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Carbon Labeling as a Green Marketing Strategy

A study on carbon labeling as a green marketing method to avoid a green washing image

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Abstract

Title:	Carbon Labeling as a Green Marketing Strategy
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Authors:	Hanui Ye, Hindrik Jan Wildschut
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Keywords:	Eco-labeling, carbon-labeling, green marketing, consumer behavior
Thesis purpose:	The purpose of this thesis is to shed light on the effectiveness of the carbon labeling phenomenon for winning consumer trust in comparison to the effectiveness of generic eco-labeling, taking into consideration the increasing green washing image that consumers have of environmental labeling strategies. The goal of this paper is to give recommendations on whether the use of carbon labeling can help a company's green marketing strategy to be more effective in terms of winning the trust of 'green', or 'eco-conscious', consumers.
Methodology:	The methodology chosen for this research is a mixed methodology, using a sequential mixed method where the quantitative research served as the basis for the qualitative research.
Theoretical perspective:	The theoretical framework of this study consists of theories related to the concepts of sustainable development, green marketing and eco-labeling.
Empirical data:	The empirical data was collected through quantitative research in the form of questionnaires from which the outcome was analyzed with SPSS. This data served as the basis for a qualitative research method in the form of in-depth one-on-one interviews.
Conclusion:	There is currently not enough knowledge among Swedish consumers in regard to carbon labels and carbon footprinting for the carbon-labeling concept to

be a suitable substitute for generic eco-labeling for companies to avoid a green washing image. The measurability/tangibility factor of carbon labels has a positive influence on consumer perception of the label, however, due to a lack of consumer familiarity with carbon labels and the related concepts, consumers lack trust in carbon labels. When consumers are informed about carbon labels and carbon footprinting, carbon labeling can become a potential substitute for generic eco-labels due to an increase of green washing fears among eco-conscious consumers.

Foreword

We would like to take this opportunity to thank the participants of our in-depth interviews for their willingness to cooperate and invest their time in our research.

Furthermore, we would like to thank Annette Cerne for guiding us through the process of thesis writing and providing us with advice and support. Your advice enabled us to conclude our studies in a successful way.

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Chapter 1. Introduction

1.1 Background

Over the last decades, sustainability has become something very important to live up to in modern economics. Therefore, it is difficult to avoid the subjects 'sustainability' and 'going green' in media and the surroundings these days. As 'global warming' and 'saving the earth' have become hot issues for the society, corporations have brought the environmental issues into their own concerns (Yip, 2008).

At the same time, consumers have shown a movement to expressing their personal priorities, values, and beliefs into their consideration when it comes to buying a product (Williams, 2004). Consumers show interest in goods as a set of product characteristics, for example the characteristics experience and credence (Lancaster, 1966 as cited in Sammer and Wustenhagen, 2006), meaning that every single consumer has priorities when they have to make decisions in buying, for example color, price, size, values, etc,. Brands and labels satisfy two functions for consumers; they present intangible product characteristics, such as quality, and they provide a value for themselves, for example prestige (ibid).

The consumers' interest in environmental issues is growing and with technical help (Internet), consumers share their interest, concerns, and information about their values in regard to consumption (Williams, 2004). In this changing society, companies make enormous efforts to find sustainable ways to manage their business as well as using the ways as the turning point for themselves (Yip, 2008)

There are many books about sustainability, such as "*Sustainability strategies for industry*" written by Roome in 1998, "*Making Sustainability Work*" by Epstein in 2008, and "*The Sustainability Handbook*" written by Blackburn in 2007, as well as many articles that have been published about the subject. Both scholars and practitioners have developed sustainable management and business strategies and so on. It is not much different when it comes to the marketing point of view.

According to World Business Council for Sustainable Development (WBCSD, 2006, p. 3), three critical challenges that marketers face these days are as below;

> *'First, creating competitive advantage through brand innovation*
>
> *Second, building trust with customers, consumers and society*

Third, developing market opportunities'

In the transition of moving the sustainable development idea into a marketing concept, marketers have struggled a lot in terms of changing sustainable development into practicable commercial propositions.

According to WBCSD (2006), marketing strategy is basically founded by trends because companies gain competitive advantage by understanding the shifts in society. At the moment, the emerging sustainable development and public & corporate concerns is such a change in marketing environment. Many companies have developed ethical policies or mission statements in recent years and according to the survey which was conducted in 2004 by Global Reports, over 1500 businesses have produced reports of their social or environmental performance.

The practice of green marketing involves the promotion of products through ecological claims concerning the product's impact on the natural environment (Polonsky, 1995). Schlossberg (1993, as cited in Polonsky, 1995) argues that green marketing provides the consumers with relevant environmental information concerning a product or company. Prakash (2002) proposes that green marketing should be viewed as a strategy concerning information disclose to the consumers that can take place at three levels; the industry level, the firm level and the product level. The industry level information disclosure concerns the communication of industry codes, the firm level information disclosure involves the issuing of environmental reports and the product level information disclosure revolves around the eco-labeling practice.

Madu (2000) argues that eco-labeling is the most important part of the green marketing strategy because it is the marketer's main tool to communicate (environmental) information to the consumers. According to the OECD (Organization of Economic Cooperation and Development, 1991, as cited in Madu, 2000), there are five goals for eco-labeling. These goals are the following (OECD, ibid, as cited in Madu, ibid, p. 171):

1: 'improving the sales or image of a labeled product'

2: 'raising the awareness of consumers'

3: 'providing accurate information'

4: 'directing manufacturers to account for the environmental impact of their products'

5: 'protecting the environment'

Due to an increase in the public's perceived importance of the environment over the last decades, the environment has become an important marketing factor. This development has led to an increase in the use of environmental claims by companies in their marketing schemes (Piotrowski & Kratz, 2005). However, due to an overload of 'environmental' information on product packages, consumer trust in the environmental claims started to decline (Williams, 2004). This resulted in the creation of national and international labeling schemes that were brought to life in order to give consumers comparable, honest and reliable information concerning a product's ecological aspects (Piotrowski & Kratz, 2005).

Generally, there are two different types of eco-labels; multi-attribute labels (or 'generic' labels) and single-attribute labels. The former stands for labels that cover several ecological/environmental considerations while the latter stands for labels that cover one single environmental consideration (TerraChoice Environmental Marketing Inc., 2007).
According to Big Room Inc. (2007), a Canadian based-for-benefit organization, there are currently 298 different eco-labels on a worldwide scale, of which 12 are based on a company's output of CO2 (further referred to in this paper as 'carbon labels').
The most widely used eco-label in the European Union is the EU Eco-label, which is currently the only EU-wide eco-label in Europe (European Commission, 2008). The first and most widely used carbon label is the Carbon Reduction Label, a label issued by the UK Carbon Trust. The UK Carbon Trust is an independent organization set up by the UK government in 2001 (UK Carbon Trust, 2008, a).
In the case of carbon labels, the carbon footprints of each product are calculated for the product's lifecycle and the resulting carbon footprint is communicated to the consumer through the 'carbon label' on the product's package (Carbon Footprint Ltd., 2009). Carbon footprinting is the process of 'measuring and analyzing carbon footprints (either corporate or product related)' (ICF International, 2008). The UK Carbon Trust (2008, b) describes a carbon footprint in the following way:

'The carbon footprint of a product or service is the total carbon dioxide (CO2) and other greenhouse gases emitted during its life, from its production to its final disposal.'

False environmental claims on products by manufacturers have stained the green marketing practice and have lead to the creation of the term 'green washing' (Rockness, 1985, as cited

in Madu, 2000). Companies that use green washing as a strategy are using eco-labels in a misleading way by making the consumer believe that a product has several 'green' qualities, while in fact this is not the case. Green washing can be done in several ways, such as using an eco-label while not having third party certification, using vague environmental claims such as 'environmental-friendly', using irrelevant claims that are not at all related to the product group and using false third party certification (Terrachoice Environmental Marketing, 2007).

Dietz & Stern (2002) identify trust as one of the most important motivating factors that play a role in a consumer's decisions making process concerning the purchase of eco-labeled products. According to Thøgersen (2002) consumers are losing trust in eco-labels because of widely spread green washing and unclarity about eco-label issuing third parties.
According to the UK based DEFRA (Department for Environment, Food and Rural Affairs, 2008, as cited from the UK parliament publication 200809, 2008), loss of trust among consumers concerning eco-labels, and in specific generic labels (eco-labels that stand for a range of environmental claims), has led to difficulties for the EU Eco-label. During a discussion on the effectiveness of eco-labels in the UK parliament (UK parliament publication 200809, 2008) it was pointed out that generic eco-labels, in specific the EU Eco-label, are in fact diluted because of their generic nature and because of this they lose their intended impact. This results in confusion among consumers concerning the specifics of the eco-label and ultimately has an effect on consumer trust in eco-labels (fueled by consumers' fear of green washing).
The Finnish Environment Institute (2008) has proposed that carbon labels can help to give consumers more clarity concerning environmental purchasing choices, due to the single-attribute nature of carbon labels and the clarity about what they stand for.

1.2 Problem discussion

Because of the declining consumer trust in eco-labels due to widespread green washing activities, it is necessary for companies to find a way to make their green marketing strategies more trustworthy to the consumer. One way to do this, as proposed by the Finnish Environment Institute (2008), is to implement carbon labeling within a company's green marketing strategy. By using carbon labeling instead of eco-labeling, companies would hypothetically win back the trust of 'green' consumers because it is clear what carbon labels

stand for and they can be directly related to a consumer's environmental concern (in the case of the carbon label, that concern would be climate change). The carbon label could potentially make the environmental message that is communicated by eco-labels more tangible to the consumer because of the information about the exact amount of carbon footprint of a product on the label, thereby making the label potentially more trustworthy, enabling companies to avoid their eco-labeling scheme to be mistaken for a green washing strategy.

Through the last two decades, studies have been conducted on the effectiveness of eco-labels and its relation to consumer trust in eco-labels. However, due to the fact that carbon labels have only recently entered the market, no such studies have been conducted on their potential to win consumer trust (trust in this sense means that the consumer does not mistake the labeling strategy as green washing and therefore believes that the label is legitimate and fair). In order to find out whether carbon labels can be used as a substitute for eco-labels, it is necessary to conduct a study on the effect of carbon labels on consumer buying behavior in comparison to eco-labels.

1.3 Purpose of the Thesis

The purpose of this thesis is to shed light on the effectiveness of the carbon labeling phenomenon for winning consumer trust in comparison to the effectiveness of the generic eco-labeling, taking into consideration the increasing green washing image that consumers have of environmental labeling strategies. The goal of this paper is to give recommendations on whether the use of carbon labeling can help a company's green marketing strategy to be more effective in terms of winning the trust of 'green', or 'eco-conscious', consumers.

1.4 Research question

According to Bryman and Bell (2002), having research questions helps the writer to find the work process and keep track concerning research methods, data collection, and analysis. In order to fulfill the purpose of the paper, having firm research questions will help stay on the path towards the aim by answering the questions. The research question that has appeared

from the background, problem formulation, and discussions will be answered throughout the thesis.

> Is carbon labeling an effective method to overcome a green washing image in comparison to generic eco-labeling?

1.5 Contributions of the study

This study intends to provide essential knowledge and social reasons of green marketing, especially eco-labeling, by proposing to corporations a new eco-labeling method (carbon labeling). The study is presenting recent theories related to eco-labels and green washing in order to present a way to prevent green washing. Furthermore, the relatively new term 'carbon labeling' is mainly discussed and proposed to practitioners to widen up the view of this new label with theoretical and empirical support.

Practically, the study will help CEOs and marketing managers to consider the importance of green marketing, especially in regard to eco-labels, in terms of sustainability and CSR. This study will give practical consideration to the practitioners who want to avoid a green washing image with their labels. The study can be helpful to the European Union, which is leading a project to use carbon labeling within their eco-labeling scheme, by providing results from this empirical study in Sweden, where another eco-label (Nordic Swan) is more well-known than the EU Eco-label.

1.6 Outline of the thesis

Chapter 1. Introduction

This chapter covers the introduction of the subject and the problem that this thesis focuses on. It gives background knowledge to readers to understand the situation where the problem was formulated. Then the limitations and contributions of the study are also given.

Chapter 2. Theoretical study

This chapter presents major and relevant theories to help understand the theoretical issues behind the research problem. The theoretical study will support the discussion of this study.

Chapter 3. Methodology

In the methodology chapter, the research methods and design are shortly discussed in order to conduct efficient research. Further methodological reasoning is presented, which includes advantages and criticism of the choice of methods.

Chapter 4. Empirical study and analysis

In Chapter 4, an empirical study which gives practical point of view based on the theoretical study is presented. The methods that have been chosen are used to collect data for the empirical study, and based on the data collection, an analysis will be given.

Chapter 5. Conclusion and suggestions for future research

Based on the theoretical and empirical studies, suggestions will be given as well as future research ideas which arose from the investigation of this thesis.

Chapter 2. Theoretical study

In this chapter, the concept of eco-labeling and its related theories will be looked at in order to provide background knowledge of the concept. Theories will be presented to give the social background information which leads to green marketing and eco-labeling. This study sees the movement of sustainable development influence the rise of green marketing and looks at eco-labeling as a tool of successfully performing green marketing.

2.1 The changing society, to be sustainable

The report by McKinsey & Company (2005 as cited in Grayson et.al., 2009) has shown that more than 90% of chief executives are now paying more attention to incorporate environmental, social, and governance issues into their corporate strategy and operations compared to 5 years ago. Many studies have shown similar movements in the industries; corporations are starting to pursue sustainability approaches. Many of the world's leading companies are taking significant steps not only to improve their sustainability performance but also to turn it into a central part of their offering and identity and drive their own processes of innovation (Grayson et. al., 2009).

Sustainability has become a big issue among practitioners; some investors take this issue more sensitively, not only to require companies to deliver a sound financial performance, but also to consider the social and environmental impact of their decisions (Benijts, 2008). A number of green investment funds have been developed over the last decade, such as the Storebrand Scudder Environmental Value Fund in Luxembourg, the Sustainable Performance Group in Switzerland, and the Green Century Balanced Fund in the United States (Franch, 2000). With the development of a new segment of the financial market, this was called socially responsible investing (SRI). SRI is defined as combining investors' financial objectives with their concern about social, environmental and ethical issues (Benijts, 2008).
An SRI product that was developed by Merrill Lynch was called "ML Carbon Leaders Europe Index". This product follows corporations' carbon footprint as an indicator to help investors decide which corporation that they should invest. The carbon footprint provides the

lists of carbon leaders sorted by companies which produce the least amount of carbon emissions (Merrill Lynch, 2007).

