Environmentally friendly cars-
Who are the buyers and what affects them?

Abstract

The last decade's discussions concerning the climate changes have started different counter measurements in order to save the environment. One of these is to reduce the carbon discharges by pushing the car industry towards an introduction of environmental friendly cars. The increased sales of environmental friendly cars in Sweden made us want to investigate the concept and its users.

The main purpose with this dissertation was to identify the most typical buyer of environmentally friendly cars and study which factors affect them in the purchase of one. This was done by emphasizing on peoples environmental attitude, behavior and demographic factors. Further the marketing mix together with political/economical stimuli stood for the affecting factors towards a purchase of an environmental friendly car.

To answer our research questions we chose to collect our primary data through the research strategy of a self administered questionnaire. The sample consisted of 90 respondents.

The findings of our dissertation showed that elder women born in Sweden, parents of children and with a high social status are the most typical buyers of environmental friendly cars. Safety was the most important factor to base a car purchase on among the respondents. TV was seen as the most affecting information source concerning gained information about the eco friendly cars.

Key words: Consumer behaviour, environmental awareness, environmental friendly cars

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This candidate dissertation is our final assignment before we step out to the business world as graduates. Finally after 3.5 years, we have achieved a bachelor in International Business Administration.

During these long years we have been facing difficulties, with many late and cancelled trains. From the negative something positive has risen, we have gotten to know some amazing people and experienced some wonderful moments with these during our train rides. Furthermore we have gained valuable knowledge and experience that will guide us trough the rest of our lives.

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Chapter 1

Introduction

This chapter explains the purpose of our dissertation. An overview of the background, research questions and limitations is given. Finally the outline of our dissertation is presented.

1.1 Background

Mankind has entered an era where the former hefty usage of the earth's recourses is starting to appear. The technological development and the span of globalization have affected the environment and our lives. The air we breathe, the food we eat and the water we drink are all essential factors for the further survival of mankind. Our usage of fossil fuels has created discussions regarding the climate changes and a potential guideline towards a healing process of our environment. In combination with governmental directives and peoples changed perception and demand, the technological development is pressed towards an eco friendly path resulting in "green" products.

In recent years the car industry has put bigger emphasis on environmental friendly cars, making them a relatively newly emerged product. Generally it is the same product but with differing usage preferences, which is making it to a flowering business in Sweden (DN, 2007). During a lecture in the course of "Environment of International Business", the book "Plan-B 2.0" by Lester R. Brown (2006) was part of the course literature. The book gave a detailed picture of peoples heft usage of the earth's resources and the contributing consequences to this. Brown pictures a negative view of the phenomenon of globalization, and the changes of the environment. This book made us open our eyes towards the environmental issues surrounding us that many people neglect. Brown also gives account of different responses towards stabilizing climate where one particular chapter comprises the response of peoples' usage of fuels. The book describes that eco friendly fuels are a resolution towards a greener world. We found this interesting given that there are so many cars and drivers that can make a difference for our future survival of mankind. Since we are daily surrounded by carbon discharges we felt that

this investigation will be the biggest contribute that we can do to make a difference with the given time and financial resources. An environmental friendly car is a relatively new concept around the world, where the frequency of purchase has rapidly increased the recent years.

When we base our dissertation on environmental friendly cars, we bottom in "Vägverkets" definition of an eco friendly car.

1.2 Research questions

This dissertation is based on the following research questions.

- Who is the most typical buyer of environmental friendly cars?
- What kind of main factors affect individuals when buying environmental friendly cars?

1.3 Purpose

Our main purpose with this dissertation is to find out what kind of choices people do in a potential/existing purchase of environmental friendly car in the sense of asking what factors affect them. Additionally, we want to find out who the most typical buyer is of environmentally friendly cars. Since the concept of "green" cars differs from regular cars, we believe that there are other factors influencing individuals towards a potential purchase. It is the same product, but with different preferences due to political recommendations and personal ethics. Our intention with this thesis is to get a broader view of the consumer behaviour in the field of environmental friendly cars.

1.4 Limitations

When doing our investigation we focused on the people living in the southern part of Sweden, mainly, Malmö, making this the first limitation. Since Malmö is the third biggest city in Sweden, and form a part of "Öresundsregionen", it could be seen as a multi-cultural geographical area. Because of this the result might be misleading and limited. Different cultural backgrounds do not display the authentic Swedish ethical view. Further, we limit ourselves through the constant of time and financial resources. Additionally, we limit the dissertation by only including private consumers and not companies. Since we do not base this study on users and owners of environmentally friendly cars, we choose to measure the respondent's level of environmental awareness

as a factor explaining the willingness toward a purchase of an eco friendly car. Peoples' demand towards a purchase of an environmental friendly car is influenced by the benefits surrounding the product. Often benefits such as personal social status, self-expression, healthier environment and economical benefits can be seen as a foundation towards a purchase. Instead we limit ourselves in the way of only using the economical advantages as a contributing factor among many others.

1.5 Outline

Chapter 2
This chapter gives background information to the topic of green cars, describing definitions and economical advantages.

Chapter 3
This chapter introduces the methodology. We go through the choice of method, research approach and research philosophy. We conclude this chapter by describing the data collection.

Chapter 4
This chapter accounts for the most relevant theories concerning consumer behaviour. The theoretical framework has its fundaments in theories such as "Factors influencing behaviour" and "Model of buying behaviour" (Kotler, 1994). From these theories we have chosen specific factors to investigate.

Chapter 5
The empirical framework is presented in this chapter. The research strategy is discussed followed by our questionnaire and limitations. This chapter is ended by analysis of reliability, validity, generalisability and response rate.

Chapter 6
This chapter comprises the result of the research. The analysis is made with the help of the results through a discussion.

Chapter 7

This last chapter concludes the dissertation with a summary of our findings; future research, self criticism and practical implications.

Chapter 2
Background information

This chapter gives the reader an overview of the topic environmental friendly cars by explaining the changing environmental situation, definitions of the environmental friendly cars, fuels and benefits.

2.1 Carbon Dioxide

As mentioned in the introduction chapter, peoples' usages of mother earth's recourses have changed the global environment, affecting us all in different ways.

Carbon Dioxide (CO_2) is a chemical compound characterised as a colour- and odourless gas, and exists in the earth's atmosphere. The gas is responsible for 60% of the greenhouse effect (BBC, 2007). The greenhouse effect is the process in which the earth receives energy from the sun in the form of radiation and warming the planet's atmosphere, surface and oceans. The amount of carbon dioxide taken out of the atmosphere by plants is almost balanced with the amount put back by respiration and decay (BBC, 2007). Therefore small changes as a result of human activities can have large impact on this balanced global environment. Pollution is a chemical compound or substance where mixtures of these, exceed the natural levels in the environment by the actions of human beings. The common interest of pollutions is that they are hazardous for humans, the fauna and flora (Helsinki, n.d).

The last 150 years increase of the released amounts of carbon dioxide (CO_2) into the atmosphere is a direct outcome of human actions (Lenntech, n.d). This has disturbed the environmental balance resulting in global warming. Global warming refers to the increased average temperature of the earth's near-surface air and oceans.

Increased global temperatures will cause the melting of our Artic ice, resulting in altering of the Artic heat balance and an increased intensity of destructive storms. When sunlight strikes ice and snow, approximately 80 percent of the light is reflected

back into space and 20 percent is absorbed as heat. If sunlight strikes land or ocean only 20 percent is bounced back out in to space and 80 percent is transformed into heat, leading into a spiral of higher temperatures (Brown, 2003). A complete melting of the ice covering Greenland is a different issue; it would raise the sea level by 7 meters, making hundreds of coastal cities disappear. The higher temperatures can stop the progress of the crucial photosynthesis, prevent fertilization and lead to dehydration (Brown 2003). The decreased land areas and the rising temperatures causing the disturbance in the vegetable kingdom would have a direct negative affect on the crop yields, creating hunger, poverty and extinction of animal species.

2.2 Definition of environmental friendly cars

The amount of environment friendly cars is constantly increasing in the Swedish society. According to Vägverket there does not exist a clear and specific definition of the environment friendly car. Instead there is a large amount of different recommendations regarding the classification of environmental friendly cars. Vägverket is a state authority with wide range activities in a subordinate position to the government and Riksdag. Therefore we chose to base the classification of environmental friendly cars on Vägverkets recommendations (Vägverket, 2007).

According to Vägverket the ambition is to create cars that can make a difference for the environment, meaning that the emission discharges from the cars will be reduced. These emissions are carbon dioxide but as well as other substances that affect the environment and human health. A private person that buys an environment friendly car in Sweden can today get a premium of 10 000 Swedish crowns. The requirement for receiving the premium is that the carbon dioxide emission is low. In addition the car must be energy efficient and the emission of harmful particles to the human health low (Vägverket, 2007).

There are some specific requirements for the amount of emissions that can be discharged from the environment friendly cars. These are 9.2 litres gasoline, 9.7 cubic metres gas and 37 kWh electricity per 100 km. Cars that run on fossil fuels can also be classified as environmentally friendly cars if the carbon dioxide emission is lower than 120 g/km and the fuel consumption is lower than 4.5 litre diesel or 5 litres gasoline. In addition cars with diesel engines must have particle filters (Vägverket, 2007).

2.3 Environmental friendly fuels

The following text will give a short description of less environmentally harmful alternative fuels that have become strongly established in our society. The last decade's technological development has contributed to these alternative fuels that are being more acknowledged by people each day.

2.3.1 *Biogas*

Biogas is usually a bio fuel gas that is created from anaerobic (oxygen free environment) digestion of organic substances and consist mainly of methane and carbon dioxide. Biogas can then be used as vehicle fuel or to produce electricity (Wikipedia, 2007) (Svensbiogas, n.d).

As a vehicle fuel, biogas is more environmentally friendly than gasoline and diesel. It is also greener than ethanol (E85) and natural gas due to the lower emissions. Biogas is the most energy efficient fuel, therefore the Swedish government predicts that by the year of 2010, 80 000 vehicles are going to utilize biogas as their primary fuel. Gas vehicles have a regular petrol engine using an external fuel system that is made for the gas compression (Wikipedia, 2007) (Svensbiogas, n.d).

Gas vehicles are becoming more common for each year in Sweden. From 2002 to 2006 the amount of gas driven vehicles have increased with more than the double (Wikipedia, 2007).

2.3.2 *Ethanol (E 85)*

E 85 is also one type of vehicle fuel that is environmental friendly. Pure ethanol is much better for the environment but for now a mix of 85 % of ethanol and 15 % gasoline is used. Ethanol is extracted from wheat and sugar cane but also other biomass such as corn (Wikipedia, 2007).

E85 can be used as fuel in cars that have flexi fuel engines. This kind of engine, manages a mixture of both gasoline and ethanol. Gasoline has a higher octane rating which makes it more inflammable than ethanol, and helps in starting the car engine. Ethanol withholds also less fuel efficiency per litre than gasoline and that is why cars that are ethanol driven must be refuelled more frequently (Miljöfordon, n.d).

2.3.3 *Hybrid electric cars*

Hybrid electricity is a different kind of technique that is being used in hybrid electric cars. This technique is a combination of combustion engines and electric engines. These cars are using gasoline or diesel fuel depending on what kind of engine they have. Hybrid electric cars have special, efficient batteries and an electric engine that contributes to the accelerations of the car and movement in low speeds. The battery stores the energy created by the combustion engine (Miljöfordon, n.d) (Vägverket, n.d).

2.3.4 *Electric cars*

Electric cars are driven only by an electric engine and they have a battery that can be recharged. These cars can drive up to 50-80km at a fully charged battery. The acceleration of electric cars at higher speeds is lower than the acceleration of gasoline driven cars. Another difference is that the eclectic cars have a maximum speed of 90-100 km/h.

There are some negative aspects that can be mentioned about the batteries that are used in this type of cars. They have a limited life length and must therefore be replaced after some time which in the end can be expensive (Miljöfordon, n.d).

2.4 Economical advantages surrounding environmental friendly cars

A benefit can be said to give some economical advantages to people. When it comes to environmental friendly cars the Swedish government has put an effort to make the purchase of the car more appealing to the Swedish consumers by introducing different types of advantages.

The biggest and the most mentioned advantage is the 10 000 Swedish crown premium that is given to private people who recently bought an environmental friendly car. The premium is one way to encourage people to buy environmental cars instead of regular ones (Regeringen, 2007).

Since we live in Malmö we have chose to focus on the economical advantages concerning the area of Malmö. The advantage the Swedish government offers to owners of environmental cars in Malmö is a parking advantage. This advantage gives people the possibility to park free for one hour in all parking fee areas in Malmö. The

benefit is valid during three years from the purchase day and costs 300 Swedish crowns to get hold on (Malmö, 2007).

The third aspect of economical advantages given to people is tax on cars. From 1 October 2006 there is a certain tax on cars that is based on the amount of carbon discharge from each car. The essential amount that has to be paid is 360 Swedish crowns and then additional 15 Swedish crowns per gram of carbon discharges on regular cars. For the environmental friendly cars the additional amount that has to be paid is 10 Swedish crowns per gram of carbon discharge, making it 5 crowns cheaper per gram. Sweden has tax subsidies for all alternative fuels and there are no taxes set for the biofuels until the year of 2012 (Miljofordron, 2006).

Other developed benefits are extra services that have been created to attract people to buy environmental friendly cars. Swedish banks offer customers who buy environmental friendly cars loans with lower interests and insurance companies offer people lower premiums (Vibilagare, 2007). Volvo has also realized that the interest for environmental friendly cars has grown rapidly the previous years making the competition stronger. Volvo is offering new customers different benefits, such as a course in economical and safe driving which is called EcoSafe. Other benefits from Volvo are cheaper car insurance, cheaper ethanol and cheaper car loans.

Chapter 3

Methodology

This chapter explains the methodology. Here we give account of the research approach, research philosophy, data collection, validity and reliability.

