Daily Travel Mode Choice from an Intersectional Perspective - a Literature Review and a Case Study in Uppsala

Malin Paulusson
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Daily Travel Mode Choice from an Intersectional Perspective- A Literature Review and a Case Study in Uppsala

MALIN PAULUSSON


Abstract: The transport sector is an extensive contributor to the total CO₂ emissions, and private transports hold a vast share. This has implications on environmental and human health, which eventually have economic consequences for society. Equal access to opportunities is essential in a sustainable society and public transport is a crucial element. Apart from public transport, physical active transport modes are key components in a sustainable transport system. The aim of this thesis was through an intersectional perspective to gain deeper understanding about travel mode choices and to identify barriers to use of public transport. This thesis comprises an extensive literature review of 62 articles, reviews and publications on travel behavior and travel mode choice undertaken in different parts of Sweden, Germany, UK, Portugal and the USA. A limited case study shares through nine qualitative interviews the travel experiences of four men and five women in different ages in Nåntuna/Vilan and Sävja in Uppsala, Sweden. The influencing factors were categorized and later intersectionally analyzed with the respect to gender, age and socioeconomic class. The analysis revealed that travel mode choices are complex and can be made for various reasons. Access to a car, habits, travel pattern and time indicated to be the most influencing factors. Economic resources seemed to influence the availability of transport mode, and indications could be seen that economic resources might impair gender differences. Looking at preferences and actual mode choice, the study sample illustrates that men, older, and richer, are having more opportunities to take their preferable mode choice. Planning factors appeared to both promote and constrain the use of public transport. Public transport seemed to have hard to meet everyone’s need, and indicated to have low competitiveness to the car. It is suggested that future research focuses on how to meet more people’s need in order to increase the use of public transport by its own attractiveness. Further research is also suggested about the health perspective of physical active modes and public transport. The study revealed difficulties in studying experiences outside the white, majority Swedish norm. More time would have been needed to include ethnicity, as it is an important aspect and should be included in future research.

Keywords: Sustainable Development, Mobility, Transport mode choice, Sustainable transportation, Equity, Public Health, Intersectional analysis

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Syfte: Syftet med den här masteruppsatsen är att få djupare kunskap om de faktorer som påverkar resebeteende och färdmedelsval, samt att identifiera barriärer för kollektivt resande. Uppsatsen har ett intersektionellt perspektiv och undersöker hur maktfaktorer som kön, ålder och socioekonomisk klass påverkar valet av färdmedel.


Nyckelord: Hållbar utveckling, mobilitet, färdmedelsval, hållbara transporter, folkhälsa, intersektionalitet

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1. Introduction

Living in a small city in the north of Sweden between 1997 and 2005 and after that in a city in the Middle East between 2006 and 2013, where public transport services were limited, and parking permitted almost wherever you liked to, moving to Uppsala in 2013 was a different experience. I soon got to appreciate the broad opportunities to use public transport, and felt a freedom not to have to use the car. As a person with a long interest in driving and a large amount of freedom preferences, this was a surprise. Using public transport was not only cheaper and better for the environment, it was often more convenient. My behavior might not have a huge environmental impact on the larger scale, but if many people change to the same behavior, the effects can be seen on local, regional and even global scales. Seeing many people cycling, made me also think of how the physical active transports has got less and less habitual in everyday life. An extensive review of 62 articles, reviews, studies and publications revealed that travel mode choice could be made for different reasons. An intersectional approach with respect to gender, age and socioeconomic class was applied to the purpose of a limited case study. Nine in-depth interviews explored individual’s everyday travel mode choice and gained deeper understanding about barriers for the use of public transport in Nåntuna/Vilan and Sävja in Uppsala, Sweden.

1.1 Problem Formulation

In the last decades the car has become the norm, both as a mean of transport, but also in the planning of cities. Little thought has been made on the negative environmental effects or on the human health (Kummel, 2006; Landon, 2006). The concentration of carbon dioxide (CO₂) in the atmosphere is higher than ever and with 95% certainty anthropogenic. It is to the largest extent caused by the burning of fossil fuels for generating heat and electricity, and to power transports (IPCC, 2013). The transport sector contributes to one third of the total CO₂ emissions, of which approximately half comes from passenger transports (Brolinson, 2015). Today, mobility is wider and faster than ever, and personal mobility causes large negative environmental impacts. Additionally, health problems have been exacerbated by sedentary lifestyles (Baslington, 2008). This is threatening the human and ecological health, and will eventually cause severe social and economic problems unless this development is slowed down or reversed (Landon, 2006).

The worldwide goal to reduce CO₂ emissions and to increase energy efficiency is targeting the environmental and economic dimensions of sustainable development, but the social dimension is given less attention, Hanson (2010) and Levin & Faith-Ell (2011) argues. Climate change, mobility and transportation, is associated with great inequalities, due to unequal division of power based on context-specific and social categorizations. The more powerful members of society, i.e. the ones that to a large extent can influence their own life, have a lifestyle that generates greater emissions of CO₂ and the less powerful are the greater sufferers from the effects (Currie & Stanley, 2008; Kaijser & Kronsell, 2013; Landon, 2006; Polk, 2001; Rydhagen, 2013). Infrastructure and transportation creates CO₂ emissions, but are important facilitators for the connecting of physical and social networks and allow inhabitants to exchange information, goods and services (Harvey, 2008; Sandberg et al., 2011). Understanding consequences of mobility, or lack of mobility, is the key question regarding overall equity, Currie & Stanley (2008) and Hanson (2010) argue. Social sustainability and equality (i.e. same rights and obligations, and equally valued) requires increased need of transports, at the same time as environmental sustainability requires reduced CO₂ emissions and the reduction of transports powered by fossil fuel (Hanson, 2010; Polk, 1998, 2001;
Rydhagen, 2013). Hence, increased mobility has to be sustainable and inclusive, which involves the studying of power structures and transportation in relation to each other.

Much research agree that to the extent we use the car is unsustainable, and in order to achieve climate, environmental, transport and health objectives, the car use has to be reduced in favor of a more sustainable transport system. Public transport is a key component, but also physical active transportation, e.g. cycling and walking, is vital (Bamberg, 2007; Malmberg, 2014; Polk, 2001; Xenias & Whitmarsh, 2013). Public transport, e.g. bus, tram, train, provides an important service for the one’s with no access to a car, and at the same time reduces the amount of cars. It connects neighborhoods and enhances social development, and it connects the region and enhances economic development (Government Offices of Sweden, 2015a; Harvey, 2008; Levin & Faith-Ell, 2011). This in turn promotes societal well-being and improves public health (Currie & Stanley, 2008; Socialstyrelsen, 2014; Urry, 2012b). The transport sector has set the goal to double the use of public transport by 2020 (Swedish Public Transport Association, 2015b).

"Many more people shall experience that public transport is a natural part of the travel undertaken in a sustainable society" (www.Swedish Public Transport Association, 2015b).

The planning paradigm has to change and put sustainable transportation in focus, and people have to shift their preferences and behavior, Banister (2008) and Malmberg (2014) argue. To reach some effects, a collective change from unsustainable transport mode choices have to be accomplished. A first step is to understand today’s travel behavior and mode choices. The extensive literature research showed variances in men and women’s travel behavior, caused by their different preconditions (Currie & Stanley, 2008; Gilboa Runnvik, 2014; Ipsos, 2015; Polk, 2001; Sandberg et al., 2011). Men have more often access to a car than women, and women are more likely to use sustainable transport modes. The mode choice is unequally divided also within the gender group, and determined by socioeconomic factors such as age, ethnicity etc, as well as local contexts (Goodwin & Lyon, 2009; Hanson, 2010; Indebetou, 2010; Levin & Faith-Ell, 2011; Polk, 2001). Mode choice can be made for different reasons, and different reasons can lead to the same choice (Anable, 2005). It can be made from environmental-, health-, economic-, or other reasons (Richter et al., 2011). A combination of attitudes and situational factors are influencing the choice. Everyday activities is different in different families, thus, the local context is of central matter, and needs to be studied from a power structured point of view (Hanson, 2010). Hanson (2010) points out that it is important to understand what the unequal division in mobility means to people, and when, where and how these inequalities are found. Maybe women use public transport from their free will or, do women have less access to opportunities? Equality is determined by equal opportunities and equal access to transportation, and therefore it is necessary to discuss the two issues in relation to each other (Hanson, 2010; Polk, 1998).

Hanson (2010) argue that knowledge about equity issues is limited. Understanding how and where power structures intersect is a desirable form to study travel mode choice, Henriksson (2008) states, and needs to be further researched, according to Hanson (2010). The local context is an important link (ibid). A reasonable amount of research has been conducted with a gender perspective on travel behavior, but less is to be found from the sociodemographic and socioeconomic perspective. Additionally, Richter et al. (2011) recommend more research about barriers for the use of public transport, and a focus on socio-demographic factors could gain new understanding. This knowledge is also requested from the social- and community
planners in the Uppsala County. Therefore, for the purpose of this thesis, an intersectional perspective taking gender, age and socioeconomic class into account, was applied to the literature review and to the case-study about people’s everyday travel experiences and barriers for the use of public transport in the neighborhood of Nåntuna/Vilan and Sävja in Uppsala, Sweden.

1.2 Research Aim and Research Questions
Gaining insight and deeper understanding in individual’s travel behavior and what influences their travel mode choice, is the first step before planning interventions for sustainable travel behavior. An intersectional perspective can illuminate discriminating power structures that might influence people’s choices. Thus, the aim of the case-study in the areas of Nåntuna/Vilan and Sävja in Uppsala takes an intersectional perspective to gain deeper understanding about people’s travel mode choice, and to identify barriers for using public transport.

The following research questions have been used to answer the aim:
- What factors influence people’s travel mode choice?
- What are the barriers to use public transport?
- How do these factors differ between gender, age and socioeconomic class, and where do they intersect?

1.3 Assumptions
For the purpose of this thesis, and in relation to sustainable development and public health, public transport and physical active transport modes are indisputably the most sustainable modes of transportation. Physical active transportation would generally be the most preferable option if the individual health and travel distance allows, and the study areas of Nåntuna/Vilan and Sävja are located within a distance from Uppsala center possible to undertake with physical active transportations. There is also have a frequent public transport service. Thus, both the use of public transport and physical active modes are options assumed to be relevant in everyday travel, and therefore of interest for this thesis. However, this is not assumed to be relevant and possible for everyone for different reason. Additionally, the use of electric and other environmental friendly cars is in the context of reduction of CO₂ emissions assumed to be environmental sustainable, but not necessary in relation to public health outcome and social sustainability. Moreover, for the purpose of this thesis, the concept of gender involves men and women.

1.4 Disposition
Chapter 2 will present the survey of the field and theoretical perspectives of sustainable development, well-being, equity, intersectionality, the transport sector, and behavior theories. Chapter 3 gives a more detailed description of the study context of Nåntuna/Vilan and Sävja in Uppsala city. Sociodemographic characteristics and political objectives will be further explained. The method of collecting data and the analysis will be described in chapter 4, and the most interesting outcome from the interviews will be presented in chapter 5. The analysis of the findings is presented in chapter 6, which together with the method will be discussed in chapter 7. Chapter 8 concludes with a summary and recommendations for planners and future research.
2. Survey of the field including theoretical perspectives

This chapter will provide information needed in order to understand the context of the thesis. The concept of equity, health and sustainable development will in more detail be described. The result from the extensive literature review of 62 articles, reviews, studies and publications undertaken in different regions and cities in Sweden (Skåne, Stockholm, Malmö), in Germany, UK, Portugal and the USA about travel behavior and travel mode choice will be presented, as well as the transport sector and travel behavior theories.

2.1 Sustainable Development

In order to create jobs and economic growth, economical interests have been given priority in the current neoliberal paradigm, and environmental interests have been ignored. The discourse has associated socioeconomic development with material resources, as a symbol of freedom and liberation (Kaijser & Kronell, 2103).

Increased level of CO₂, global warming and climate change, has raised ethical implications of equity and rights, as well as concerns over environmental and social consequences for present and future generations. To shed light on the problem, the concept of sustainable development was introduced. Sustainable development is defined by the Brundtland commission (WCED, 1897, p.15) as "development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs ", and is built on the three pillars of social-, economic- and environmental sustainability, which are interdependent on each other (Fig.1).

Thus, sustainable development is about addressing equity, between present generation and towards future generations (Landon, 2006). The understanding of the interaction has in recent years given more attention, and sustainable development is, along with gender equality, a central concept and goal in Swedish politics today (Government Offices of Sweden, 2014b).