Many financial institutions that have faced this wave of changes in investors' requirements as socially responsible investment funds have become commercialized (Munoz-Torres et.al. 2004 as cited in Benijts, 2008). Different socially responsible financial products have been developed by asset management firms and it has been commercialized by financial institutions (ibid). These funds can only be invested in sustainable companies, which satisfy certain criteria for being a sustainable company for the funds. Moreover, based on the insight of the academic evidence, that sustainable companies' financial performance is not worse than non-sustainable companies; which means that, the companies have not acted on sustainable matters in the market. Regarding this fact, these funds became a popular niche in the European SRI Market (Scholtens, 2005 as cited in ibid).

It is not only the financial sector which has been influenced in the movement towards the sustainability, but also the consumption behavior is showing the changes in the society.

2.1.1 Sustainable consumption

With the help of fast and effective information sharing and communication via the Internet, civil society organizations (CSOs) grow and are gaining an increasing level of influence (Williams, 2004). As a result of gaining consumer power in the society, consumers can express their personal priorities, values, and beliefs into their buying decision. Furthermore, consumers want to demonstrate their willingness, in many different degrees, to pay for environmentally and socially labeled goods. Williams (ibid) also claims when consumers purchase a product, they are not only thinking about a product itself but also the producers' behavior in the society. As it shows, one of the main overwhelming issues for consumers, regarding reflecting their social values and personal priorities, is the environmental consumption.

The studies on environmental consumption have begun in the late 1960s and since the start; it has been an interesting subject to the society (D'Souza et al., 2007 as cited in Horne, 2009). Over the last few years, the notion of the importance with climate change has driven an even

greater interest in environmental consumption including eco-labeling as one of the environmental policy instruments (ibid). According to the Rio Earth Summit-Agenda 21, consumers can be encouraged through eco-labeling schemes to adopt more sustainable consumption patterns; by purchasing products that are more resource and energy efficient (Horne, 2009).

Contemporary consumption patterns contribute to increase CO2 emissions and processes of global warming, as well as the effects of climate change and to increasing levels of pollution (Southerton et. al, 2004). The Brundtland report (WCED, 1987), which will be illustrated later in this chapter to explain sustainable development, gathered all the concerns of environmental issues regarding consumption, and presented the definition of sustainable consumption; '*The use of goods and services that respond to basic needs and bring a better quality of life while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations.*' (WCED, 1987 as cited in Southerton et.al., 2004, p. 2).

2.2 Sustainability and sustainable development

Sustainability is a quite broad and philosophical concept which deals with the ability to keep and maintain a certain process or state. These days, the term 'Sustainability' is mostly connected with biological and human systems. On the other hand, it can cause confusion because of its nature of complexity of understanding its own characteristics as a dynamic process and the specifications of the socio-ecological system. Sustainability has become a complex term which involves multiple dimensions such as the ecosphere, biosphere, biodiversity, and society, etc (Bibri, 2008).

The concept of sustainable development has been around for centuries and if we look for the origin of the term, and if we trace the basic idea of sustainable development, it goes back to 17th century in the German forestry: at the moment, people could cut down a certain number of trees in the forests in order to protect the tree population so it could be guaranteed over time (Birnbacher and Schicha, 1996, p. 149 as cited in Steurer et al., 2005). In 1972 the club of Rome brought out an international discussion in order to present the report called "Limits to Growth". During the discussion, a concern of environmental issues and sustainability has

appeared and it has presented an approach to eco-development, which affected the protection of resources and environmental issues. The discussion has lead to the definition of sustainable development. The World Commission on Environment and Development (WCED) defined the sustainable development as an ethical concept in the UN- Report, "Our Common Future", which is also known as Brundtland report in 1987. The term sustainable development was first popularized in this report and became the major definition of sustainable development. "Sustainable Development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43)

This ethical definition presented two key concepts; 1) the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given and 2) the idea of limitations imposed by the state of technology and social organization of the environments ability to meet present and future needs (WCED, 1987).

From the report, sustainable development allows future generations to have the same resources for their own usage as we have now. Furthermore, sustainable development can be achieved by reviving and changing the quality of growth and preserving nature resources by having efficient and sufficient use of them (ibid). Most important, reorientation of technological innovations and management as well as unifying environmental considerations and economics into decision-making is needed to achieve sustainable development.

Sustainable development is constituted of a 3-pillar principle (i.e. the triple bottom line of sustainability[1]); the social, economic and environmental systems and goals. The goals are efficient resource use, ecological balance, social equity, economic stability, and environmentally accountable production and consumption patterns (Williams, 2004). The 3-pillars are strongly interrelated and interdependent which express that all these three areas must be developed in parallel in order to achieve long-term success (Schrader, 2001as cited in ibid).

[1] Triple Bottom Line concept from Elkington (1999) express that these three dimensions are inter-related and they may influence each other in mutual ways. Triple Bottom Line is a concept that refers to "a situation where companies harmonize their efforts in order to be economically viable, environmentally sound, and socially responsible" (Elkington, 1999 as cited in Marrewijk, V., 2003, p. 103).

These days the sustainable development concept is well known as a model of social guiding for the integration of economic, social, and environmental issues in both short and long term levels (Steurer et.al, 2005). Sustainable development can be seen as a social movement, which has been defined as "a group of people with a common ideology who try together to achieve certain general goals." (Robert, 2005)

2.2.1 Sustainable development at the corporate level

The corporations must honor the moral minimum or respect individual rights and justice while they make a profit in a society (Bowie, 1995 as cited in Lo and Sheu, 2007). Having responsibility to the changing market, corporations are forced to consider their external appearance in terms of management behavior (ibid). Therefore, corporate sustainability and business ethics are becoming a very important part of being competitive on the market, since it partly helps to maintain talented staff and to give satisfaction to customers' expectations (Gardiner et al., 2003 as cited in ibid). Attention to corporate sustainability has increased from the corporate sector to organizations and consultancies which seek justification for sustainability strategies within organizations (Signitzer and Prexl, 2008).

Steurer et.al (2005) considered corporate sustainability as an application of sustainable development on the corporate level. Transporting idea from sustainable development to the corporate level, corporate sustainability can be defined as "meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc), without compromising its ability to meet the needs of future stakeholders" (Dyllick and Hockerts, 2002). To be able to achieve corporate sustainability, corporations must maintain and grow their 3 capitals; economic, social, and environmental capital, for active contribution.

According to Signitzer and Prexl (2008, as cited in Bibri, 2008, p. 41), corporate sustainability is '*a relative concept that describes the planned and strategic management processes of working towards a balance of economic, social, and environmental goals and values'*. In 2007, Lo and Sheu also support the view of looking at corporate sustainability as '*a positive multi-faceted concept covering areas of environmental protection, social equity, community friendship, and sustainable development in corporate governance and to test its*

impact on a corporation's market value' (Lo and Sheu, 2007, p. 345). Further, Dow Jones Sustainability Indexes defined corporate sustainability as '*a business approach that creates long-term shareholder value by embracing opportunities and managing risks derived from economic, environmental, and social developments'*.

Corporate sustainability can cover a range of ideas, but the core of it is the image of the company as part of a larger community, and second, it makes practitioners recognize its impact, and lastly, it drives towards improvement. Corporate sustainability reduces the ecological impact of a company while also including broad social initiatives, employee enrichment and retention, internal operations, community involvement, customer service, and supplier relationships.
As each company has its own purpose, product and culture they will have their own definition and way of adopting sustainability. The basic tenants of sustainability do not change, only the way that it will be implemented (Knowles and Baker, 2008).

According to Wiley and Sons (2006), corporate sustainability is a task which goes in parallel and beyond their core business. Many authors have shown that active corporations which are committed to environmental and social goals can increase their shareholder value (e.g. Figge, 2005; Figge and Hahn, 2002; Hart and Milstein, 2003 as cited in ibid). It has also been shown that they can produce sustainable competitive advantages e.g. Litz, 1996; Oliver, 1997; Russon and Fouts, 1997, as cited in ibid). It can also lead to cost savings (e.g. Epstein and Roy, 1997, 2001; Schaltegger and Muller, 1997 as cited in ibid) or help to successfully implement corporate strategies (e.g. Figge et. al., 2002 as cited in ibid).
Institutional approaches have shown that companies tend to pursue environmental and sustainability management in order to gain legitimacy in their organization. For instance, companies implement environmental and sustainability management in order to give an image of being appropriate, legitimate and desirable to some socially constructed system of norms, values, beliefs, and definitions (Bansal and Clelland, 2004 as cited in ibid).

Companies are pursuing benefits by making comparative profits from the market and from the competition among competitors. To be successful in management, a company must develop a climate of trust, respect, and dedication as well as it should allow others to have their fair share of mutual activities (Marrewijk, 2003). By the continuation of improving

companies' ultimate quality, they have to adopt a more social management style which can be rephrased; they need to move towards a higher level of corporate sustainability in order to gain success in their business (ibid).

Furthermore there is one more reason that corporations pursue gaining corporate sustainability. Being a leader in implementing sustainable strategies can help a corporation to improve perceptions of the business among customers in competitive markets (Grayson et. al., 2009). From the research of Ipsos MORI (2006, as cited in Grayson et. al., 2009), consumers' preference of brands is strengthened by corporations sustainability credentials; consumers are influenced by corporations' ethical, social, or environmental reputation when they chose to buy a product or service. The relationship between corporate sustainability and corporate value can become positively strengthened by the growth of sales (Lo and Sheu, 2007).

After the Brundtland report (WCED 1987) on sustainable development, Shearman (1990) expressed that the issues regarding sustainability will be found and become clear when the consequences of sustainable development are considered in a particular situation. Sustainable marketing becomes clear when the concept of sustainability is elaborate upon the framework of marketing theory.
The environmental issues have been discussed in both economics and the human sciences, furthermore these discussions have been reflected upon in a marketing point of view. Current interest have led to large amounts of literature on green marketing (Peattie 1992, Ottman 1992), greener marketing (Charter 1991), or environmental marketing (Coddington 1992 as cited in Dam and Apeldoorn, 1996). Contemporary 'green marketing' is the one which is making an effort to improve the relationship between marketing and the natural environment (ibid).

2.3 Green Marketing

Green marketing finds its origins in a concept proposed by Kotler & Zaltman (1971, as cited in Brennan & Binney, 2008) concerning the idea of 'societal marketing', which included the environment as one of the variables of the concept. The idea was at the time proposed as a

response to the oil crisis. However, the concept remained and over time evolved into the concept of green marketing.

In order to properly define green marketing, one must first have a definition of the concept of 'green' in general. According to McDonagh (1994, as cited in Peattie, 1995), the concept of green within advertising can have the following meaning; ecological, political, corporate social responsiveness, fair trade, conservation, non-profit, new-consumerism, sustainability, equality and humanitarian. Due to these many definitions of 'green', the concept of 'green marketing' is often referred to as 'environmental marketing' in order to avoid confusion between other meanings of the 'green' concept (Peattie, 1995). Prakesh (2002, p.1) describes green marketing as '*the relationship between the marketing discipline, the public policy process and the natural environment'*. Prakesh (ibid, p.1) states that the way in which companies are practicing green marketing can best be described as '*strategies to promote products by employing environmental claims either about their attributes or about the systems, policies and processes of the firms that manufacture or sell them'*. Green marketing is not only related to advertising the environmental characteristics of products, but instead is a broader concept that can generally be applied to industrial goods, consumer goods and services (Polonsky, 1994).

Peattie (1995) argues that 'green' marketing differs from 'societal' or 'regular' marketing in four different ways. First of all, instead of being focused on concerns of particular societies, green marketing is focused on global concerns. Secondly, instead of a long-term perspective, green marketing has an open-ended perspective. Thirdly, green marketing has a stronger focus on the natural environment and lastly, green marketing revolves around the idea that the environment's intrinsic value goes beyond its value to society.

2.3.1 Reasons for companies to adopt green marketing

Companies can adopt green marketing for several reasons. One of the most prominent reasons is that companies are being forced by governmental bodies to engage in socially responsible activities (NAAG, 1990). Another reason for companies to use green marketing can be the environmental point of view, from which the benefits of green marketing are more obviously related to a company's moral obligation and social responsibility (Davis, 1992). However, for this paper, the most important reasons why companies engage in green marketing come from

a marketing point of view. According to Keller (1987), companies look at green marketing as an opportunity to achieve objectives. Another marketing reason why companies adopt green marketing is that environmental activities and green marketing by competitors pressure companies to change or implement their green marketing activities (NAAG, 1990).

Calkins (2008) argues that there are three business reasons to adopt green marketing as a marketing strategy. The first reason is that green marketing makes a company more competitive in terms of customer and employee acquisition. The second reason is that products under a green marketing strategy can often be priced higher and will attract a higher category of consumers. The last reason that Calkins (ibid) proposes is that it is better to adopt green marketing now instead of being forced to adopt in a later stage by for example government policies.

2.3.2 Green marketing in practice

From a practical point of view, green marketing can be seen as a set of strategies concerning information disclosure. There are three levels on which this information disclosure can take place; the industry level (by use of industry codes), the firm level (by use of environmental reports) and the product level (by use of eco-labeling). These types of information disclosure can either be required by law (for example government policies) or can be implemented on a voluntary basis (for example voluntary eco-labeling schemes) (Prakash, 2002).

According to Menell (1995, as stated in Prakash, 2002), even though detailed information about a corporation's green policies is not always accessible to consumers, media and external stakeholders often put corporations under pressure to adopt green policies. These stakeholders tend to simplify information about the policies and/or products of organizations in order to convey this information to the public with the ultimate goal to influence the public's opinion. Menell (ibid) claims that if a corporation's target group sees environmental friendliness or 'greenness' as a motivating factor, the corporation should aim for an alliance with an external stakeholder(s) in order to convey information about the company's green policies to the public. The following section of this paper will focus on how companies can use external stakeholders (third parties) to help communicate their green policies to the public through the strategy of eco-labeling.

2.3.3 Green standards and eco-labeling

Corporations that want to practice green marketing can improve credibility towards the public by following green standards that are set by a third party (Wasik, 1996). These green standards are set by a wide range of third parties, including governments, socially responsible public interest groups, institutional research organizations, international consumer organizations, industrial standards groups, consulting environmental groups and eco-labeling organizations. Each of these groups has the capability to develop green standards which can either be forced upon companies such as standards set by government agencies or be offered as voluntary schemes such as the green standards set by consulting environmental groups and eco-labeling organizations (Wasik, ibid).

