes abstain from driving, eating plant-based, having fewer children and reducing consumption overall. All of which correctly are high-impact behaviors that result in visible differences. However, what was mentioned just as much, if not more, as important changes, include buying organic and locally produced foods and products, and to stop buying new clothes, which all have severely less environmental impact.

Among the respondents in group 2, avoiding driving was also stated as a high-impact behavior, as well as not travelling by airplane, which align with established facts. But many actions with low impacts were also stated as effective, such as buying locally produced, organic and Fairtrade-labelled food, together with statements on choosing Swedish meat and repairing instead of buying new products. A further comparison between these answers and confirmed facts will be elaborated in next chapter.

7 Analysis

This chapter includes an analysis of the created themes in relation to the analytical framework. Theme one and two that concerns individual responsibility will both be discussed primarily in relation to *the problem of many hands* (Van de Poel et. al. 2012) and Rogers' concept *individual-blame bias*. Subsequently, a discussion of how theme three, complexity, constitutes a hinder to adoption of PEC from the perspective of the DOI theory will be carried out. The fourth theme, misperceptions, will be approached as interconnected to, and as a result of, complexity. Findings from this research will be analyzed in relation to the *behavior-impact gap* as well as *escape strategies* (Csutora, 2012). This section also includes a comparison between perceptions and established facts. The final part of this chapter will provide an

overview of identified perceptions, probable consequences of misperceptions, and a summary of the analysis in relation to the research questions.

7.1 Recognized responsibility and denied responsibility

Individual action is one of several necessary levels where transformation is needed. Whether people see their actions as affecting the environment or not is a crucial part for the implementation of measures. The denial of individual responsibility, as well as capability to make a difference, is a huge barrier to sustainability (Gifford & Nilsson, 2014).

The topic of responsibility has historically been elaborated in all conceivable contexts. Van de Poel and his colleagues (2012), evaluates the five most commonly involved aspects; capacity, causality, knowledge, freedom and wrong-doing, in relation to responsibility and climate change. Starting with capacity, they argue that all of us has it, with the additional notion that agents must have realistic options in order to be held responsible for "wrong actions", which can vary depending on contextual factors. In the context of students at LNU, the capacity is certain, and students' current environmental impacts can be decreased by modified consumption. Without possessing information about every student's situation, food, transport, shopping, and electricity use are some of the areas where access to adjustments is assumed. This stand is supported in the findings from the perspective of the DOI theory, whereby all the interviewees agreed on both the trialability of PEC, and its compatibility with their current values and needs.

The second aspect discussed is causality, where the questions arises of whether an individual can be held responsible when only marginally contributing to the unwanted outcome. While several participants in this research agreed that individuals have responsibility and should act upon it, the opposite perception was demonstrated among some of the interviewees in group 2, who viewed their contribution to environmental destruction as too small to matter. While

minor individual contributions are harmless alone, it is the quantity of individual actions combined that results in major problems, e.g. that households are responsible for two thirds of the measured environmental impacts. Likewise, it is probably this perception that has led to increased consumption, and increased environmental impacts from it, among swedes. A widespread view of one's own actions as harmless. This is reflected in research from the Swedish National Agency for Education (2020) showing how high school students connects the responsibility to act on climate change to the societal level, rather than to individual everyday actions. While some Swedes recognize everyone's individual responsibility, this must move from beyond some, to all. As argued by Babcock (2009),

> "One of the serious challenges to changing behavior is the perception that individual contributions to environmental problems are small and, therefore, inconsequential. People's misapprehension of their role as a causative factor in environmental degradation leads them to resist changing their behavior, especially when behavior change is costly or inconvenient".

This argument was also repeatedly applied to Sweden as a country, by stating that that we do not need to change because it will not make a difference. The Swedish Society for Nature Conservation (2020) counters the latter with three main arguments, first; we have among the highest per capita footprints in the world, which alone is a sign of unsustainability. Secondly, there are multiple examples of policy diffusion, referring to when countries copy policies implemented in other countries, and pioneer countries are needed to influence other. Third is the economic aspect, whereof expenditures on climate action will be high, but not compared to the cost of doing nothing. Dealing with current and future consequences of climate change, from air pollution to natural disasters, will be substantially costlier than implementing a system change now. The economic benefits from acting now outweighs the costs of acting later, or not at all, a statement backed by several scholars, e. g. Stern et. al. (2006) and Wei et. al. (2020).