The economic dimension involves economic growth that does not cause negative implications on social or environmental capital. The social dimension builds on respect to human rights, and involves equity, participation, inclusion, empowerment, social mobility, and cultural preservation (World Bank, 2001), and has to simultaneously be applied with the environmental aspect in mind. The environmental dimension refers to long-term strategies that are promoting public health and biodiversity, combat climate change and are not irreversibly damaging the nature and the natural resources (ibid). Thus, extensive use of cars powered by fossil fuels is not coherent with environmental sustainability. Sustainable development must involve all aspects of sustainability, but Kaijser & Kronell (2103) and Olsson (2012) argue, that in order to solve the environmental problems, social aspects such as equality, inclusion, health, security, and ethical considerations have often been neglected.

2.2 Mobility and environmental impacts

Most people have a number of activities everyday, which takes place in different locations, and results in the need for mobility. Mobility can be defined as “the movement of people from one place to another in everyday life” (Hanson, 2010, p.7). Depending on activity, different
modes of transports are most relevant, and have advantages and disadvantages. However, most often the car is the most attractive choice (Gilboa Runnvik, 2014), and Urry (2004) claims that the car has expanded the sense of flexibility, freedom, and time preferences.

The objective of city planning in Sweden after World War II was to create better and healthier living conditions. This created the separation of housing, working and shopping, which caused longer distances and more sprawled cities. The dependence on the car increased, and together with improved economy, the car ownership increased significantly. Since 1960-70s the car came to be an object that almost everyone could afford, which lead to further restructuring of functional areas. People no longer lived, work and shopped in the same area. The car came to be not only a norm, but also a necessity (Engström & Hansen, 2011; Kaijser, 2005; Kummel, 2006). Winner (1980) states that once the cars was introduced, it soon became a habit that will last for generations, and the choice was not there anymore. This has trapped people into the convenience of the car and a mobility taken for granted, with the consequence of overconsumption and unsustainable habits (Kaijser, 2005). Cities are extensive contributors to negative environmental impacts, but also have the potential for change, especially regarding sustainable transportation. This is a key component for an attractive city (Engström & Ingelström, 2010).

2.2.1 The Transport Sector

The Swedish carbon footprint is of great and increasing concern, as the private consumption of food, living and travel are large contributors to the ecological footprint. Beside the major concern about CO₂ emissions, other negative impacts such as pollution, congestion, noise and resource depletion are caused by the transport sector (Malmberg, 2014). The majority of all transports are fossil fuel driven, and the transport sector contributes to 33 % of the total CO₂ emissions in Sweden. Although, in decrease since 2008, the levels were only 16 % lower in 2013 compared to 1990 (Brolinson, 2015).

Within the domestic transport sector 95 % of the CO₂ emissions, come from road transport (Fig. 2), where the share from passenger transports is 62 %. Out of this, 58 % comes from cars and 4 % from buses (Fig. 3) (Brolinson, 2015). Consequently, it is clear that personal transports cause extensive negative environmental impact. Personal transports are also the most increasing form of transports (Holmberg & Brundell-Freij, 2012). 53 % of all travel in Sweden today is made by car, and 8 % as a passenger. 23 % of all travel is undertaken by public transport, 9 % by cycling and 7 % by walking (Fig. 4) (Ipsos, 2015).

The car usage has been rather constant during the past years, while the use of public transport and bicycle has increased. Walking has however decreased. Sustainable transport modes

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Fig. 2. The contribution of CO₂ emissions from road transports within the transport sector.

Fig. 3. Contribution of CO₂ emissions from passenger transports out of total CO₂ emissions from road transports.

Fig. 4. The share hold from different transport modes.
are competing with each other depending on the season. During the summer months public transport is losing in favor over cycling (Ibid).

**Travel differences by gender**
Polk (2001) states that the most noteworthy regarding travel in Sweden is the extent of women and men's different travel patterns. Both men and women use the car for the majority of their journeys (measured distance), but men are travelling much longer and spend more time on travelling than women do (Ipsos, 2015). Men make more work related trips, while women do more trips for household purposes. Women are also more often doing secondary errands on their main journey.

While men are using the car more, women are using different transport modes and are using public transport, bicycle and walk more than men do. 57% of the public transport users are women (Ipsos, 2015; Rydhagen, 2013), and men have more often access to the car in households with only one car (Currie & Stanley, 2008; Gilboa Runnvik, 2014; Ipsos, 2015; Polk, 2001, 2004; Sandberg et al., 2011). Consequently, men are consuming more energy and are emitting 53% more CO2 than women (Polk, 2001). Cedersund & Lewin (2005) argue that women more often see other transport alternatives than the car, and are actually trying to use them. Maybe because of this, women are said to have a more pro-environmental transport behavior (Indebetou, 2010; Polk, 2001). However, Indebetou (2010) argues that when women’s opportunities become more equal to men’s, they will take after men’s behavior, and drive more private cars. Rydhagen (2013) argues that differences between men and women’s travel behavior and car ownership is declining. Polk (2001) suggests that men have stronger attachment to the car and therefore are less willing to change to other transport modes. These gender differences remains after comparing with socio-demographic variables like age, education, income, and marital status (Indebetou, 2010; Polk, 2001). However, when comparing gender with age and education the difference is less (Indebetou, 2010; Scheiner & Holz –Rau, 2012).

**Travel differences by age**
The age group under 20 is the higher users of public transport, and the use increases with age after the age of 64. The age group between 45-64 years is the major user of cars (Ipsos, 2015). Ipsos (2015) yearly report *Kollektivtrafikbarometern* suggests this as the target group for increased use of public transport. The younger age group is more open to change to more sustainable modes of transportation (Nordlund & Westin, 2013). Moreover, different positions in the life cycle entails different travel pattern. Households (especially the women) with children travel more than households without children, and are using public transport less (Cedersund & Lewin, 2005; Holmberg & Brundell-Freij, 2012).

**Travel differences by economy**
Rydhagen (2013) states that income and access to car is correlated, as well as low education and low income to low car use. Lower education than university is associated with public transport use instead of car use, and higher university education is associated with less car use and more cycling (Holmberg & Brundell-Freij, 2012; Indebetou, 2010; Scheiner & Holz – Rau, 2012). When comparing education and age to gender, the differences are larger within the same gender than between men and women (Indebetou, 2010; Scheiner & Holz –Rau, 2012).

**2.3 Health and well-being**
In addition to economic and environmental implications, public health is an important matter when evaluating the transport system (Samimi et al., 2009). Health can be defined as a state
of physical, mental and social well-being, and is the outcome of the interaction between human activity, physical environment and biological environment (Landon, 2006).

"Health is key to sustainable social development and people's well-being” (www. Government Offices of Sweden, 2014d).

A healthy population is a principal for social sustainability. The overall national health goal is to “create conditions in society so that the entire population can enjoy good health on equal terms” (www. Government Offices of Sweden, 2014d).

Health is determined by people's own choices and living habits, as well as by structural factors that however are more difficult to influence (Swedish National Institute of Public Health, 2010). Health and well-being are linked to social networks that in turn are influenced by living conditions. Lack of social networks can lead to social exclusion, reduced empowerment and growing inequalities. Social networks are sustained by access to mobility, and transportation is therefore a key element for social inclusion and for good health (Currie & Stanley, 2008; Socialstyrelsen, 2014; Urry, 2012b). Thus, the service from public transport is important as it can provide mobility for groups with no access to other forms of transportation. Litman (2015) argues that increased use of public transport can be one of the most cost efficient public health activities, as long as the new users are the car drivers. It is also a safe way of transportation, as the risk of injuries is significantly lower than travel by car (Clark et al., 2010).

Public health is addressed in the national transport objective (Government Offices of Sweden, 2014a). Health is one aspect of a sustainable transport system, as sustainable transport modes improve physical activity and reduce CO₂-emissions. Baslington (2008) argues that the extensive car use will eventually lead to ill-health, which will increase the cost for society due to increased costs for health services and decreased working force participation.

People control their own course of life, but they are influenced by social and environmental conditions. Regular physical activities are an important determinant for good health and well-being, and physical activities can prevent a number of diseases, and is a priority area within the public health goal (Swedish National Institute of Public Health, 2010). The recommendation is at least 30 minutes of daily physical activity. Using physical active transport mode to get to work can significantly increase the possibilities to meet this recommendation (Bopp et al., 2013; Faskunger, 2008; Socialstyrelsen, 2014). If not being able to walk or cycle, it is proven that using public transport involves increased physical activity (Bopp et al., 2013; Clark et al., 2012), as much as four times compared to car users (Malmö stad, 2015). Bopp et al. (2013) argue that it is possible to meet the physical activity needs through transportation to and from public transport, and this can be a catalyst to encourage further physical activity. In addition to spatial factors, active transport is however determined by demographic and health-related factors, such as age, diseases, weight status, and beliefs (Bopp et al., 2013; Swedish National Institute of Public Health, 2010).

### 2.4 Socioeconomic class

Socioeconomic class is according to Landon (2006) the broad concept of education, income, and wealth, where education is a strong determinant (Statistics Sweden (SCB), 2015b). These factors are shaping living conditions, habits and psychosociological factors, and subsequently there is a correlation between health and socioeconomic class (Bopp et al., 2013; Landon, 2006). Living conditions is including the social environment, sense of control, stress, habits,
and psychosociological factors (social networks and ability to coop with the situation) (ibid). Norms, values and behavior are according to Bourdieu (in Currie & Stanley, 2008) associated and regenerated within the social class, through consumption, culture and lifestyle. These are reinforced and sustained by economic opportunities and structures, and socioeconomic differences are generated by differences in economic capital (ibid). Cultural capital involves according to Bourdieu the inherited ability to gain an education, which in turn influences the ability to create economic capital. Social capital is social status, relations and networks, and is important for the access to the labor market (ibid). Thus, the socioeconomic class and lifestyle embraces economic, social and cultural capital. Socioeconomic differences appear when the share of resources is unequally proportioned, and poor living conditions and unhealthy habits hamper the ability to benefit from these services. Subsequently this can lead to poor health (ibid). Poor health is furthermore affecting the ability to equally take advantage of services the society is offering (Socialstyrelsen, 2014). Hence, the higher socioeconomic class is more powerful to take advantage of opportunities and services offered by the society, than those in the lower socioeconomic classes. As income and lifestyle is interlinked, higher income often equals higher emissions of CO₂ (Kaijser & Kronell, 2013). This means that CO₂ emission is a question of class. In order to equalize socioeconomic differences, access to services and opportunities is fundamental (Harvey, 2008).

2.5 Equity
Lifestyle and habits are behaviors that the individual can influence in everyday life. However, habits are influenced by living conditions, and everyone doesn’t have the same preconditions. Studying equity in relation to environment and sustainability is relevant as Kaijser & Kronell (2013) and Rydhagen (2013) suggest that the more powerful socioeconomic group is harming the environment more. Possibilities and opportunities in life are shaped by power and inequalities (Kaijser & Kronell, 2013).

Equality means, regardless of gender, race, class, sexual preference or social belonging everyone has the same rights and obligations, and are equally valued. Everyone should have the same right to control his or her own life (Government Offices of Sweden, 2015b). A sustainable society builds on equality and has everyone’s needs in mind, and equality is therefore a question of power. Henriksson (2014) argues that inequalities are legitimized when social categories are perceived natural. Haraway (1988) stresses that in order to fight inequalities, the effects from habits has to be illuminated.

2.5.1 Equal Opportunities
Accessibility to public services, opportunities and jobs are an important aspect of equality, and the collective right to form the city is fundamental values in urban theory (Harvey, 2008; Olsson, 2012). A healthy city creates a supportive environment for reducing inequalities and for improving determinants for good health, overall trust and well-being (Landon, 2006; Larsson & Jalakas, 2008; Socialstyrelsen, 2014). How well the city facilitates this, is critical for the possibilities to utilize the services. Harvey (2008) argues that suburbs are a location for gender inequality, as it involves transportation to reach access to services. Bridging gaps and integrating neighborhoods are important parts of strengthening social sustainability. To do so, physical interventions that allow equal access to quality and service is fundamental. Larsson (2006) suggests that the public space is where gender structures are reproduced, and planning has an important role. The feeling of freedom is important in a democratic society, and access to the public sphere is fundamental (Andersson, 2005; Larsson & Jalakas, 2008). However, access to, and mobility within, public spaces can be limited by feelings of unsafely. Regardless of class, ethnicity, age and residential area, women are more affected than men.
(Andersson, 2005). Larsson & Jalakas (2008) suggest that both the urban development and the transport system are the cause of this, but Andersson (2005) argues that social relations and power structures are the underlying causes. Economic situation and motherhood are linked to the feeling of safety. The economic resource determines what transport mode is possible, and where access to a car is experienced a safer alternative. Mothers are often feeling anxious when their daughters are participating in the public space. The fact that women are feeling unsafe in the public sphere is reproducing male superiority, which controls women’s mobility, and furthermore linked to unequal access to the public space (ibid).