3.1 Choice of methodology

As stated before our main purpose with this dissertation is to find which factors affect people towards the purchase of environmentally friendly cars and who the most typical buyers are. Since the concept of "green" cars differs from regular cars, we believe that there are other factors influencing individuals towards a potential purchase. Therefore we have studied different researches concerning consumer behaviour to understand the patterns in the buying behaviour. Our dissertation is based on selected factors to get an answer to the research questions. We put a big weight on the level of environmental awareness as a contributing factor explaining the willingness towards purchase.

3.2 Research approach

We started by getting a broader view of the subject by investigating different existing theories, where a selection of the most fitting theories was made. From the given theoretical framework a research model containing the research factors was created to find the answers to the research questions. Since we are testing existing theories we use a deductive approach. We also try to explain linkages between different variables. Quantitative data collection is another verifying variable in the choice of a deductive approach (Saunders *et al*., 2007).

3.3 Research philosophy

The term *research philosophy* relates to the development of knowledge. There are three different angles explaining this term: *positivism, realism and interpretivism* (Saunders *et al*., 2007).

The positivistic perspective is differential from the view that is origin from natural science with law-like generalizations and quantifiable observations. The role of the researcher is to remain neutral and not to influence the subject of the research (Saunders *et al*., 2007).

Realism is the perspective where it has its basis on beliefs of the existence of reality but also the highly influential social forces that have an effect on peoples' perception. Realism and positivism share the same characteristics, giving a view of an external objective nature but in a social context (Saunders *et al*., 2007).

Interpretivism is an approach in contrary to the positivistic approach. Interpretivism holds no reality objective but instead a subjective one where it is important to understand individuals' purposes, behaviours and goals (Saunders *et al*., 2007).

As mentioned in the research approach above, we have chosen the deductive research approach. According to Saunders *et al*., (2007) the deductive approach puts a larger weight upon the positivistic philosophy rather then the interpretivistic one. For our dissertation we have chose to use a mixture of positivism and realism. We have stayed independent from the topic of our dissertation since none of us own an environmental friendly car. If holding an eco friendly car, it could be seen as we give preferential treatment towards the concept of "green" cars by taking a path towards a specific result of this dissertation. This explanation justifies the usage of the positivistic philosophy. Both environmental organizations and the government spread the importance of showing respect to the environment by recommendations, directives and economical advantages. This course of action can be seen as large-scaled social forces that affect peoples' perception, which is a leading factor behind the philosophy of realism.

3.4 Data collection

Our dissertation is based on the usage of both primary and secondary data.

3.4.1 *Secondary data*

Secondary data comprises the already existing information and sources. We have collected our secondary data through various sources such as books, internet sites, case studies, journals and newspaper articles. We started our dissertation by absorbing as

much secondary data as possible from where we selected the most relevant theories which sets the theoretical field. We chose to focus on two fundamental models "Factors influencing behaviour" and "Model of buying behaviour" by Philip Kotler (1994). These models comprise factors which we have chosen to elaborate and deepen by the usage of other relevant theories.

3.4.2 *Primary data*

We have conducted a survey based on a self administered questionnaire. The purpose of the designed questions is to describe the consumer and get hold of what factors influence individuals' when buying an environmental friendly car. The target group of the survey is people over 18 years within a specific geographical area along Agnefridsvägen in Malmö, Sweden. The survey will be conducted on the answers from 90 participants, this due to the time limit and economical resources.

3.4.2.1 Quantitative and Qualitative Data

Primary data could be diversified into either quantitative of qualitative data. Qualitative methods are distinguished by the non-usage of numbers. To this method verbal formulations or writings are included. A quantitative method is the opposite of the qualitative approach where the collected data is numerical (Backman, 1998). The data is analyzed by the usage of numerical codes (Saunders *et al*., 2007). Since our data will be numerical and analyzed in the statistical program SPSS, we will be using quantitative data.

Chapter 4

Theoretical Framework

This chapter presents the theoretical framework which is affiliated to our problem formulation. Here we give an account of the most relevant theories that describe consumer buying behaviour. We use two models as fundamental explanations of the buying behaviour. Then we elaborate these fundaments with other complementary models and theories.

4.1 Introduction

We want to find out who the most typical buyer is by focusing on the environmental awareness, behavior and the buyer characteristics. We also want to find out what factors influence people when purchasing an environmental friendly car by putting weight on the external stimuli factors. To conclude the theoretical chapter a model will be shown and described with the chosen factors for each research question.

4.2 Factors influencing behaviour

There are many different factors that influence a consumer's behaviour. The main factors are *Cultural, Social*, *Personnel* and *Psychological* which are illustrated in the model below. These mentioned factors can be found in the book "Principles of Marketing" by Philip Kotler. Kotler is an author that sets a wide spread of marketing theories, making him an outstanding leader in the field of marketing literature.

Cultural	Social	Personal	Psychology
-Culture -Subculture -Social Class	-Reference group -Family -Roles and status	-Age and life cykle stage -Occupation -Economic circumstances -Lifestyle -Personality and self consept	-Motivation -Perception -Beliefs and attitudes

Figure 4.1 Factors influencing behaviour (Kotler, 1994, p.137).

4.2.1 *Cultural factors*

The cultural factor consists of *culture*, *subculture* and *social class*. *Culture* is something that affects consumers and their buying behaviour. It includes fundamental values, perceptions, wants but also the influential behaviour gained from family. That is why marketers try to know everything about culture and cultural changes. In this way they can react faster and more precisely to cultural fluctuations and adapt the products, making them more suitable to people's wants and needs. *Subculture* is a smaller part of culture and includes people and their nationalities, religions, racial groups and geographic regions. These aspects influence consumers as well as their buying behaviour. *Social class* is another important factor to consider. Every society is divided into different social classes and its members have similar values, interests, and behavioural patterns. Factors that make the classes differ from each other, are for instance occupation, income, education, and wealth (Kotler, 1994).

4.2.2 *Social factors*

Social factors consist of *reference groups*, *family, social roles and status*. A *reference group* is something that a person strives to belong to and this affects a person's attitude and behaviour. Kotler adds that *family* has a direct impact on a person's attitude created by two different family types, the family of orientation and the family of procreation. In a family of orientation, the parental role has a significant influence on the individual's fundamental behaviour. Parents raise their children according to their own beliefs and attitudes. Family of procreation means a person's partner and children. The partners and children have a major effect on each other, making them the most important consumers.

Last but not least *roles and status* are included in the social factor. People adopt different roles in their jobs and families which have an influential effect as well. Status is very important in a persons buying decision. People often buy something that shows off their status in the society (Kotler, 1994).

4.2.3 *Personal factors*

The personnel factors include *age and life-cycle stage, occupation, economic circumstances, lifestyle,* and *personnel and self-concept. Age and life-cycle* are very dominant factors in peoples' buying decisions. Under a lifetime, people tend to change their tastes many times.

Economic situation has an enormous effect on how expensive goods people buy and what kind of products they choose. A person's *lifestyle* and *occupation* shape his or hers buying decision. *Personality* is an important influencing feature for the buying actions. Personality includes factors like self-confidence, dominance, sociability, autonomy, defensives, adaptability, and aggressiveness (Kotler, 1994).

4.2.4 *Psychological factors*

The psychological feature include factors like *motivation, perception, learning* and, *beliefs and attitudes*. *Motivation* means a person's drive to buy something which can depend on many different factors. There are two very famous theories in this field developed by Sigmund Freud and Abraham Maslow.

According to Freud's Theory of Motivation people's needs are never structured and predictable, which indicates that a person cannot understand his/her needs completely. Maslow's Theory of Motivation is rather different. He developed a hierarchy of peoples' needs. According to Maslow people have an inherent way of satisfying their needs, going from the most fundamental needs towards self-actualization needs (Kotler, 1994).

First we have the psychological fundamental human needs such as hunger and thirst. Secondary are safety needs containing issues such as security and protection. The next step in the model is covered by social needs with subcategories such as sense of belonging and love. On the fourth level comes esteem needs including self-esteem, recognition and status. Finally self-actualization needs covering self-development and realization of individuals' fundaments (Kotler, 1994). These four levels are displayed in the figure 4.2.
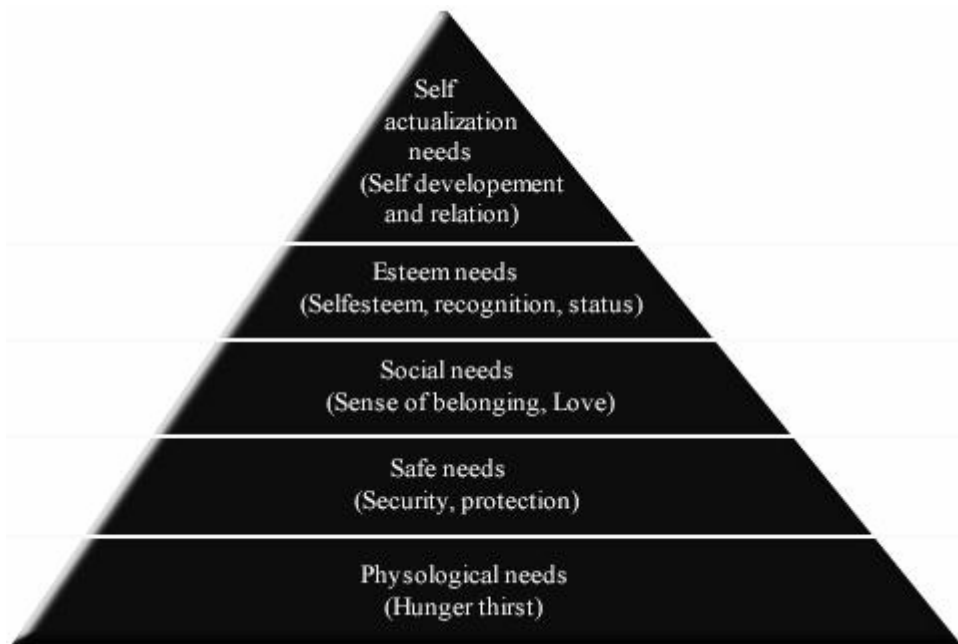
Figure 4.2 Maslow's hierchy of needs (Kotler, 1994, p.147).

Perception is the second factor comprised by the psychological features; it explains how a person perceives a situation. Two different individuals can have the same motivation and can be in the same situation but understand it completely different. Perception is also a way in which people select, organize, and interpret the information that they obtain from the five senses, sight, hearing, smell, touch, and taste. In this way they are able to portray a picture about something. There are three perceptual processes that explain how people can perceive a similar situation differently. Selective attention explains how people ignore most of the information that they are receiving every day. Selective distortion means that even if a person pays attention to something it does not have to mean that they are convinced to carry out a purchase. If they are buying a product it has to fit with their own believes. Selective retention means that people tend to stick with their old believes and easily forget new information that they get hold of (Kotler, 1994).

Maslow also mentions that learning is a part of the psychological factor. This means that people learn from their actions and that is why theorists think that human behaviour is obtained by learning. Learning takes place mostly trough the interaction between drives, stimuli, cues, responses, and reinforcement.

Believes and attitudes are the last part of the psychological factors. People evolve believes and attitudes through the philosophy of doing and learning. A belief may be

seen as a description of a thought based on knowledge, opinions, and faith. Attitude is the extent of an individual's feelings and evaluation tendencies (Kotler, 1994).

Schlegelmilch *et al.,* (1996) try to give an account of environmental consciousness that they have constructed. According to their journal, the last quarter of a century have been filled with copious attempts to conceptualize and operationalize the construct of environmental consciousness. Studies have been conducted in a wide range of research dimensions, comprising dimensions such as psychology, sociology, political science, environmental studies and business research. These dimensions differ to the extent of how they fit on varying green issues, such as population, control, natural resources, energy consumption, recycling issues, pollution and concern about acid rain. To predict the ecological behaviour, the fundamental nature of environmental attitudes can be divided into two segments, *(1)* attitude towards the environment and *(2)* attitudes towards ecological behaviour (Kaiser et al,. 1999). Attitudes toward the environment predict the environmental concern which in turn can be used in a single or multiple component approach. A single component approach describes the whole environment while the multiple component approach covers only some particular ground of the environment. If attitude towards environment refers to a multiple component approach *affect, knowledge* and *intention* should be considered as environmental attitude components describing ecological behaviour. According to Kaiser (1999), there are various views to this theory. Some want to propose the *affect* component as a single indicator of environmental attitude while others seek for disposure of ecological behaviour intentions or making it a single marker of environmental attitude. Former studies have exemplified an existing relationship between values, environmental attitudes and consumer behaviour, but the correlation between attitude and behaviour is not always high (Touhinio, n.d), (Straughan and Roberts, 1999).

One of the most recent developed environmental researches regarding attitude is the New Environmental Paradigm. This tradition differs from existing ones because it regards individuals' moral values as the core concept of environmental attitudes and concentrates more on an evaluative conception of attitude (Kaiser et al., 1999**).**
Rational decisions are to be complied on different basis such as, environmental literacy, environmental awareness and environmental consciousness (Maassen, 2007). The creation of moral is the direct outcome of the knowledge individuals' absorb from

politics, science and media. As our knowledge and awareness deepens often a political and moral standpoint of the individual is created in the sense of environmental issues. The use of cars can be seen as a measuring tool of environmental attitudes. Cars in western societies are symbols of freedom and a part of individuals' identities, meaning that the willingness of replacing cars illustrates people's real environmental attitudes (Touhinio, n.d).

4.3 Model of buyer behaviour

This part of the theory selection will describe the fundaments of the buying behaviour among consumers in general. To make an analysis of what influences buying behaviour we emphasize on Philip Kotler's "Model of buyer behaviour" (Kotler, 1994). The influential factors can be subcategorized into four main categories such as marketing stimuli, other stimuli, buyer's black box and buyer's responses. The factors included in the subcategories are presented in a summarizing figure after each described subcategory. As the reading continues Kotler's model of buying behaviour will evolve.

4.3.1 *Marketing stimuli*

The marketing mix is one of the most frequently used models within the marketing environment which comprises tactical features of a marketing plan. Marketing influences individuals' creation of perceived value and response; therefore, it could be seen as an aspect that has a direct impact on individuals' buying behaviour. The market stimuli contains the marketing mix, such as product, price, place and promotion as the figure 4.3 presents.