Knowledge is the third aspect discussed by Van de Poel and his colleagues (2012), which is strongly connected to this research and has, and will again, be discussed. The current debate involves climate change deniers, misleading information from profit-driven actors and information that is twisted for political reasons. Additionally, as presented in this study, individuals perceive that there is a lack of information from reliable sources. When combining this with the criteria for ascribing responsibility, this approach makes it reasonable to not blame individuals for the absence of results. However, what is missed is the normative aspect, the amount of knowledge that can be expected of people to obtain individually. Alike how professionals have a duty to maintain informed on their area of expertise, individuals have a duty to stay informed in many areas, such as the Swedish law. The question regarding knowledge of sustainability is to what degree it should be individual responsibility to not only act, but to obtain information. As part of a problem of many hands, this is also connected to Rogers (2003) concept, *the individual-blame bias*. A balance between individual blame and system-blame must be ensured, since action is needed on all levels, clearing either part from accountability equals a promotion of failure. Leaders are meant to lead, and they should inform, promote and guide the population in the right direction. While consumers should make conscious choices, this must be facilitated by correct information. When issues become too complex for the general public to be certain, guidelines must be provided by authorities. The role of increasing environmental knowledge among the population, and thereby contributing to changed perceptions, will be resumed further ahead.

The fourth aspect, freedom, regards whether the actions that result in environmental harm are avoidable or not. Some action can be considered necessary for survival and one cannot simply choose not to do it. In the context of this study, the consumption choices discussed are rarely a question of life or death, and freedom is regarded as assured, with the notion that reasonable

alternatives can vary depending on situational or socio-economic factors (Van de Poel et. al. 2012). Freedom is not regarded to influence the perception of responsibility, which can be confirmed by once again referring to the participants' support for the trialability and compatibility of PEC.

Concerning the last aspect, wrong-doing, two distinguished sides are clear, one rejects individual moral obligation to not do "wrong" to begin with, whereas the other recognizes it. A differentiation is made between a context that has existing collective agreements on climate action that individuals can act in relation to, and one without it, whereby ascribing individual responsibility is argued by some to be unrealistic in the latter. It is described as unrealistic to expect individuals to make unilateral changes, that may be costly, or make sacrifices, without taking part of the benefits or being ensured about others doing it as well (Van de Poel et. al. 2012). Considering the current situation in Sweden, where no collective agreement on consumption exists, the lack of self-ascribed obligation among individuals would from this perspective be justified. Among the participants that did not perceive individuals as responsible, future change in behaviour were expressed to be possible if demanded by external actors, whereby laws, regulations or norms where mentioned. This illustrates a need for regulating collective agreements to enable increased adoption of PEC. However, since the findings also shows that students that have studied environmental issues agreed on individual responsibility to a higher degree, it is probable that higher education also has an impact. The importance of increasing education on individual impacts, together with collective agreements, should therefore be taken into consideration for increased recognition of individual responsibility.

Ensuring that both responsibility and capacity is recognized is a crucial first step, but if perceptions of the phenomena do not match the reality, recognition of responsibility will not lead to efficient action, this is where the second theme comes into the picture.

7.2 Complexity

Out of the five characteristics connected to adoption rates, complexity permeated the participants perception of PEC. According to Rogers (2003), complexity is negatively related to adoption, implying a low chance of successful implementation of PEC if this perception is maintained. Even if individual responsibility would have been fully recognized, the complexity would still serve as a main barrier in this situation. Since the interviewees perceived the concept of pro-environmental as confusing and complex, referring to contrasting information, lack of information, or information from what I have stated as, questionable sources, including parents, commercials and "scrolling on the internet", the prerequisites for increased adoption of PEC are deeply flawed. For increased adoption of PEC, how to be pro-environmental must become common knowledge, otherwise, *"a norm of individual environmental responsibility will not emerge, and new good behaviors will not replace those supported by bad habits"* (Babcock, H. M., 2009).