In the last decade, eco-labels have become the most important tools for green marketing (Rex & Baumann, 2006). Bagnoli & Watts (1996, p.2) describe eco-labeling as '*engaging in environmentally friendly practices and then informing the public through advertising or on the product packaging*'. According to Erickson & Cramer-LeBlanc (1997), eco-labeling programs can be classified along the following dimensions: private/public, single/multiple attribute, compulsory/voluntary and costly/inexpensive. Erickson & Cramer-LeBlanc (ibid) assert that consumers react differently depending on the dimension of the eco-labeling program. In the case of voluntary programs, companies can choose between first and third party certification. First party certification in this case means that a producer engages in the process of self-certifying and uses this self-certification as a green marketing strategy. In the case of a third party certification, a producer has its product(s) certified by a qualified third party and uses this certification as a green marketing strategy. A second important distinction among eco-labeling programs is the single/multiple attribute dimension. In the case of a single attribute dimension, the eco-label stands for an environmental claim that concerns one single attribute such as 'made out of recycled material' or 'cfc' free. The multiple dimension eco-labels, otherwise named 'eco profile labels' or 'report card labels', stand for a series of claims concerning the manufacture, use and disposal of a product. For this type of eco-label a life-cycle analysis of a product is often necessary (Erickson & Carmer-LeBlanc, ibid).

As described by Allison & Carter (2000), in order to develop standards for eco-labels, the ISO (International Standards Organization) has developed three standards for environmental product claims, subsequently named Type I (ISO14024), Type II (ISO 14021) and Type III (ISO/TR 14025) label standards. The Type I standard stands for claims that are based on

criteria that have been set by a third party such as the EU Eco-label and the Carbon Trust label, the Type II standard stands for self declaration claims (for example, companies that claim that X% of the product is made of recycled material) and the Type III standards stands for claims concerning the quantified product information related to the life cycle impact of the product (an example of this are the product profiles of Volvo's vehicles). Allison & Carter (ibid) claim that two extremes currently dominate the communication of a product's environmental performance, namely formal selective eco-labels (EU Eco-label, Carbon Trust label) and uncontrolled and often self-declared environmental claims.
According to the United Nations Environmental Program (UNEP), categorizing eco-labels in three ISO types is not an effective method due to the fact that there is a large amount of different types of eco-labels that are not reflected within the standards of the ISO. The UNEP therefore suggests that eco-labels should instead be differentiated by their characteristics (UNEP, 2005).

According to Allison & Carter (2000, page II), there is a growing need for '*a more integrated approach due to the problems caused by misleading claims, so-called 'greenwash' and the fact that the use of formal eco-labels to convey product environmental information is not appropriate in all circumstances*'. This leads to the next section of this chapter in which an analysis will be made of the 'green washing' concept.

2.4 Green washing

Fryer (2008, 1) describes green washing as '*the misleading exaggeration of "green" credentials*'. Hoffman & Hoffman (2009) describe green washing as a phenomenon that occurs when a public that wants to behave in a responsible manner concerning the environment is exposed to 'evidence' that makes a product or a company appear eco-friendly or 'green' while in fact the product or company is not as 'green' as it appears to be.

One of the ways to describe why companies engage in green washing activities would be to quote the title of an article by Blumenstyk (2003) which is appropriately named '*Greening the World or "Greenwashing" a Reputation?'*. Blumenstyk (ibid) argues that companies use green washing as a marketing activity in order to improve their environmental reputation with the goal to gain clientele among environmentally conscious consumers.

According to a research conducted by North American environmental marketing agency TerraChoice Environmental Marketing (2007, as cited in Roberts, 2008), 99.9% of green marketing claims are (partly) misleading. During the research, 1.018 products that used green marketing as a strategy were reviewed. The research showed that only one of the products did not commit any of the 'six green washing sins'. TerraChoice Environmental Marketing (2007) describes these green washing sins as follows: 1. the hidden trade-off (one environmental issue of a product being emphasized while other issues are neglected), 2. no proof (no third party certification or any other form of proof), 3. vagueness (unclear green marketing claims such as 'environmental-friendly'), 4. irrelevance (claims of for example 'cfc-free' for product groups that have no relation to cfc's at all), 5. fibbing (false use of third party certification), 6. the lesser of two evils (claims of 'greenness' for product groups that simply cannot be 'green' such as pesticides). Companies that practice green marketing by using eco-labels that commit to any of the above mentioned 'six sins' are considered to practice green washing (ibid).

A study conducted by van Amstel et al. (2008) on information asymmetry of eco-labeling concluded that eco-labels fail in terms of adequate communication, upholding a gap of information between the buyer and the seller. Furthermore, the study found that the most important short-comings concerning eco-labels are found in the failure of assuring the consumer about the ecological impact of the product, the environmental themes' ambiguity and lack/insufficient information concerning the manufacturer's compliance. Van Amstel et al. (ibid) argue that these short-comings contribute to the growth of the green washing phenomenon.

Golub (1998) argues that most green claims on products in the shape of pictograms or phrases do not have a relation to standardized parameters but simply show what the manufacturer believes are environmental qualities of the particular product. However, Roberts (2008, p.70) argues that green washing is not only a result of poor labeling standards but rather a result of 'an *economy built on trade in material and energy waste'*. According to Hussain (2000), green washing will exist alongside green marketing unless very restrictive and arguably unrealistic circumstances/conditions will be applied. This is because green marketing is not necessarily confined to 'green' products. Hussain (ibid) argues that third party eco-labeling

schemes can serve as a way to improve the 'green' information transfer and counteract the green washing phenomena.

2.5 Eco-labels and their effect on consumer buying behavior

There are two factors involved concerning the buying behavior of a consumer regarding products with eco-labels: considerations regarding the product and considerations regarding the eco-label. These two buying 'decisions' that need to be made by a consumer are both interwoven and independent from one another (Dietz & Stern, 2002). The decision to buy an eco-labeled product can be seen as a learning process for the consumer because the consumer '*obtains, accumulates, and integrates knowledge about the product and evaluates its self-relevanc*e' (Peter et al., 1999, as cited in Thøgersen, 2002, p 85).

According to Thøgersen (2002), a consumer will only pay attention to an eco-label if the consumer has an interest in, and gives value to, the protection of the environment. Whether a consumer pays attention to eco-labels depends on whether the consumer believes that buying (or consuming) in a considerate way will have a positive effect on the protection of the environment. Furthermore, a strong factor that influences a consumer's attention for eco-labels is whether the consumer has trust in eco-labels. Thøgersen (2002, p 87) describes these two concepts as '*Believe and Trust*'.

The effectiveness of an eco-label on a consumer's buying behavior depends on several factors, which can be categorized in a hierarchy: '*awareness, comprehension, attitude and intention and behavior*' (Thøgersen, ibid, p 88-92). The awareness factor is based upon whether a consumer is aware of the existence of a certain eco-label. This factor is strongly influenced by the amount of products that bear the same type of label in a store, the amount of promotion done to create awareness for the eco-label by the product's manufacturer and/or the eco-label issuing organization and the relevance of the label to the consumer (Van Dam & Reuvekamp, 1995). In most cases of eco-labels that are recognized by a large percentage of consumers (such as the Swan label, or 'Svanen', in the Scandinavian countries), awareness was built over a long period of time in a gradual way. This shows that there is a direct relation between the awareness of the consumers concerning an eco-label and the amount of time that the eco-label has been in the market (Thøgersen, ibid).

The comprehension factor of an eco-label is about the consumer's level of understanding of the eco-label's meaning. According to Van Dam & Reuvekamp (1995), eco-labels can be confusing to consumers in two ways: first of all eco-labels can be unclear because of their seal of image, and secondly they can confuse the consumer due to misunderstanding of the ecological terminology and claims on the label. Due to the consumers' uncertainty that results from miscomprehension of an eco-label, Thøgersen (2002, p.90) argue that '*campaigns that effectively target the confusion may lead to a substantial increase in the sale of labeled products'*. When consumers are uncertain about the meaning of a label, they often mistrust the label. Hansen & Kull (1994) argue that consumers only use eco-labels as a factor in the buying decision when they trust the eco-label. Consumers often trust eco-labels with a third party certification more than eco-labels with a single party certification. Nevertheless, due to the large amount of private labels, consumers are often confused and uncertain about third parties behind the labels and therefore sometimes mistrust third party labels due to a lack of comprehension (Bekholm & Sjersen, 1997, as cited in Thøgersen, 2002).
The attitude factor is about the consumer's attitude to the usefulness of eco-labels. When a consumer has a positive attitude towards a certain eco-label, this consumer often believes that the environmental message of the eco-label is in line with the consumer's valued (environmental) goals (Palm & Windahl, 1998, as cited in Thøgersen, ibid).
The intention and behavior factor is about the consumer's willingness to go out and look for eco-labeled products when shopping. Several studies have shown that in the Nordic countries an average of 61 to 71 percent of the consumers look for eco-labels on the products (Lindberg, 1998, as cited in Thøgersen, ibid).

Through the before mentioned four factors regarding eco-labels that play a role in the consumer's decision making process, Thøgersen (2002, p.87) argue that '*a consumers ability to recognize and understand the (eco) labels undoubtedly influence attention toward this type of label'*. This idea is supported by a previous study conducted by Thøgersen (2000), who states that '*a consumer's ability to recognize and understand an eco-label influences the decision to buy eco-labeled products'*. Marguerat & Cestre (2004) further examined the influence of the eco-label recognition and comprehensibility on consumers' buying behavior. Their study showed that recognition and comprehensibility of the eco-label strongly influence the buying behavior of the consumer. As a recommendation Marguerat & Cestre (ibid, p.18) advice eco-labeling companies to '*provide labels with a clear message, making sure that*

consumers recognize it at first sight and understand it easily'. Furthermore, the study showed that skepticism towards eco-labels does not have a large impact on consumer buying behavior of eco-labeled products. Marguerat & Cestre (ibid, p.18) explain this through a consumer's '*benefit of doubt'* attitude towards eco-labels.

2.5.1 The effect of eco-label design on consumer buying behavior

Several studies have shown that it is easier for consumers to recall pictures than words (Lutz & Lutz, 1978, Sampson, 1970). Currently, the majority of the eco-labels are using only visual communication in order to make it easy for consumers to remember the labels (Tang et al., 2004). A study conducted by Childers & Houston (1984) suggests that verbal communication (written) is the best method when consumers are motivated to process the message. Furthermore, the consumers must have a certain level of knowledge about the subject that makes them capable to process the message. For eco-labels, verbal communication may only work when consumers have a high level of involvement (Tang et al., 2004).
Paivio et al. (1968), argue that a verbal message can either be 'concrete' or 'abstract'. A 'concrete' verbal message contains words that refer to tangible things, such as people, objects or material. An 'abstract' verbal message contains words that refer to intangible or abstract concepts such as 'justice' and 'heroism'. Tang et al. (2004) argue that 'concrete' words should be used instead of 'abstract' words in situations that do not allow the use of many words, such as eco-label communication.

According to Paivio (1979, 208), '*recall increases from abstract words, to concrete words, to pictures presented alone, to pictures-plus-verbalization'*. This is supported by a study conducted by Teisl et al. (2002) on the effects of eco-label design on the consumer. The result of the study showed that verbal communication and visual communication have effects that complement each other; when used in combination they have a stronger effect than only visual or only verbal communication. This outcome is coherent with a study conducted by Tang et al. (2004), which focused on eco-label design and also concluded that a combination of verbal and visual information is the optimal form of eco-label design.

In order to fully understand consumer perception regarding eco-label design, it is necessary to explain the different concepts that are used in this paper as a guideline for understanding consumer perceptions. These concepts are familiarity, tangibility and measurability from a

consumer perspective in regard to eco-labels. These concepts will be regarded as important factors which influence consumers in their eco-label choices and will be discussed in the following paragraph.

2.6 Understanding the important factors in eco-labels

Throughout this paper, the concepts of familiarity, tangibility and measurability are considered as potential factors that have an influence on consumer trust.

2.6.1 Familiarity & Trust

The concept of familiarity is used in this paper to describe whether consumers are able to recall an eco-label or carbon label. In the empirical chapter of this paper, the term familiarity is frequently linked to the concept of trust. This is based on the previous research in the field of consumer behavior linking familiarity to trust. According to Luhmann (2000, p.94) familiarity and trust are linked to each other because: '*trust has to be achieved within a familiar world and changes may occur in the familiar features of the world which will have an impact on the possibility of developing trust'*. A study conducted in 1999 by Gefen tested whether the concept of familiarity has a direct relation to a consumer's level of trust in an e-commerce setting. The study showed that familiarity has a strong influence on building trust but it is not the only factor that has an influence on the trust concept. In this paper, another potential factor for influencing consumer trust is explored which is the concept of tangibility/measurability. The concept could be a potential influencing factor on consumer buying behavior in regard to carbon labels, due to the reason that carbon labels are the only type of eco-labels that have a 'measurability factor' because of the amount of CO2 emission that is mentioned on the labels (Big Room Inc., 2007).

2.6.2 Tangibility/Measurability & Trust

The concepts of tangibility and measurability are used in this paper to find out whether the tangible and measurable information that is included in a carbon label has the potential to win consumer trust and help a company to avoid a green washing image by using carbon labeling instead of eco-labeling. The terms tangibility and measurability will be joined together throughout the rest of this paper as the concept tangibility/measurability, for the reason that

both terms refer to the tangible and measurable number of the amount of carbon footprint that is presented on the carbon label. In the empirical chapter of this paper, the tangibility/measurability aspect of the carbon label will be explored to see whether this aspect has the potential to gain consumer confidence and trust in a carbon label.

2.7 Summary

With the introduction of sustainable development, the attention to sustainable ways of living, doing, consuming, and etc have grown fast. One of the ways to approach sustainability is 'Triple bottom line' by Elkington (1999). He explained that sustainability should be approached from three dimensions, which is also called '3-pillar'; economic, environmental, and social. The society started to move in a direction to pursue sustainability, for example, companies are trying their best to become environmentally conscious as a result of the shifting consumer trends towards ethical consumption (Yip, 2008).

The practice of green marketing involves promotion of products through ecological claims concerning the product's impact on the natural environment (Polonsky, 1995). According to Madu (2000), eco-labeling is the most important part of green marketing strategy. In order to improve credibility of green marketing, corporations should work towards reaching the standard which is set by a third party (Wasik, 1996). As it has been shown, there are problems with 'green washing' in green marketing practice, therefore it is important to study consumers' perception of eco-labels due to the fact that the eco-labels are considered as the most important part of green marketing.

Consumers' buying behavior regarding eco-labels is depending on awareness, comprehension, attitude, intention, and behavior. These factors play a role in the consumers' decision making process (Dietz & Stern, 2002).