Figure 4.3 Model of buying behaviour, marketing stimuli (Kotler, 1994 p.136)

4.3.1.1 Product

According to Jobber and Fahy the first question to answer is what is a product? How could a product be defined? '*A product could be anything that has the capacity to satisfy customer needs*' (Jobber and Fahy, 2003, p.129).

The term product could also be a distinguished physical, tangible product such as cars, or intangible ones such as services. In the choice of an environmental friendly car we stress a service since a car provides the service of transportation. The structure of a product could be distinguished into three layers, the core product layer, actual product layer and augmented product layer. The core product layer contains the core benefit, in our case movement of a vehicle and transportation from point A to point B. The actual product is composed of different aspects which in the car industry often have a high correlation with the buying behaviour. Aspects such as styling, packaging, safety, functionality, performance, quality, comfort and features are often the motivating factors to why people buy different products. These are the factors the customer first encounters and give a direct optical visualization of the product. The factors are followed by the augmented product layer which gives an extension with features such as installation, brand values, delivery, repairs and support (Jobber and Fahy, 2003).

4.3.1.2 Price

Price is regularly determined by the product itself and therefore should not be viewed as a secluded factor but as a part of the entirety. The price is also determined by a number of different factors such as the desirable positioning strategies, competition, new product launch strategies, customer value, material costs and ethics. In our case, the second hand value of the product is also a factor that people take into consideration which means that the price setting factor in the marketing mix has evolved and is done by customers. When positioning a product the price factor may be seen as a sensitive subject since it sends out quality indications of the product to the end consumers. According to Jobber and Fahy (2003), there are products that are a form of self-expression such as drinks, clothing, paintings, and cars which often tend to suffer from to low prices.

4.3.1.3 Place

According to Wikipedia, the definition of a car dealership is:

 '*A **car dealership** or vehicle local distribution is a business that sells new cars and/or used cars at the retail level, based on a dealership contract with an automaker or its sales subsidiary'* (Wikipedia, 2007).

The car selling industry could be placed under the label exclusive distribution in which only one brand retailer could be found in a particular geographical area. In this way, the retailers guard themselves and reduce the customer's negotiation power. Since cars are consumption products, they need maintenance and services carried out and this force the car owner to turn to the local service point (Jobber and Fahy, 2003).

A business cluster is a geographical area where a high concentration of businesses in a particular field could be found. In Malmö, Sweden along Agnesfridsvägen most of the world's leading car brands are located, all competing with each other.

These days emphasis is laid on the desired store atmosphere to create a relation between the brands, products and store. Many car retailers create a brand-identity by using specific colors, signs, displays, layouts in order to generalize the interior and exterior design and create an attractive appearance for the customer perception (Jobber and Fahy, 2003). To broaden the horizon, cars are complementary products, since they need some form of fuel to generate movement. Whether if it is gas, ethanol or electricity the factor "place" in the marketing mix also embraces the refueling posts.

4.3.1.4 Promotion

Promotion represents all existing communication channels in order to market and generate a positive customer response. This could be done by advertising, personal selling, direct marketing, sales promotion, publicity and internet/online promotion.

It takes a period of three months to lead a consumer to purchase a new car. The general selling and promotional strategy when it comes to advertising messages for cars starts to heath up in November, making January the most favorable selling month. During this timeframe a specially tailored advertising is created circling around technical features,

prices, rebates, and financials such as interest rates. The remaining months during the year the advertisement is concentrated to strengthen the brand image. The way of conducting a promotional starategy is through a wide spread media mix, containing promotional features such as television, press, radio, posters and cinema (Jobber and Fahy, 2003). The terminology "word of mouth" refers to passing on the information verbally; especially recommendations through a face-to face approach (Jobber and Fahy, 2003). According to a Swedish survey, 97% of the holders of an environmental friendly car recommended others to purchase (Miljöfordon, 2003).

4.3.2 *Other stimuli*

According to the professors of marketing Jobber and Fahy (2003), other stimuli contain economical, technological, political and cultural aspects which affect the buying behaviour of consumers. See figure 4.4

Figure 4.4 Model of buying behaviour, other stimuli (Kotler, 1994 p.136)

4.3.2.1 Economic and Political factors

Since there are discussions going on about how we all should contribute to a better, greener, healthier world, the Swedish government has directed a couple of economical advantages to customers which choose the greener alternative. Recently there have been financial advantages awarded to those who chose environmental friendly cars; they do not have to pay a parking fee the first three years. In addition, every customer that buys a new environmentally friendly car before the 31 December 2009 will obtain an "eco-bonus" of 10 000 Swedish crowns (Vägverket, 2007). With these economical advantages the operational cost of the product is reduced, giving a higher product value for the money. These could be seen as a direct impact of the political influence that aims to inform and guide future customers towards the greener alternative. In an indirect way, the economic and political stimulators are combined.

4.3.2.2 Technological factors

The technological aspect is one of the various attributes a customer evaluates before purchasing a product or service. To the technological factor, aspects such as reliability and durability could be included (Jobber and Fahy, 2003).

4.3.2.3 Cultural factors

Cultural factors affect people's minds when buying products because environmental issues are a matter of moral between different cultural groups (Peattie, 1995). Further cultural factors that influence the buying behavior can be found in the cultural part 4.1.1

4.3.3 *Buyer's Black Box*

The Buyers Black Box comprises buyer characteristics and buyers' decision process. The figure below illustrates the subcategories in the buyer's black box. It is also a further evolvement of Kotler's model of buying behaviour.
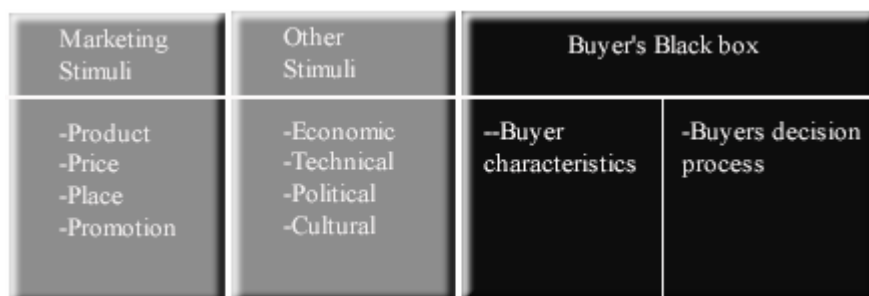
Figure 4.5 Model of buying behaviour, Buyer's Black Box (Kotler, 1994 p.136)

4.3.3.1 Buyer characteristics

Buyer's characteristic is a complex conception to describe; therefore we chose to limit ourselves and focus on the environmental awareness of people. The reason for this is that we do not base this study on users and owners of environmentally friendly cars, we choose to measure the respondent's level of environmental awareness as a factor explaining the willingness toward a purchase of an eco friendly car.

D'Souza (2004) describes a two dimensional model with the main purpose to understand the complexity of consumers' behaviour with respect to the choice in environmental products.

This model fits well into our theoretical framework since it helps us to understand the buyer characteristics. It also explains the buyer characteristics in Kotler's "Model of buying behaviour" (1994). According to D'Souza the model classifies consumers into four segments: The conventional consumer, the emerging green consumer, the environmentally green consumer and the price sensitive consumer. The perceived product benefits in the model refer to advantages consumers recognize by the usage of environmental friendly products. Furthermore, the product risk in the model refers to the negative assumption regarding environmental products. The model is presented after the description.

- *Conventional consumers* are defined as non-green consumers which do not have any consideration for environmentally friendly products. According to D'Souza this group in principal ignores the potential benefits of green products.
- *Emerging green consumers* are defined as customers who consider the benefits of green products but lack motivation to purchase them.
- *Environmentally green consumers* are defined as highly environmentally concerned consumers which buy environmental friendly products. These are the consumers that make an effort to buy green-products and therefore are the driving force of the environmentalism in our society.
- *Price sensitive green customer*s are defined as the customers that are conscious about some products that may oppose the environment but put more weight on price. They are not willing to pay extra for green-products.
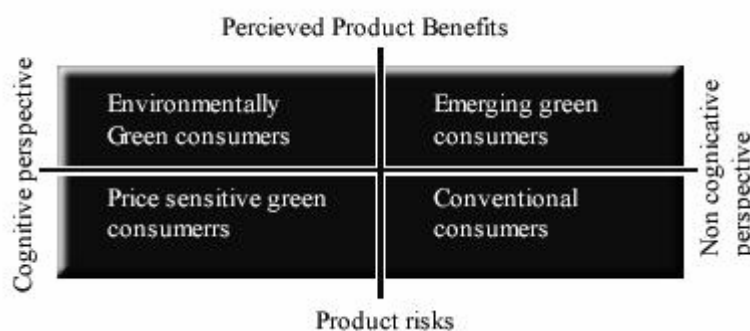
Figure 4.6 A two dimensional model with the main purpose to understand the complexity of consumers' behaviour with respect to the choice in environmental products (D'Souza, 2004)

When determining characteristics that we believe are the most relevant for our dissertations we focus on peoples' environmental awareness. In the article 'Marknadsföring som vill förändra kundens livstil' by Victoria Olausson (2007) three aspects are mentioned that influence people when buying products based on environmental awareness. The first one is why should individuals feel obligated to buy anything environmentally influenced at all, when other people buy regular products. This factor is linked with the second aspect which is related to price. People have a tendency to pay a higher price for products that affect them in a more positive way meaning that there is an existing correlation between price and affection. The last aspect is the lack of knowledge in terms of environmental issues. Even though people tend to be aware of the importance of the basic environmental behaviour such as garbage-recycling and energy saving, they may not understand what kind of value their purchasing decisions can do for the environment and therefore buy regular products. People are aware of the environmental issues and want to make a difference but they have other problems surrounding them which they put a bigger weight upon. (Olausson, 2007)

4.3.3.2 Buyer decision process

How consumers buy their products is one way of understanding how the costumers behave when doing their purchases. To understand why consumers buy certain products, a model called 'Buying-decision process' can be used. Five stags are mentioned in the model and each one of them is analyzed and used in a specific way (Kotler, 1994), (Jobber and Fahy, 2003). The figure 4.7 illustrates the buyer decision making process. This figure also explains the "buyer decision process" in Kotler's "Model of buying behaviour" (1994).

First step in the model is the *recognition and problem awareness;* every consumer has his/her own way of interpreting different kind of needs, for example emotional and psychological needs about certain products. A buyer senses a difference when purchasing in the actual state and the desired state. Actual state is when the normal needs of a buyer reaches internal stimuli. If the difference between these states is small, the buyer does not have to move to the second step in the buying-decision process model because they are stimulated enough (Kotler, 1994), (Jobber and Fahy, 2003).

The next step in the model is the *information search* and is used when consumers' purchasing problems are high. The search for information can be done in two ways, internal or external. The internal way is when a review of relevant information is made and external when personal sources are used such as family and friends. The last mentioned one is the most effective because it influences a buyer the most. The main purpose with information search is to create brand awareness in the consumer minds. Many internet sites do this by providing a comparison between brands (Kotler, 1994), (Jobber and Fahy, 2003).

The third step in the model is called *evaluation of alternatives*. Once the consumer becomes aware of a product he/she has to choose between alternative brands. Awareness passes through a screening filter, making it the final choice criteria. How well a consumer is involved affects the process of brand evaluation. Number of factors can influence the involvement such as: self image involvement, perceived risks, social factors and hedonistic influences. Hedonistic influence is the degree of an individual's pleasure. When consumers have a high degree of involvement, marketers' have to provide them with information about positive consequences whilst in low involvement buyers base their purchasing on impulse.

The fourth step is the actual *purchase* of the customer. The last step is the *post purchase behaviour* which is kind of an evaluation of the whole decision making and purchasing process. After a purchase, customer satisfaction is the key factor for great marketing. How well a customer is satisfied with his/hers product can be determined by the consumer's expectations and the perceived performance. The satisfaction of customers is important because they base their expectations on information from friends, sellers and others. If not satisfied they can create bad rumors around the product. When customers have bought a car of a specific brand and satisfaction is obtained, the chance of buying a new product with the same brand is relatively high. In general a company has two kinds of customers, the new ones' and the returning customers. It costs more to attract new customers so the rumor about certain products is very important to the companies (Kotler, 1994), (Jobber and Fahy, 2003).
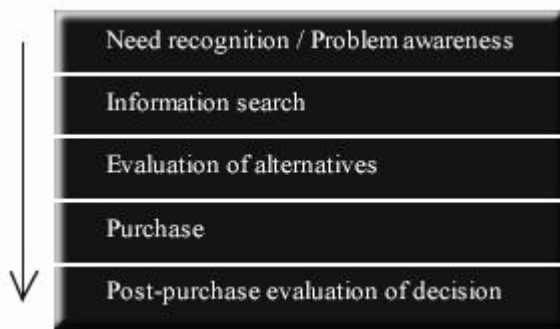
Figure 4.7 Model of consumer decision making process (Jobber and Fahy, 2003)

According to the case study by Nisel (2001) there are three important determinants of the buying decision. The first one is price, motivating people to pick products with the lowest price. Second is the availability of the product which is a significant motive influenced by family size and frequency of purchase. The last determinant which is also a significant motive is the quality of the product. According to the findings of the research, when the frequency of purchase increases, people tend to place less emphasis on quality as the motivating factor to purchase. Since people buy cars seldom it could be considered that purchase is based more on quality according to this theory.