However, Levin & Faith-Ell (2011) argue that traditional spatial and transport planning have taken men and women’s different needs into consideration, but have ignored inhomogeneities within groups. A public space that on equal basis encourages social interactions is perceived attractive and promotes social sustainability (Buehler & Pucher, 2011). Hence, as provider of mobility, public transport is essential for a social sustainable society.

2.5.2 Equal Mobility
Equity is central for transportation and sustainable development. As emissions, and the effects of these emissions, are unequally divided, the ability to mitigate is unequal within societies as well as globally. Technology and its symbolic value have been used to enhance economic and political power over others, which have surpassed social justice (Winner, 1980). The consequence is that the weak, although unintentionally, are at a risk of being excluded. To mitigate inequalities, equality is addressed in the national transport objective (functional objective), and aims at an accessible transport system for all, with an emphasis on meeting both men and women’s transport needs (Government Offices of Sweden, 2014a; Levin & Faith-Ell, 2011).

Winner (1980) argues that it is necessary to look beyond the practical use of the cars and see what it means for power structures. The powerful are the greatest emitters of CO₂ (Kaijser & Kronell, 2013), and the weaker is the environment, lower socioeconomic groups, women and youth. There has to be a social structure around the car that controls the outcome (Winner, 1980).

Furthermore, Winner (1980) argues that the democratic responsibility doesn’t end with politics, it has to spread among the people and is everyone’s responsibility. However, people are prepared to change their lifestyle to fit new technology, but less willing to do it on political grounds. People have to think about their use of the car, what it causes and how it influences power on others (ibid). However, Winner points out that although the society structures transportation, everyone can and will influence one’s use differently. However, mobility appears to be associated with inequalities. If equality is influenced by equal opportunities and equal access to transportation, it is necessary to discuss the issues in relation to each other, as Hanson (2010), Polk (1998) and Rydhagen (2013) agrees on. Equality, gender equality and social sustainability requires increased need of transports (Hanson, 2010; Polk, 2001; Rydhagen, 2013), at the same time as environmental sustainability requires reduced CO₂ emissions and reduction in transports. This implies that increased mobility has to be sustainable and including. Embracing equality and social justice is critical for a sustainable development. Consequently, power structures have to be taken into account when studying transportation.

2.5.3 Intersectionality
Gender is the socially constructed roles, behaviors, activities and attributes appropriate for men and women in a given society (WHO, 2015). Hirdman (1988 in Andersson, 2005) implies that the relationship between men and women is about power. To understand the power relations, she introduced the concept of gender contract, which revealed the presence
of power relations at both individual and societal level. However, the gender contract model has been criticized for its inflexible interpretation of the categories of men and women, and Andersson (2005) suggests that by looking at men and women as dichotomies, it will only reinforce and de-emphasize differences. Men or women cannot be seen as a homogenous group, and power relations are not only controlled by gender. To understand the complicated processes of power relations, de los Reyes & Mulinari (2005) and Lykke (2003) argue that the concept of intersectionality is appropriate.

Intersectionality is an interdisciplinary theoretical analytical tool used to illuminate power relations. Fundamental is the idea that inequalities are grounded in power structures determined, and reproduced, by the interaction of age, gender, class, profession, ethnicity etc. These can reinforce as well as debilitate each other (de los Reyes & Mulinari, 2005; Lykke, 2003). According to de los Reyes & Mulinari (2005), power is a process constantly under change and renegotiation, and has to be reproduced to keep its position. It is the interaction of social categories that serves as ground for power, inclusion and exclusion (de los Reyes & Mulinari, 2005; Lykke, 2003), thus power relations are reproduced in everyday life actions. It is built on symbolic and material resources at both, individual and structural levels in the society. Because of social constructions, childhood and youth is connected to lower power status (Lykke, 2003). Different categories cannot be isolated from each other, without the risk of loosing important links to understand the overall power situation. Without neglecting the gender power system, intersectionality takes other categories into account, and illuminates the interaction between different social power systems in everyday life.

From an intersectional perspective it is important to illuminate power relations constructed by material resources and knowledge facilitating everyday actions (de los Reyes & Mulinari, 2005), and therefore equality is linked to the individual’s situated ability to act within the structure. Therefore it is important to study the connection between transports and power relations. Based on Sandra Harding (1991) and Donna Haraway (1991) ideas, Kaijser & Kronell (2013) point out that power relations are shaped by its local contexts, which enables or limits the individual’s freedom of actions. Although Sweden is argued to be among the most gender equal countries (Rydhagen, 2013), different power structures related to gender may still control the individual's daily choices more than the individual’s utility maximization, which makes it interesting to study the mode of transport choice based on more categories than sex.

2.6 Sustainable Transport System
To mitigate the extensive environmental problems the transport sector is causing and to reduce the CO₂ emissions, a more sustainable transport system has to be developed. This is one of the most important challenges today (Polk, 2001). On the basis of the definition of sustainable development, Black (1996, p.151) defined a sustainable transport development as; "development that meets the transport and mobility needs of the present generations without compromising the ability of future generations to meet their transport and mobility needs ". Accordingly, the transport objective (Government Offices of Sweden, 2014a), aims a sustainable transport system that contributes to social and economic welfare and promotes development by provisioning basic accessibility with good quality and usability, and without negative environmental impacts. Hence, it should limit fuel consumption, air pollution, and congestion (Buehler & Pucher, 2011; Polk, 2001), while promoting an inclusive and safe society that ensures traffic safety, rich cultural life, good public services, as well as good public health (Government Offices of Sweden, 2014a).
Personal transportation is increasing the most within the transport sector (Holmberg & Brundell-Freij, 2012). In combination with better fuels and more energy efficient vehicles, more transport-efficient urban planning, decreased need for travel and a less car dependent society is required (Banister, 2008; Xenias & Whitmarsh, 2013). A sustainable transport system aims at reducing the number of cars in favor of walking, cycling and public transport (Bjerkemo, 2011; Levin & Faith-Ell, 2011), where most short trips are undertaken by walking or bicycle, and most long trips are undertaken by public transport (Bjerkemo, 2011) (Fig. 5).

EU Public Transport Regulation defines public transport as “without discrimination pre-organized and regularly offered personal transportations with public economic interest” (www.transportstyrelsen, 2015, my translation). This means that public transport should provide equal, accessible and usable mobility for everyone, and promote connections of neighbourhoods (Buehler & Pucher, 2011; Government Offices of Sweden, 2015a), and hence fulfill the transport objective. A well functioning public transport system, including bus, tram and/or train, promotes growth and is particularly important for the accessibility of jobs, services, education, and homes, especially for vulnerable groups (Levin & Faith-Ell, 2011).

As all mobility is shaped by the transport system, a sustainable transport system is when the total travel habits are promoting environmental, economic and social sustainability. Choosing more environmentally friendly alternatives has to become the natural choice of transportation (K2 & Swedish Transport Association, 2013). The Swedish Public Transport Association states that

“Public Transport is a natural part of travel in a sustainable society” (K2 & Swedish Transport Association, 2013, p.5).

The National Knowledge Centre for Public Transport (K2), has the vision that Sweden in 2030

“will be a role model in Europe for how public transport can contribute to the development of sustainable and attractive city regions. Public transport will be the main system of passenger travel in metropolitan areas, with resource-efficient access to everyday destinations, at the same time delivering better health and better quality of life” (www. k2).

Public acceptability to sustainable mobility depends on changes in social norms, which requires that individuals understand the importance and need of the introduction of a sustainable transport system (Banister, 2008). Sustainable transportation has to be part of people’s lifestyle. Ipsos (2015) states that the largest potential to change transport mode from car to public transport is within the group that always chooses the car. This relatively large group takes longer journeys rarely undertaken by cycling or walking. Contrary, the group that
seldom chooses the car, has less potential for change, and partly because people within this group already sometimes use public transport and their journeys are shorter and they often rather walk or bike. When this group uses the car it is for shopping etc. when they undoubtedly need it (Ipsos, 2015). However, a vast amount of trips made by car is less than 5 km, and could be done by bicycle or by foot. Public transport has today a fairly low share of short trips, and the competitiveness is weak (ibid).

A sustainable transport system involves equality, reliability and attractiveness, so that it can create bridges between work, leisure and households. This in turn, is the foundation for a more equal division of labor between men and women, Levin & Faith-Ell (2011) suggest. This is important, as there is a close relationship between gender equality and social sustainability (Polk, 2001), as well as between environmental sustainability and climate change.

2.7 Travel mode choice theories

Travel mode choice is complex, and travel mode choice can be made for different reasons, and different reasons can lead to the same choice (Anable, 2005). A combination of individual, situational and planning factors is influencing the choice. Differences between and among groups depend on sociodemographic factors (Anable, 2005; Goodwin & Lyon, 2009).

Transport mode choice is according to the rational choice theory determined by preferences and perceived barriers, and is evaluated by the outcome of different decisions (Bamberg & Schmidt, 1998). The rational choice theory assumes that the individual is rational and egocentric, and has consistent preference values. The central idea is that the individual is making decisions with the aim of its own utility maximization.

According to the extended model of Goal-Directed Behavior Theory (EMGB) (Fig. 6), the intention to do something is determined by attitude and subjective norms. But as much behavior is not voluntary, the perceived behavior control has to be taken into account. The stronger the intention is, the more likely a certain behavior is to be performed. As more often a behavior has been performed, as more likely it will be performed again, and therefore past behavior has to be taken into account when predicting future behavior. Additionally, anticipated emotions, that are the emotions in achieving or not achieving a certain goal, are influencing the choice. Finally, context and situational factors are facilitating or constraining the choice (Perugini & Conner, 2000).
Travel mode choice is an interaction of internal and external driving forces (Gehlert et al., 2013; Kottenhoff & Byström, 2010), and situational constraints or facilitators shape the mode decision. Before the mode choice is taken, the consequences of different options has to be evaluated, and the result is influenced from norms, values, attitudes and habits. Additionally, the choices are valued according to psychological costs/benefit ratio (ibid). Thus, travel mode choice is determined by the interaction of individual factors, social influences, and the transport environment. However, when taking past behavior into account, these factors are no longer as strong (Thøgersen, 2006).

Furthermore, Scheiner & Holz -Rau (2012) suggest that travel mode choice in a car deficient household can be explained by four determining theories; economic resources, social roles, preferences, and patriarchy. Economic resources constitute economic power and facilities choices. Economic power may reinforce household inequalities, and preserve gender roles. Social roles are associated with gender roles and the division of paid and unpaid work, but also social roles defined by culture and patriarchy. Preferences involve attitudes, values and subjective norms, and are influenced by social and cultural norms and values. Patriarchy is the male dominance over the female (Scheiner & Holz –Rau, 2012). Furthermore, the geographical context is providing or limiting opportunities for different choices. The availability of good public transport connections for one part in the family may allow the other part to use the car (ibid). These explaining theories are linked to each other and interdependent of each other, and are driving forces of power relations, which the intersectional analysis aims at illuminate.

Environmental psychology has developed theories and models for predicting pro-environmental behavior. According to the Theory of Environmentalism the general environmental beliefs and values determine both the individual’s awareness of environmental problems and the personal feeling of obligation to behave in a (more) pro-environmental way (personal norm). In turn, personal norms and awareness affect the willingness to adopt a pro-environmental behavior (Stern, 2000). Nilsson & Kuller (2000) implies that the relation between environmental attitude and behavior is complex, and environmental attitudes have a higher influence than environmental knowledge in pro-environmental behavior. However, the actual behavior is more influenced by the individual background and resources, while the acceptance of restriction is more influenced on environmental attitudes. Yet, differences in actual behavior and acceptance can be explained by individual or planning constraints (ibid). Nilsson & Kuller (2000) argue that pro-environmental attitudes can only influence the travel mode choice if the circumstances are supporting environmental friendly choices, for example economic incentives. However, the environmental impact of the individual’s behavior is fairly small, and only when many people independently adopt the same behavior the environmental impact can become significant (Polk, 2004; Stern, 2000). Garville (1999) underlines that the social dilemma is the difficulty in obtaining a pro-environmental behavior if the surrounding is not, which often results in the choice of the most convenient travel mode choice. Therefore, Garville (1999) claims it is important to encourage incentives that enhance a collective change to more pro-environmental choices.

2.8 Travel mode choice by preference
The internal and external driving forces (Gehlert et al., 2013; Kottenhoff & Byström, 2010) revealed by the literature research will be described in more detail in this section. Internal factors, such as habits, attitudes, lifestyle, sociodemographic conditions (age, gender, and economics) and sense of control interact with external factors. External factors are geographical location, land-use policies, spatial planning, and transport policies, which shape
the feasibility of different modes of transport. External factors are also accessibility, flexibility and convenience (ibid). Thus, time and length of the trip, waiting time, price, comfort and information are factors taken into consideration when deciding what travel mode to chose (Kottenhoff & Byström, 2010).