The related literature and theories have been reviewed in this chapter in a manner of providing a general view from previous studies in the field to extend the comprehension of knowledge related to the topic of this paper. It is also presented in order to support the empirical study of the paper and to help design the empirical study. The literature and theories will be used in later chapters in order to analyze the collection of the raw data, and also to enhance the understanding of the outcome from the empirical study. Furthermore, it will help to form conclusions regarding our findings from the empirical study.

Chapter 3. Methodology

The following chapter will discuss and reason the research methods of the study. It starts with the discussion broadly about appropriate research design for the topic, and then narrows it down to the discussion of the methods of data collection. Furthermore, limitations and drawbacks of the methods will also be discussed.

3.1 Methodological approach

As mentioned in chapter one of this paper, the aim of this thesis is to find out whether the practice of carbon labeling as a green marketing method can help companies to avoid a 'green washing' image and gain consumer trust in comparison to generic eco-labeling. This paper approaches the topic from a marketing point of view, meaning that carbon labeling and eco-labeling are evaluated from the perspective concerning their value in a green marketing strategy. In order to find out whether carbon labeling will be seen as a more trustworthy form of environmental labeling than generic eco-labeling, the choice was made to do consumer research. This consumer research focused on the Swedish consumer's perspective concerning the tangibility, measurability and transparency of eco-labels and carbon labels. In other words, this thesis revolves around the perception of the Swedish consumer concerning carbon labels and generic eco-labels.

3.2 Research design

The research design chosen is a combination of quantitative research and qualitative research, known as triangulation (Denzin 1978, as cited in Jick, 1979). Jick (ibid, p.602) defines the triangulation method as *'the combination of methodologies in the study of the same phenomenon*' which is most often used as a method of cross validation by choosing

two methods that can generate comparable data. This particular type of research method is also referred to as the 'mixed method approach' (Tashakkori & Teddlie, 1998). When using a mixed method approach, there are two possibilities for the researcher to choose from which are the sequential mixed method design and the parallel mixed method design. The sequential approach is based on using one type of data (either quantitative or qualitative) to form a basis for the collection of the other type of date (e.g. qualitative or quantitative). The parallel approach is based on doing the quantitative and qualitative research at the same time and using their results independently to answer the research question (Tashakkori & Teddlie, ibid).

In this thesis, a sequential mixed method approach was used in order to fulfill the aim of this paper. The sequential nature of the mixed methodology is ordered in the following way: quantitative → qualitative. Using this particular sequence of a sequential mixed method means that the data generated during the quantitative research will be used to serve as the base of the qualitative research.

The reason for choosing this particular methodology is that in order to find out details about the perceptions and attitudes of the Swedish consumer concerning carbon labels and eco-labels, a qualitative research approach would be the best option to choose because a qualitative study provides the researcher with *'flexibility that allows the researcher to modify the design and focus during the research to understand new discoveries and relationships*' (Maxwell, 2004, p.22). Such flexibility is necessary because the research is focused on the consumer's perception, which is a subjective area that requires a certain amount of flexibility in the research design (Maxwell, ibid). However, as explained in chapter 1 of this paper, there is currently a lack of theory concerning the topic of carbon labeling, due to the fact that this is a relatively new phenomenon. This means that there is no background from previous studies concerning data on the consumer perspective on carbon labels that can serve as a basis for the design of the qualitative research. In order to overcome this, a small quantitative study was conducted from which the outcome was used as the basis for the formulation of the qualitative study.

The next two subparagraphs will provide the details concerning the quantitative part and the qualitative part of the research.

3.3 Data collection

3.3.1 Quantitative research: Self-completion questionnaires

As previously mentioned, a sequential mixed method has been chosen where the quantitative research will provide the basis for the qualitative research. Before the qualitative research could be conducted, the quantitative research needed to be executed in order to provide a framework for the in-depth interviews of the qualitative part. To obtain a proper framework for in-depth interviews it is necessary to have basic knowledge about the attitudes and general perspective of the Swedish consumer towards carbon labeling and generic eco-labeling. In order to obtain this knowledge, the choice was made to conduct consumer surveys in Swedish supermarkets that are aimed at providing key information concerning the environmental and eco-labeling preferences of the Swedish consumer. The design of the questionnaire can be found in appendix 1.

The method chosen for collecting quantitative research is self-completion questionnaires because of the short time period in which they can be administered and the absence of interviewer effects as opposed to structured interviews which would be an alternative option to questionnaires when gathering quantitative data (Bryman & Bell, 2007). The chosen locations for administering the questionnaires are two ICA supermarket establishments located in Lund, Sweden.

3.3.2 Qualitative research: In-depth face to face interviews

As mentioned in the previous paragraph, the qualitative research method chosen for this study is in-depth interviews with Swedish consumers concerning their perception, attitudes and preferences towards carbon labeling and generic eco-labeling. The framework for these interviews, or in other words the lead questions, were based on the outcome of the quantitative research as explained in the previous paragraph. The qualitative research was conducted in order to generate results that provide a deeper understanding behind the attitudes and perceptions of the Swedish consumer concerning carbon labeling and eco-labeling.

The choice to conduct in-depth interviews (semi-structured) has been made for the reason that during qualitative research, the in-depth interview provides the researcher with the opportunity to gain complete insight into the interviewee's point of view (Bryman & Bell,

2007). Furthermore, it helps the researcher to find out what is of importance and relevance for the interviewee concerning specific topics (Bryman & Bell, ibid). The chosen location for the interviews was a coffee lounge located in the center of Lund, in order to provide the interviewees with a neutral, relaxing environment. The interview method is in this case preferred as opposed to the focus group method, which would be an alternative way to generate similar results, because of the risk of having the interviewees influence each others opinions during focus group research (Greenbaum, 1998). The goal of this research is to look at the behavior of Swedish consumers when exposed to different types of eco-labels and it is therefore of importance to rule out any influencing from other research participants.

3.3.3 Scenarios

As a base of commonality between the quantitative and qualitative research, a 'scenario' was presented to the interviewees. Using scenarios is a common method when researching a target group's or an individual's perspectives/attitudes towards a subject and can be used in both quantitative and qualitative research (Bloor et al., 2001). During a scenario, a respondent is expected to choose '*the likeliest course of action in a hypothetical case*' (West, 1982 as cited in Bloor et al., 2001, p.10). In the case of the quantitative research, this scenario consisted of three images of a different eco-label on the questionnaire; a generic eco-label, a carbon label with third party approval and a carbon label without third party approval. During the qualitative research, interviewees during the in-depth interviews were shown pictures of three packages of the same product (laundry detergent, which will be explained further in this chapter, the picture scenario can be found in appendix 2), each package bearing a different label (e.g. the eco-label, the carbon label with third party approval and the carbon label without third party approval). During both the qualitative and quantitative research the interviewees had to make a choice concerning which product/label would be chosen when confronted with this situation in a supermarket. The outcome of the scenario in both the quantitative and qualitative research formed the basis of the analysis of the interviewees' responses in order to get a deeper understanding behind the Swedish consumer's buying choices in respect to eco-labels. The major purpose of doing a scenario test is to develop non-existing products and a label in order to help interviewees' understand the labels better and to gather data to fulfill the research question.

3.4 Clarifying the research object

In this section, the consideration of the chosen country, product, and eco-labels will be discussed.

3.4.1 Country: Sweden

Sweden was chosen for the empirical study due to the fact that Sweden is a leading country in green shopping within the European market and Sweden has a fast movement on eco-trends whether it's about clothing, technical devices, or food (Swedish Institute, 2009).
In a 1972 UN conference, the rapid loss of natural resources in Sweden was confronted. Since then, Sweden has pursued the goal of becoming a sustainable nation and the environmental issues have been dealt with actively both nationally and internationally (Swedish Institute, 2008). As a result from the effort, Sweden has become one of the few industrialized countries which have reduced their carbon emissions and the country has become a well-known pioneer in the eco-labeling of goods and services (ibid).

3.4.2 Eco-labels: EU Eco-label

One part of this empirical study was to show which of the two indicators, tangibility/ measurability and transparency, matter when it comes to purchasing goods in regard to green product related labels. There are many eco-labels in Sweden but only the major players KRAV, Nordic Swan, and EU Eco-label, have been chosen for the consideration.
KRAV is the best known label for environmentally sound goods as seen in the consumer survey done by The Farmers in 2002 (as cited in Organic-Europe, 2002). The KRAV label was developed in 1985 for organic foodstuffs and has been a mark of promising the consumers that the products are environmental friendly related to animal welfare, health, and social responsibility (Swedish Institute, 2009). A product which has the label of KRAV means that no chemical pesticides, chemical fertilizer, or gene-modified organisms have been used during the production (The KRAV association, 2009). In the Swedish market, the KRAV label is positioned as the best known eco-label and consumers have been familiar with this label since 1985 (ibid). According to The KRAV association, however the label is restricted to use for goods of organic food.

In 1987, the Nordic Swan (Svanen) label was introduced in Sweden through the Nordic Council of Ministers as an official eco-label for the Nordic region (Swedish Institute, 2008). The purpose of the label is to facilitate sustainable consumption in the Nordic region and the label promises that the goods or services' environmental impact through their lifecycle have been examined and approved from the raw material to waste product (ibid). The ultimate goal of the label is to make a sustainable society to preserve for future generations, so that they can meet their needs at least as fully as present generations (ibid). According to the Nordic Swan organization, 67% of the Nordic countries residents know the meaning of the Nordic Swan label and 77% of the Swedish population considers the Nordic Swan label as giving extreme reliability to the products (svanen.nu, 2009). The Nordic Swan label covers various product groups and services which corresponds to the carbon label in terms of coverage. However, the Nordic Swan and KRAV have a rather long history and reputation in Sweden. Because of the reputation of the labels, there is a risk that the results will be affected by label familiarity among the consumers.

The EU Eco-label is a label which promotes sustainable consumption and production. Furthermore, it helps consumers identify the products environmental impact regarding their consumption (European Commission, 2008). Its overall objective is to contribute sustainable development on the environment and business, as well as to promote the products which have less negative influence on the environment through their lifecycle (ibid).
The EU describes its eco-label in the following way: '*the EU eco-label is the EU's own high-level award scheme for products which meet very high environmental standards*' (European Commission, 2008). When a product has an EU eco-label it can be recognized by the following image on the product's package:

The EU Eco-label is a multi-attribute, or 'generic', eco-label. There are currently 11 product categories containing a total of 23 different product groups. Each product group can hold a very distinct meaning for its eco-label, ranging from the absence of ozone-depleting

substances to the use of recycled organic matter (The European Eco-label Catalogue, 2002). Appendix 3 shows the full list of meaning of the EU Eco-label per product group.

Since 1992, The EU Eco-label has been part of a widely used strategy which is based on the vision of greening non-food products all over Europe. It is also designed to encourage businesses such as producers, retailers, and services to become environmentally sound and help consumers identify their products and services (ibid). The EU Eco-label has been introduced in Sweden, but is still new in the market under the dominant players such as the Nordic swan and KRAV. A study conducted in the Nordic countries in 1999 on the consumer recognition of eco-labels showed that the unaided recall of the EU Eco-label was lower than 2 percent among Scandinavian consumers. As a comparison, the Swan (or Svanen) label was recognized (unaided) by 75 percent of the Scandinavian consumers (Dietz & Stern, 2002). Therefore the EU Eco-label is better for unbiased comparison with the UK Carbon Label and uncertified carbon label for this study. For this reason, the EU Eco-label has become the first choice of eco-label on which to conduct the empirical study.

3.4.3 Carbon labels: Carbon label from The UK Carbon Trust

Among various carbon labels, the carbon label issued by The UK Carbon Trust has been chosen. The reason is that the Carbon Trust Reduction label (carbon label) which is issued by The UK Carbon Trust is currently the first and most widely used carbon label concerning climate changes (UK Carbon Trust, 2008, a). According to The Carbon Trust, the Carbon Reduction Label '*communicates the lifecycle greenhouse gas emissions from goods & services*'. Companies that apply for the label must commit to reducing their carbon footprint within a period of two years. If an organization fails to lower the carbon footprint within the two-year timeframe, the Carbon Trust will withdraw the label. When a product has a Carbon Reduction Label it can be recognized by the following image on the product's package:

According to the You Gov surveys in the United Kingdom (2009, as cited in Carbon Trust, March 2009), Carbon Trust Reduction label represents the world's first carbon award that

requires an organization to measure, manage and reduce its carbon footprint and actually make real reductions year-on-year. Therefore it is logical to adopt the Carbon Trust Reduction label as the carbon label to base this study on.

3.4.4 Fake carbon label: without third party approval

In order to examine the transparency of the label, a fake carbon label was developed for the purpose of this research. This carbon label was developed to look like a label that is not certified or approved by any third party in order to simulate a typical green washing label.
The reason why a mock up green washing label is used in this study is to make the outcomes of the research and the conclusions that are being drawn upon these outcomes more trustworthy. When a comparison is being made between a generic eco-label and a carbon label to see which label is more effective in terms of conveying a bona fide image to the consumer, it is necessary to see how consumers respond to an uncertified (green washing) label. By creating a fake label for the scenario test, we will be able to see which criteria are being used by consumers to decide whether a label is bona fide or not.

3.4.5 Laundry detergent

A product for the scenario test was chosen to show respondents conception, in a realistic way for an every-day use product in regard to eco-labels. According to the EU Eco-label catalogue (2002), their label is used in 26 different product groups (see appendix 3) and it covers 12 major areas of manufacturing and service activity. From the range of product groups, laundry detergent was chosen for use in the scenario test on the surveys and interviews. The criteria that were used for choosing laundry detergent are as following:

- The product should not be used physically and/or in direct contact with the human body in order to perceive an opinion which is not affected by possible health issues among consumers.
- The product should be consumed regularly

After filtering the product groups through the criteria, ‘copying and graphic paper’ and “laundry detergents” remained. With the firm support of the increase of eco-labeled detergents’ market share from 12 % in 1992 to 80 % in 1995, laundry detergent was chosen for the scenario (Hackett, 200-).

3.5 Sampling

In this section, the discussion of sampling will be presented as well as an explanation of the various considerations through the decision making.

3.5.1 Quantitative research and in general

Sample

As a sample size for the quantitative research, the decision was made to conduct the questionnaire among 50 participants. This relatively small sample size has been chosen due to the reason that the use of a mixed method and the fixed timeframe for the study did not allow time to conduct a larger sampling size.

Age & Gender

Considering that the scenario product is laundry detergent, the range of subjects has been chosen to be between the ages 18 to 65 of any gender, who has bought at least one pack of laundry detergent before.

Background

Respondents are preferred to be of Swedish and/or Nordic European background in order to have similar perception of the EU Eco-label and the UK Carbon Label.