4.3.4 *Buyer's Response*

Buyer's response is the last part in Kotler's model, covering factors such as product choice, brand choice, dealer choice, purchase timing and purchase amount. See figure 4.8

Figure 4.8 Model of buying behaviour, Buyer's Response (Kotler, 1994, p.136)

A way to connect the behaviour of people towards their way of adopting new products can be summarized in the model 'Adoption categorization on the basis of relative time of adoption of innovations'. To describe the adoption process 5 stages are added; awareness of the product, interest from the customer, evaluation of the product, test of

the product and the final adoption of product (Kotler, 1994), (Foxall, 1993). These are illustrated in the figure 4.9
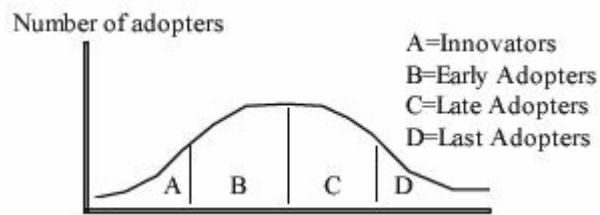
Figure 4.9 BPM definitions of Adopters categories (Foxall, 1993)

The adoption stages mentioned in the model begin with the *innovators* which are the biggest risk takers since they are not afraid of testing new products. Innovators make their decisions on their own which explains why they do not need as much of interpersonal influence as the later adopters. The next step is *early adopters*, they adopt new products but with greater conscious than the innovators. They consist of people with a high level of social interaction. They think twice before making a decision so they can be sure of getting it right. The next step is the *late adopters*; these kinds of people are the most skeptical people with negative motivation towards new products. When they adopt a product it has to be based on economic benefits and with the intentions not to loose their social position. The last step in the model are the *last adopters*, traditional bounded people who are against innovation and therefore not willing to replace their products with new ones' until they have to. The products have to be acknowledged on the market by everybody before they can buy them. Factors such as environment and personal influences of people affect people when they are categorized into these four mentioned stages (Foxall, 1993).

Customers of the car industry have many car brands and prices to choose from, making it difficult to determinate how they make their choices. One way is to find out which brand gives them the most value by comparing the actual value they receive and the value they expect. Customers will buy from the firm that serves them with the best delivered value. To figure out how this is calculated, total customer value is added. This consists of products, services, personnel and image. If these aspects are high then the customer value is high. Another conception is added to determinate the customer delivered value, which is the total customer cost. Monetary, time, energy and psychic

costs are aspects that are included in the total customer cost. It is difficult for the car companies to deliver the highest customer value since there are so many brands to choose from and existence of consumer's differing wants and needs of cars. Some might determine the cost factor as the most important one, determining the choice of brand and model in the purchasing process, whilst some see the product itself as the most important factor and are therefore willing to pay a higher price for it (Kotler, 1994). See figure 4.10

Figure 4.10 Customer delivered value (Kotler, 1994 p.552)

4.4 Summary of theory

Since every kind of purchase process is based on different consumer behavioural aspects, we chose to diversify the different factors by using different models. We focused on using two fundamental models which complement with other theories and models. Our main focus is to find factors that confirm our problem formulation. We found that many factors from the models are relevant and can explain which the underlying reasons are for purchasing an environmental car. Appendix 1 comprises a summarizing view of the used theory models.

4.4.1 *Factors influencing customer behaviour*

In the model "Factors influencing behaviour" Kotler (1994) describes four influences of the buying behaviour. The cultural factors consist of culture, subculture and social class. Reference groups, family, and roles and status are the factors lying behind the influencing social part. The personal feature describes the model and the influencing buyer behaviour by age, life cycle stage, occupation; economic circumstances, lifestyle

and, personality and self concept the individual find oneself in. To complete the model, psychology attributes the motivation, perception, and beliefs and attitudes. Maslow's "hierarchy of needs" complement the feature of beliefs and attitudes with different degrees on the individuals motivation and hunger for products.

4.4.2 *Factors influencing individuals' buying behaviour*

Another main model we chose to work with is "Model of behaviour" Kotler (1994), explaining the buyer behaviour of the customer. The first aspect of the model is marketing stimuli, explaining the marketing mix consisting of product, price, place and promotion.

Product is the actual optical visualization that customer's encounters with, making styling, packaging, safety, functionality, performance, quality, comfort and features important. Price is determined by the product itself and the stage of acceptance and usage. Place is mainly focusing on where the customer can get hold of the given product, but in our case, we concentrate on the refueling points. Promotion represents all existing communication channels in order to market and generate a positive customer response.

Other stimuli's that belong to the model are economic, technical, political and cultural stimulations. Political decisions have the economical power to pull towards a certain direction which can affect individuals in a positive or negative way. The technological development stimulates individuals' perception of reliability and durability.

Environmental awareness is a factor we have put a bigger weight on when describing the buyer characteristics and the willingness towards purchase. The buyers' characteristic in the black box explains the types of buyers. To classify these characteristics D'Souza (2004) gives account of them describing the influences of environmental products on costumers. There are four different elements, the non-green consumer, the considering customer, the environmental friendly customer and the price sensitive customer.

The consumer decision making process consists of five stages. First to be aware of the problem and the need, second to find information, third evaluate different alternatives,

fourth the actual purchase and finally the post purchase of decision. The model `customer delivered value´ helps explaining the evaluation stage of the buyer after purchase.

Buyer's response is the last piece of the puzzle to complete Kotler's (1994) model of buyer behaviour. When elaborating on the response of product choice, brand choice and purchase timing the model "BPM definitions of adopter's categories" gave a clear description of the level of acceptance of the product.

4.5 Selection of research factors

In the following chapter the most relevant factors will be discussed to answer our research question. The first part is based on the demographic factors, environmental attitude and behaviour which answer our first research question of *who* the buyer is.

The second part is the external factors and the marketing mix that affect the consumers' minds and decisions. This gives us an answer to our second research question of *which* factors influence the purchase of environmental friendly cars. We limit ourselves in the selection of research factors by focusing on buyer characteristics and external stimuli. To the buyer characteristics we include environmental awareness as explained in the part 4.3.3.1 Buyer characteristics. We do not take into consideration the buyer decision making process when selecting research factors due to the complexity of it. Some mentioned factors in the theoretical framework that affect both peoples' behavior and consumers buying behavior were neglected due to the difficulty to measure and the limit of time. We therefore chose the factors that we believed were the most relevant in order to answer our research questions.

4.5.1 *Who is the typical buyer?*

These are the selected research factors answering our first research question. Figure 4.11 shows our selected factors in the study. The figure comprises the demographic factors that enable us to describe the buyer. As our limitation mentioned earlier the study is not based on existing owners of environmental friendly cars. Therefore environmental attitude and behaviour enable us to study the willingness towards a potential purchase of an environmental friendly car. We assumed that an environmental friendly car is one of many green products and therefore focused more on the

correlation between peoples' environmental attitude and behaviour. Testing the environmental awareness with the demographic factors gives us an answer to who the most typical buyer is of environmental friendly cars. The factor environmental awareness has two purposes in the study. First to be included as a factor illustrating respondents' environmental attitude and behaviour, as shown in figure 4.11. Second, to help answer our first research question by testing and comparing environmental awareness with the demographic factors as shown in figure 4.12.
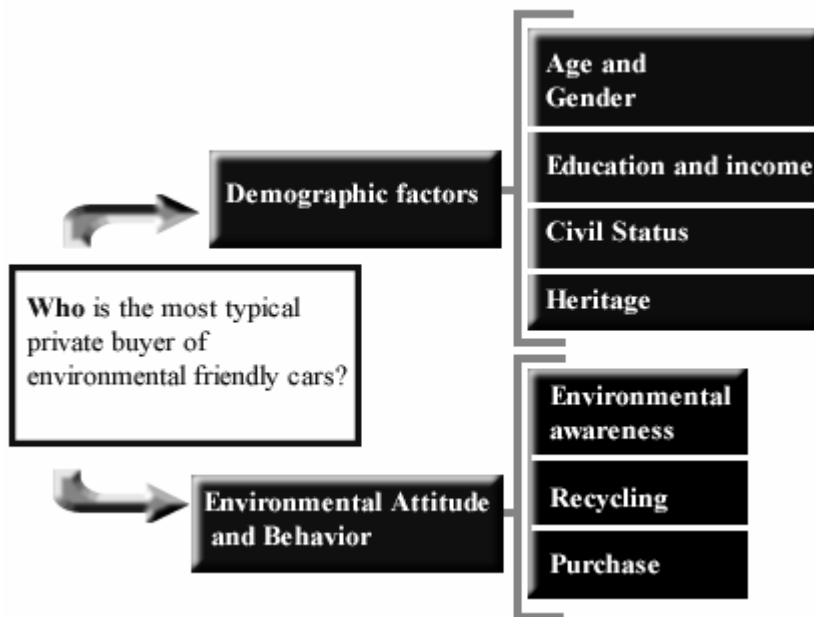
Figure 4.11 Model of who is the typical private customer of environmental friendly cars
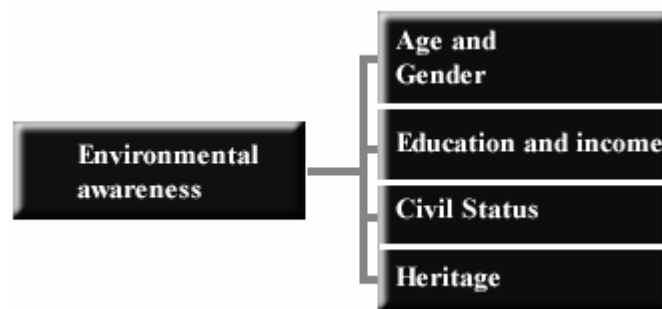
Figure 4.12 Model of environmental awareness tested and compared with the demographic factors

4.5.1.1 Gender and age

We want to see if gender makes a difference when it comes to the factors contributing towards a purchase and the level of environmental awareness.

Under a life time, people tend to change their taste preferences many times. We believe that there might be a relation between the choice of cars and age, due to the life knowledge and experience an individual obtains during a lifetime.

A study done to examine links between buyer characteristics and buying decision making, describes what is best suitable to determine characteristics (Shunsuke and Kwon, 2001). These are factors as age, gender and experience. These factors were used as basis for the decision making process concerning buyer characteristics. The findings of the study revealed that the factor age and experience were similar to the extent of cost and the quality of products. They also found gender differences when it comes to behaviour and negotiation performance. Finally they found that young and elder people do not belong in a homogenous group because they do not have the same wants and needs (Shunsuke and Kwon, 2001).

Many researches have studied green marketing and have found that demographic characteristics such as age are important factors when identifying who the environmentally conscious customers are. Age has been investigated a lot and the researchers have come to the conclusion that younger consumers are more aware of environmental issues (Straughan and Roberts, 1999). In this case it means that our present and potential customers are the younger generation born in the early 80's. According to the statement of Kotler (1994), age is seen as a very dominant aspect in people's buying decisions. That is why we concluded this factor in our research.

4.5.1.2 Education and Income

Education and income often relates to each other. Income and education are two other demographic characteristics that many researches have examined and found that higher income and higher education equals higher environmental awareness. However there are other researchers that believe that this is not the case (Straughan and Roberts, 1999). By studying these factors, we get information regarding the environmental awareness

of peoples' gained knowledge from education and if the level of income makes a difference in the choice of cars.

4.5.1.3 Civil status

A bigger family means bigger expenses and different wants and needs. We believe that when establishing a family the needs may differ and families base their purchase decisions on the interest of the family instead of the environmental concerns.

The protection of children's well being can be seen as a contribution factor towards the green perspective. Today's youth can be seen as more environmentally conscious, due to the schooling systems bigger emphasis on environmental issues. As result, children tend to change the parental perception of environmental purchase decisions (Peattie, 1995, 169).

Martínez and Polo (1999) explain how consumer decision making can be largely influenced by family. Since there is more than one person that makes a decision when purchasing, there are more people that are aware of the circumstances when purchasing as a family. Different variables can determinate who makes the final decision in a family. The research focuses on the spouses in the family because they are the final decision makers of families. The study shows that the level of agreement between spouses is relatively high and higher for younger couples. According to Kotler (1994) and, Martinez and Polo (1999), the family has a direct impact on a person's attitude toward a specific purchase. That is why we believe civil status is an interesting matter to investigate.

4.5.1.4 Heritage

As stated before in 4.2.1 *Cultural factors,* subculture is a smaller part of culture and includes people and their nationalities, religions, racial groups and geographic regions. We will focus on peoples' heritage because the survey will be conducted in a multicultural geographical area. Cultural factors affect people's minds when buying products because environmental issues are a matter of moral between different cultural groups (Peattie, 1995). Since culture influences peoples' way of thinking which affects the environmental awareness we want to se if there is a difference between Swedish born and foreign born people.

4.5.1.5 Environmental awareness

The level of individuals' environmental awareness may contribute to a specific purchasing decision based on ethics and moral stands rather then the personal winning. As mentioned in the theoretical framework attitude and behaviour are related and therefore we find them important to investigate. Since we do not know if our respondents own an environmental friendly car, we focus on their environmental awareness. By crossing the level of environmental awareness with the demographic factors we find out who the most typical buyer is.

As mentioned D'Souza (2004) describes a two dimensional model with the main purpose to understand the complexity of consumers' behaviour with respect to the choice in environmental products. The model classifies consumers into four segments: The conventional consumer, the emerging green consumer, the environmentally green consumer and the price sensitive consumer. These consumer segments are all bounded to environmental awareness on different levels. As stated above there is often an existing correlation between attitudes and behaviour. Therefore D'Souza's model can help us to categorize people according to their environmental awareness and behaviour.

4.5.1.6 Recycling

As mentioned in the theory, people tend to be aware of the importance of the basic environmental behaviour such as garbage-recycling and energy saving. Recycling reflects the level of environmental behavior. Since other studies have shown that there is a relation between environmental attitudes and behavior, this factor will help us to strengthen the usage of environmental awareness as a factor testing the willingness towards purchase.

4.5.1.7 Deliberate purchase of environmental friendly products

To understand the degree of peoples' environmental behaviour even further we want to find out the level of deliberate environmental friendly purchasing actions. People may not understand what kind of difference their purchasing decisions can do for the environment and therefore buy regular products Olausson (2007). The frequency of purchase of environmental friendly products may be seen as a complementing factor of peoples' degree of environmental awareness.