2.8.1 Attitudes
A number of studies have showed the importance of attitudes towards public transport (Beirao & Sarsfield Cabral, 2007; Gehlert et al., 2013; Engström & Hansen, 2011; Nordlund & Westin, 2013; Polk, 2001; Xenias & Whitmarsh, 2013). Baslington (2008) suggests that the attitude towards transport is embedded in childhood experiences, and children learn attitudes and travel behavior from their everyday life with their parents. A negative attitude towards the car and a positive attitude towards public transport correlate to an openness to change. Frequent users of public transport, have a more positive attitude towards public transport (Ipsos, 2015). Car users less often believe that public transport can fulfill their need (Pedersen, 2011), and according to Nilsson Kuller (2000), attitudes towards public transport depend more on attitudes towards the car, than on public transport itself. Polk (2001) argues that men are less critical towards the car, and women are more positive towards public transport (Levin & Faith-Ell, 2011; Polk, 2001). Men take more often the car for granted (Cedersund & Lewin, 2005). These differences remain also after controlled for socioeconomic variables (Polk, 2001, 2004). Gehlert et al. (2011) argue however, that there are contradictions regarding the correlation of gender, as well as for age and income, and the willingness to reduce the car use. Attitude also has a strong influence on the willingness to cycle and walk (Baslington, 2008). Bopp et al. (2013) found that people who believed in health benefits from physical activity was more likely to meet the physical activity recommendations. In a study in Sweden, Hansson et al. (2011) found that car drivers had poorer perceived health as well as health outcome. Poor health was related to car usage (ibid). The weather and temperature are other factors influencing physical active modes (Eliasson, 2001; Hagman, 2003; Liu et al., 2015; Pucher & Buehler, 2006). This is also reflected in the fact that more people walk or cycle in the summer period (Liu et al., 2015).

2.8.2 Environmental attitudes
A number of studies have also showed the influence of environmental attitudes (Eliasson, 2001; Engström & Hansen, 2011; Goodwin & Lyons, 2009; Levin & Faith-Ell, 2011; Nordlund & Westin, 2013; Polk, 2001). Anable (2005) found a correlation between pro-environmental attitude and higher education. A Swedish study by Levin & Faith-Ell (2011) show that people in general do not correlate public transport with environment, although the environment is an important factor for an attractive and sustainable city. However, being aware of the environmental problems the car is causing, doesn’t necessarily lead to a change in behavior (Hagman, 2003; Polk, 2003; Thøgersen, 2005). Hagman (2003) argues that the environment is often of a concern of the public and not an individual issue. However, supported by environmentalism (Stern, 2000) Eriksson et al. (2006) suggest that norms, values and a feeling of a moral responsibility to act, are affecting the willingness to accept new transport and traffic policies. The same did Nilsson & Kuller (2000) found regarding environmental attitude. The belief of benefits for the local environment and society was important for the intention to change. Nordlund & Westin (2013) found that older age groups had weaker openness to change values regarding the environment. Women are in general more environmentally concerned (Levin & Faith-Ell, 2011; Polk, 2001, 2004; Sandberg et al., 2011), and choose travel mode with regards to the environment more often (Engström & Hansen, 2011; Goodwin & Lyons, 2009; Polk, 2001), and therefore more often reduce their car use (Polk, 2001).
2.8.3 Habits
Most travel is made in stable contexts, and most travel mode choices are repetitive. When considering past behavior other factors are no longer significant (Thøgersen, 2006). Thus, past behavior is an extensive influential factor. Xenias & Whitmarsh (2013) argue that decisions are also based on emotions, and people’s daily travel mode choices are habitual and not always a subject under consideration (Anabel, 2005; Henriksson, 2014; Polk, 2004; Thøgersen, 2006). Past behavior and habits explain much of the variations otherwise not possible to explain, such as why people can become locked in the car mode and no other options than the car are considered (Urry, 2004). Past behavior may also lead to change in attitude and perceives behavioral control hence the habitual car driver is hard to change (Thøgersen, 2006). Baslington (2008) suggests that the use of a car is embedded and reinforced in most social institutions; design of houses, family planning, life style, employment, shopping, leisure etc, and the values associated with the car are learned from early childhood. This influences the travel mode choice later in life, and eventually becomes a habit (ibid).

Schade (2005 in Gehlert et al., 2011) argue that high-income groups use the car more often, and therefore have a stronger habit to use the car, and the habitual car driver is not very price sensitive (Buehler & Pucher, 2012). Often the habitual drivers base their conception on preconceptions and assumptions, and not on their own experience, which leads to an underestimation of public transport’s ability to fulfill their need (Ipsos, 2015; Kottenhoff & Bystrom, 2010). Henriksson (2008) argues there is a difference between attitude and actual behavior. Although people argue that time was the most important factor and public transport was too time consuming, they didn’t change their behavior when the frequency was improved. This can be explained by the influence of habit.

2.8.4 Norms and Values
Norms and values affect the mode choice. But also social expectations and significant others, i.e. subjective norms, influence attitudes and actual behavior (Gehlert et al., 2013; Engstrom & Hansen, 2011; Goodwin & Lyons, 2009; Urry, 2012a).

2.8.5 Symbolic values
The car is not only a mode of transport; it can likewise be an object of appeal and a symbol of economic prosperity (Goodwin & Lyons, 2009; Paulley et al., 2006; Polk, 2004). Car ownership and use of the car is associated with freedom, control and high social status, and is often representing masculinity (Cedersund & Lewin, 2005; Polk, 2001, 2004; Urry, 2004, 2012a). Consequently, Polk (2001) has found that men in Sweden spend more money on transportation than women.

2.8.6 Socioeconomic factors
The freedom of owning a car, shape peoples choices (Gehlert et al., 2011; Hagman, 2003; Urry, 2004, 2012a). Car ownership makes an enormous difference in a household’s travel behavior (Buehler & Pucher, 2012). Geographical locations and culture influence on car ownership (Gehlert et al., 2011; Polk, 2001), but income is the key determinant (Paulley et al., 2006). Accordingly, low-income families are less likely to own a car, and are therefore more frequent users of public transport (Bopp et al., 2013; Buehler & Pucher, 2012; Rydhagen, 2013), as they often have no other alternative (Holmberg, 2013). Among singles, car ownership is more common among men than women (Rydhagen, 2013). It is not possible to predict travel behavior only in a socioeconomic background, as the need within the group is different depending on where in the lifecycle the user is (Baslington, 2008; Holmberg & Brundell-Freij, 2012; Ipsos, 2015). But regardless of age and income, men
have more often access to a car than women, and this is true also within households with children (Gilboa Runnvik, 2014; Polk, 2001). Furthermore, access to a car, increases the use of it (Buehler & Pucher, 2012; Gehlert et al., 2011; Paulley et al., 2006; Polk, 2001).

2.8.7 Individual control and convenience
Convenience, flexible in time and route, individual control, and an overall good “door-to-door” perspective are other influential factors (Beirao & Sarsfield Cabral, 2007; Buehler & Pucher, 2012; Eliasson, 2001; Engström & Hansen, 2011; Goodwin & Lyons, 2009; Hagman, 2003; Kottenhoff & Byström, 2010; Paulley et al., 2006; Sandberg et al., 2011). There is a link between car ownership and the importance of the feeling of control and independence (Goodwin & Lyons, 2009; Paulley et al., 2006). Car use allows doing secondary errands, such as shopping, on the main trip. People who like to be flexible in their activities are reluctant to use public transport (Sakano & Benjamin, 2011). There are also the car drivers who need the car for work and have no other alternatives (Eliasson, 2001). However, Forward (2014) found that cyclists felt a sense of freedom and that cycling was perceived convenient.

2.8.8 Relaxing
The possibility to enjoy and relax during the travel can also influence the mode choice (Beirao & Sarsfield Cabral, 2007; Eliasson, 2001; Goodwin & Lyons, 2009, Jones, 2012; Urry, 2004).
When public transport is too crowded its advantages is reduced, and the same for the car when the road is too congested (Beirao & Sarsfield Cabral, 2007; Kottenhoff & Byström, 2010).

2.8.9 Knowledge about public transport
Another important factor is knowledge about how to use the public transport system (Eliasson, 2001; Ipsos, 2015). Regular users of public transport are more active in their decision-making regarding transport mode, and there is a correlation between engagement and awareness of alternatives to the car and increased use of public transport (Ipsos, 2015). However, according to a public transport survey (ibid), car users often lack knowledge about public transport and therefore don’t see its advantages and find it relevant. Eliasson (2001) found that people in Stockholm lack knowledge about time differences between car and public transport.

2.8.10 Public transport service
A Public transport service that fulfills the travel need is fundamental for using it. This involves service frequency, waiting time, availability, reliability, comfort and convenience (Buehler & Pucher, 2012; Engström & Hansen, 2011; Eliasson, 2001; Jones, 2012; Kottenhoff & Byström, 2010; Sandberg et al., 2011). Thus, time and length of the trip are factors taken into consideration when deciding what travel mode to choose.

2.8.11 Time
The time factor has a central role in the choice of transport mode (Beirao & Sarsfield Cabral, 2007; Engström & Hansen, 2011; Eliasson, 2001; Sandberg et al., 2011), and most people with the option choose the least time consuming alternative (Banister, 2008; Kottenhoff & Byström, 2010). The time aspect regarding public transport involves frequency, waiting time and transfer time, distance to bus stop etc. (Bjerkemo, 2011; Buehler & Pucher, 2012; Engström & Hansen, 2011; Eliasson, 2001; Kottenhoff & Byström, 2010; Sandberg et al., 2011). Sandberg et al. (2011) argue that public transport can only be a competitive alternative to the car, if the time spent on travel is almost the same as for car. However, the car is often perceived to be faster than it actually is (Kottenhoff & Byström, 2010).
Eliasson (2001) found in his study in Stockholm, that travelling across the city or between peripheral areas is perceived as inconvenient. These journeys include many connections, which are time consuming, as the coordination of schedules and connections are often poor (Eliasson, 2001). Nonetheless, people today are prepared to spend more time on commuting to work, and men are spending more time on traveling than women (Kottenhoff & Byström, 2010). Men value time higher than women, and value of time is correlated to increasing income (Eliasson & Mattsson, 2006; Kottenhoff & Byström, 2010). The latter is however disputable, as Börjesson & Eliasson (2014) in a later study found that income has less impact on time value. Preferences and comfort are larger determinants. Nevertheless, Kottenhoff & Byström (2010) argue that working parents value time more. At the age of 25-30 many start a family, and family cores (fetching at day care, shopping, activities etc.) are time consuming. This limits the choices regarding transport modes, as public transport often requires more time than the car. Therefore it has hard to meet the users needs, and the car is often perceived the only alternative (Baslington, 2008; Hagman, 2003; Ipsos, 2015). The group 45+ with grown up children, is less constrained by time and has therefore a greater potential to change from the car to another alternative (Ipsos, 2015).

2.8.12 Cost for travel

There is no consensus on what influence the price for transportation has on the mode choice. Some argue the price has minor influence (Holmgren, 2013; Xenias & Whitmarsh, 2013), and other studies argue it has more (Jones, 2012; Sandberg et al., 2011). The price for driving is a concern for many (Hagman, 2003). However, Eliasson (2001) found that the cost of a public transport ticket has a higher influence than the cost for driving a private car, although the car in total is more expensive. Car users have a tendency to overrate the cost for public transport, as well as the public transport users overrate the cost for driving even more (Kottenhoff & Byström, 2010). Based on the utility theory, the choice is an evaluation of the cost in relation to time in order to maximize the individual advantage (Gehlert et al., 2013).

The relative price of public transport has during the last decade increased significantly (Stridsberg, 2014), which could be a reason for the decreased use of public transport. Studies in Sweden show that regardless of the actual cost, a lowered fare increases the use, and a raised fare decreases the use of public transport (Holmgren, 2013). Most research agrees on that a fare system that is easy, convenient and economically competitive with the private car can increase the use of public transport (Buehler & Pucher, 2012; Eliasson, 2001; Engström & Hansen, 2011, Stridsberg, 2014; Xenias & Whitmarsh, 2013). Eliasson & Mattson (2006) and Kottenhoff & Byström (2010) found in their studies regarding road pricing that people with higher income are having a higher value of time, and therefore prepared to pay more for a faster travel option.