3.5.2 Qualitative research

Sample

For the qualitative research, a sample of 5 interviewees has been chosen. The reason for this sample size is that the qualitative research is focused on getting a thorough understanding of the expressed reasons for consumers to choose one type of eco-label over the other. To obtain such a thorough understanding, larger sample sizes would not necessarily be more effective because the qualitative research is not focused on making generalizations; therefore a small sample size has been chosen in order to be able to thoroughly analyze the eco-label decision making process of each interviewee. In other words, regarding the sample size, quality of the research has been chosen over quantity.

The interviewees were chosen via specified criteria; first, interviewees must be eco-friendly product shoppers, second, reasonable distribution within gender and age groups are preferable for the sample group to become representatives of the population of Sweden, and third, the respondents' willingness to take part in the interview regarding their concerns of eco-labeling. Five interviewees were chosen in order to perform in-depth face-to-face interviews. Respondents were preferred to be of Swedish and/or Nordic European background in order to have similar perception of the EU Eco-label and the UK Carbon Label. Respondents consider themselves eco-friendly shoppers, as this was a criterion for taking part in the interview.

3.6 Criticism of the research approach

In this paragraph, the quality of the research will be discussed according to the validity, reliability and replication concepts as stated by Bryman & Bell (2003). The validity, reliability and replication concepts and their sub concepts will be discussed in detail in relation to this study.

3.6.1 Validity

According to Easterby-Smith et al. (2006, 134), regarding quantitative research '*validity is a question of how far we can be sure that a test or instrument measures the attribute that it is supposed to measure'*. Bryman & Bell (2003) further divide the concept of validity into measurement validity, external validity, internal validity and ecological validity. Each aspect of validity will be reflected upon in the following paragraphs.

Measurement validity:

The measurement validity of a study is mostly related to quantitative studies and deals with the question '*does a measure that is devised of a concept really reflect the concept that it is supposed to be denoting?*' (Bryman & Bell, 2003, 41). The most important aspect of the survey that is used to collect the quantitative data is to find out the general attitudes of the Swedish consumers in regard to eco-labels and carbon labels. The survey has been designed in a way to find out whether there is a correlation between a respondent's knowledge of carbon footprints, his/her main environmental concern and the choice of eco-label/carbon label. The main aspect of the survey was to obtain a general notion of why the respondents

chose a certain label. This information was later used to come up with a framework for the qualitative research, which consisted of in-depth interviews. It can therefore be said that the measurement of the concept was stable and did not fluctuate.

External validity:

The external validity of a study deals with '*the concept of generalization beyond the specific research context*' (Bryman & Bell, 2003, p.42). This type of validity specifically concerns the samples that are taken for quantitative research. As mentioned previously, the quantitative part of this study was used in order to form a basis for the qualitative part of the study. Hence, the quantitative research was not designed, nor intended, to be generalized upon beyond the research context. The quantitative study was designed in order to generate information about Swedish attitudes towards generic eco-labels and carbon labels and this information was used as a basis to formulate the questions that we asked during the in-depth interviews. Therefore it needs to be stressed that the quantitative research that was conducted for this study was not designed for the purpose of being generalized upon.

Internal validity:

The internal validity of a study concerns the aspect of '*how confident can we be that the independent variable really is at least in part responsible for the variation that has been identified in the dependent variable?*' (Bryman & Bell, 2003, p.42). Due to the fact that study uses a mixed method approach of both a quantitative and a qualitative study, the aspect of internal validity reflects on both parts of the study. As mentioned previously, the outcome of the quantitative study was statistically analyzed through SPSS in order to find correlations between independent variables and dependent variables. After this analysis, the outcome of the quantitative study was used to form the basis of the qualitative study. Therefore, the key issues that were identified during the quantitative study where reexamined during the qualitative study in order to find deeper, underlying reasons for the outcomes. It can be argued that this approach strengthened the internal validity in a way by examining the same concepts twice through both the quantitative and the qualitative study.

Ecological validity:

The concept of ecological validity relates to whether *'social scientific findings are applicable to people's every day, natural social settings.*' (Bryman & Bell, 2003, p.42).

This criterion is especially important for this study because the study is based on the decision making process of consumers when faced with a choice between an eco-labeled and a carbon labeled product in a store. In order to make the study as ecologically valid as possible, the scenario method has been chosen which was conducted in both the quantitative and qualitative part of this study. As previously explained, the scenario test was designed in a way as to confront the respondents/interviewees with a situation similar to what they would encounter in a store when faced with eco-labeled products (an example of this can be seen in appendix 2 where the pictures used in the scenario test are presented). Furthermore, as previously explained, a focus group interview method was avoided because of the possibility of the interviewees influencing each other in a focus group setting. One on one interviews were conducted in order to ensure that the interviewees would not have their opinions influenced by others, in order to make the study as ecologically valid as possible (e.g. in a supermarket or store consumers would not be influenced by another person's opinions). It can therefore be said that the study has ecological validity.

3.6.2 Reliability

The reliability aspect of a study concerns the question of whether a study is repeatable (Bryman & Bell, 2003). This general concept can be divided into the stability, internal reliability and inter-observer consistency concepts.

The stability concept concerns the stability of a measure over time. It must be said that due to the relative newness of the concepts that are being measured, such as a person's knowledge of carbon footprints and a person's main environmental concerns, we are dealing with concepts that can change considerably fast over time. It can therefore be said that the concepts that are being explored are too new to be stable over time and therefore outcomes can fluctuate if the same study is repeated after a certain period of time.

The internal reliability factor deals with the concept of '*whether or not respondents' scores on one indicator tend to be related to scores on other indicators*' (Bryman & Bell, 2003, p.163). In both parts of this study, data was analyzed in a fashion that consistently compared certain indicators to other indicators (for example, a comparison of eco-label choice with a respondent's knowledge of carbon footprints). Conclusions were only drawn when indicators were strongly related in order to ensure coherence.

The inter-observer consistency deals with the concept of subjective judgment in regard to categorization of data when there is more than one researcher (Bryman & Bell, 2003). Due to

the fact that two researchers collected data in this study this is an important aspect. However, all data collection and categorization was done in cooperation to ensure coherence and consistency within the decisions that were made.

3.6.3 Replication

The third concept used by Bryman & Bell (2003) is the concept of replication. This concept deals with whether the study can be replicated in a similar way by other researchers. There are no special aspects to this study that could not be replicated by other researchers. All methods have been carefully described and all data has been presented. It can therefore be argued that this study is replicable.

3.7 Alternative options

Several alternative options could have been used in order to conduct this study. One of these options is the focus group option for the qualitative research, as previously mentioned. However, in-depth one-on-one interviews have been chosen over focus groups in order to eliminate the possibility of focus group members influencing the opinion of other focus group members in order to maintain the ecological validity of this study.
Another option would be to use an ethnographic study method were the researcher would follow the participants during their shopping in a supermarket or store (Bryman & Bell, 2007). An ethnographic study would improve the ecological validity of this study by studying the participants in a 'natural' consumer environment such as a supermarket. However, this method has not been used for the reason that carbon labels are not (yet) common in Sweden and therefore consumer buying behavior in regard to carbon labels could not be studied through an ethnographic study.

As mentioned previously, the quantitative part of the research was limited to 50 respondents and the qualitative part of the research consisted of in-depth interviews with 5 participants. When additional time for the research would have been available, the sample for the quantitative research would have been increased to 200 respondents in order to yield data that could be generalized upon. The sample for the qualitative research would have been increased to 10 interviewees, in order to yield more information behind consumer decision-making

processes in regard to eco-labels. However, as this is the first study of its kind that compares generic eco-labels with carbon labels, the conclusion of this research could be used as a foundation for the design of a larger study concerning the same phenomenon.

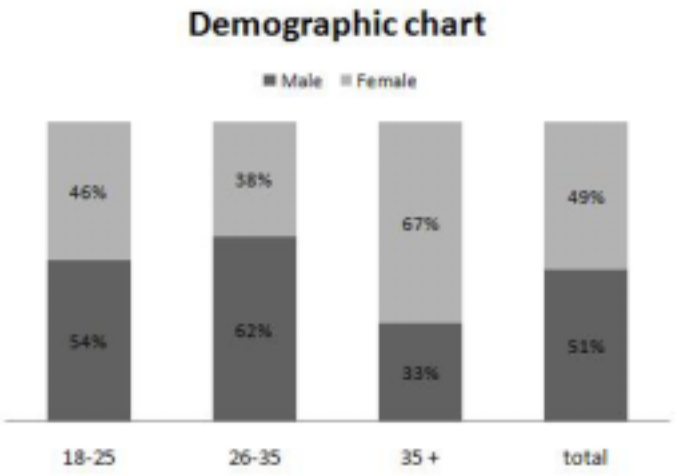
Chapter 4. Empirical Study

In this chapter, the empirical findings and analyses will be presented. First, statistics which were processed through the software program SPSS from the data collection from the quantitative self-completion questionnaire will be presented and analyzed. Second, an analysis from the in-depth interviews will also be illustrated.

4.1 Statistics from the survey

4.1.1 Demographics

The surveys have been conducted in order to generate background information of the consumer trends related to eco-labels in Sweden. All respondents have a Swedish background. There was a near-even distribution of males (51.0%) and females (49.0%) among the respondents of the surveys. Most respondents belonged to the age group of 18 to 25 (51%), 25.5% belonged to the age group 26-35, and 23.5% belonged to the age group 35 and higher. (See *Chart. 1*)



(Chart 1)

4.1.2 Buying behavior and perceptions

Of the 50 respondents 68.6% sometimes buy eco-friendly products and 25.5% buy eco-friendly products regularly. Only 5.9% of the respondents answered that they do not buy eco-

friendly products. (See *Chart. 2*) In other words, nearly 95% of the respondents buy eco-friendly products on a regular or occasional basis. For both irregular eco-friendly shoppers and shoppers who do not pay attention to the eco-friendly products, the reason for not buying eco-friendly products was mainly because of premium (high) price of the products.

Only 5.9% out of the total respondents answered that the eco-labeled products do not give a positive image of the producers. 72.5% of the respondents answered that eco-labeled products give a very positive image of the producers. The rest of the respondents answered that the good impression of the producers depends on which eco-label it is.

At the same time, even the respondents that do not buy eco-friendly products also perceive a positive image of producers that offer eco-labeled products, even though they do not buy eco-friendly products. (See *Chart.2*)

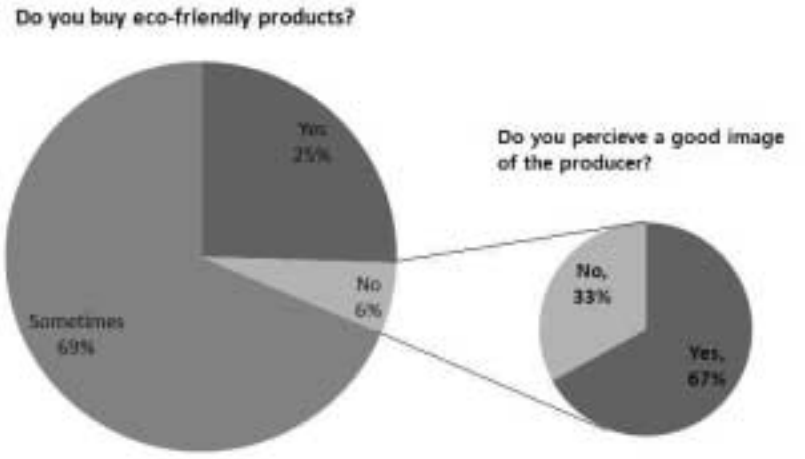


Chart 2

This means that companies who produce eco-friendly products not only communicate with eco-friendly shoppers but also shoppers who do not pay attention to the eco-friendly products, and the image perceived by the two types of shoppers can also be same. Therefore, by presenting eco-labeled products, the company communicates with consumers not only from the target group of eco-friendly buyers, but also the non-targeted groups of buyers who do not pay attention to the eco-friendly products.

Out of the 50 respondents 66.7 % answered that they have doubted about the truthfulness of eco-labeled products. 35% stated that their reason of doubt was the unclearness of the label's meaning, 21% stated that it was because they doubted if it was a real eco-label or not (fear of green washing), 17% stated that they doubted because they were unfamiliar with the label,

18% doubted since there was no indication of a third party approval for the eco-label, and 9% answered that their doubts were based on other reasons than the mentioned. (See *Chart 3*)

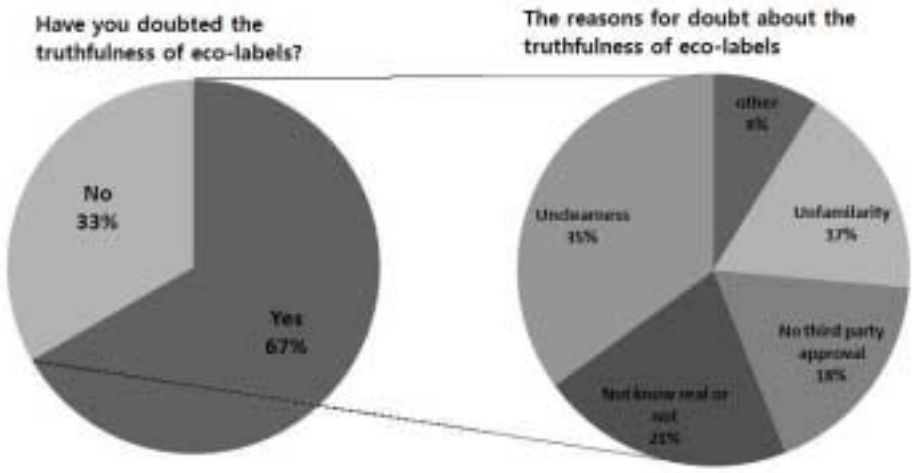


Chart 3

4.1.3 Notion of carbon footprint and preference of eco-labels

When the respondents were asked to choose only one label that appealed to them the most among the EU Eco-label, the Carbon Trust label, and the single party label (fake green washing label), 66.7 % of people chose the EU Eco-label, 19.6 % chose the UK Carbon Trust label, and the rest (13.7 %) of the respondents chose the single party label. (see *Chart. 5*)

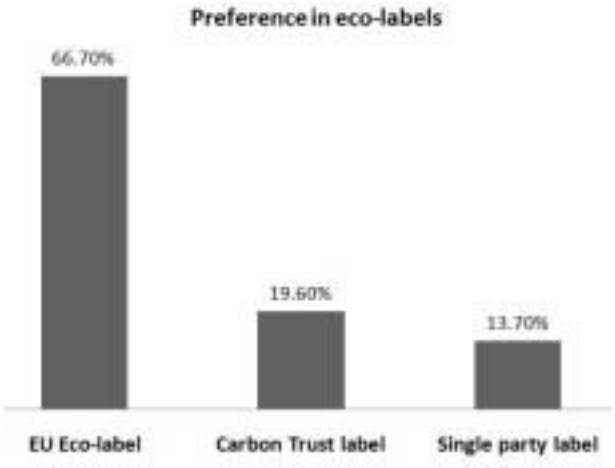


Chart 4

Among the respondents who chose the EU Eco-label, nearly half (47.1 %) chose it because they recognized the label by having seen it before or/and they knew what the label stands for. 35.3 % of the respondents who chose the EU Eco-label said that the reason for choosing it

was because it looks most trustworthy among the three different labels. The rest of the respondents (8.8 %) answered that they chose the EU Eco-label on the basis that it gives a clear statement about their concern for the environment.