4.5.2 *Which factors influence the purchase of an environmental friendly car?*

These are the selected factors answering our second research question. These factors are divided into two main groups, the 4 P's and the external factors. From these we have chosen different main factors to test in our study, helping us answer our second research question.
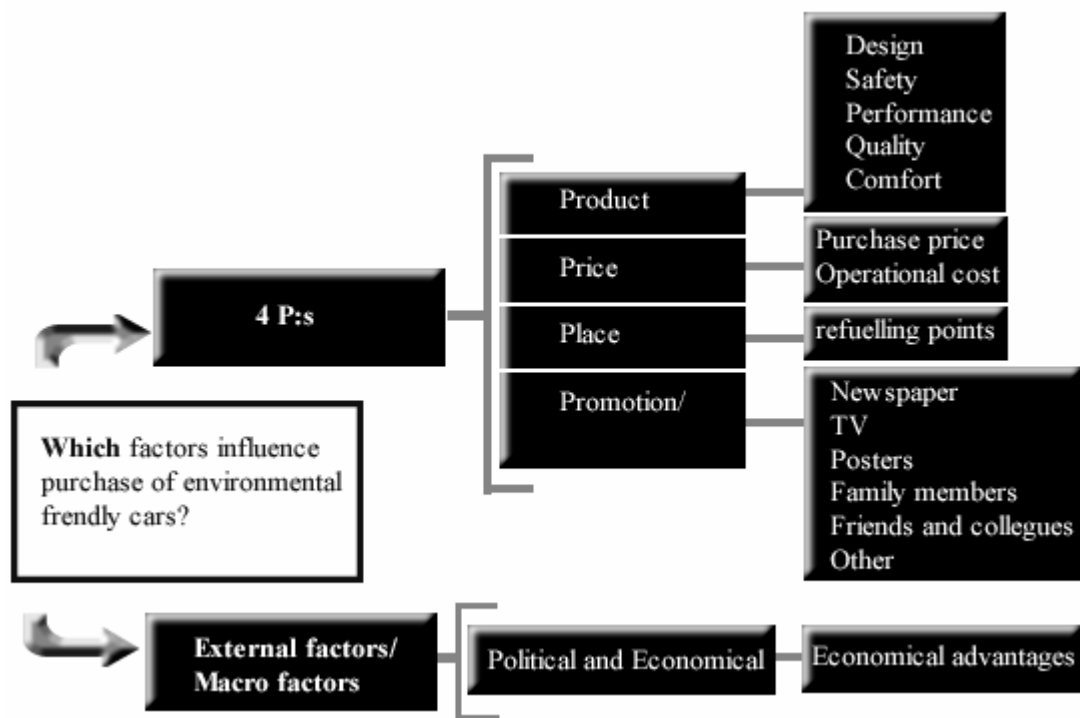
Figure 4.13 Model of which factors influence purchase of environmental friendly cars

4.5.2.1 Product

The different physical preferences affect the costumer and consumer the most. We believe that the first product impression plays a significant role in the decision making process. As described earlier, perception is a way in which people select, organize, and interpret the information they obtain from the five senses, sight, hearing, smell, touch, and taste. In this way they are able to portray an optical and emotional picture. To this, the physical product could be included in the perception perspective. Factors such as design, safety, performance, quality and comfort are factors that we believe have

direct impact on the purchase of environmental friendly cars. For this reason we chose these mentioned product features as contributing factors towards purchase.

4.5.2.2 Price

We believe that price is a dominant factor in the buying process of a new car. According to Ken Peattie (1995) price is the key factor influencing green consumers' willingness to pay a higher price for an environmental product. Purchasing price is a part of the research factor price where operational costs can also be included as an independent aspect. The economical/political advantages affect the reduction of the operational costs.

4.5.2.3 Place

Since eco-friendly cars are relatively new, there might not be as many refuelling points available in comparison with regular cars. Therefore we believe that an expansion of refuelling stations makes the environmental friendly cars more attractive. As we mentioned earlier Nisel (2001) states that availability is a significant motive behind the frequency of purchase. Therefore the availability of refueling point may be seen as an essential aspect in the purchasing decision.

4.5.2.4 Promotion

Is there enough promotion concerning the environmental friendly cars? Marketing is the primary weapon to attract new customers and is therefore a factor of great importance. We believe there is a lacking amount of marketing concerning the benefits of environmental friendly cars. Would a bigger pressure on promotion increase sales of eco friendly cars?

As described in the theoretical framework, promotion represents all existing communication channels in order to market and generate a positive customer response.

Customers' environmental awareness can be enhanced by knowledge given from the companies that are positioning themselves as environmental aware/responsible. This is a good way for the sellers of eco friendly cars to market themselves and attract customers that are interested in environmental friendly cars. This is beneficial both for the customers and the companies but as well for the environment (Mendleson and Polonsky, 1995).

4.5.2.5 Economic/political

Economical advantages from the government have the intention to change buyers' and users' demand. Theoretically, higher economical advantages result in an increased purchasing demand. Since the environmental friendly vehicles have different economical advantages, we want to know if these advantages affect the potential and existing buyers. Therefore we think this is a relevant factor to investigate.

Chapter 5
Empirical Method

In this chapter we introduce our empirical method. We begin with a description of our research strategy and continue with our sample and limitations. Further the questionnaire is explained with additional information about the response rate. The validity, reliability and generasability are discussed.

5.1 Research strategy

The purpose of our dissertation was to find out what factors influence consumers when purchasing environmental friendly cars. Moreover we wanted to find out who the typical consumer is. To obtain information about our research we based our two fundamental models on Philip Kotler's theories. We added several models by different authors to understand our research problems even further. From these models we selected the most suitable factors for our research.

There are different ways of doing a research strategy according to Saunders. That is why the choice of the most suitable strategy for the dissertation is very important. The characteristics of a survey were the most suitable way of doing our research. Our data was collected by the number of 90 questionnaires which can be related to the requirements of a survey. These requirements are to collect a large amount of data in an economical way by using questionnaires (Saunders *et al*., 2007).

As mentioned in chapter 2 we want to try and explain linkages between different factors that we have chosen to investigate by the help of our quantitative data. These could be seen as additional comparisons to the characteristics of a survey. Disadvantages arise when using surveys. These are the limited amount of questions in a questionnaire, the willingness to be a part of the survey and the time a participant needs to answer the questions (Saunders *et al*., 2007). These disadvantages are difficult to adjust since the literature does not mention the exact minimum amount of questions and time.

5.2 Sample selection

Since we did not have a sampling list of our respondents we could not use the probability sampling technique. It was clear that the sampling technique we had to use was non-probability sampling. This technique consists of several alternative techniques and the one we found the most appropriate for our survey design was the convenience sampling. Convenience sampling means that you chose the easiest cases when conducting your sample (Saunders *et al*., 2007). In our case it was the persons that were visiting car-dealership shops, along Agnesfridsvägen in Malmö. When using convenience sampling you are supposed to continue with you sample procedure until you have reached your necessary sample size (Saunders *et al*., 2007). Our sample size consisted of 90 surveys and that is how many responding answers we obtained in the end. The only requirement we had on our respondents was that they should be over 18 years old.

5.3 Sample limitations

The research has some limitations. These are:

- Since we want to study who the buyer is of environmental friendly cars and which factors affect them in their purchase, the most logical way of conducting the study would be on a target group that has already bought an eco friendly car. The private owned environmental friendly cars in Sweden amounts to 61 231 (Vägverket, 2007) where only 5965 of these are in the southern part of Sweden, Skåne. The amount of all registered cars in Skåne totals in 641 887 making the eco friendly cars 1.01 percent of this sum (Vägverket 2007). Being inhibited from the constant of time and financial recourses, we would not be able to obtain registers containing owners of eco friendly cars. The given statistics present that every 100th car is environmentally friendly, making us give the survey to 9000 persons to be able to match our goal of 90 respondents. This calculation is based on the entire Skåne, and not just the geographical area where we wanted to conduct the study. This would exceed our budget and deadline for handing in the finalized dissertation. Therefore we limited ourselves by studying peoples' environmental awareness which is a main factor to picture an individual's willingness of purchasing an environmental friendly car.

- Another limitation to this dissertation is the place where the study was conducted. Since we choose a geographical area with a high concentration of car dealers it could be seen as misleading from the point of view that not all car brands have environmental friendly cars. Standing only outside a specific car dealer would angle the study since different car brands attribute different buyers offering either eco friendly cars or not. Therefore we tried to move around within this "cluster", but the problem still remains.

- Malmö is a multicultural region making us limit ourselves in the development of the research questions. Since the level of mastering the Swedish language differs, easy understood questions were to prefer.

- To make it convenient for the respondent, the amount of questions in the questionnaire had to be limited.

5.4 Questionnaire

As stated, we chose to collect our primary data through a self administered questionnaire. It is a cheap and easy way of conducting a study and that is one of the reasons why we chose to use this way. There are several risks with questionnaires, such as, questions being asked in a non objective manner, and can therefore be misleading in the result. The respondents can be in a hurry while answering the questions and, therefore, not read the questions properly which will give us misleading answers. Another risk with questionnaires is that respondents lie while answering the questions which give us misleading information. We tried to create questions for our respondents so that they can answer them as fast and conveniently as possible. People are always in a hurry, so we wanted to make it as easy as possible for them when they entered car dealerships along Agnefridsvägen in Malmö. We believed that people walking into a car dealership are more aware about cars than people in other public places and that is why we chose to hand out our questionnaires here.

Our questionnaire consisted of 16 questions based on the selected factors from the theoretical framework mentioned in chapter 4. We began to ask questions that gave us demographic answers such as age, gender, education, occupation, income and amount of children. Together with questions that related to peoples environmental attitudes and behaviour gave us an answer to the first research question. Furthermore we asked questions comprising the marketing mix and external factors which had the purpose to

answer our second research question. Almost all of our questions were closed questions which mean that we provided the respondent with alternative answers to chose from. However, most of the closed questions, number 1-7, number 12 and number 14-15 were listing questions. The respondents were offered alternatives to chose from when selecting the most suitable answer for them. Although all of these questions are list questions, two of them number 6 and 15 consisted of additional questions which were quantity and rating questions. These helped us to understand the question better instead of making them as independent questions. Furthermore question 8-10 were rating questions where we chose to use a scale of seven alternatives. Question number 11 and 13 were ranking questions were we wanted to find out which factor had the strongest importance in the respondent's mind (Saunders *et al*., 2007). The last question, number 16 was a categorical question giving the respondent the opportunity to choose one category that suits them the most.

Since our questionnaires were handed out in Sweden the questionnaire was in Swedish so it would be easier for the respondents to understand. The questionnaire will be presented in both Swedish and English in the appendix.

5.5 Response rate

The target group that we chose to do our research on was individuals entering car dealer shops in Malmö. We chose to hand out 90 questionnaires and all of these were answered. This gave us a response rate of 100 percent. The reason why we got a 100 percent response rate was that we continued handing out the questionnaires, until all of the 90 questionnaires were answered.

5.6 Validity

Validity explains the degree to which the data collection method truly measures what it is intended to measure. Having a valid questionnaire means that you collect accurate data that later can help you answer your research questions. The most crucial part is to ask the most relevant questions formulated in a correct way, giving us the answers to our research questions (Saunders *et al.,* 2007). Since it is hard for us to se if we use the most optimal construct validity of our questions, it may be seen as a weakness and affect the validity. The main potential threat influencing our validity in a negative way

was the way we had formulated our questions. This may have affected the relevance of the research questions.

The research questions regarding who the buyer of environmental friendly cars is, we did not base our research on already existing owners due to the mentioned limitations. To be as relevant as possible, we chose to study the environmental awareness as a contributing factor towards answering who the most typical buyer is. A poor response rate has a direct impact on the validity making it less valid. Since we have a response rate of 100 percent the validity is not affected in a negative way.

5.7 Reliability

Reliability means an adopted measure that can lead to the same result, when applied in a different occasion (Saunders et al., 2007).

One threat to reliability is the participant error, which means that people might have different answers to the questions at different occasions. To reduce this error, according to Saunders you should chose an appropriate time to deliver the questionnaire. Since people are busier with there work and families during week days, we decided to hand out our questionnaires on weekends when people are freer and can spare more time answering the questionnaire.

The second threat to reliability is the participant bias, which means that the respondent can give misleading answers because they want to be anonymous. A way to eliminate this is to give the respondent anonymity when answering the questionnaire. This is not a problem in our dissertation because we gave our responders 100 percent anonymity.

The third threat that can occur is the observer error. This means that the observers can misunderstand what the respondents have answered. On way of avoiding this error is by creating questions that are easy to fill out by the respondents. This is why almost all of our questions were closed questions.

By conducting the study in different occasions and obtaining the same results gives account of a high reliability. In our research the reliability might not be seen as high in

a long term perspective since the daily escalading environmental problems change the perception and knowledge of people.

5.8 Generalisability

Shortly described, generalisability means how applicable a research study is to other similar situations regarding organisations or entire populations. Sometimes it is also called external validity (Saunders *et al*., 2007). In our case it means if we were to hand out the same questionnaires in another city but at a similar location, we would receive approximately the same answers. But since we do not have the time or resources to this then we can not be sure that our results are general for the whole population of Sweden. One other important aspect is that our sampling size consisted of 90 surveys, which is not an adequate number to make general conclusions on. Besides our focus was only on one small geographical area which is not enough for general results. Therefore we can not state that our research can be generalised on the entire population of Sweden.

Chapter 6
Analysis

This chapter comprises the analysis of our survey. The results of the questionnaire are presented and finally the findings are discussed.

6.1 Introduction

To collect our primary data we used questionnaires. The purpose of the questionnaire was to find the influencing factors that affect consumers when purchasing environmental friendly cars, and also to identify the typical consumer of environmental friendly cars. The questions in our questionnaire were based on selected factor from the theory. We handed out 90 self-administered questionnaires by using the convenience sampling technique, meaning a 100 percent response rate. Our data collection was of a quantitative nature which enabled us to analyze the data by using the statistical software program, SPSS. The questionnaire can be found in two versions, Swedish and English. These can be found in Appendix 2 (Swedish) and Appendix 3 (English). To give an answer to our first research question of who the most typical buyer of environmental friendly cars is, we will use the mean values as an indicator when comparing the demographic factors with the respondents' environmental awareness.

To draw conclusions mainly based on the mean values, a significance test such as chi square test can be included in our case. By testing the significance we find out if the mean values between the demographic factors and the environmental awareness occur by chance alone or not. Our second research question will be answered by using the most frequent ranking of factors chosen by the respondents.