2.8.13 Safety

The feeling of safety or unsafely also influences the transport mode. This has impact on women’s travel patterns, and women are more often avoiding public transport at night (Hagman, 2003; Kottenhoff & Byström, 2010). This experience can however be different, which means it is important to understand each individual. Feelings of unsafely favor the use of the car. However, women are prioritizing personal safety more than men, and therefore minimizing the risk of accidents, and therefore often see public transport as a preferable alternative (Polk, 2001).
2.8.14 Spatial planning and policies
Land-use and transport policies, spatial planning and geographical location (of residence and workplace) shape the feasibility of different modes of transport (Buehler & Pucher, 2011; Jones, 2012; Xenias & Whitmarsh, 2013). Long commuting distance is a strong barrier for the willingness to change from car to public transport (Gehlert et al., 2011). Travels to the city center is often more convenient with public transport or by bicycle (Hagman, 2013), especially if there is a lack of parking. Decreased parking availability is an efficient tool to force people to use alternatives to the car (Bjerkemo, 2011; Engström & Ingelström, 2010). Oppositely, the commuters who have access to adequate parking areas are according to Kottenhoff & Byström (2010) less likely to make changes.

This chapter has presented the survey of the field, and described health, equity, sustainability and transportation, which gives a pre-understanding for the case-study.

3. The Case- Uppsala

This chapter will describe the context wherein the case study takes place. It will provide more information about the characteristics of Uppsala and the study area of Nåntuna/Vilan and Sävja, as well as political objectives and plans.

3.1 Socio-demographics Characteristics of Uppsala
Uppsala city is the capital of Uppland County, in the region of Mälardalen and the central station is located 71 km from Stockholm C. It is the fourth largest municipality in Sweden, with a total population of approximately 205 000 inhabitants (Uppsala Municipality, 2015). The urbanization is however sizeable, and the city is growing. Uppsala city is central for the regional development, with the provision of education, employment, service, culture and recreation, and thus, an important meeting point (Regionförbundet Uppsala Län, 2012).

The population is relatively young, the educational level high and the unemployment is lower than average in Sweden. However, there are large socioeconomic differences between groups and areas (Regionförbundet Uppsala Län, 2012). The health situation is better than in the rest of Sweden on average, although large differences can also be found here (Socialstyrelsen, 2014). Around 12-14% of the population has sedentary leisure activities, and 65%, which is less than the national average, reach the daily recommendation of physical activity. However, men’s sedentary life style is decreasing, while women’s is increasing. Among men, the age group 45-65, is the least physical active, and for women the age group is 65+. There is also a correlation between higher education and increased physical activity (ibid).

3.2 Sustainable Development strategy and Vision 2030
The long-term strategy for sustainable development is stated in Policy for Sustainable Development, which Uppsala Comprehensive Plan, Vision 2030, is based on. Vision 2030 takes departure in the three pillars of sustainable development (Uppsala Municipality, 2014d), and states that a sustainable society builds itself on the concepts that social inclusion, welfare and economic development are combined with a safe and healthy environment. According to the Direction for activities, operation, and economy 2014-2017 (IVE), the policy for sustainable development permeates all municipal activities (Uppsala Municipality, 2013). The
The overall goal for the Transport objective is to ensure economic efficiency and economic growth, and to design a long-term sustainable transport system (Government Offices of Sweden, 2014a). The Transport objectives are divided into the Functional Objective and the Impact Objective (ibid). The Functional Objective focuses on the accessibility of the transport system, which involves ensuring everyone basic accessibility with good quality and functionality. The Impact Objective aims at ensuring a safe transport system, and targets the achievement of the environmental quality objectives and better health outcomes (ibid). One mechanism to achieve the transport objectives, and CO₂ reduction in particular is the Swedish Doubling Project.
3.4.1 The Swedish Doubling Project- The Doubling Goal
The Swedish Doubling Project started in 2008 and is a nationwide co-operation within the public transport sector, and aims at doubling the market share held by public transport by the year 2020 (compared to 2006) (Swedish Public Transport Association, 2015a). The doubling project has according to K2 & Swedish Transport Association (2013) started the public debate about the future public transport and has increased the ambitions on regional levels to achieve the national target of doubling the use of public transport. It has also been inspiring on international level. Doubling the use of public transport is estimated to decrease CO₂ emissions from personal transports by 24% (Swedish Public Transport Association, 2015a). This would help to achieve the environmental objectives, but would also contribute to employment, safety and the achievement of the equality objectives.

3.5 Public Transport in Uppsala
According to the national Public Transport Act from 2012, Uppsala County council is the regional public transport authority with the responsibility for the public transport within Uppland County. The Public Transport Department of Uppsala County Council (Upplands lokaltrafik, UL) is the public administrator of the public transport and has the operational responsibility including short-and long-term strategical planning (UL, 2014b). Given the background to Uppsala’s goal to increase the use of public transport and achieve the doubling goal (Public Transport Department of Uppsala County Council (UL) 2014a; Uppsala Municipality, 2013), the Action Plan for Future Public Transport in Uppsala City 2015-2013 sets the direction for this (Uppsala Municipality, 2014b).

Along with the economic growth and the increased car ownership in the 1960-70s, the use of public transport fell in Sweden (Kummel, 2006). Over the period between 1986 and 2001, the use of public transport (trips/capita) in Uppsala County fell by 47% (Holmgren, 2013). However, since 2000 the overall national use has increased by 32% (Statisticon, 2014), and it is the more regular transports, e.g. to work, school etc, that have contributed to this. As in many metropolitan areas, public transport is often perceived as the relevant alternative to the car, and UL holds the third largest market share in Sweden with their 26%, and is among the most increasing (Ipsos, 2015; Statisticon, 2014). Nevertheless, public transport only accounts for approximately 13% of all transports (Uppsala Municipality, 2014d), which is less than the national average of 23% (Ipsos, 2015; Statisticon, 2014). The use is lower in the summer period, in favor of more physical active mode choices (UL, 2015).

The vision is that the public transport will attract more frequent users, and have a door–to-door perspective that makes public transports the easiest choice (UL, 2014b; Uppsala Municipality, 2014d). The desire is that public transport will contribute to an attractive and sustainable city, which allows the city to grow and become denser but still keep its quality (Engström & Hansen, 2011; UL, 2014b; Uppsala Municipality, 2014d). As public health is a priority area in Uppsala municipality, physical active mode choices along with public transport are now the norm of transportation when planning the city (Uppsala Municipality, 2013). The aim is to encourage private car drivers to change to public transport.

UL is striving for increased safety, decreased travel time, and improved overall possibilities for sustainable transportation (Uppsala Municipality, 2014b). According to a national comparison, UL provides the best service counted by offered kilometer (Rhudin et al., 2014; Statisticon, 2014). The fare for a single ticket is however among the highest in Sweden, although the period card is among the cheapest (Stridsberg, 2014). The fare in Uppsala is slightly cheaper than in Stockholm, which in comparison to Europe, is among the most
expensive, also after purchasing power adjustment (ibid). In Uppsala city the fare was increased by approximately 50% in April 2014 (Upplands Lokaltrafik, 2014e), but 1\textsuperscript{st} of April 2015 lowered again (Upplands Lokaltrafik, 2014c). The result from these price changes has not yet been evaluated as many other factors also influence the choice of travel mode (personal communication Adamsson, 2015).

3.6 Study Area- Nåntuna/Vilan and Sävja in Uppsala

The two areas of Nåntuna/Vilan and Sävja (Fig. 6) within Uppsala city are closely located at similar distances, 5.5 to 7 kilometer southeast of Uppsala city center. The two areas were chosen according to their distance from the city center, which could allow people to walk or cycle to the city center on a daily basis.

Nåntuna and Sävja are residential areas and geographically located outside the city center, and therefore mobility is fundamental for access to work, education and services. There are well-maintained bicycle roads, in summer as in winter (Uppsala municipality, 2015), as well as a frequent public transport service to Uppsala center and other areas. The bus number 5 to Sävja has a frequency of every 10 minutes (Uppsala lokaltrafik, 2014d), and passes by Nåntuna/Vilan. The buses number 20 and 22 go directly to Nåntuna/Vilan, and have a frequency of between 20 and 30 minutes (ibid). According to the number of people boarding and disembarking at every bus stop along the route during January, May and the period of January-May 2014, Sävja has a higher use of public transport than Nåntuna/Vilan (UL, 2015), also compared to the number of inhabitants.

Population statistics from Uppsala Municipality (Uppsala Municipality, 2015) show the criteria of inhabitants, average income, level of education, unhealthy figure, labor market participation and access to a car. Nåntuna/Vilan (Fig. 6) is in the higher socioeconomic scale in Uppsala, with among the highest wage average in Uppsala and very low unhealthy-figure (based on the number of days of sick leave or rehabilitation leave etc). Access to a car is higher than in other areas (Uppsala Municipality, 2015). In Sävja (Fig. 6), the income is average, but the unhealthy-figure is high, and about half of the families have access to a car (appendix 1) (Andersson, 2015). However, there are large differences within Sävja (Andersson, 2015).

4. Method

An extensive literature research preceded the empirical data collection. 62 articles, reviews, studies and publications undertaken in Sweden (Skåne, Malmö, Stockholm among others), Germany, UK, Portugal and the USA about travel behavior and travel mode choice were read. The key words transportation, mobility, travel behavior and travel mode choice were used to search within Uppsala University Library. This lead to further search in databases, such as Web of Science Core
Collection, Science Direct, KVINNSAM and GEOBASE, followed by different transport journals. References found in the literature lead to additional literature. This extensive literature review was the ground for the development of this limited case-study.

The following sections will describe the methodological approach, and the method for the case-study that was used to collect and analyze the empirical data from the interviews.

4.1 Methodological approach
Transportation is an interdisciplinary field (Gehlert et al., 2013; Polk, 2001; Spotswood et al., 2015), but Spotswood et al. (2015) argue that interdisciplinarity still is unusual in behavior research, with the result of isolated knowledge and limitation in its effectiveness. Hanson (2010) suggests that in order to understand the interaction between gender and mobility in the context of sustainability, knowledge about power structures shaping mobility is crucial. Thus, the dynamics around power structures and mobility in its social and geographical local contexts needs deeper understanding (Hanson, 2010). With this in mind, the method of a case study was chosen for the purpose of this thesis (Bryman, 2008).

The method is the technique used to collect and analyze data (Bryman, 2008), and in relation to the aim, the most appropriate data collection method was to be considered. A constructivist position builds on the idea that social activities are shaped by its actors’ experiences and interactions, and qualitative research is imbedded in the idea of understanding the real world through its members (Bryman, 2008). This is where this study takes its departure. The individuals’ understanding of their situation is based on their experiences, and this is important because different individuals have different motivations for their transport decision (Anabel, 2005; Beirao & Sarsfield Cabral, 2007; Goodwin & Lyons, 2009). Goodwin & Lyons (2009) estimate that there is no single view even within small groups. Either age, gender or socio-economic situation, are single strong determinants and therefore people cannot be grouped together. Additionally, because motives for travel behavior differ between individuals regardless of other factors and travel mode choice can be made for various reasons, there is little interest in addressing the average consumer’s habits and attitudes (Anabel, 2005; Beirao & Sarsfield Cabral, 2007; Goodwin & Lyons, 2009). It is of more interest to understand people’s different motivational factors. Qualitative research assumes that reality can be perceived in many different ways, and consequently there is no absolute and objective truth (Bryman, 2008). Hence, the method is preferable in examining travel behavior.

Point of departure, and part of the pre-understanding, is that physical active modes and public transport are sustainable transportations, both regarding equality, human health, spatial planning and sustainable development. Thus, the private car is at the larger use seen as a less desirable option, although the use of car in some contextual situations, such as lack of public transport service, complex travel pattern etc., must be justified. It is impossible not to interpret the result outside one’s own pre-understanding (Bryman, 2008), which must be kept in mind through the analysis process, although feminist research allows and encourages the researcher to take a position (ibid). Lykke (2009) argues that it is necessary to reflect on one’s own position, otherwise it is not possible to break through power structures that are being studied with the aim to challenge. A participatory approach was taken based on Donna Haraway’s Modest Witness (Haraway, 1997) where knowledge was gained from experiences based on situations in the real world (Rydahagen, 2002). For the past 18 months, I have myself been a resident in the study area, which gave time to gain insight and reflect on people’s life situations and their choices regarding travel modes. This allowed a pre-understanding that in
the limited time frame of the study was useful to gain deeper understanding in respondent’s situational context and travel behavior. According to Haraway (1991), the own knowledge and position is central in the understanding of reality, and the foundation for the desire to create justice and better well-being. I took a modest witness’ position (Haraway, 1991) and from my own perspective interpreted the respondents’ situation. Haraway (1997) is however open with the fact that the researcher is not perfect and is driven by apprehension and aspiration, and therefore the observations can be selective. Moreover, Haraway advocates that there are no borderlines between subjectivity and objectivity, and therefore I am part of both the study and the result. I had to acknowledge my own position and pre-understanding, but only what actually has been seen and heard was interpreted and mediated.

4.2 Delimitations
The aim was to identify factors influencing travel mode choice for regular everyday trips, hence the age group allowed to drive the car was of interest. Thus, people with a regular purpose of travel and 18 years old or above, were included. For the purpose of this study, gender involves the categories of men and women. Furthermore, the categories of ethnicity, functionality and sexuality have been excluded. Not because they are not important, but because the power analysis would be too time consuming within the time frame of this master thesis (Lykke, 2003).