Among the respondents who chose the Carbon Trust Label, only 20% stated that they based their choice on recognizing the label from before. 50 % of the respondents who chose the Carbon Trust label stated that they chose it since it looks more trustworthy. The final 20% of the respondents who chose the Carbon Trust label answered that they chose the label since it gives a clear statement about their concern for the environment.

As mentioned above, 13.7% out of the total respondents chose the single party label (green washing label). The majority of respondents explained that the reason for choosing the single party label was that it gives a clear statement about their concern for the environment.

Among the reasons for choosing a label, 37% of the respondents made their choice of label based on familiarity, meaning that they have seen it somewhere or heard it before, 35% made their choice based on that the label looks more trustworthy, 18% stated that they chose the label based on that it gives a clear statement of environmental concern, and the remaining 10% stated that they made their choice of label on other reasons. (See *Chart 5*)

Therefore it can be said that familiarity of a label and having a trustworthy appearance are the most effective factors that organizations should consider when creating an efficient eco-label. Also, promotion and education related to increasing the knowledge and familiarity of a label among consumers can be very effective.

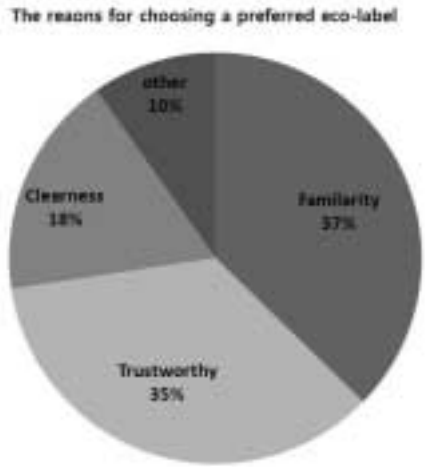


Chart 5

22 % out of the total respondents knew about the carbon footprint concept beforehand and 78% of them did not know about the concept. The meaning of knowing the concept of carbon footprint does not mean that respondents know about the Carbon Trust label. However, it is

worth to mention that the notion of the carbon footprint concept might affect the understanding of the Carbon Trust label. Even though 21.6% out of the total respondents knew about the carbon footprint beforehand, 46 % of them chose the EU Eco-label, 36 % chose the Carbon Trust label, and 18% chose the single party label (green washing label). (See *Chart 5*)

Total 54 % of the respondents who knew about carbon footprints chose a carbon related label (the Carbon Trust label and Single party label). It raises the possibility that when the carbon footprint concept becomes more well-known, using carbon footprint labels might give bigger advantages to producers.

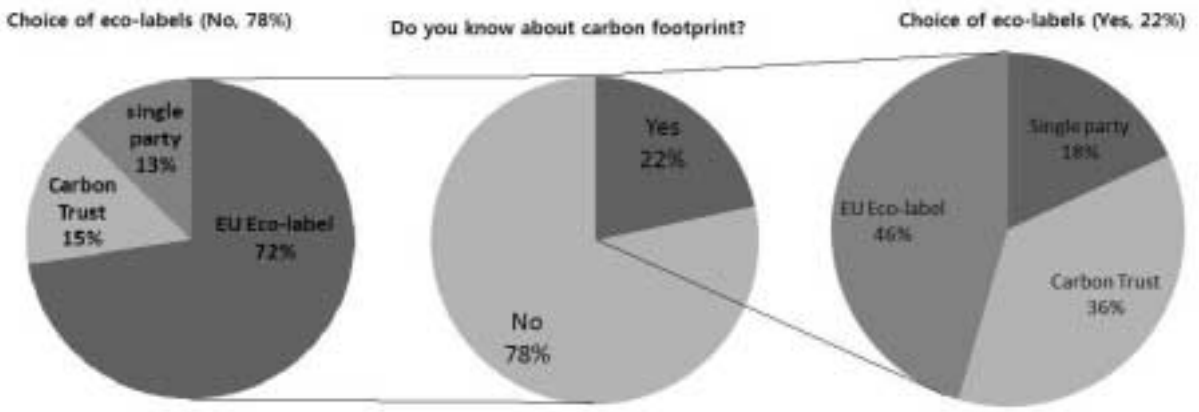


Chart 6

72% of the respondents who did not know about the carbon footprint chose the EU Eco-label. 35% of these people said that the EU Eco-label looks more trustworthy, and 26.5% answered that they have seen it somewhere. It can be assumed that the EU Eco-label gives a more trustworthy image to the consumer when they do not have sufficient information about other labels.

4.1.4 Concern of environment and eco-labels

49 % of the respondents are mainly concerned with 'climate change' when asked about their main concern of environmental issues. (See *Chart 7)* Pollution of the environment (in terms of waste products) was the most important environmental issue to 28% of the respondents, and the 23% of the respondents answered that rapid loss of natural resources was their biggest concern among the environmental issues.

However, 72 % out of those who indicated their concern about climate change as their biggest environmental concern have chosen the EU Eco-label even though the carbon footprint concept is directly related to climate change issues. 24% of those respondents chose the Carbon Trust label and 4% chose the Single party label (fake green washing label). From these results, a suggestion can be made that there is a great need of promotion and education of the labels to show how a carbon footprint is related to environmental issues.

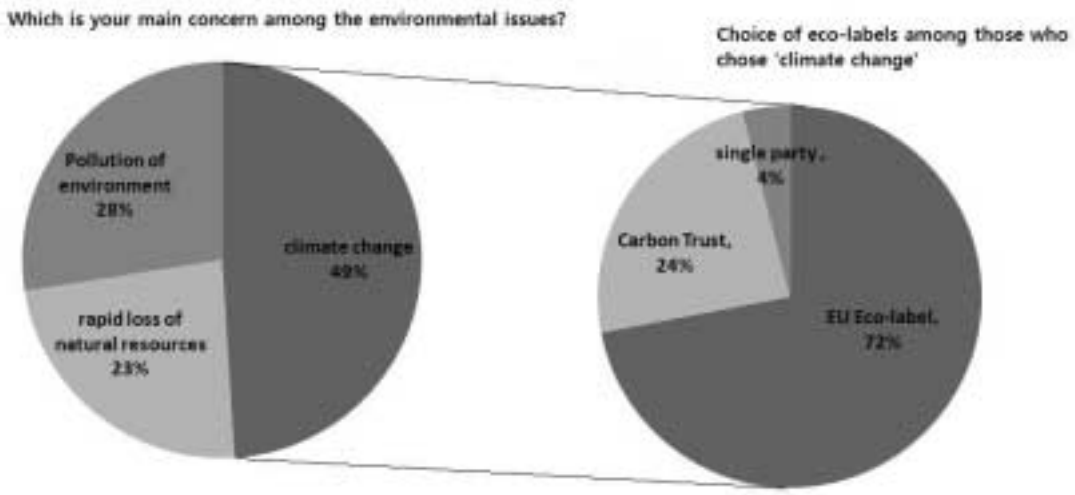


Chart 7

To sum up the results of the quantitative research, the outcome served as a basis for the in-depth interviews that were conducted in order to get a deeper understanding of the points-of-view of the Swedish consumers towards carbon labeling and generic eco-labeling.

The analysis of the quantitative study has given the information of the knowledge distribution regarding the carbon labeling concept among consumers in Sweden and also provided the general idea of consumer perceptions of eco-labels. On the other hand, it also shows that consumers are aware of the concept of green washing, which could make corporations realize the importance of eco-labeling as a green marketing strategy. From the results, it became apparent that Swedish consumers' buying decisions in regard to eco-labeled products are mainly guided by familiarity of an eco-label and not by the measurability or tangibility factors offered by the carbon label. Furthermore, consumers indicated that the EU Eco-label gives a more trustworthy image than other labels, and it also shows that the consumers' concerns of the environmental issues were not in line with their eco-label choice.

These issues, which have been derived from the quantitative research, have made interesting points for further investigation. Many questions rose during the analysis, and therefore the qualitative research was designed in a manner to answer the questions through in-depth interviews with representatives from the respondents of the surveys. The following section presents the results of the qualitative study.

4.2 Analysis of the in-depth interviews

4.2.1 Demographics

The in-depth interviews were conducted among five interviewees. The interviewees covered the age groups that were selected for the quantitative research as described above. Furthermore, each interviewee that was selected buys eco-labeled products due to a concern for the environment. The reason why the interviewees were selected upon these criteria is that a consumer will only pay attention to an eco-label if the consumer has an interest in, and gives value to, the protection of the environment (Dietz & Stern, 2002), as explained in the theory section of this paper.

4.2.2 Consumer attitude and background knowledge

As mentioned, all interviewees indicated that they have an interest in buying eco-friendly products and have strong environmental concerns. Furthermore, only one interviewee was familiar with the carbon footprint concept. Details concerning these aspects are shown in the following table:

INTERVIEWEE:	**ENVIRONMENTAL CONCERN:**	**FAMILIAR WITH CARBON FOOTPRINTS:**
INTERVIEWEE 1 (AGE: 24)	RAPID LOSS OF NATURAL RESOURCES	NO
INTERVIEWEE 2 (AGE: 24)	RAPID LOSS OF NATURAL RESOURCES	NO
INTERVIEWEE 3 (AGE: 33)	CLIMATE CHANGE	YES
INTERVIEWEE 4 (AGE: 67)	CLIMATE CHANGE	NO
INTERVIEWEE 5 (AGE: 62)	CLIMATE CHANGE	NO

4.2.3 Initial choice of environmental label before being informed about each label

When the scenario test was conducted during each interview, the interviewees were shown 3 boxes of laundry detergent of the same brand and same type, bearing three different environmental labels. In each interview, during the first round of the scenario test, the interviewees were not given any background information or explanation about the labels.

Each interviewee consistently chose the package bearing the EU Eco-label as the laundry detergent that they would buy, even though three out of five interviewees indicated climate change as their main environmental concern (climate change concerns would be strongly related to a carbon label instead of a generic eco-label). All interviewees were unfamiliar with each label and did not recall seeing any of the labels before. The following table shows an overview of each interviewee's reasoning for choosing the EU Eco-label.

Interviewee:	**Environmental concern:**	**Reason for choosing the EU Eco-label:**
INTERVIEWEE 1 (AGE: 24)	RAPID LOSS OF NATURAL RESOURCES	Looks most trustworthy because of the EU sign that appears in the label (even though the label is unfamiliar to the interviewee). Does not trust the other labels because of unfamiliarity with the third parties behind the labels.
INTERVIEWEE 2 (AGE: 24)	RAPID LOSS OF NATURAL RESOURCES	Looks trustworthy because of the relation to the EU. Furthermore, the design of the label makes it look trust worthier than the other labels.
INTERVIEWEE 3 (AGE: 33)	CLIMATE CHANGE	Looks the most trustworthy because it is closest in resemblance to the Swedish eco-labels such as the Svanen and Krav label with which the interviewee is familiar.
INTERVIEWEE 4 (AGE: 67)	CLIMATE CHANGE	Looks trustworthy because the EU appears to be the third party behind the label.
INTERVIEWEE 5 (AGE: 62)	CLIMATE CHANGE	Label is most appealing because of the design. The simplicity of the label makes it more attractive than the other labels.

4.2.3.1 Discussion of the choices made by the interviewees

All but one interviewee indicated that they chose the EU Eco-label because it looks more trustworthy in comparison to the Carbon Trust label and the fake carbon label. This feeling of trust was built up in a slightly different ways for each interviewee:

Interviewee:	**Reason for trust**
Interviewee 1	Recognizing the EU as a third party behind the label
Interviewee 2	Recognizing the EU as a third party behind the label and the label's design makes it look trustworthy
Interviewee 3	Label looks familiar to Swedish labels (familiarity)
Interviewee 4	Recognizing the EU as a third party behind the label

Interviewee number 5 indicated that the EU Eco-label appealed the most solely because of the simplicity of its design which was unrelated to trustworthiness of the label.

In the following two subparagraphs, an analysis will be made of the concepts of familiarity and measurability/tangibility and their effect on the interviewees' buying behavior of eco-labeled products.

Familiarity

It can be argued that the interviewees seemed to look for recognition of a third party and potential familiarity with the label due to their suspicion of green washing practices. Each interviewee indicated that green washing was an important concern when buying an eco-labeled product and from that point of view it can be said that recognition of a third party and familiarity are variables that potentially take away green washing concerns. This view is supported by the following interview excerpts:

Interviewee 1 (talking about why the detergent with the EU Eco-label was chosen):

'I don't think they would get to use the EU label like this if they were green washing. Aren't these stars and E sign a trademark of the European Union? That's why I trust it because I recognized the EU and the label looks nice. If the EU has something to do with an eco-friendly label, then it must have some kind of standards.'

Interviewee 2 (talking about why the detergent with the EU Eco-label was chosen):
'I can associate it with the European Union or something because of the stars and E sign. It looks more professional and trustful.'

Interviewee 4 (talking about why the detergent with the EU Eco-label was chosen):
'The first label (EU Eco-label) looks more trustworthy than the others. I think that's the reason why I choose it. I think it's the EU mark with the label, is it? That's why I recognized the organization which is behind this eco-label.'

Although all interviewees were not familiar with the EU Eco-label, they are familiar with the EU. Therefore it can be argued that recognition of the EU as a third party behind the label led to a feeling of familiarity with the label due to the interviewees' familiarity with the EU. It is therefore arguable that all but one interviewee (who chose the EU label because of appealing design) based their decision on familiarity. This is supported by a study conducted by Thøgersen (2000) who stated that recognition and understanding of an eco-label have a strong influence on a consumer's buying decision. Even though the interviewees did not know what the EU Eco-label stood for (because they were unfamiliar with the label), they did recognize the EU as a third party organization behind the label. This arguably gave them a sense of recognition of the label between the two other unfamiliar labels that they could choose from. According to Bekholm & Sjersen (1997, as cited in Dietz & Stern, 2002), consumers often trust eco-labels with a third party certification more than labels with a single party certification but due to the large amount of private labels consumers are often confused and uncertain about third parties. From this point of view, it can be said that the interviewees had an added feeling of trust in the EU Eco-label because they felt quite certain about recognizing the EU as a trustworthy third party as opposed to the Carbon Trust label which does state a third party on the label but is unfamiliar to the interviewees.