6.2 Statistical basis

Since we state that a potential purchase of an environmental friendly car is based on individuals' possessed environmental awareness it is crucial for us to obtain a truthful answer.

As stated in the selection of research factors, former studies have exemplified an existing relationship between values, environmental attitudes and consumer behaviour. Therefore we tested the relation between environmental attitudes (environmental awareness) and behaviour (recycling and deliberate environmental purchase). Questions in the questionnaire embracing behaviour were control questions to determine how environmentally aware people perceive themselves to be.

Table 6.1 Correlations between environmental awareness, recycling and deliberate purchase

		Environmental Awareness	Recycling	Deliberate Purchase
Environmental Awareness	Pearson Correlation	1	.555**	.404**
	Sig. (2-tailed)		.000	.000
	N	90	90	90
Recycling	Pearson Correlation	.555**	1	.449**
	Sig. (2-tailed)	.000		.000
	N	90	90	90
Deliberate Purchase	Pearson Correlation	.404**	.449**	1
	Sig. (2-tailed)	.000	.000	
	N	90	90	90

** Correlation is significant at the 0.01 level (2-tailed).

When testing the correlation of these three variables the result showed a positive correlation. To set the strength of the correlation between these variables we used the values-of-the-correlation-coefficient scale mentioned by Saunders *et al*., (2007). In the results above, the correlation between the variables recycling and environmental awareness totals in 0.555 which indicates a quite significant strong positive correlation. As for the correlation between the deliberate purchase of environmental friendly products and the environmental awareness the total of 0.404 indicates an upper weaker significant positive correlation. This concludes that the respondents answer to the question 8 is somewhat truthful and can be used as a main factor towards the purchase of a potential environmental friendly car.

6.3 Questionnaire data

These first questions serve as demographic descriptions of the respondent, giving account of gender and age. Below we present and examine the results of these questions.

6.3.1 *Question 1 Gender*

The table 6.2 shows the gender spread in the survey. The main task of utilizing gender in the survey was to examine whether there were any differences between males and females in the level of environmental awareness.

Another task was to see if there was a difference between genders in the ranking of factors which contributes to a potential purchase of an environmental friendly car.

Table 6.2 Q1. Respondents divided into male/female

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	39	43,3	43,3	43,3
Female	51	56,7	56,7	100,0
Total	90	100,0	100,0	

The women constituted 56.7 % of the respondents in comparison to 43.3% of the male gender. One potential reason that there is a gap of 13.4 % between the genders might be explained by that women have greater patience and are more willing to answer questionnaires than men. This is just our own personal assumption and no conclusion can be drawn.

To give a description of which gender is the most environmentally aware, we compared gender with the variable of environmental awareness to obtain a mean value. The greater mean value the greater environmental awareness. See table 6.3

Table 6.3 Mean values of gender and environmental awareness

	Gender	Mean
Environmetal awareness	Male	4.10
	Female	4.71

The mean values in table 6.3 are contiguous which makes it hard to generalize the findings. Despite this we chose to use the highest mean value as an indicator of which gender is the most environmentally aware and more willing to buy an eco friendly car. Females acquired a mean value of 4.71 which indicates that they are more environmentally aware than males.

Since attitudes and behaviour are related, it may be seen as considerable to examine the environmental behaviour regarding the deliberate purchase of green products among genders to explain the previous presented results. As the presented results in table 6.4 illustrate, females tend to put more weight on deliberate purchase of eco friendly products than males. This may be an explanation to why women are more environmentally aware. In this case, the difference in the mean values between the genders in comparison to the deliberate purchase of environmental friendly products is enough to state that women are more environmentally aware.

Table 6.4 Mean values of gender and deliberate purchase

	Gender	Mean
Deliberate purchase	Male	2.77
	Female	3.80

6.3.2 *Question 2 Age*

Table 6.5 Q2. Respondents divided according to age.

Age	Frequency	Percent	Valid Percent	Cumulative Percent
18-24 years	18	20.0	20.0	20.0
25-34 years	16	17.8	17.8	37.8
35-44 years	20	22.2	22.2	60.0
45-54 years	17	18.9	18.9	78.9
55-64 years	14	15.6	15.6	94.4
65-	5	5.6	5.6	100.0
Total	90	100.0	100.0	

Table 6.5 shows the age distribution of the respondents. The distribution between the age groups up to 54 years was relatively similar. The biggest group of respondents was between the age of 35- 44 years. They constitute a percentage of 22.2% of the total sample. The lowest percentage groups were people between 55-64 years (15.6%) and 65 or older (5.6%). The reason for this result could be explained that the research was done during a weekend. According to Statistiska Centralbyrån, SCB (2004) the proportion of people living in Sweden aged 65 or older amounts to 17.2 percent. This

percentage rate ought to be reflected in our frequency of people older than 65 years. To be consistent with SCB, almost 15 persons should represent the age group 65+.

Elder people are thought to avoid the rush hours during the weekend and, therefore, stay at home. This might be the contributing factor to why there was such a low frequency of this age group. This is just a personal assumption and no conclusions can be drawn from this statement.

6.3.3 *Question 15 Economical advantages*

Table 6.6 Frequency of peoples' knowledge regarding economical advantages

Knowledge	Frequency	Percent	Valid Percent	Cumulative Percent
No	51	56.7	56.7	56.7
Yes	39	43.3	43.3	100.0
Total	90	100.0	100.0	

The table 6.6 presents the spread of peoples' knowledge regarding economical advantages. The result clearly showed that 56.7% of the respondents do not have any knowledge of which economical advantages exist concerning eco friendly cars.

Table 6.7 Mean value of the importance of benefits when purchasing an eco friendly car

	N	Minimum	Maximum	Mean
Yes to benefits	39	1	7	4.82

The mean value in the table 6.7 presents the importance of economical advantages when buying an eco friendly car. The results are based on respondents that possess knowledge regarding economical advantages of eco friendly cars. The mean value amounts to 4.82 which indicate that the economical advantages are strongly important as a contributing factor when purchasing a green car.

6.3.4 *Age and environmental awareness*

The respondents in the different age groups were asked to choose on a scale from 1-7 of how environmentally aware they found themselves to be. To find out who the

environmentally aware age group is we chose to show the outcome by presenting mean values. The greater mean value the more aware of the environment.

Table 6.8 Mean values of Age and environmental awareness

	Age	Mean
	18-24 years	3.94
	25-34 years	4.38
Environmental awareness	35-44 years	4.60
	45-54 years	4.47
	55-64 years	4.79
	65-	4.80

Table 6.8 illustrates that there were two groups that were very similar to each other. People between 55-64 and 65 or elder were most environmentally aware. Despite this, there was only a difference of 0.86 between the lowest mean value compared with the age group of the highest mean value. This makes it once again hard to give generalizing statements of which age group is most environmentally aware. Regardless of this we chose to use the highest mean value as an indicator of which age group is most environmentally aware and more willing to buy an eco friendly car, this in order to answer our first research question.

6.3.5 *Environmental awareness of families with children*
We choose to use the same method when presenting the results as mentioned previous in the in the earlier tables. A higher mean value outcome in higher environmental awareness.

Table 6.9 Mean values based on respondents with children and environmental awareness

	Children	Mean
Environmental awareness	No	4.11
	Yes	4.67

The findings in table 6.9 reveled that people with children are the dominant group when it comes to the level put on environmental awareness. The mean values in this table are close to each other which make it hard to generalize the findings. Even though we have relatively similar mean values we chose to use the highest mean value to explain that people with children are more environmentally aware and therefore more willing to buy an eco friendly car.

To examine this even further we examined if the number of children is correlated to the level of environmental awareness. According to The Pearson correlation coefficient measure, the value of the findings indicated a weak negative relationship of -0.118. This means that there is no relationship between the level of environment awareness and the number of children.

6.3.6 *Education, income and environmental awareness*

Income and education are two demographic variables that many researchers have examined and found that higher income and higher education equals higher environmental awareness (Straughan and Roberts, 1999). Table 6.10 presents the mean values of education and environmental awareness.

Table 6.10 Mean values of education and environmental awareness

	Education	Mean
	Elementary school	4.56
	High school	4.43
Environmental awareness	Vocational education	4.38
	Academic degree	4.58
	Present academic studies	4.25

In the outcome we can see that the people with an academic degree are the most environmentally aware which proves that knowledge is an important factor. What is interesting in this context is that people with solely an elementary school background follow closely after the academic graduates. An explanation to this might be a differing

knowledge input from generation to generation in the schooling system regarding the environment. This is just a personal assumption and no conclusions can be made from this statement. Additionally it is hard to generalize these findings since there is a difference of only 0.33 between the lowest and the highest mean value. However, we chose to use the highest mean value to give an answer to our first research question of who the most typical buyer of environmental friendly cars is.

Table 6.11 presents the mean values of income and environmental awareness. Higher mean values represent a higher environmental awareness.

Table 6.11 Mean values of peoples' annual income and environmental awareness

	Annual Income	**Mean**
	Below 100 000	4.67
	100 001-200 000	4.63
Environmental awareness	200 001-300 000	4.11
	300 001-400 000	4.43
	Higher than 400 000	5.33

As for the income variable compared to environmental awareness, people with an annual income higher than 400 000 Swedish crowns have the highest mean value. In this case when comparing respondents' annual income and the level of environmental awareness the spread between the mean values is sufficient to draw these conclusions.

To be able to see if there is any correlation between these three mentioned variables we present them in the table 6.12.

Table 6.12 Correlations between environmental awareness, education and income

		Environmental awareness	Education	Income
Environmental awareness	Pearson Correlation	1	-.017	-.021
	Sig. (2-tailed)		.872	.844
	N	90	90	90
Education	Pearson Correlation	-.017	1	.089
	Sig. (2-tailed)	.872		.403
	N	90	90	90
Income	Pearson Correlation	-.021	.089	1
	Sig. (2-tailed)	.844	.403	
	N	90	90	90

According to the Pearson correlation coefficient measure, the value of the findings indicates a weak negative relationship of -0.021 between the variable income and environmental awareness. Furthermore, the correlation between education and environmental awareness totals in -0.017 which also indicates an extremely weak negative significant correlation. As we mentioned in our selection of research factors many researches have examined and found that higher income and higher education equals a higher environmental awareness. Therefore, we have tested these variables in correlation to each other. Education and income are often related to each other; therefore, we thought these variables were worth testing. The correlation between these two turned out to have an extremely weak significant positive correlation. These three correlation results in the last presented table will not to be generalised due to their weaknesses. This result verifies a non existing correlation as mentioned in the selection of research factors/education and income (Straughan and Roberts, 1999).

6.3.7 *Heritage and environmental awareness*

People with different cultural backgrounds have different beliefs and attitudes which affect the environmental awareness as presented in table 6.13.

Table 6.13 Mean values based on peoples' origin and environmental awareness

	Country of birth	Mean
Environmental awareness	Sweden	4.65
	Other	4.00

The mean values of native Swedes amount to 4.65 while the mean value of foreign born individuals equals 4.00. This means that Swedes are more environmentally aware than people born in foreign countries. Since we only have two results with a difference of 0.65 between the two mean values, we find this outcome to be relatively similar, and no general conclusions can be made. But to give an answer to our research question of who the most typical buyer of environmental friendly cars is, we chose Swedes since they had the highest mean value.

6.3.8 *Information sources*

We divided the term promotion into different promotional channels because it contains a wide spread of different ways to capture the consumer's mind. The bar chart in figure 6.1 shows a summary of the most important information sources according to the respondents.
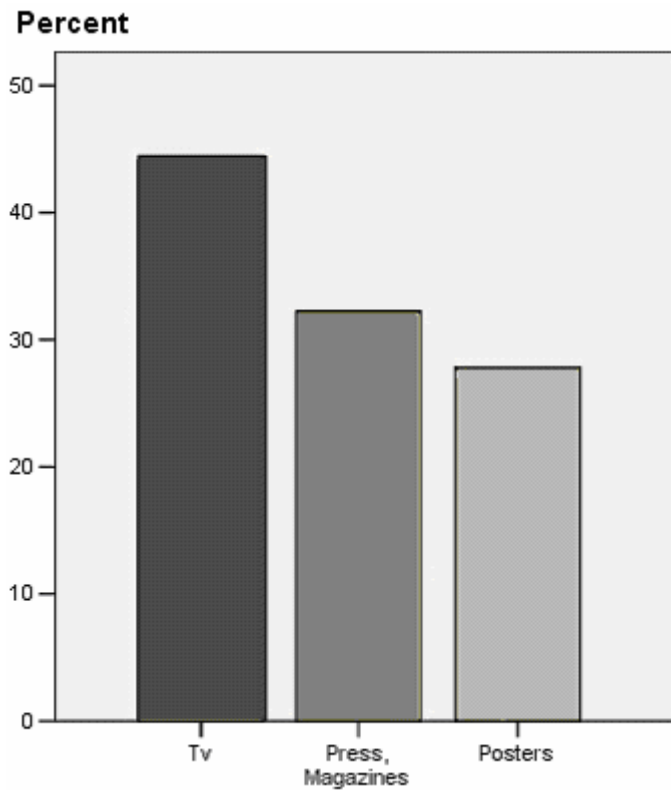
Figure 6.1 Most important information sources

Table 6.14 Frequency of the primary information sources

Ranking	Information source	Frequency	Percent
First	TV	40	44.4
Second	Press and magazines	30	33.3
Third	Posters	26	28.9

As we can see in the figure 6.1 and table 6.14, the first ranking choice of the different information sources, TV is the most dominant factor, followed by press and magazines, and posters. Since these factors were divided from the term promotion, it could be stated that these promotional channels together make promotion the most affecting information source regarding environmental friendly cars.