4.3 Semi-Structured Interviews
Bryman argues that semi-structured interviews, is a commonly used method within feministic research, as it allows flexibility. This enables the respondents to express their individual experiences and interpretation of the situation with their own words, and gives opportunities to focus not only on the researcher-selected variables. At the same time the researcher’s position is acknowledged (Bryman, 2008). However, it was important to be aware of how my own position as a white, majority Swedish, middle class and middle age woman, and acknowledge the influence it might have had on the respondents and the interpretation of the interviews.

An extensive literature research preceded the empirical data collection, and gave together with the pre-understanding of the local context, the foundation for the development of the research questions, and later the interview questions. Through issues arisen by a pilot interview (Bryman, 2008), an interview guide (appendix 4) was developed. The pilot interview provided invaluable insight in the content of the questions, and the rephrasing of certain questions. The interview guide was used to guide the semi-structured interview. The guide contained demographic and socioeconomic background questions in order to obtain information of the respondents’ life situation, open-end questions about travel habits and attitudes, and some questions regarding environmental attitudes. Follow-up questions followed depending on the answer of the respondents, and the interview had the style of a talk or discussion more than a strict interview.

In line with good research practice (Bryman, 2011; Codex, 2015), prior to the interview all respondents were informed about the purpose of the study, and that they at any time could conclude the interview. They were also informed and gave their permission to the initial questions about their family situation and income. Although notes were taken during all interviews, the respondents were also asked if they approved the interview to be recorded. Some of them were not comfortable with being recorded, and instead notes were taken particularly carefully. The same day as the interviews were conducted, the interviews were transcribed in order to increase the accuracy of context and meaning (Bryman, 2008).
interviews were undertaken where the respondents felt most comfortable or where their time allowed. Therefore some interviews were conducted in the respondent’s home, and some by telephone. The interviews took between 25 and 45 minutes, depending on how much the respondents shared their experiences.

4.4 Sampling
Lykke (2009) suggests that it is not necessary to study the privileged group, as the normative is equally interesting. However, Henriksson (2014) admits that, as a white, middle class woman, there might be a risk that this privileged group might get additional attention through the sample. To avoid the risk of being locked into my own perspective, the intersectional perspective reinforced the aim of finding a sample representing a wider selection of the society. Bryman (2008) argues that qualitative research is typically associated with purposive sampling, which means collecting units corresponding to answer the research questions. Therefore, people with a regular purpose of travel and 18 years old or above, living within the study areas of Nåntuna/Vilan and Sävja were selected. The sampling process started as convenience sampling and continued with snowball sampling (Bryman, 2008). In order to evaluate the use from a gender and socioeconomic perspective, the aim was to find a similar number of men and women from a variety of socioeconomic segments. Hence, to find the last respondents, a purposive sampling was used to ensure a good variety in the sampling (Bryman, 2008). This resulted in a desirable selection of respondents, however not fully representing the society. A respondent that was not native born, white, majority Swedish was purposively searched for, but no one was prepared to participate within the time frame of the study. Therefore, the total sample consists of in total nine white, majority Swedish respondents, four men and five women, between the age of 21 and 59 years old. Additionally, similar numbers of participants from different areas were desirable, and four participants from the higher socioeconomic area of Nåntuna, and five participants from the lower socioeconomic area of Sävja were selected. Although the purpose of the selection process was to minimize the risk of similarities between respondents based on gender, age, class and ethnicity, there are no guarantee of similar perspectives in values and lifestyle. Regardless of similarities or not, the aim was to investigate individual’s experiences, thus the sample shouldn’t have affected the result negatively.

4.5 Analysis
The aim of the thesis had an emphasis on power structures and inequalities, which made the intersectional perspective a useful analytic framework (de los Reyes, 2005; Mulinari, 2005; Henriksson, 2014; Rydhagen, 2002). An intersectional analysis is a challenging process, and very little literature is describing the methodology. Although some attempts have been made to describe an approach (see McCall, 2005; Winker & Degele, 2011), it is up to the researcher to apply the intersectional analysis as most appropriate for the specific study.

The intersectional analysis is about thinking of “sameness and differences and its relation to power” (Henriksson, 2014, p.30). The analysis puts gender as an analytic category but does not assume all other categories to be used. To make the analysis manageable within the time frame of this master thesis, the analytic categories were limited to the most relevant categories, and therefore in addition to gender, age and socioeconomic class were used (de los Reyes & Mulinari, 2005; Kaijser & Kronell, 2013; Lykke, 2003). The aim was to understand travel within a socioeconomic perspective, thus this category was used. As power relations are context related, the local context had to be considered. However, socially constructed categories are not constant, neither with place nor time (de los Reyes & Mulinari, 2005; Lykke, 2003, 2005). Power is determined by life cycle, hence age has a central point.
Although the intersectionality theorist McCall (2005) requests skepticism to homogenizing and generalizations connected with coding and categorization, this was first done to identify reasons for travel mode choices. These were determined based on Bryman (2008) technique to code qualitative data. The interview transcriptions were coded, and the correlating codes were then grouped into categories. Thereafter, the categories were intersectionally analyzed with the predetermined categories of gender, age and socioeconomic class, in order to illuminate experiences and differences based on these (Denis, 2008; Lykke, 2003).

4.6 Ethical considerations

The researcher has the responsibility to ensure good quality research based on an ethical approach in order to serve humanity and ensure not to harm its participants (Gustavsson et al., 2011). Although the aim of being objective throughout the research process, it is still not possible to stay fully neutral, as a qualitative method is in its nature more subjective (Bryman, 2008). Within the study's methodological approach, the result was interpreted with ground in the own pre-understanding, which could have affected the data collection, the result and the analysis. However, the research did not intentionally move away from the scientific requirements. The intention was to serve society, not to involve delusions (Bryman, 2008; Gustavsson et al., 2011).

To protect the individual’s integrity and privacy, this study was based on the four principles for Swedish code of ethics for good research (Bryman, 2011; Codex, 2015). Therefore, prior to the interview, the respondents were informed about the purpose of the interview and that they were participating on free will, and at any time could stop their participation. All empirical data was confidentially treated and only for the purpose of this study, and thereafter deleted. To further protect the respondents’ integrity and privacy, the respondents were given fictitious names corresponding to their gender, age, nationality and ethnicity. The interviews that were recorded were deleted after the transcription (ibid).

4.7 Quality assessment

Good research practice includes the researcher’s responsibility towards the participants and towards the society (Gustavsson et al., 2011). According to what method was used, different assessment criteria could be applied for establishing the quality of the research. As there often is no one single truth in qualitative research, it could be argued that the criteria of trustworthiness and authenticity is more relevant in qualitative research than validity and reliability which are used in quantitative research (Bryman, 2008). The characteristics of the qualitative research involve individual’s experience in the real world, and as the society is in constant change and every respondent is different, the probability of achieving the same result in a repeated study is limited. The interpretation of the result was based on the author’s pre-understanding, which also affects the possibilities to achieve the same result in a repeated study (ibid).

4.7.1 Trustworthiness

Trustworthiness is related to the process of conducting the study, and relies upon four criteria; credibility, transferability, dependability and confirmability (Bryman, 2008). Because reality can be true in many ways, it is the credibility of the research that determines the acceptability to others. Credibility is achieved when the research is carried out according to standards of good practice, and through respondents’ validation. To establish this the transcripts were sent to the respondents to ensure that they were interpreted correctly. The respondents were also asked to give consent for the use of quotations from the interview. In addition, triangulation was used during the interviews to affirm that the respondents’ replies
were understood accurately (ibid). The description of the research context allows others to judge the level of transferability to other environments or times. The entire research process was clearly described in order to establish dependability. This allows auditing of the research, which is a quality assessment of the result. It is not possible to be fully objective in qualitative research, but by ensuring the study has been conducted in good faith, confirmability can be achieved (ibid).

4.7.2 Authenticity
Authenticity concerns the level of how well the result represents different viewpoints (Bryman, 2008). But it also refers to whether the research has provided the society with greater knowledge and created conditions for change (ibid). Previous knowledge about reasons for different travel behavior in different socioeconomic contexts was limited, and because travel mode choices can be made from many different reasons, this study has, although a limited sample, explored deeper insight in people's experiences within the local context of two areas of Uppsala. This can be beneficial for individuals, and for the society at large, thus the study has achieved authenticity.

5. Interviews

Having described the aim, background, study context and the method. For the purpose of this thesis a summary of the most interesting parts of the interviews will be presented in this section.

5.1 Residents in Nåntuna/Vilan

<table>
<thead>
<tr>
<th>Gender</th>
<th>Hanna</th>
<th>Eva</th>
<th>Thomas</th>
<th>Victor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>33</td>
<td>59</td>
<td>59</td>
<td>33</td>
</tr>
<tr>
<td>Nationality/Ethnicity</td>
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<td>Swedish</td>
<td>Swedish</td>
<td>Swedish</td>
</tr>
<tr>
<td>Family situation</td>
<td>Married</td>
<td>Married</td>
<td>Married</td>
<td>Married</td>
</tr>
<tr>
<td>Children</td>
<td>2</td>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Education</td>
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<td>University&gt;3y</td>
<td>University&gt;3y</td>
<td>Gymnasium</td>
</tr>
<tr>
<td>Housing situation</td>
<td>Owned villa</td>
<td>Owned villa</td>
<td>Owned villa</td>
<td>Owned townhouse</td>
</tr>
<tr>
<td>Total family income¹</td>
<td>Medium high (Higher)</td>
<td>Medium high</td>
<td>Medium high</td>
<td>Medium high (low)</td>
</tr>
<tr>
<td>No of cars in family</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Distance to bus stop</td>
<td>200m line 22</td>
<td>1000m line 5</td>
<td>300m line 5,20,22</td>
<td>100m line 5, 10m line 20,22</td>
</tr>
</tbody>
</table>

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<td>800</td>
</tr>
<tr>
<td>300</td>
<td>800</td>
</tr>
</tbody>
</table>

Table 1: The situation of the four respondents in Nåntuna.
¹ SCB (2015a) socioeconomic income classification

5.1.1 Hanna
Hanna was a Swedish 33 years old married woman with two younger children. She and her husband lived in their owned villa. The children’s day care was located in the same area as they were residing. Hanna held a university degree in biotechnology after more than 3 years of studies. Both Hanna and her husband worked, hence they had two incomes sharing the family expenses, and their total income classified as medium high.

The normal routine was that Hanna’s husband drove to his work in the city center with the family car and dropped Hanna off at her work at Akademiska Sjukhuset in central Uppsala. Hanna finished work earlier than her husband and therefore she traveled by bus in the afternoon. Sometimes, when the weather was good, she cycled both ways. This routine was the same since she started to work in central Uppsala 9 years ago. It was a conscious choice
from the beginning and hadn’t been under much consideration since then, since “there is no parking at my work”, and secondly, “I have to use the fastest way to come home in the afternoon, as my children have to be fetched from day care”. Before, the children’s day care was on the other side of the city because there was no availability closer to home. At that time Hanna’s husband had to fetch them after work. In that situation “we were dependent on the car and had no choice”, Hanna argued.

The advantage with the present arrangement was that the travelling with her husband in the morning gave them some time for themselves without the children, “we can talk without children interrupting” and “it is quite relaxing not to have to drive myself” Hanna stated. It also allowed some “flexibility regarding what time we have to leave”, which however also cycling would have. The greatest advantage with cycling was “the extra physical activity I get”, but also that there was “no waiting time” which allowed flexibility, especially in the afternoon. Then she could go straight home, without first going in the opposite direction to the central station. “It is a mental feeling of coming home faster”, she argued, although the wind seemed to be always against her.

Hanna felt that, “the bus is easy and practical, but can sometimes be very crowded”. It could also be stressful to reach the bus station on time, and if she missed the bus, she had to “wait for 20 minutes”. Overall Hanna felt that the bus met her needs. However, she believed that the costs for the bus had become expensive, and if it would be cheaper, she would probably buy the period card and use it on a more regular basis.

Hanna argued that the environment is important, and that she was environmentally conscious. She was conscious about her behavior in both private and working life. She thought about consumption, packaging, transport of goods, sorting garbage etc. “I do think about the environment when choosing a transport mode, otherwise I might have had a car of my own”, she argued. But using the car less in the families overall activities was nothing she had thought about. Hanna thought that everyone has a responsibility to care for the environment and do what they can, and she at least wanted to believe that her behavior and actions, although small, would make a difference. “I think my behavior can influence others maybe more than the effects of my actions in themselves”, she continued. She wanted to trust that she was prepared to change her own behavior for the sake of the environment, however it might depend on what was asked from her. She wasn’t prepared to change her own behavior at any price, if she wasn’t forced to.