Measurability / tangibility

The measurability of the Carbon Label because of the exact carbon footprint amount that is mentioned on the label does not seem to provide the interviewee's with more trust for the label, mainly because the interviewees were not familiar with the Carbon Trust organization and therefore did not trust the organization as a bona fide third party. Furthermore, all but one interviewee were unfamiliar with the carbon footprinting concept, which lead them to mistrust both carbon labels that were presented to them. This is supported by a study by

Hansen & Kull (1994, as cited in Dietz & Stern, 2002) who explain that when consumers are uncertain about the meaning of a label, they often mistrust the label. This miscomprehension of a label consists of two parts (Van Dam & Reuvekamp, 1996, as cited in Dietz & Stern, 2002): unclarity about the label's seal and misunderstanding of the ecological terminology of the label. Especially misunderstanding of the ecological terminology played a role in interviewees' misunderstanding of the Carbon Trust label and the resulting mistrust in the label as is apparent from the following interview excerpts:

Interviewee 1:

'There is an arrow down, and there is 100 g which I have no idea what it stands for. And it says CO2, then I wonder, did they lower 100g of CO2 by some fraction? I don't know what it means. This could be anything.'

Interviewee 4:

'I need to have knowledge about the tangible information of the carbon label. In addition to the label, I need some kind of basic information about the label from the beginning before I trust it.'

It is arguable that the interviewees were not motivated to choose the Carbon Trust label for its measurability / tangibility factor because they simply did not trust the label's third party approval as explained in the previous paragraph. It can therefore be concluded that measurability / tangibility factor of a label does not influence the consumer's decision-making process when the label does not bear a familiar third party approval.

4.2.4 Final choice of environmental label after being informed about each label

In order to get a deeper understanding of the consumers' attitudes towards carbon labels and generic eco-labels, the scenario test was conducted a second time during each interview. However, before these second scenario tests were done, each interviewee was informed about each label. For the first label, the EU Eco-label, the interviewees were given information about what the label stands for in regard to the different product groups that it covers (which can be found in appendix 3) and which third party (the EU) issues the label. For the second label, the Carbon Trust label, the interviewees were informed in detail about the carbon footprint concept and they were given information about the issuing third party (UK Carbon

Trust). For the third label, the fake carbon label, the interviewees were given an explanation about single party labels (labels that do not have the approval of a regulating third party).

The interviewees' choices regarding the box of laundry detergent they would buy changed as follows:

EU Eco-label

INTERVIEWEE	**ENVIRONMENTAL CONCERN**	**REASON FOR CHOOSING THE EU ECO-LABEL**
INTERVIEWEE 1 (AGE: 24)	RAPID LOSS OF NATURAL RESOURCES	It is too hard to compare the carbon footprint of products by using the information of the Carbon Trust label, therefore prefers a generic eco-label.
INTERVIEWEE 3 (AGE: 33)	CLIMATE CHANGE	Prefers the multi-attribute nature of the EU Eco-label and doesn't like single attribute labels such as the Carbon Trust label.
INTERVIEWEE 5 (AGE: 62)	CLIMATE CHANGE	Prefers the friendliness of the EU Eco-label that doesn't require consumers to think for themselves.

Carbon Trust label

INTERVIEWEE	**ENVIRONMENTAL CONCERN**	**REASON FOR CHOOSING THE CARBON TRUST LABEL**
INTERVIEWEE 2 (AGE: 24)	RAPID LOSS OF NATURAL RESOURCES	Prefers the number (measurability) on the Carbon Trust label that enables consumers to make their own opinion.
INTERVIEWEE 4 (AGE: 67)	CLIMATE CHANGE	Chooses the Carbon Trust label because it fits the interviewee's environmental concern and prefers the measurability factor of the label.

4.2.4.1 Discussion of the choices made by the interviewees

When informed about carbon footprints two out of five interviewees changed their point of view concerning which box of laundry detergent they would buy. This is in line with what

came out of the quantitative research analysis as shown in the previous paragraph: the percentage of respondents that knew about carbon footprints were more likely to choose the carbon trust label than respondents that did not know about carbon footprints. Such a trend can be related back to the comprehension factor of eco-labeling as described by Dietz & Stern (2002). The writers argue that '*campaigns that effectively target the confusion* (of an eco-label's meaning) *may lead to a substantial increase in the sale of labeled products'* (Dietz & Stern, ibid, p.90).

Familiarity

It can be argued that the familiarity factor, which played a strong role in the decision making process of the interviewees before they received information about the labels, became less important after the interviewees were given information about each label. As previously described, all interviewees were unfamiliar with all three labels that were presented to them and the familiarity factor regarding the EU Eco-label was mainly based on the recognition of the EU symbol within the label, thereby making the interviewees recognize the third party behind the label but not the label itself. This familiarity eventually led the interviewees to trust the EU Eco-label more than the other labels that did not offer any familiar symbol or sign. After the interviewees were given an explanation about each label it can be argued that the level of familiarity for each label became evened out as can be seen from the following interview excerpts:

Interviewee 4:

'If I had the information about Carbon Trust and carbon labels, then I would go for that label because it fits to my climate changing concern. For me, the most important factor for choosing the label is that I know what these labels stand for. But in this case, I didn't know what they were; so then it was just the look of it.'

Interviewee 1:

'If I had heard about the carbon trust, I would rely on it but since I have never heard about carbon trust before, this is green washing to me. I need to know what party it is before I trust it. I don't know any of other labels but I know the EU.'

It is apparent that an evened-out familiarity with the labels raised trust for the Carbon Trust label among the interviewees. In the next section an analysis will be made to see how this

increased trust of the Carbon Trust label influenced the attractiveness of the measurability factor of the Carbon Trust label.

Measurability / tangibility

After the familiarity level for each label became leveled out through the information given to the interviewees, and the interviewees became aware that the Carbon Trust is a trustworthy third party, the measurability factor of the Carbon Trust label became more important for some interviewees:

Interviewee 4:

'I prefer to have tangible information that I can compare and make my own choice over the label. But you need some kind of simple label that we can look for at the same time. So the combination of simplicity and some basic information would be the best label for me.'

Interviewee 2:

'I think that's (a label with measurable/tangible information) *better than just a nice symbol. As you said, if I was informed before and I knew about them, I think I will look for the numbers and compare them to see which one is actually better.'*

It appears that the concrete verbal message (as described by Paivio et al., 1968) that is included in the Carbon Trust label in the form of the sentence 'working with the Carbon Trust, 100 g CO2' gave the above-mentioned interviewees a sense of measurability / tangibility which allows them to make their own judgment about a product's level of environmental friendliness.

Nevertheless, three interviewees indicated that even after knowing that the information on the Carbon Trust label is trustworthy, they would still prefer a generic label that simply covers different aspects without providing the consumer with measurable information to make their own opinion:

Interviewee 1:

'….but If I know this label always has high restrictions, the number is not that important. It's good to have, but if that label is actually trustworthy by itself no matter what it says then number is just interesting to know. But I am not going to make my decisions based on the number unless there are two products seated next to each other

one says 100g and the other says 50g, then 50g of course since I know that it's better. But the label itself is more important than the number.'

Interviewee 3:

'I'd like to have all of these good things on one product. I don't have to choose between one environmental good product and another one because I think all of these environmental conditions are important.'

Interviewee 5:

'I don't really care (about measurable information on labels). *I still prefer the nice and friendly image of the EU Eco-label. I hope public services such as government and public TV channels should organize and standardize the labels and educate people to know what it is. I am very much looking forward to see that.'*

From the above mentioned interview excerpts, two main reasons for not choosing the Carbon Trust label can be identified: 1. The consumers are not interested in being provided with numbers to make their own environmental judgment based on the labels measurability because they prefer to simply trust in an eco-label with a trustworthy third party. 2. A multi-attribute label such as the EU Eco-label is preferred over a single-attribute label such as the UK Carbon Trust label.

In the next paragraph an analysis will be made of the relation between the choice of eco-label and the interviewees' environmental concerns.

4.3 Relation between eco-label choice and the consumers' environmental concerns

A further interesting outcome of the qualitative study showed that there is not necessarily a direct relation between a consumer's choice of eco-label and the main environmental concern of the consumer. As seen in the previous paragraph, after the second round of the scenario test three interviewees remained with their choice for the laundry detergent with the EU Eco-label, even though two out of three indicated that climate change was their main environmental concern. Before being asked to make their choice during the second scenario test, the interviewees were informed about the Carbon Trust label's relation to climate change and the EU Eco-label's lack of carbon emission criteria (which makes it unrelated to climate change). Only one of the interviewees that changed their preference towards the laundry detergent with the Carbon Trust label indicated that climate change was the most important

environmental issue. The other interviewee mainly worried about rapid loss of natural resources. These outcomes indicate that the choice of environmental label is not directly related to the consumer's main environmental concern but is rather formed by the consumer's trust in a label's third party as can be seen from the following excerpts:

Interviewee 3 talking about how the choice of the EU Eco-label is related to her environmental concerns (climate change):
'I think it's same with KRAV. When you look at the label, it doesn't say anything but it's such a big and well-known eco-label in Sweden. Even though you don't really know what it stands for you can always have a chance to look it up by yourself. I don't think the label shouldn't need to say too much. I think it's the logo that is important so people can memorize it and get familiar with it.'

Interviewee 4 talking about how the choice of the EU Eco-label is related to his environmental concerns (climate change):
'It is true that the first label (EU Eco-label) *doesn't give me any information about what it does or I don't even know if it's related to environment or not. But it looks reliable.'*

Interviewee 5 talking about how the choice of the EU Eco-label is related to her environmental concerns (climate change):
'…because the label has a green color and it's in flower shape. I just assume that it's good for the environment. And if it's good for the environment then isn't it good for climate change as well?'

This particular buying behavior of eco-labeled products can be explained by the 'attitude factor' theory proposed by Palm & Windahl (1998, as cited in Dietz & Stern, 2002). The writers explain that the attitude factor is about the consumer's attitude to the usefulness of eco-labels. When a consumer has a positive attitude towards a certain eco-label, this consumer often believes that the environmental message of the eco-label is in line with the consumer's valued (environmental) goals even though this does not necessarily have to be the case in reality.

4.4 Green washing fears and eco-label choice

All interviewees indicated to be suspicious of eco-labeling because of a fear for green washing practices. During the first round of the scenario test all interviewees chose the EU

Eco-label because they trusted the label due to the recognizable link between the label and the EU. The measurability of the Carbon Trust label did not lower the interviewees' suspicion of green washing in regard to the Carbon Trust label because they appeared not to trust the third party behind the Carbon Trust label mainly because the UK Carbon Trust organization was unknown to the interviewees. This is evident from the following interview excerpts:

Interviewee 1 talking about why the Carbon Trust label was not chosen:
'If I had heard about carbon trust, I would rely on it but since I have never heard about carbon trust before, this is green washing to me. I need to know what party it is before I trust it.'

Interviewee 4 talking about why the Carbon Trust label was not chosen:
'If I know what the organization was, then it makes difference. So simply just mentioning the organization does not make me to trust the label. I have to know what kind of organization it is.'

The interviewees indicated that when they would see the Carbon Trust label on more products in a store, without knowing the details about the third party behind the label, their opinion towards the credibility of the label does not necessarily change:

Interviewee 4:
'Just seeing the label on as many products as possible, I don't think that would make me choose that labeled product. But perhaps it would make me find out what it stands for.'

From these results, it can be concluded that by using a carbon label with a measurability / tangibility factor (due to the number of the carbon footprint on the label) a company does not necessarily avoid a green washing image among consumers. Whether consumers believe that a company's eco-label is bona fide strongly depends on the familiarity factor. When the consumers have a sense of familiarity, either with the label itself or with the third party behind the label (as was the case in this study), they are more prone to trust the eco-label and when faced with a choice between different eco-labels the consumers would most likely choose the label that appears familiar to them, regardless of the connection between the consumer's environmental concern and the eco-label.

The analysis of the qualitative research has given underlying reasons of consumer trends regarding eco-labeling from the quantitative research. From the in-depth interviews, the

choice of an eco-label is mostly based on the familiarity factor; therefore consumers consider the EU Eco label as the most trustworthy eco-label among others since they recognize EU mark from the eco-label. It was assumed that measurability and tangibility of carbon labeling would make corporations avoid a green washing image, however, it would not work out in a market where the consumers are not informed about the label or when the label is not supported by a third party organization which is familiar to them.

A summary of the paper, limitations, and suggestions for future research will be presented in the next, and last, chapter of the paper.

Chapter 5. Conclusions

This final chapter will include a conclusion which summarizes the essence of the entire study. Consequently, contributions of the study and suggestions for future studies will be presented.

5.1 Carbon footprint as an efficient marketing tool in the changing society

The study begins from the curiosity about the green washing phenomena, which is occurring more often due to the fact that an increasing amount of companies are using green marketing as a marketing strategy. This study is an attempt to find out if carbon labeling can become an effective eco-labeling method to avoid a green washing image among the public.
The study's empirical findings are divided into 2 sections; first, quantitative research by conducting a survey to have general information about the perception of eco-labels and carbon labels, and second, in-depth interviews were performed to find out consumers' behavior and mindset and underlying buying decisions in regard to eco-labels and carbon labels. This research was conducted in Sweden for the reason that Sweden is a leader when it comes to the environmental trends in Europe and usually a forerunner in the field of green marketing (Swedish Institute, 2009), which makes Sweden a suitable place to conduct research upon carbon labeling because this is a new environmental concept.

From the quantitative research, it has been found that consumers tend to be driven by familiarity and a trustworthy appearance concerning eco-labels. The quantitative research has also shown that the EU Eco-label looks more trustworthy to consumers than the Carbon Trust label and the mock-up carbon label that were presented to the respondents. The interviewees based their decisions mainly on familiarity with the eco-labels.

The biggest advantage of carbon labels are measurability and tangibility. However, it was shown in the empirical study from both quantitative and qualitative data that measurability and tangibility were not motivating consumers to choose a certain carbon label until they were informed about the facts of the label and the issuing third party behind the label. After the interviewees were informed about the carbon label and as it gained more trust from the

interviewees, measurability and tangibility started to become more important aspects. Nevertheless, most interviewees still preferred to trust in a generic eco-label, instead of using the information provided by a carbon label to create one's own opinion about a products' environmental friendliness. The consumers preferred to make their decisions based on the criteria of being trustworthy and familiar, not its measurability and tangibility.