6.3.9 Question 13

In the 13th question in the questionnaire the respondent were to rank their primary preferences regarding a potential purchase of a car. The bar chart in figure 6.2 shows a summary of the respondent purchase preferences.
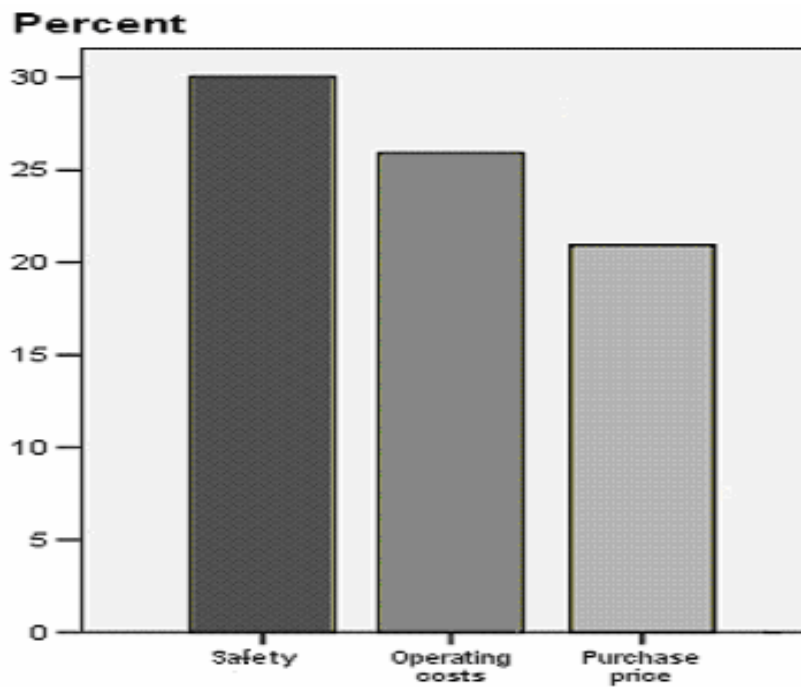
Figure 6.2 Most important purchase preferences

Table 6.15 Frequency of purchase preferences

Ranking	Feature	Frequency	Percent
First	Safety	27	30.0
Second	Operating costs	23	25.6
Third	Purchase price	19	21.1

As we can see in the table 6.15 peoples' primary choice was the safety feature of a car. The second choice was the operating costs of a car whilst the final choice was the purchasing price of a car.

6.3.10 *Question 16*

Question number 16 in our questionnaire describes four different descriptions that involve the purchase of environmental friendly products.

Table 6.16 Respondents divided into customer type

Type	Frequency	Percent	Valid Percent	Cumulative percent
Conventional consumer	9	10.0	10.0	10.0
Emerging green consumer	20	22.2	22.2	32.2
Environmentally green consumer	27	30.0	30.0	62.2
Price sensitive green consumer	34	37.8	37.8	100.0
Total	90	100.0	100.0	

The majority of respondents are found to be price sensitive green consumers meaning that they are well aware of environmental friendly products but base their purchase on price. 37.8% of the respondents described themselves to be a price sensitive consumer.

6.4 Discussion

Since the respondent's level of environmental awareness reflects the willingness towards a purchase of an environmental friendly car, it was crucial to obtain a truthful answer. Therefore we tested if there was a correlation between environmental attitude and behaviour. We found that there was a positive correlation between the variables recycling and environmental awareness (0.555), and deliberate green product purchase and environmental awareness (0.404). The correlations can be seen as strong, making them significant. This result verifies what has been mentioned in the theoretical framework that there is an existing relationship between attitudes and behaviour. Therefore, the level of environmental awareness gives account of the willingness to purchase an environmentally friendly car.

Females accounted for 56.6% of the gender spread in the research making them a majority. Furthermore, women obtained a higher mean value in environmental awareness making them more environmentally aware than males. The mean value for women was 4.71 while males acquired 4.10. The explanation behind this result may be answered by the mean values when comparing gender and deliberate purchase of green products. The results showed that women deliberately buy green products more often than males. Women acquired a mean value of 3.80 but men only 2.77. These given

results clarify that the female gender is the most typical buyer of the environmental friendly cars.

As stated before in the introduction to this chapter, when dealing with mean values, especially when values are contiguous a significance test ought to be done in order to see if the results are based on chance alone or not. We used a Chi square significance test to do so. In the results regarding the first research question the significance on a 95% probability level showed that the mean values when comparing environmental awareness with demographic factors had a probability of 20-50% that they occurred by chance. We chose not to include the received significance values due to the fifty-fifty chance that the mean values occurred by chance. Therefore we have chosen to base conclusions solely on the mean values to answer our first research question of who the most typical buyer of environmental friendly cars is. According to Saunders, there may still be a relationship between variables that may have a low significance, but you can not make conclusions with any certainty.

The spread in age of the respondents in the study was relatively similar up to the age of 55 years. There was a descending tendency in the frequency of the elder age groups which made the age spread not perfectly wide. This may also explain that respondents between the age of 55-64 and 65 or older are the most environmentally aware. These groups' mean value were 4.79 and 4.80. A combination of a small response frequency and extremes in the answers affect the mean values tremendously. This could be seen as criticism towards the presented result. The presented mean values show that people in the age of 55 and elder are the most typical buyers of environmental friendly cars.

Taking further consideration on the demographic aspects, establishment in the sense of having children or not plays an important role in the level of environmental awareness of the respondent. We found that people with children are more environmentally aware than people without children. The mean value for people with children amounted to 4.67 but only 4.11 for respondents with no children. We wanted to find out if the amount of children had an impact on the level of environmental awareness. The correlation between these two variables showed a result of -0.118 which indicates an extremely weak relationship. There is no relationship between the level of environment awareness and the amount of children. Our final result indicates that people with

children are more environmentally aware and, therefore, the most typical buyers of environmental friendly cars.

The research concerning education showed that people with an academic degree are the most environmentally aware. The mean value for these amounted to 4.58. People with solely an elementary education followed with a mean value of 4.56. Pearson's correlation measure reveled that there is an extremely weak negative correlation between these two variables. The result -0.017 showed that education does not affect the environmental awareness of the respondent in this case.

Former studies have shown a tendency of that higher education equals higher environmental awareness and higher income equals higher environmental awareness. Since the first mentioned turned out to be not significant, we focused instead on the income factor. The results of this factor showed that respondents with an income higher than 400 000 Swedish crowns were the most environmentally aware with a mean value of 5.33. The testing of the correlation between income and environmental awareness gave us the result of an extremely weak negative correlation of -0.021. An increased income does not affect the level of the respondent's environmental awareness. Furthermore people with an annual income higher than 400 000 Swedish crowns are the most typical buyers of environmental friendly cars.

Different cultural backgrounds of people showed different levels of environmental awareness. The result of people born in Sweden showed a mean value of 4.65 compared to people born in other countries, 4.00. This result showed that Swedes are more environmentally aware. An issue that may be discussed is the level of environmental awareness and how it differs from country to country. A wise choice would be to ask which country the respondent is born in instead of classifying all foreign born respondents as "other". This does not reflect the real mean value of foreign born respondents and, therefore, the conclusion that Swedes are more environmentally aware is weak.

It is important to bear in mind that in some cases there were small differences between the mean values. This made it hard to give generalizing conclusions when comparing the demographic factors with the respondents' level of environmental awareness. Since

we wanted to give a picture of who the most typical buyer of environmental friendly cars is, we still chose to use the highest mean values despite the contiguous values.

With these factors we give an answer to our research question of who the most typical buyer is of environmental friendly cars.

People perceive knowledge from different information sources on a daily basis. We wanted to examine which information sources affect peoples' knowledge concerning environmental friendly cars. According to the finding, 44.4% of the respondents chose TV as a primary information source. As a second information provider 33.3% of the respondents chose press and magazines. Posters were chosen by 28.9% of the respondents as a third choice. This outcome shows that promotion is the main source of peoples' knowledge regarding environmental friendly cars.

As buying a car, different factors and product preferences may influence the purchase. One of our tasks was to examine which factors people base their purchase decision on. According to the result, 30% of the respondents chose safety as their primary choice set which also was the most frequent one. The second most frequent factor in the ranking was the operating costs chosen by 25.6% of the respondents. The final choice was the purchasing price with a 21.1 percentage rate. By these choices we can easily see that people put their biggest purchasing weight on the product followed by the costs surrounding the car.

With these factors we give an answer to our second research question of which factors affect the purchase of an environmental friendly car.

Most of the respondents (37.8%) answered that they are price sensitive green consumers, meaning that they are environmentally aware but base their purchase on price. Since Safety was the primary factor that people base their car purchase on, one can question whether safety really is the most important factor. A possible explanation to this is that the respondent does not give truthful answers in the alternatives in one of these questions.

Another discussion may arise from the results regarding benefits. 56.7% of the respondents answered that they do not possess knowledge of existing benefits regarding environmental friendly cars; while 43.3% answered they possess knowledge. The mean value of the beneficial importance when buying an environmental friendly car totaled in 4.82. This result points toward that the benefits are a strong contributor towards a purchase of an eco friendly car. The Swedish government determines the size of these benefits, which also influences peoples' purchase demand. This could be understood as if the Swedish government strives for an increased usage of environmental friendly fuels within the nation. Therefore, it may also seem odd that the government do not inform people enough of the existing benefits regarding environmental friendly cars. Since more than half of the respondents did not know of the existing benefits, informational campaigns might double the sales and go one step closer towards becoming a greener society.

To conclude this chapter we discuss the whole concept of environmental friendly cars. As our research revealed, price and operational costs are important factors that people base their purchase on. According to Per-Martin Roos, the technical manager of OKQ8 a leading petrol cooperation, an increased demand of ethanol is predicted which will raise prices (Miljöfordon, 2004). This will automatically increase the operational costs of environmental friendly cars. If the amount of benefits does not exceed the increased prices, the concept of environmental friendly cars might be threatened.

Chapter 7

Conclusion

This chapter comprises a summary of the entire dissertation, the results of our research questions, self-criticism and future research suggestions.

7.1 Summary of the Dissertation

In the twenty-first century our societies have changed due to technological leaps, simplifying our daily routines. Our daily needs for services and products have increased, generating a higher consumption which has a negative effect on the environment. In 2007 big discussions have emerged on how to handle the carbon discharges that are the biggest threat to the future survival of mankind. The outcomes of these discussions have encouraged people and companies' towards the use of green products such as environmental friendly cars. In recent years the car industry sector has increased rapidly, and eco friendly cars is a trend. Since this problem affects us we found it interesting to investigate. Our main purpose with this research was to identify who the most typical buyer of environmental friendly cars is. Another research objective was to recognize what primary factors people base their potential car purchase decisions on. By reviewing literature of which factors influence behaviour and buying behaviour, we wanted to get a deeper understanding of which factors affect individuals' attitudes, beliefs and behaviour. From this we selected specific factors that would create the basis for our empirical research and give answers to our research questions.

Because of time and financial circumstances, a questionnaire was the most suitable way to conduct the study. The questionnaire was of a deductive nature because we used existing theories in the selection of factors. We based our study on selected factors such as, the demographic factors (gender, age, civil status, education, income and heritage) together with environmental attitude and behaviour. These factors contribute to the answer of who the most typical buyer of environmental friendly cars is. Further factors such as product (design, safety, performance, quality and comfort), price (purchasing price and operational price), place (refuelling points), promotion (promotional channels

and information sources) and economical/political advantages answer which factors affect the purchase of an environmental friendly car. The collected data was of a quantitative nature and was reviewed in the statistical software program SPSS.

As a summary, the most typical buyer of environmental friendly cars is a woman who is 55 or older. She is a parent, has an academic degree and is born in Sweden. She is a high income earner with an annual salary higher than 400 000 Swedish crowns.

It is important to be aware of that these individuals are not the only buyers of environmental friendly cars but the most typical ones.

The answer to our second research question, which factors affect individuals when buying environmental friendly cars, was that safety was most important among the respondents. Operational costs of the cars were ranked as a second factor of greatest importance. Thirdly, individuals base their purchase on the purchasing price. This outcome showed that people base their primary decisions on the preference of the product instead of emphasizing on financials issues.

As an additional answer to the research question we found it important to find out where people gain their knowledge about environmental friendly cars. Our findings revealed that promotion is the greatest information source. TV was ranked as the primary information source followed by press and magazines. Posters also give individuals knowledge about environmental friendly cars. These findings conclude our research.

7.2 Self-Criticism

One problem with our research is that we did not pilot tested our questionnaire before handing it out to the respondents. Such a test would eliminate any kind of misunderstandings and unclearness. Since we did not test-run the questionnaire this might have affected the respondents' answer and the final result of the study. On the other hand we handed out the questionnaire in person to the respondents, which gave us the ability to clarify any kind of misunderstandings that could emerge.

Another problem was that we only use the mean value as a final result. To give the reader a more elaborated answer the median ought to be presented. The median has the advantage that it is not affected by extreme values in the distribution (Saunders, 2007).

A third problem concerns the questions where the answers were to be ranked. In one scenario all rankings from 1 to 3 could result in the same factors. One third of the respondents could choose one factor as a primary choice whiles the next one third of the respondent could place the same factor as a secondary choice. The situation would give a highest frequency of one factor in all three rankings. Fortunately this did not occur and we received various answers.

Another criticizing view from our perspective is our usage of respondents' level of environmental awareness as an indicator of the willingness towards purchase of an environmental friendly car. From the theory we found that there is an existing correlation between attitude and behaviour. Therefore we assumed that if a respondent saw himself/herself as environmental friendly this would influence the behaviour in a sense of a purchase. Despite this way of conduct a study based on existing owners would be to prefer.

Another weak point of this study is that we did not take into consideration to ask if the respondents were interested in buying an environmental friendly car. We assumed that an environmental friendly car is one of many green products and therefore focused more on the correlation between peoples' environmental attitude and behaviour. This could also be criticized since a car purchase involves a bigger expense than other green products. We chose not to involve a question trying to get a direct answer if respondents are interested in an environmental friendly car since we believe not all respondents want to buy a car.

In the result chapter some results regarding our first research question were contiguous in the sense of the presented mean values when comparing demographic factors with environmental awareness. This made it difficult for us to draw generalizing conclusions. We still chose to use the highest mean values as indicators to describe the most typical buyer. When comparing mean values it is important to test the significance of the results in order to find out if the results are based on chance alone or not. We conducted

a Chi square significance test, and found out that the given results held a high possibility that they occurred by chance alone. Therefore we did not include the significance of the mean values in our result chapter. This makes our results less trustworthy.