As in perceptions of responsibility, correlations between perceptions and study areas were also demonstrated in this area. Whereas both target groups expressed direct concerns for the complexity, answers among students in group 1 still illustrated a deeper understanding and knowledge about the environment and the complexity of PEC. In group 2, the complexity was rather demonstrated by their answers overall. Some stated that it is easy to understand PEC but mentioned low-impact changes as the most important thing to do, demonstrating a lack of accurate knowledge. Since many perceived trustworthy public sources as inadequate educators, this suggests room for improvement. By referring to the meta-analyses by Hines et. al. (1987) and Bamberg & Möser, (2007) mentioned earlier, where the perceived degree of difficulty is stated to be one determinant of environmental behavior, the conclusion would logically be that increased knowledge is key for increased

adoption of PEC. As argued by many scholars, knowledge of a problem does not automatically result in changed behavior. Many factors influence the process, and increased knowledge is one of them. It would lead to greater understanding, and by that the perceived degree of difficulty would be lower. Most likely, effectively increasing PEC would require measures that includes increasing knowledge of it in all parts of the society (Babcock, 2009).

7.3 Misperceptions

Taking the discussion one step further, I argue that it is the complexity that enables misperceptions. Not because PEC is complex per se, rather because the multiple interpretations seen today complicates the subject. Actors twist terms as “pro-environmental”, “green” and “sustainable” for several reasons, e. g. economic or political. Fundamentally, there are many clear facts on what actions severely harms the environment and what does not at all, with several choices in between. Meanwhile, the number of barriers to both know and act in relation to them seem to be endless.

The latest evaluation of the Swedish Environmental Goals Sweden revealed that we have failed to reach all but one of our 16 goals. 20 years ago, Swedish politicians promised to solve environmental issues, and that future generations should not have to inherit them. Today, the goals are not even close to be reached, and with regards to many of them, we are even moving in the wrong direction (Swedish Environmental Protection Agency, 2020). It is now apparent that politicians refrain from targeting the real changes that are needed, which may be based on that the transformation that is needed opposes current economic and political interest. The consumption-based capitalist system is currently not compatible with environmental protection. Instead, actions such as waste sorting, recycling or changing to efficient electricity sources are widely promoted, while only resulting in relatively small

environmental effects, if any at all, a behaviour-impact gap referred to as a BIG-problem by Csutora (2012).

Encouraging actions that are far from effective enough can likely result in *escape strategies*, where actors engage in low-impact actions, while the larger picture is neglected. This results in misperceptions among common people of what is needed, which can be illustrated by the statements about high-impact versus low-impact in this study, where even the interviewees that were generally aware of the unsustainable situation still referred to several low-impact actions as solutions to the current unsustainable situation.

Whereas students' perceptions were as mentioned above both correct and incorrect, it is the incorrect ones that are of interest. One subject that was mentioned repeatedly, by several participants, is food. While also being stated to be insignificant by some, this is of great importance. Starting off by providing some context; in 1000 years, we have moved from using a few percent of the earth's habitable surface for farming, to the current number being 50% of it (Ritchie, 2019). Modern food production is today responsible for one quarter of total emissions, and this major change in land use has resulted in devastating biodiversity loss. Out of the 28.000 threatened species listed by IUCN, agriculture is stated to be a cause with regards to 24.000 of them. While we need to eat, we also need to reduce the environmental pressure our food system entails (Ritchie, 2019, 2).

When discussing food, organic and local production were referred to frequently. This is not surprising, since we are urged to by organic in almost every grocery store and repeatedly are encouraged to buy local. However, this may be the most widespread misleading notion, and definitely one that leads consumers into a false sense of sustainability. While supporting local producers have benefits, environmental ones are not high on the list. Out of the environmental impacts from food production, transportation only accounts

for marginal parts, meaning what you eat is more important than where it is produced (Ritchie, 2020). Organic farming can also have severe benefits, such as reduced use of chemical fertilizers and pesticides, while simultaneously enhancing biodiversity. However, the local positive effects are outweighed by the facts that it requires more resources, particularly with regards to land and water, and results in smaller yields (Kirchmann et. al. 2009). This is one of the main barriers, since the demand for food is expected to continuously increase. The environmental benefits would be erased due to accelerated land use change from increased production, investing in food production that needs more land is therefore counter-productive. It also would include additional loss of natural habitats and cannot be either the only or the final solution to the food crisis (Kirchmann et. al. 2009).