One important fact found in the empirical study was that even though consumers are familiar with a certain label, they still need to be satisfied with a recognizable third party organization that has approved the eco-label. In other words, familiar eco-labels communicate better with consumers than measurable and tangible eco-labels / carbon labels, however, there is a need that the eco-label is approved by a third party organization which is familiar to consumers in order to give them a trustworthy image of the label.

The research has proven the 'attitude factor' theory by Palm & Windahl (1998, as cited in Dietz & Stern, 2002); the respondents and interviewees did not have a connection between their environmental concern and choice of eco-labels. The reason is that when consumers have a positive attitude towards a certain eco-label, they often believe that the environmental message that the eco-label is presenting is in line with their personal valued goals even though it is not necessarily true.

From the theoretical study and the empirical findings, it can be concluded that the measurability and tangibility factor of carbon labels do not necessarily give effects on avoiding a green washing image of an eco-label or a company. Consumers are more willing to make decisions upon familiarity and trustworthiness of eco-labels rather than tangibility and measurability. Even though an eco-label has become familiar to consumers, they still prefer to base their decisions on simplicity of a label which they already know is good and trustful rather than an eco-label / carbon label in which consumers actually can distinguish the producers' environmental progress by presenting measurable / tangible information.

The study has shown that consumers that are familiar with the carbon footprinting concept are more likely to prefer a carbon label over a generic eco-label than consumers that are unfamiliar with this concept. During the in-depth interviews that were conducted as part of the qualitative study, interviewees became more positive towards carbon labels after being

informed about carbon footprinting and the third party behind the Carbon Trust label. This leads to the conclusion that by aiming at making consumers more familiar with carbon footprinting and the issuing organizations behind carbon labels, carbon labeling has the potential to become an important green marketing strategy if consumers can be educated about carbon footprinting and the relation between carbon emissions and climate change.

5.2 Theoretical and practical contributions

The main theoretical contribution of this study is the demonstration that the carbon footprint concept is rising at the moment and therefore it is difficult to find a study of carbon footprint and especially carbon labeling. This study has presented carbon labeling as an eco-labeling method and shown that this phenomena may be a strategy for green marketing. The study has presented essential knowledge of carbon labeling and consumer behavior towards carbon labeling. Therefore, it is not impetuous to say that the study has provided the starting point of theoretical study of carbon labeling.
Also the theoretical study is starting from the sustainable development concept, which provides a link to the green marketing and eco-labeling. The study has touched upon its relationship between sustainable development/corporate sustainability and green marketing, in particular eco-labeling and carbon labeling.

It has been mentioned many times that the carbon footprint concept and carbon labels are relatively new to the market but it is a growing concept. Therefore, the practical contribution of the study is the promotion of the carbon label to practitioners of green marketing.
Practitioners can have a better understanding of how carbon labeling is perceived among consumers, and they can develop an eco-label that includes carbon criteria considering these factors.

Lastly, the empirical study has been conducted in Sweden which has had ‘the Nordic Swan’ label for many years, which is a strong equivalent to the EU Eco-label. It is only recently that the EU Eco-label came into Sweden and started competing with ‘the Nordic Swan’. Moreover, the Carbon Trust label was originally founded in the United Kingdom and the labels name value is increasing in the market of United Kingdom. This study was brought up with practical data from Sweden, so that eco-labeling organizations can adapt strategies

according to the trends in the Swedish market. Furthermore, when the European Union presents the EU Eco-label with carbon footprint criteria, this study can be used as a regional market research concerning Swedish attitudes regarding carbon labels.

5.3 Limitations of the study

This study has been limited in order to keep focus on the subject which has been chosen, regarding the time limitation for the study. This study is focusing on carbon labels as an efficient green marketing tool, as being one of many ways to pursue green marketing on a corporate level. Since the terms and theories that this thesis is dealing with are quite new and often included in ongoing debates, the theories that are presented in the theoretical study are still under development.

As mentioned previously, due to the lack of previous studies in the field, a survey was done to learn more about general background information, social trends, and to have a base for further empirical studies. Only a brief survey was conducted because of the limited time available. The small size of the samples for both the data collection methods, the survey and interview, is a limitation of the study. 50 respondents were randomly chosen in order to conduct the survey, and therefore it is recommended for a future study to have a bigger size, or national size, of sample in order to conduct a study of generalization of the consumer behaviors related to eco-label trends.

Furthermore, the survey and interviews were conducted in Lund, Sweden, which represents highly educated residents of the population in Sweden. Awareness of the fact that the surveys were conducted regionally within the country, it can lead to the different results if the study was conducted in other regions of Sweden.

During the surveys, there may have been different degrees of understanding of the questionnaire by each respondent when expressing their behavior related to eco-labels. In other words, the answers were depending on very relative matters from person to person. Therefore the questionnaires were prepared to reduce the gap as much as possible, however it should be understood that the terms which were used in the questionnaire can be perceived relatively.

5.4 Suggestions for future research

The study has investigated carbon labeling as an efficient marketing method during the progress of sustainable development and corporate sustainability in the present. This study has both presented the limitations and advantages of carbon labeling by looking at consumer's perception in order to help companies from a marketing point of view.

However, the study also has some limitations. First of all, the quantitative research method resulted in a small sample and in only one region of Sweden. In the future, researchers are encouraged to do a larger sample of quantitative research in order to find out more clear and reliable data to generalize the pattern on the consumers' perception on the carbon labeling.

Second, the study has chosen the Carbon Trust label and the EU Eco-label in order to compare carbon labeling and eco-labeling with the reason that the Swedish consumers' background knowledge regarding both these labels is limited. However, this background knowledge can be different in different parts of the world. Therefore, the future research can be conducted with different labels in different countries, and the results might prove to be very interesting.

Third, the relationship between corporate sustainability and green marketing from a theoretical perspective can also be studied in more depth. There are few articles about measuring corporate sustainability; however, the procedures are under development. The combination of formulating the measurement of corporate sustainability through marketing perception might be a contributing and awarding study.

Fourth, it would be interesting to see the actual meaning of trustworthiness to consumers and the different degrees of 'looking trustworthy' of a label. The method of observation could be used in order to find out the truthful consumer behavior on eco-friendly product shopping. It would also be an interesting study to find out the difference between the levels of knowledge on 'knowing the meaning of a label' in general and of the actual meaning of the label.

Lastly, there is a thread of connections between eco-labeling as a green marketing strategy and social marketing in terms of building a company's image among consumers rather than

product itself. Social marketing is a strategy that is used when a company wants to influence consumption behavior by promoting social factors; environmental, concerns of consumers, and health, instead of promoting the company's products (Kotler, et. al., 2002). Studying the relationship between green marketing, especially eco-labeling, and social marketing would have a very high relevance as a future study in the field.

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Appendix 1: Quantitative research questionnaire

Age: Gender: Nationality:

Circle only one of the answers under each question!

1: Which is your main concern among environmental issues?

- Climate change
- Rapid loss of natural resources
- Pollution of environment

2: I am a very eco-friendly shopper. (Please indicate your level of agreement)

Strongly agree Agree I am not sure Disagree Strongly disagree

3: Do you buy eco-friendly products?

Yes No Sometimes

4: If you don't, what is your main reason?

- high price
- don't know what it stands for
- don't trust if it's actually good for the environment
- other_____

5: When you see eco-labeled products, does it give you positive image of the producers?

Yes No Depends on which eco-label it is

6: Have you ever doubted about the truthfulness of a product's eco-label?

Yes No

7: If you answered 'yes' to the previous question, please indicate the reason why you did not trust the eco-label:

- unclear what the label stood for
- didn't know if it was a real eco-label or not
- unfamiliar with the label
- there was no indication of a third party approval on the label
- other:_____

8: Do you know what a carbon footprint is?

Yes No

9: If you are buying a laundry detergent and have the choice between three versions of the same product but each with a different eco-label (as shown below), which one would you choose?

1 2 3

10: What is the reason that you chose the one you did in the previous question?

- I know what it means
- I've seen it somewhere
- It looks more trustworthy
- It gives a clear statement about concern for environment
- Other: _____

Thank you!

Appendix 2: The picture scenario

Appendix 3: Meaning of the EU Eco-label per product category

The following list shows the meaning of the eco-label on each of the below mentioned product categories.[2]

Bedding

Mattresses

Risk of allergic reaction is reduced
Water and air pollution during manufacturing is limited
Residues of dangerous substances for health and the environment are minimised
No ozone-depleting substances are present
The product is guaranteed to last as long as conventional mattresses

Gardening

Growing media soil improvers:

The product uses recycled organic matter
The product does not contain peat
The product does not contaminate the soil with heavy metals
The product does not contain bacteria
The content of weed seeds is limited

Specific for Growing Media:
The user is informed about available options for the removal and processing of the product after use.

Specific for Soil Improvers:
The product does not contain glass and metal
The product contains a minimum of 20% organic matter
The product does not contaminate the soil with residues of pesticides

[2] http://www.eco-label.com/default.htm

Electronic Equipments

Personal computers

The product consumes less energy during use and standby
It contains fewer substances that are dangerous for health and the environment, e.g. metals
The product can be taken back free of charge by the manufacturer after use
It can be easily dismantled and recycled
The product durability is increased through up-grades

Portable computers

The product consumes less energy during use and standby
It contains fewer substances that are dangerous for health and the environment, e.g. metals
The product can be taken back free of charge by the manufacturer after use
It can be easily dismantled and recycled
Increased product durability through upgrades
The product uses less polluting batteries

Television

The product consumes less energy during use and standby
It contains fewer substances that are dangerous for health and the environment
The products can be taken back free of charge by the manufacturer after use
It contains instructions for correct environmental use
It is designed for greater durability and recyclability

Footwear

Shoes

Risk of allergic reactions from certain chemicals is minimized
Water and air pollution during manufacturing is limited
The product is sold in recycled packaging
The product is at least as hard wearing as conventional shoes

Household Appliances

Dishwashers

The product consumes less energy (electricity consumption is reduced by approximately 40%)
Water consumption is significantly reduced
Noise levels are reduced
The product offers energy saving washing cycles
The product guarantees high level performance
It can be easily dismantled and recycled

Refrigerators

The product consumes less energy (electricity consumption is reduced by approximately 60%)
The product guarantees a high level of performance
Noise levels are reduced
The use of substances with a global warming or ozone depleting effect is minimized
The product can be taken back free of charge by the manufacturer after use
It can be easily dismantled and recycled
The availability of spare parts is guaranteed for twelve years after production ceases

Vacuum cleaners

Environmental damage related to the use of energy and natural resources is reduced
Recyclability, durability and maintainability are increased
The use of hazardous substances is reduced
The product carries instructions on how to achieve the best environmental use

Washing machines

The product consumes less energy (electricity consumption is reduced by approximately 50%)
The product guarantees a high level of performance (Class A or B) when washing or spin drying
Water consumption is reduced by approximately 40%
Noise levels are reduced
The product contains fewer substances that are dangerous for the environment and health
The products can be taken back free of charge by the manufacturer after use

It can be easily dismantled and recycled
The availability of spare parts is guaranteed for twelve years after production ceases

Heat pumps

The product has improved energy efficiency during heating and cooling modes.
The product reduces or prevents the risks for the environment and for human health related to the use of hazardous substances.
The product has a lower global warming impact.
It contains instructions for correct environmental use.

Textiles

Clothing, bed linen and indoor textiles

Substances with harmful effects on the aquatic environment and air have been limited during fiber production
The risk of allergic reactions has been reduced
The product does not shrink more than conventional products
The product is as color resistant against washing, drying friction and light exposure as conventional products

Do-it-yourself

Hard floor coverings

Water and energy consumption during manufacturing are limited
Residues of dangerous substances for health and the environment are minimized
Harmful emissions to air and water are limited
The product includes waste management instructions

Light bulbs

The product has a life span of between 5 and 9 years (10,000 hours), i.e. ten times longer than incandescent light bulbs

It will consume five times less electricity than an incandescent light bulb
It will not flicker when switched on
It contains very little mercury
It uses at least 65% recycled packaging
It is guaranteed to light at 70% or 90% after 10,000 hours depending on type of bulb

Paints and varnishes

The quantity of white pigment is reduced while still ensuring sufficient coverage
Pigments are produced according to strict ecological criteria
The product releases fewer solvents
The product does not contain heavy metals, carcinogenic or toxic substances

Cleaning

All purpose cleaners

The product has a reduced impact on the aquatic environment
It does not contain certain dangerous substances
It has a limited effect on the growth of algae in water
It is largely biodegradable
It uses less packaging
It includes information for correct environmental use
It is guaranteed to perform at least as effectively as conventional products

Dishwashing detergents

The product has a reduced impact on the aquatic environment
It does not contain certain dangerous substances
It has a limited effect on the growth of algae in water
It is largely biodegradable
It uses less packaging
It contains information for correct environmental use
It is guaranteed to perform at least as effectively as conventional products

Hand dishwashing detergents

The product has a reduced impact on the aquatic environment
It does not contain certain dangerous substances
It has a limited effect on the growth of algae in water
It is largely biodegradable
It uses less packaging
It contains information for correct environmental use
It is guaranteed to perform at least as effectively as conventional products

Laundry detergents

The product has a reduced impact on the aquatic environment
It does not contain certain dangerous substances
It has a limited effect on the growth of algae in water
It is largely biodegradable
It uses less packaging
It contains information on how to wash ecologically and economically
It is guaranteed to perform at least as effectively as conventional products

Soaps and shampoos

The product meets strict limits on the use of dangerous substances
The product has a lower impact on the aquatic environment
The product sets high standards of biodegradability
The product limits packaging waste
The product has a high level of performance

Paper

Copying and graphic paper

The product has been manufactured using special recycled fibers
Virgin fibers come from sustainably managed forests
Air emissions of sulfur and CO2 and water pollution have been limited during production

Tissue paper

The product has been manufactured using special recycled fibers
Virgin fibers come from sustainably managed forests
Air emissions of sulfur and CO2 and water pollution have been limited during production

Services

Campsite services

Energy consumption is limited on the site
Water consumption is limited on the site
Waste production is reduced on the site and waste is properly disposed off
The campsite favors the use of renewable resources and of substances which are less hazardous to the environment
Environmental education and communication are promoted by the campsite
The service procures a healthy environment

Tourist accommodation service

Limits energy consumption
Limits water consumption
Reduces waste production
Favors the use of renewable resources and of substances which are less hazardous to the environment
Promotes environmental education and communication

Lubricants

The product has a reduced impact on the aquatic environment and the soil during use
CO2 emissions are reduced
The product contains high percentage of renewable raw materials
The product does not contain certain hazardous substances (e.g. R-phases)
The product guarantees a high level of performance