Finally the used internet sites might present untrustworthy and old information which may affected our dissertation negatively.

7.3 Practical implications

The results of our survey have practical implications for car companies in the Malmö region and for the Swedish government. The results may help in the creation of optimal marketing campaigns, aiming to increase sales by attracting the target group of most willing buyers of environmental friendly cars. Since the study showed that the safety of a car was the primary factor that affects the buyer, more focus could be put on this in the promotional campaigns. As mentioned in the sample limitations, it would be very costly

Purchasing price was the second most important factor influencing a purchase, therefore a bigger aspiration towards decreasing green car prices would make it more attractive to people. This would also boost the competition between car brands, making it favourable for the buyers.

It can also be an indicator for the Swedish government to enlighten the Swedish citizens of the economical advantages of environmental friendly cars. Since the results revealed that there is a lack of knowledge concerning the economical advantages, increased information campaigns, would boost sales making our society greener.

7.4 Future research

- One possible future research would be to examine how a potential price raise of green fuels would affect peoples' demand for environmental friendly cars. One can also study what maximum price green fuels may reach and will make the concept of eco friendly cars more appealing for consumers in comparison to regular cars.

- The study could be based on a bigger sample size in a wider geographical area. This would give more accurate results making it possible to generalise the findings on the entire population of Sweden.
- One could have the same research questions and conduct a study on respondents that already own an environmental friendly car.

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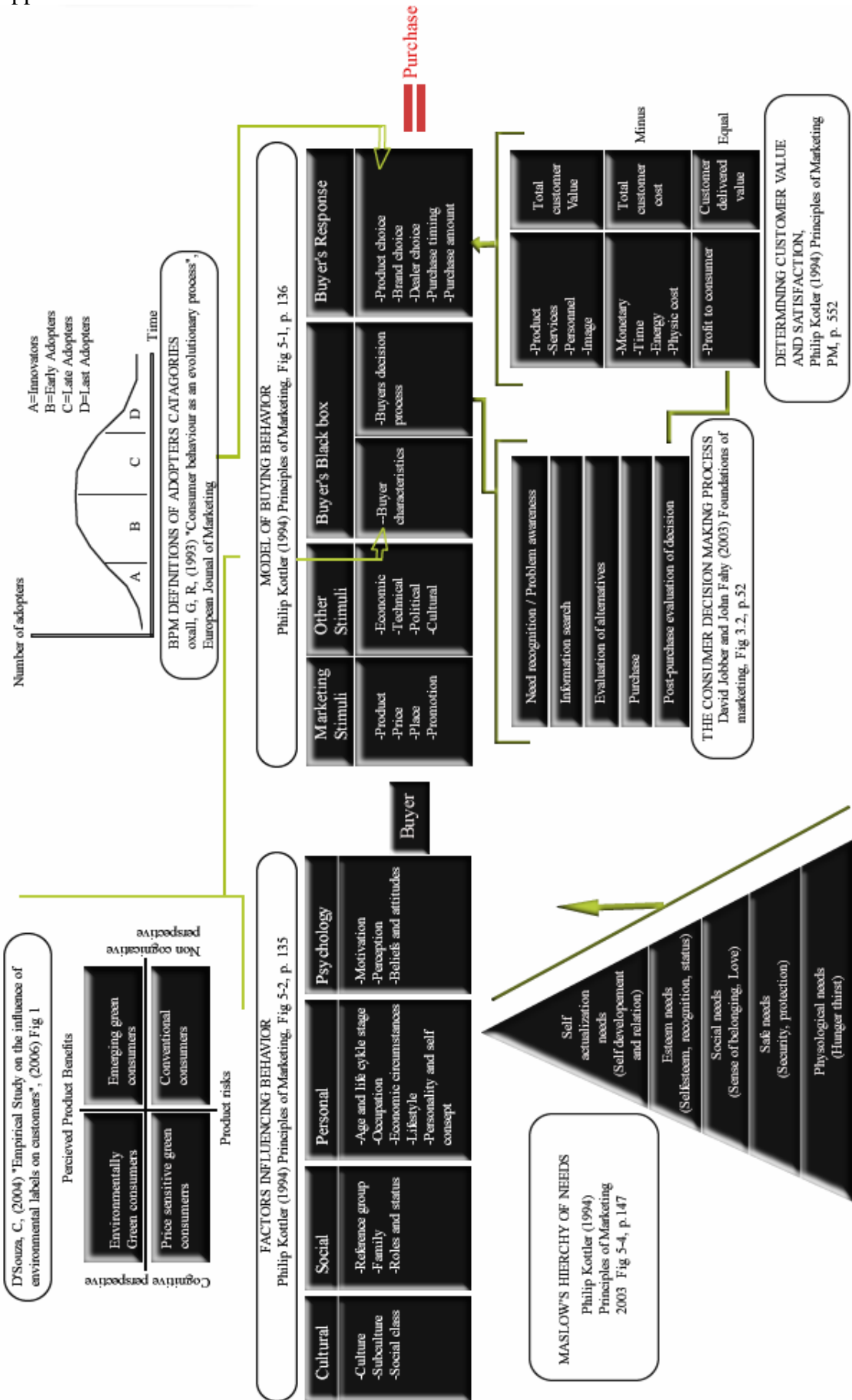   Available from <URL:http://sv.wikipedia.org/wiki/Biogas>

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Appendix 1

Purchase

Number of adopters

A=Innovators
B=Early Adopters
C=Late Adopters
D=Last Adopters

A   B   C   D

Time

BPM DEFINITIONS OF ADOPTERS CATAGORIES
oxall, G, R, (1993) "Consumer behaviour as an evolutionary process",
European Journal of Marketing

MODEL OF BUYING BEHAVIOR
Philip Kottler (1994) Principles of Marketing, Fig 5-1, p. 136

Marketing Stimuli	Other Stimuli	Buyer's Black box	Buyer's Response
-Product	-Economic	-Buyer characteristics	-Product choice
-Price	-Technical	-Buyers decision process	-Brand choice
-Place	-Political		-Dealer choice
-Promotion	-Cultural		-Purchase timing
			-Purchase amount

Need recognition / Problem awareness

Information search

Evaluation of alternatives

Purchase

Post-purchase evaluation of decision

THE CONSUMER DECISION MAKING PROCESS
David Jobber and John Fahy (2003) Foundations of
marketing, Fig 3.2, p.52

Product	Total customer Value		Minus
-Services			
-Personnel			
-Image			
-Monetary	Total customer cost		
-Time			
-Energy			
-Physic cost			
-Profit to consumer	Customer delivered value		Equal

DETERMINING CUSTOMER VALUE
AND SATISFACTION,
Philip Kotler (1994) Principles of Marketing
PM, p. 552

D'Souza, C, (2004) "Empirical Study on the influence of
environmental labels on customers", (2006) Fig 1

Percieved Product Benefits

Non cognitive perspective

Cognitive perspective

Product risks

| Environmentally Green consumers | Emerging green consumers |
| Price sensitive green consumers | Conventional consumers |

Buyer

FACTORS INFLUENCING BEHAVIOR
Philip Kottler (1994) Principles of Marketing, Fig 5-2, p. 135

Cultural	Social	Personal	Psychology
-Culture	-Reference group	-Age and life cykle stage	-Motivation
-Subculture	-Family	-Occupation	-Perception
-Social class	-Roles and status	-Economic circumstances	-Beliefs and attitudes
		-Lifestyle	
		-Personality and self consept	

MASLOW'S HIERCHY OF NEEDS

Philip Kottler (1994)
Principles of Marketing
2003 Fig 5-4, p.147

Self actualization needs
(Self developement and relation)

Esteem needs
(Selfesteem, recognition, status)

Social needs
(Sense of belonging, Love)

Safe needs
(Security, protection)

Physiological needs
(Hunger thirst)

Appendix 2

*Vi är tre studenter från högskolan i Kristianstad som har valt att undersöka vilka de påverkande faktorerna är vid köp av miljöbil. Eftersom miljön är ett aktuellt ämne som rör oss alla, behöver vi Er hjälp att besvara nedanstående frågor. Var vänlig sätt **kryss** för ditt svar.*

Fråga 1: Kön?

Man ☐ 🧍   Kvinna ☐ 🧍

Fråga 2:
Ange Ålder
☐ 18-24 år
☐ 25-34 år
☐ 35-44 år
☐ 45-54 år
☐ 55-64 år
☐ 65-

Fråga 3:
Födelseland?
☐ Sverige
☐ Annat

Fråga 4:
Vilken är din senast avslutade utbildning?
☐ Grundskola
☐ Gymnasial
☐ Yrkesutbildning
☐ Akademisk examen
☐ Studerar på akademisk nivå

Fråga 5:
Civilstånd?
☐ Singel
☐ Sambo
☐ Särbo
☐ Gift

Fråga 6:
Har du några barn? Om **JA**, ange antal

NEJ ☐   JA ☐   Antal……….

Fråga 7:
Vad är din Årsinkomst?

☐ Under 100 000
☐ 100 001-200 000
☐ 200 001-300 000
☐ 300 001-400 000
☐ Över 400 000

Fråga 8:
Hur miljömedveten anser du dig vara?

Mycket miljömedveten ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Inte alls

Fråga 9:
I vilken utsträckning anser du dig källsortera hushållsavfall? Ange ett alternativ

Alltid ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Aldrig

Fråga 10:
Hur ofta köper du medvetet miljövänliga produkter? Ange ett alternativ

Alltid ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Aldrig

Fråga 11: Vilken av nedanstående informationskällor anser du påverkar din medvetenhet rörande miljöbilar? Rangordna från 1 till 3 där 1 påverkar dig mest.

☐ Tidningar
☐ TV
☐ Reklamaffischer
☐ Familjemedlemmar
☐ Vänner och kollegor
☐ Annat

Fråga 12:
Anser du att det finns tillräckligt med marknadsföring kring miljöbilar?
NEJ ☐   JA ☐

Fråga 13:
Rangordna nedanstående faktorer. Ange 3 faktorer som du anser vara viktigast för dig vid köp av bil. Markera med **siffra** där 1 är viktigast.

- ☐ Design
- ☐ Säkerhet
- ☐ Prestanda
- ☐ Kvalité
- ☐ Driftkostnader
- ☐ Komfort
- ☐ Inköpspris
- ☐ Utbud av miljötankstationer

Fråga 14:
Är du medveten om var du kan tanka miljövänligt?

NEJ ☐   JA ☐

Fråga 15:
Känner du till förmåner rörande miljöbilar?

NEJ ☐   JA ☐

Om **JA**,
Hur viktiga anser du dessa vara vid val av miljöbilsinköp?

Oerhört viktiga ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Inte alls

Fråga 16:
Vilken av nedanstående beskrivning passar bäst in på dig? Ange ett alternativ

- ☐ Inget intresse för miljövänliga produkter
- ☐ Är medveten av nyttan med miljövänliga produkter, men köper dem inte
- ☐ Är medveten om miljöprodukter och köper dessa så ofta jag kan
- ☐ Är väl medveten om miljövänliga produkter men baserar mitt köp på pris

Tack för din medverkan!

Appendix 3

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*We are three students from the University of Kristianstad that have chosen to examine which the affecting factors are when purchasing an environment friendly car. Since the environment is an up to date subject that affects us all, we need Your help to answer the questions below. Kindly mark your answer with a **cross***

Question 1: Gender?

Male ☐♟   Female ☐♀

Question 2:
Age?
    ☐ 18-24 years
    ☐ 25-34 years
    ☐ 35-44 years
    ☐ 45-54 years
    ☐ 55-64 years
    ☐ 65-

Question 3:
Country of birth?
    ☐ Sweden
    ☐ Other

Question 4:
Which is your latest completed education?
    ☐ Elementary (compulsory)school
    ☐ High School
    ☐ Vocational training
    ☐ University degree
    ☐ Study at university

Question 5:
Civil status?
    ☐ Single
    ☐ Co-habitee
    ☐ Partners living separately
    ☐ Married

Question 6:
Do you have children? If **YES**, how many?

NO ☐   YES ☐   Amount……….

Question 7:
What is your annual income?

    ☐ Below 100 000
    ☐ 100 001-200 000
    ☐ 200 001-300 000
    ☐ 300 001-400 000
    ☐ Above 400 000

Question 8:
How environmentally aware do you consider yourself to be?

Very environmentally aware ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Not at all

Question 9:
To what extent do you recycle your household waste?
Choose an alternative

Always ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Never

Question 10:
How often do you deliberately buy environmental friendly products?
Choose an alternative

Always ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Never

Question 11: Which of the mentioned information sources below affects your
awareness concerning environmental friendly cars the most?
Rank from 1 to 3 where 1 affects you the most.

    ☐ Newspapers
    ☐ TV
    ☐ Posters
    ☐ Family members
    ☐ Friends and colleagues
    ☐ Other

Question 12:
Is there enough marketing concerning environmental friendly cars?

NO ☐   YES ☐

Question 13:
Rank the factors below. Choose 3 factors that you consider to be the most important ones when purchasing a car. Mark with a **number** where 1 is the most important one.

☐ Design
☐ Security
☐ Performance
☐ Quality
☐ Operating costs
☐ Comfort
☐ Purchase price
☐ Range of refuelling points

Question 14:
Are you aware of where you can refuel your car with green fuels?

NO ☐   YES ☐

Question 15:
Are you aware of the economical advantages concerning environmental friendly cars?

NO ☐   YES ☐

If **YES**,
How important do you find them to be when purchasing an environmental friendly car?

Tremendously important ☐7 ☐6 ☐5 ☐4 ☐3 ☐2 ☐1 Not at all

Question 16:
Which of the descriptions below fits best to your personality.
 Choose one alternative

☐ No interest for environmental friendly products.
☐ Are aware of the benefits regarding environmental friendly products, but do not buy them
☐ Are aware of environmental friendly products and purchase these whenever I can
☐ Are aware of environmental friendly products but base my purchase on price

Thank you for your participation!