What also was mentioned, especially among the participants that have studied environmental issues, is meat consumption. Many participants referred to reduced intake, rather than avoiding it. While being noted as an important factor, its impacts were perhaps underestimated. In current time, around 80% of agricultural land is used for livestock, while it only contributes with 20% of the calories the world's population consume. The process of turning animals into food includes utilizing land, water, electricity and transports to first grow crops and make animal feed, then repeating that process again but using land, water, electricity, transports and animal feed, to produce the final animal product that can be consumed by humans. This is obviously a huge waste of resources, whereas calories are produced, but then go on a detour through animals before landing on our plates. Animals consume way more in calories than what they yield, which makes it one of today's most environmentally destructive industries (Webster, 2017). Noticeably, millions of people depend on animals for calories, whereof hunting and fishing, or keeping animals, is necessary for survival. However, the majority in developed countries are not,

whereas the consumption is based on products from industrial farming of animals, which is the target for this critique.

Lifecycle assessments (LCA) on European food consumption show that meat and dairy products as the worst choices with regards to environmental impacts (Notarnicola, 2017). Consumption of meat and dairy is connected to income, both of which are expected to increase. While this is troubling in itself, the index presented by Searchinger et. al. (2018) show an even worse outlook for this ominous situation. By measuring changes in land use, including the capacity for unused land to store carbon, they found that LCAs often underestimate environmental impacts of meat and dairy production, inter alia. This due to neglecting greenhouse gases from land requirements, which, when included, showed three to four times higher environmental costs of meat and dairy than in earlier evaluations.

Most modern reports on sustainability today, from national as well as international actors, includes the notion of reduced intake of animal products. To put this into context, "*eating a plantbased diet saves eight times more emissions than upgrading light bulbs*" (Wynes & Nicholas, 2017, p.3), considering the environmental aspects, as well as the confirmed health benefits of more plant-based food, it is alarming that this still remains in the shadows. There is a huge difference between reducing intake of red meat and adopting a fully plant-based diet, whereas the former would rather be a low-impact change, and the latter a high-impact change. While more swedes opt out animal products, this knowledge is far from common, and far from encouraged by power holders. Organic or locally produced animal products are still worse than conventionally produced crops abroad, and until this is acknowledged, it is unlikely that we will see sustainable food consumption in Sweden.

In the Swedish Environmental Protection Agency's report *Transition to Sustainable Consumption Patterns* (2015), it is stated that emissions abroad

continue to increase due to our meat consumption, and that the needed reduction of meat consumption requires more than the voluntary changes we see today. Since this is a public agency, one could expect that these facts would be highlighted, which it is not, revealing an additional example of where the authorities neglect the necessary changes. In the report, ideas of additional taxes on meat and other emission intense products are also elaborated as possible approaches to the challenge seen before us, but the practical applications are yet to be seen. Referring to that the participants in this study perceived a lack of information from trustworthy sources, there is a wide gap to fill.

As in the example of reducing meat consumption versus entirely adopting a plant-based diet, the same argument can be applied to area car use. Reduced driving was mentioned by several participants, and while it is favorable for the environment to reduce the mileage, the optimal option would be to live completely car-free. Only the latter reduces traffic congestion, pollution, the need for more parking lots, destructive production processes etc. Options that currently are marketed as sustainable, such as car-pools or electric vehicles, do not entail all these environmental benefits (Wynes & Nicholas, 2017).

Additional misperceptions include that focus should be aimed at the consumption of clothes. Whereas a sustainable picture would show the number of zero, the current impact from clothing consumption only represent 3 percent of the average Swedish environmental footprint (Sandin et. al. 2019). This implies that while every change towards pro-environmental behavior is positive, the clothing consumption is not one of the high-impact changes that should be prioritized over other changes.