5.1.2 Eva
Eva was a Swedish 59 years old married schoolteacher. She lived with her husband and a grown up son, who was studying at university, in their owned villa. She had a teaching degree with additional specialist competence and a total of more than three years of studies. Both Eva and her husband worked and shared the family expenses. Their total income classified as medium high, and the family had in total three cars.

Long time ago, when she worked closer to home, she used to cycle, but now Eva worked at a school located 30 km outside Uppsala. She traveled with her own car every day. She had compared the alternative of using public transport, regarding both time and cost. “The car saves me a lot of time, two hours every day”, she said, but “the cheaper alternative of using public transport doesn’t compensate the extra time it takes”. Before she was carpooling, but a year ago she bought a dog and now she needed to drop the dog at its day care, and had to drive in her own car. “But I bought an ethanol fuelled car, so it is cheaper now and better for
The environment”, she added. “I am lazy and the car is convenient as I want to use as little time as possible on travelling”, albeit “I love to drive, I am happy driving”, she pointed out. But she didn’t connect the car with status. Eva said her husband always drives to work although it is hard to find a parking place at his work. “He likes the freedom of driving his own car”, Eva said, and “he always drives although there is no parking where he works”. Eva’s son was also driving the car to university, although studying and having no income. As for now public transport wouldn’t fulfill Eva’s needs, it would take her too long time to get to and from work. With driving she felt there are no disadvantages.

Eva admitted that she didn’t think so much about the environment as she should have. She believed she could do much better. “I do garbage sorting and we eat less meat, but it is mainly because it is good to eat more fish. The family liked to eat meat but my daughter (moved out) thinks we should stop eating meat altogether”, she said. She trusted however that her behavior and actions made a difference, and that she was influencing others and spreading her pro-environmental behavior among her family, friends and the community. Eva argued environmental concern is everyone’s responsibility, but she wouldn’t change at any price, for example she wouldn’t stop eating meat. She wouldn’t drive the car less either, but was already doing the grocery shopping once week only. Her husband was better, she believed, “but maybe more for economical reasons rather than environmental”. He tried to do additional errands on the same trip. Eva was positive at politicians and planners in the way they had introduced garbage sorting and how convenient the sorting stations are.

5.1.3 Thomas
Thomas was a Swedish 59 years old man, who lived with his wife in their owned villa. Their children were grown up and had left the house. He had studied more than three years at university in the fields of archeology, history and ethnology. Both Thomas and his wife worked and shared the family expenses. Their total income classified as medium-high.

Thomas worked in central Uppsala. He switched between the car and the bicycle when travelling to work. When he drove to work, and when his wife’s schedule allowed, he dropped her of at her work just outside the city center. When allowed, the procedure was the same on the return trip. If their schedules didn’t match, she took the bus or sometimes the bicycle, as they only had one car. In general, he stated, “he cycles more than her, and she travels by bus more than him”.

His choice between the car and bicycle depended to a large extent on the weather. In winter, or if weather was bad, he traveled by car more often. Sometimes if he hadn’t been cycling for a while, he felt it became an obstacle to do so, but once he had done it for a week, it was nice. “It is better for the environment and good for the health”, he said. Thomas thought about the environment when choosing his transport, and he knew very well how to use the bus to work, and had almost a door-to-door connection. Nevertheless he argued, “the society is built around the car, and it is sometimes hard to manage without it”. He continued; “I don’t like going by bus, it is too often too crowded, I’d rather walk” and “I dislike waiting for the bus”. This was especially true after work, on his way home. He also argued “the bus is too expensive”.

The major advantage with driving his own car, was “. the car is convenient”, but he was aware of the negative consequences for the environment. “This is my bad conscience”, he stated. “It is also expensive to own and drive a car”, he argued. Cycling on the other hand, was good for both the environment and he got physical activity. The only negative side with cycling was the weather, especially the strong wind that always seemed to be against him.
Thomas believed that “the environment is important, and pro-environmental actions are both good and necessary”. He was aware of his own actions, and was making some conscious choices for environmental reasons, and this was partly a reason for cycling. He added, “I think of transportation and eat more locally produced food nowadays”, but admitted that “driving is sometimes habitual and I should drive less”, and “use a more environmentally friendly car”.

5.1.4 Victor

Victor was a Swedish 33 years old married man with two younger children. He and his wife lived in their owned townhouse. One child was in school in the area of Sävja, and the other at a day care closer to their home in Nåntuna. Victor had a high school degree (Swedish Gymnasium), and both he and his wife worked, hence two incomes shared the family expenses. Their total income classified as (low) medium-high.

The family owned two cars, which they both used daily. Victor worked at a company that was located in an industrial area 6 km from his home. Before last summer Victor used to cycle to work, but now his and his wife’s schedules didn’t allow him to do so, as “I wouldn’t be able to fetch the children in time”, he said. “The only reason why I choose the car is because it is the fastest and most convenient”, he argued, and “it allows freedom”. “The car is expensive and not environmentally good to drive”, he continued. His dream was to build an electric car, which would be both cheaper and more environmentally friendly. He believed, “Public transport is good” and knew how to use it. However, it would be practically impossible, as it would take him too long as he had to leave and fetch children before and after work, which would involve many connections. Sometimes, public transport was the most practical transport mode, “if I am going to the city center as it is hard to find parking”, or if “I am going out to a pub”.

He was environmentally conscious and thought a lot about the environment; worried about climate change, increased temperatures and flooding etc. He also believed it was sad with all the litter he saw everywhere. The family made sure to teach the kids environmental awareness. “We don’t spoil water, do garbage sorting etc”, he argued, otherwise “I don’t think about the environment in everyday life”. However, Victor argued that everyone has a responsibility to care of the environment and trusted that everyone does what he or she can. “Otherwise I wouldn’t be able to care about it myself either”, he stated, although having a feeling of not making a big difference. The larger decision like environmental objectives should be the politicians and planners responsibility, he thought, although he was reluctant in his belief of the government’s capability to make any changes. He was however not prepared to change his behavior for the sake of the environment at any price. Using the car less in the families overall activities was nothing he had thought about, although he believed that the family should drive the car less. However, when the family bought the second car, he thought about what others would think, both for economic and environmental concerns. This was however a concern for himself too.
5.2 Residents in Sävja

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<tr>
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<th>Maria</th>
<th>Peter</th>
<th>Matilda</th>
<th>Daniel</th>
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\(^1\) SCB (2015a) socioeconomic income classification

| Table 2. The situation of the five respondents in Sävja |

5.2.1 Maria

Maria was 48 years old and married to Peter, and they had two children. She, her husband and the youngest teenager live in their owned apartment. Maria had a nurse degree after three years of university studies, and both Maria and her husband work, hence they had two incomes sharing the family expenses, and their total income classified as high.

Maria worked at the Akademiska Sjukhuset in central Uppsala. Most of the days she traveled by bus both ways, but sometimes her husband drove her. The family owned one car, which Maria’s husband had to use every day to drive to work. Maria planned to start to cycle when the weather is allowing it. At Maria’s previous work she used to drive, and since she started this employment she started to use the bus. At Akademiska Sjukhuset there was “very limited number of parking places, so driving now is not an option”, she said, so “taking the bus is the easiest and most practical option”. “I don’t bicycle in the winter, so that is not an option either”, she continued. The advantage with travelling by bus Maria argued was “I don’t have to get stuck in traffic congestions and I can relax during the journey”. “I also by choice get off the bus earlier, so I get 20 minutes walk before coming to work”. In the afternoon she was doing the same, and liked the advantage of getting more physical activity. On the other hand, “the bus is a risk of becoming infected with a virus or something, and it is sometimes very crowded”, Maria continued. Another disadvantage with the bus was the time aspect. Maria felt that “the bus takes longer than going by car, and I am less flexible regarding the time when I have to leave”. She wished she could travel by car sometimes when she was tired and cold. Going by bus was cheaper than driving a car, she argued, although “I never thought of the price for the bus ticket”.

Maria believed that the environment is important, and thought she is environmentally conscious in some aspects but others not. For example, “I am not going by bus at any price, just because it is a better alternative than the car”. But “I think it is good that the buses use biogas and that one vehicle can transport many people”, Maria claimed. She believed that environmental concerns are everyone’s responsibility, and trusted that her behavior and actions do make a difference for both herself as well as society at large. She was also prepared to change her own behavior, at least to certain extent. The family already now drove the car less than before, partly “because the bus is convenient and within a close distance to supermarkets”.
5.2.2 Peter
Peter was 46 years old and married to Maria, and lived in their owned apartment with one of their children. Peter had a university degree in technology after more than three years of studies. The family had two incomes sharing the family expenses. Their total income classified as high.

Peter worked at a private company in the northwest part of Uppsala since one and a half years. He traveled with the family car to and from work. Before his wife started to work he sometimes cycled. “I also tried to go by bus, but felt it was far too time consuming”, he stated. One way takes 60 minutes by bus, by bicycle 30 minutes and by car 15 minutes, and because “I have to go home during lunch and walk the dog, there is no alternative other than the car”, he argued. They had thought about putting the dog at ‘dog day care’, but the plan never came into practice. Because Peter had a more flexible work and access to a car park, he was the one spending his lunch walking the dog. “So I am dependent on the car and have no other choices for now”, he argued. “But when my wife’s and son’s schedules allows them flexible hours, and I don’t have to go home to walk the dog, I would like to cycle”, Peter continued. However, Peter experienced some advantages with travelling by car. He spent “as little time as possible on travelling” and saw no disadvantages with this choice. He pointed out the lack of connections between peripheral areas in Uppsala, and missed a circular bus line. Then he might be able to travel with the bus without spending hours commuting, he suggested. As for now, “the bus from my home (bus 5) has a high frequency, but the connection has low frequency. The option is to wait sometimes 30 minutes or walk for 20 minutes” and he asked, “What is time worth?”. Peter believed that the environment is important, but didn’t thinks about his own attitudes or behavior. But “I think I am better than most people”, and “what I do matters for the society, the earth, and myself,” he added. He believed that environmental concerns are everyone’s responsibility, and if everyone takes his or her responsibility, the responsibility would be at a societal larger scale automatically. “However, I am prepared to change my behavior, but not at any price. If there was a travel option equal to the car I would change, but because there isn’t, I won’t”. But he added that the family drives the car less than before, “because the public transport is close and convenient”.

5.2.3 Matilda
Matilda was a 50 years old Swedish woman, living with her husband and one teenager in their owned apartment. The family also cared for another child who was living with them on and off.

Matilda had a nursing degree after two years of university studies, and both Matilda and her husband worked hence they had two incomes sharing the family expenses. Their total income is classified as (low) medium-high.

Matilda worked at the Akademiska Sjukhuset in central Uppsala. She traveled by bus both ways. The family owned one car, which Matilda’s husband had to use every day to get to work, as his work was located outside public transport connections. Matilda didn’t like to go by bus, and had preferred to drive her own car, but because “the family only has one car and her husband needs it”, she cannot she said. Additionally, she argued, “there is no parking for the car at her work”. Matilda couldn’t cycle because of health reasons. On the other hand, “on the bus I might get other infections”, she added. Although, the advantages with travelling by bus was that she minimized the required amount of maintenance of the car, but “the bus doesn’t feel good” and she claimed that she had a feeling of dissatisfaction. There was also
the time aspect, Matilda continued, as she was often working outside the high frequency hours. She argued she had “to start earlier from home and also have to wait longer on the way home”. Sometimes she was not comfortable walking from work to the bus station at night, “I can get a feeling of discomfort”. Matilda had compared the cost of going by car and by bus, and in reality she argued that the difference was not that big, “the bus is rather expensive”. The family car had low fuel consumption, and “comparing the costs in relation to the time, the bus and the car are rather equal”, she stated. She reasoned, “Public transport is too expensive, if it would be cheaper, the choice of using public transport would be much easier”. She had considered taking a job close to home, which would mean that she wouldn’t have to travel. But she preferred to have a job that she enjoys and is satisfied with, and put up with the inconvenience of travelling.

Matilda claimed it is important to care for the environment, and she wanted to do so. However, on a daily basis she did not always make conscious choices, although she recycled, bought second hand etc. Albeit admitted she said, “doesn’t think of every drop of water” and “... my actions are not always with the environment in mind”. But she agreed that everyone has a responsibility. She trusted she could influence others with her pro-environmental behavior, but big decisions have to be taken by politicians and planners, like “Things that influence the individuals to take the right actions”. She felt that she didn’t have the power to promote an environmental friendly behavior, and added, “Sometimes I feel that environmental concerns and pro-environmental behavior take a disproportionately large share of our time, we should care more about each other instead”.