As stated above, many people do indeed engage in actions perceived as environmentally friendly. While lack of interest may be one of the problems related to sustainability, misplaced focus is a clear problem related to cases

where interest is confirmed. Since it reduces the possible positive effects from conscious actions by prioritizing inefficient choices, the lack of rightfully placed focus encouraged by authorities is a pressing issue. Today, low-impact actions are easier to engage in, and a reprioritization towards facilitating effective changes first is needed. As seen in the findings connected to the *relative advantage* of PEC, high prices were decreasing it. While high costs of PEC were mentioned in connection to organic food, new 'sustainable' products such as clothing, and renewable energy, high-impact changes do not need to be expensive. Eating plant-based can be among the cheapest diets when based on grains, crops, vegetables and fruits. Another cheap high-impact action is changing transportation method to public transports or cycling. Additionally, sustainable clothing does not equal expensive sustainable collections from unsustainable companies, rather secondhand shopping or trading garments with associates, both inexpensive. Among the high-impact actions that are more costly than the alternative, this should be targeted nationally. Resources should be placed on crucial changes that provides visible results and choosing pro-environmental alternatives should be eased by decision makers. Measures should include ensuring that it is the favorable option economically, by e.g. higher taxes on the more harmful alternatives. As argued by Coyle (2015), the responsibility among individuals will increase with time, as more environmental challenges become visible. For the major population to act in ways beneficial to the environment, both correct knowledge and the economic prerequisites must be ensured. If efficient pro-environmental alternatives remain costly and in the shadow of cheap low-impact options, the behavior-impact will be maintained, and sustainability will remain a distant goal.

By referring to the responsibility of our leaders to provide the tools and knowledge to facilitate change, as well as the responsibility of individuals to embrace the information and act in accordance*, "we cannot tackle any of the*

problems unless we give a damn, which is a matter of morality" (Webster, 2017, p.10).

8 Conclusion and recommendations

Household consumption accounts for major environmental impacts, and in most developed countries, Sweden included, a transformation of current consumption patterns is crucial in order to reach the sustainable development goals. Setting official goals aside, it is also central for the wellbeing of current and future human populations, as well as for all other living creatures. While more Swedes change their behavior, the impacts from Swedish consumptions remain high, indicating a gap between behavior and impacts. To identify possible causes for this, perceptions of pro-environmental consumption among students were targeted in this research. Three research questions were presented, and to answer them, ten semi-structured interviews were conducted. To include possible influence of education in this area, the sample was divided in two target groups whereby only half of the participants study a program that includes environmental courses. Perceptions were then studied in relation to several topics, including individual responsibility, characteristics of PEC, and consumption-related environmental impacts. The findings were then interpreted through thematic analysis, and four defined themes were created; recognized responsibility, denied responsibility, complexity and misperceptions, all of which are connected to one or several research questions.

Regarding the first research question, "What is the perception of PEC among students at LNU?", all four themes collectively provide the answer. The general perception of PEC among the participants can be summarized as complex and easily misunderstood, which likely will result in misperceptions. Students from both target groups perceived both a lack of information from trustworthy sources and a high quantity of contradictory information from

commercials and media. The perceptions of Swedish consumption were slightly mixed, whereby the students that had studied environmental issues had more accurate perceptions, they also recognized individual responsibility to engage in PEC to a higher degree. Denied responsibility only occurred in the target group where participants did not have environmental education, whereby several participants perceived individual actions, as well as Swedish performance overall, as insignificant compared to larger actors. This also answers research question two, "Is perception of PEC correlated with study area?", whereby the findings illustrate that it is to some degree, in this case.

The answer to the third research question, "How do perceived environmental impacts from various consumption choices relate to actual impacts?", can be summarized by theme four, misperceptions. While high-impact actions should be the priority, they were not recognized as such by the students. Rather, a mixture of high- and low-impact actions were mentioned as equally effective. Reduced travelling and reduced meat consumption were stated to be important pro-environmental actions, which can be regarded as high-impact changes if the reductions are large enough. However, what was mentioned as much, if not more, to be effective changes was choosing organic foods or buying locally produced items. Impact-assessments show that both these are regarded as low-impact changes that only entails marginal environmental benefits. They should therefore not be confused with high-impact changes.

While this research targeted a small sample, and therefore should be treated with utmost care, it offers insight in what can be a larger problem. If common people cannot distinguish which individual changes that are urgent, that indicates a main barrier for sustainability. This may be the consequences from the current environmental discourse, where high-impact actions remain less prioritized by decisionmakers in Sweden. When no clear guidelines are provided by authorities, the population will likely be more susceptible to misleading information from for-profit enterprises, or any actor who want to

maintain status quo. The current absence of environmental progress will persist if these questions are not targeted, therefore, future research should aim for a wider mapping of perceptions among the population, as well as a deeper investigation of how political and economic factors can influence perceptions of the environmental struggles we see before us. After all, we need a healthy planet, the planet to not need us.

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Appendices

Note that the interview questions are written in Swedish.

Appendix 1. **Interview Guide**

These interviews will focus on the perception of sustainability among students at LNU by asking questions concerning individual knowledge of sustainability, the perception of pro-environmental consumer behavior (PECB), and the perception of environmental impacts from consumption choices.

Information to the interviewee:
This is a qualitative study on the perception of sustainable consumption among students. The interview will be anonymous, and the answers will only be used in my C-thesis. The interview will, after stated consent, be recorded. The interviewee can at any time choose to terminate the interview, as well as choose not to answer certain questions.

The interview questions will focus on pro-environmental consumption, which is defined as consumption that tries to minimize the harm to any present or future life on the planet (nature, animal and human) Consumption refers to anything the person pay for and use, such as food, clothing, technological items, electricity, and water use, car and fuel, airplane travel, etc.

Information till intervjupersonen:
Intervjusvaren är anonyma och kommer endast användas i min C-uppsats. Intervjun kommer efter säkerställt samtycke spelas in. Intervjupersonen kan när som helst välja att avbryta intervjun eller låta bli att svara på specifika frågor utan att behöva förklara varför.

Frågorna i intervjun rör miljövänlig konsumtion, vilket syftar på att medvetet konsumera på sätt som minimerar negativ påverkan på nuvarande och framtida liv på den här planeten (för natur, djur och människor). Konsumtion definieras som allt en person betalar för och använder, så som mat, kläder, teknikprylar, el och vattenförbrukning, bil och bränsle, flygresor, etc.

Personliga frågor:

1. Vilken utbildning läser du?

2. Rör din utbilding frågor om klimat/miljö/hållbarhet?

3. Har du studerat något som rör klimat/miljö/hållbarhet på universitetsnivå tidigare?

KUNSKAP - Globala hållbarhetsmålen och svensk konsumtion

4. Har du någon generell uppfattning om vad hållbarhet är?

5. Är du medveten om vad de globala målen för hållbarhet är för något?

6. Har du någon uppfattning om vilket syfte de målen har?

7. Hållbarhetsmål 12 rör konsumtion, har du någon uppfattning om vad hållbar konsumtion är?

8. Uppfattar du svensk konsumtion som hållbar i allmänhet?

MILJÖVÄNLIG KONSUMTION - Uppfattning av dess egenskaper

9. Ser du några personliga fördelar med att ta hänsyn till miljön när du konsumerar? (Relative Advantage)

10. a. Kan miljövänlig konsumtion tillgodose dina behov?
    b. Matchar miljövänlig konsumtion dina värderingar?
    (Compatibility)

11. a. Uppfattar du det som att det är enkelt eller svårt att förstå vad som är miljövänlig konsumtion?
    b. Uppfattar du miljövänlig konsumtion som enkel eller svår att genomföra?
    c. Får du i ditt vardagsliv någon information om vad som är miljövänligt och inte?
    d. Vad kommer den här informationen ifrån?
    (Complexity)

12. Är det möjligt för dig att "testa" miljövänlig konsumtion utan att förbinda dig till det totalt? (Trialability)

13. Kan du på något sätt se resultatet från andra personer som konsumerar miljövänligt? Om dom är nöjda eller inte personligen (Observability)

MILJÖPÅVERKAN - Uppfattning om konsumtionens miljöpåverkan

Om vi utgår från att vi vill stoppa dom negativa miljöförändringarna vi ser idag:

14. Utifrån din uppfattning, hur viktigt är det att privatpersoner förändrar sina konsumtionsvanor?

15. Utifrån din uppfattning, vilka förändringar är viktigast om en person vill konsumera mer miljövänligt? Dvs - Vad borde vara prio ett?

16. Utifrån din uppfattning, vilka förändringar har minst påverkan på en persons totala miljöpåverkan? Dvs - vilka delar spelar inte så stor roll för miljön?

INDIVIDUELLT BETEENDE

17. Har du personligen ändrat hur du konsumerar för att vara mer miljövänlig?
    Om ja:
    Vad?
    Varför?
    När?
    Vad för effekter uppfattar du att den förändringen har?

    Om nej:
    Varför inte?
    Är det något som skulle kunna få dig att ändra dina konsumtionsvanor?