Matilda told that although the family doesn’t drive a lot, they do a number of extra driving every week to pick their children up, because “we don’t feel it is safe for them to be out alone, especially our daughter”. And life without the car would never be an option. She argued that they didn’t have that bad habits, they never flew abroad for example. “The economy sets the limit”, she argued, and said she would buy a second car if she could afford one, “The economy is more influencing the choices than anything else”, and “it is often more about the economy than about the environment”, she said.

5.2.4 Daniel
Daniel was a Swedish 21 year young man, renting a room in his family’s apartment. He had a high school degree from outside Europe, and worked 75 % as a field salesman in Uppsala city center since two months. His total income was classified as low. Daniel grew up in a country outside Europe, where public transport services were limited and used only by the poor. As a result his mother was driving him until he got older and could use a taxi on his own.

Daniel took the bus to work, but said, “I have no choice as I cannot borrow the car on daily basis and cannot afford one of my own”. “I hate the bus, it takes too long and is too crowded”, he continued. He didn’t like travelling with other people, and especially disliked the waiting time. Daniel didn’t see cycling as an option, as he claimed it was too far. However, “the bus is in some ways easier, because of the lack of parking in the city center”, he added. He argued that the parking situation is really poor, and too expensive. Although, the public transport fulfilled his needs, he still wanted to go by car if he could have. “The car has a fast door-to-door perspective”, he claimed, and is a practical tool as “I could do other errands on the way home”.

Daniel stated that, “The environment is important”, but did not think much about it. He didn’t think other people were aware or cared about his actions. Although he argued everyone has a
responsibility for the environment, and it would be a problem if everyone wouldn’t take his or her responsibility. However, he was not prepared to change his own behavior at any price, for example “I am not going to stop flying, I still want to see the world”, he added. Albeit, he admitted it sounded irresponsible. He didn’t trust his own actions would make much of a difference for himself, only if everyone cares. “I cannot see how I can influence others, I don’t think other people think about what I do or what I buy in the supermarket for example”, he argued. Instead of changing behavior, he believed in new technical inventions as the solution.

5.2.5 Sara
Sara was a 37 years old divorced Swedish woman, living with her daughter in a rented apartment. She had a high school degree (Swedish Gymnasium), and worked as an assembler at a company in the North part of Luthagen in Uppsala since two years. Her total income was classified as low.

As Sara didn’t have a driver’s license, a car or a scooter, she had to go by bus, cycle or walk. For work she took the bus, “it feels too far away to cycle”, she argued. Nevertheless, Sara was happy taking the bus. “I enjoy seeing and meeting people”, she said, and “it is relaxing”.

Also Sara believed that “the environment is important”, but did not think much about it in everyday life. She sorted garbage and took care of her litter etc, but wouldn’t buy ecological food for example. “It is too expensive”, she said, and “Can you really be sure it is better?”. Sara argued that everyone has a responsibility towards the environment, and was prepared to change her own behavior, but not at any price. “It is hard to know what difference it would make, but I hope it would”, she continued. As Sara didn’t drive, she was not concerned about her travel mode choice. However, she told that her friends who drive have become more restrictive. They used public transport more often, because it was cheaper and better for the environment.

6. Analysis

This analytic section will interpret the empirical findings in relation to previous research and the theoretical framework. The findings illustrated examples from the local context of Nåntuna/Vilan and Sävja in Uppsala and of what previous research already knew.

Anable (2005) argues that travel mode choice is complex, and that travel mode choice can be made for different reasons, and different reasons can lead to the same choice, which the nine interviews illustrated. Rational choice theory explains travel mode choice by the individual’s utility maximization (Bamberg & Schmidt, 1998). Findings indicated this being true for some respondent, as they weighted different factors when deciding what mode to choose. The nine interviews gave indications of that the choice was taken with consideration of a number of factors, which was both voluntary and forcing. The explanatory categories are summed up in the two themes described by Gehlert et al. (2013) and Kottenhoff & Byström (2010), internal- and external factors (appendix 3). Internal categories are attitudes, habits, norms and values, socioeconomic factors, convenience, freedom, health, and information. External categories are comfort, public transport service, time, spatial planning and policies. An intersectional analysis (Henriksson, 2014; Kaijser & Kronell, 2013) was used to find out if these factors differed between and within different groups. The category gender was central, but age and
socioeconomic class were used to illuminate differences and power relations. The findings gave voice to previous research.

6.1 Internal factors
The categories of attitudes, habits, norms and values, socioeconomic factors, convenience, freedom, health, and information indicated to influence the mode choice and are explained in this section.

6.1.1 Attitude
According to Goal-Directed Behavior Theory (EMGB), attitude was a factor of consideration but only influenced one respondent (see for example Beirao & Sarsfield Cabral, 2007; Gehlert et al., 2013; Engström & Hansen, 2011). Negative attitude towards public transport was a reason for choosing other alternatives (see Gehlert et al., 2013), which was clear in Thomas and Eva’s husband’s case.

“I don’t like going by bus, I rather walk” (Thomas)
Although Thomas never used public transport, he had a lot of negative feelings and perceptions about it as habitual car drivers often have, and which is not always based on their own experience (see Ipsos, 2015; Kottenhoff & Byström, 2010). Although a negative attitude towards public transport, situational factors constrained the mode choice for two respondents. Contrary to Thomas, Daniel and Matilda had no access to a car and thus no other alternative than public transport (unless cycling or walking).

“The bus doesn’t feel good” (Matilda)

“I don’t like travelling with other people” (Daniel)
Daniel’s childhood experiences from growing up in a country where the car was the norm, and public transport only used for the lower class, could have been the reason for his attitude that public transport wasn’t for him (see Baslington, 2008), although now himself belonging to the lower socioeconomic class.

Although public transport wasn’t a practical option for Peter, he considered public transport an option if the public transport service would have fulfilled his need. Also Victor had a positive attitude and used public transport sometimes in his leisure time.

“Public transport is good” (Victor)
A positive attitude towards public transport admits openness to switch (Ipsos, 2015), which was apparent for Victor. He only used the car because he had to, and didn’t consider the car as the overall best option. The report from Ipsos (2015) states that frequent users of public transport have a more positive attitude towards public transport. However, the interviews illustrated two frequent users, Matilda and Daniel, both with a negative attitude, but using public transport because they where forced to.

Daniel’s also had a negative attitude towards physical active transport modes, which influenced his choice not to cycle (see Baslington, 2008). Hanna, Maria and Peter, and to some extent, Thomas were considering cycling only when the weather was good, which exemplified previous research (see Eliasson, 2001; Liu et al., 2015; Pucher & Buehler, 2006) that attitudes to the weather is influencing the willingness to choose more physical active options. This is also reflected in the fact that public transport was used more in the winter period (UL, 2015).

Environmental attitude and concern
Environmental attitude and belief are linked to environmental concerns and obligations to act in a pro-environmental manner (see Nilsson & Kuller, 2000; Stern, 2000), which could affect the mode choice. Environmental attitudes have higher influence than environmental knowledge in pro-environmental behavior. All nine respondents were aware of environmental
problems linked to the transport sector, and had the understanding that using the car was undesirable in relation to the use of more sustainable transport modes. Nevertheless, only Victor connected climate change to transports. Awareness or not, the link to environment didn’t influence the respondent’s travel mode choices to much extent (see Hagman, 2003; Polk, 2001; Thøgersen, 2005), only Hanna decided not to drive because of the environment. The actual behavior is more influenced by the individual background and resources (Nilsson & Kuller, 2000), as in Thomas’s case.

“This is my bad conscience… I should drive less… .....use a more environmentally friendly car” (Thomas)

Environmental awareness was however partly the reason for Thomas to sometimes use the bicycle,

“It is better for the environment and good for the health” (Thomas about cycling)

Pro-environmental attitudes, differences in actual behavior and acceptance can be explained by individual or planning constraints (Nilsson & Kuller, 2000). Victor explained,

“The car is not environmentally good to drive” (Victor)

but he was forced to drive because his family situation and the geographical location of residence, childcare and work, which gives an example of Nilsson & Kuller (2000) statement that pro-environmental attitudes can only influence the travel mode choice if the circumstances are supporting.

Much previous research suggests that women often are more environmentally concerned than men (see Levin & Faith-Ell, 2011; Polk, 2001; Sandberg et al., 2011). However, the four interviewed men showed as much concern for the environment as the five women, although three of the four men’s concern did not influence their travel mode choice as much as four out of the five women’s. Noteworthy is however, that the women’s pro-environmental travel behavior wasn’t based on free will for all of them. Hanna felt an obligation to act in the case of environment (Stern, 2000)

“I do think about the environment when choosing transport mode, otherwise I might have had a car of my own” (Hanna)

But using the car less in the family’s overall activities is nothing Hanna had thought about

“I want to believe that I am prepared to change for the sake of the environment, however it might depend on what is asked of me” (Hanna)

And either had Eva, who was still driving because of her complex travel pattern, but said:

“…. I bought an ethanol fueled car, so it is cheaper now and better for the environment” (Eva)

All nine respondents argued it was important to think about what could be done to care for the environment and that it was everyone’s responsibility to care, although not always thinking much of the environment in their daily activities. The respondents did garbage sorting, and reflected about water consumption etc, but the environmental behavior was as mentioned only reflected in Hanna’s travel mode choice.

“I am not going by bus at any price, just because it is a better alternative than the car” (Maria)

Peter was however prepared to switch from the car to other modes of transport, but there were no alternatives meeting his needs.

“If there was a travel option equal to the car I would change, but because there isn’t, I won’t” (Peter)
Attitudes towards pro-environmental activities and the belief in how their own behavior could contribute differed among the nine respondents. The result indicated however a tendency of correlation of lower belief of the effects from their own contribution and lower education (see Anable, 2005). This is important for the effects of role models (Garville, 1999) and the influence on others to start to use public transport and make it as the norm.

6.1.2 Habits
Both Thomas and Eva admitted that some driving was habitual and not a conscious choice. Thomas, Eva and Eva’s husband were in the older age group with higher income (see Gehlert et al., 2011), and had been driving since the era when the car became an artifact for everyone.

“Driving is sometimes habitual” and “I should drive less” (Thomas)
Their behavior had developed over the years, and now it had become a habit (see Anabel, 2005; Henriksson, 2014; Perugini & Conner, 2000; Thøgersen, 2006; Urry, 2004). According to EMGB theory, past behavior is an extensive influential factor that can explain otherwise irrational behavior, as for example the aim to adopt an environmental behavior, but failing to actually do so. Thomas illustrated an example of this.

Baslington (2008) argues that values associated with the car are learned from early childhood, and influence travel mode choice later on in life, and eventually becomes a habit. Eva’s son, who lived in a family where all members had their own car, was driving to university every day. This could be a result of learned habits from childhood, especially since his father was an extensive habitual driver.

“He always drives although there is no parking where he works” (Eva about her husband)
The habitual car driver is hard to change (Hagman, 2003), which was true for Thomas, who was aware of all the negatives with driving the private car, as well as for Eva’s husband.

6.1.3 Norms and Values
Norms and values are embedded in the culture people are living in, and according to EMGB influencing the mode choice. Baslington (2008) argues that the car use is embedded and reinforced in family planning and life styles, and the values associated with the car are learned from early childhood. All nine respondents referred to the car when talking about transportation and travel mode choice. Thomas thought about the car as a natural and necessary part of daily life

“The society is built around the car, and it is sometimes hard to manage without it” (Thomas)
Victor’s personal norms about the environment (Stern, 2000) made him think about other beliefs and social expectations (subjective norms) (see Gehlert et al., 2013; Engström & Hansen, 2011; Goodwin & Lyons, 2009), although it did not affect his choice of buying a second car. It had however impact on his own thoughts about the environment and the family economy.

Symbolic Value
Travel mode choice is often referred to the symbolic value of the car, and is importance for masculinity (see Polk, 2001; Urry, 2012a). This wasn’t clearly stated, but it could be insinuated that Eva’s husband and Daniel saw a symbolic value in the car. Eva, enjoyed her travelling and driving as such, and had bought an environmental friendly car to save money and the environment.

“I love to drive, I am happy driving” (Eva)
6.1.4 Socioeconomic factors

Access to a car and car ownership

Access to a car, or car ownership, is a necessity in order to make the choice between the private car and another mode of transport, and is according to EMGB facilitating the choice. All four that had access to a car were using it (Thomas sometimes cycled), which could mean that access to a car increased the use of it (see Buehler & Pucher, 2012; Paulley et al., 2006). Having a car in the family makes an enormous difference in a household’s travel behavior (Buehler & Pucher, 2012). Polk (2001) argues that regardless of age and income, men have more often have access to a car than women. In all interviewed families, the man had access to a car regardless of the total number of cars in the family.

“The family only has one car and my husband needs it” (Matilda)

Thomas argued that the car is a central part, and essential, for the modern lifestyle (see Urry, 2004, 2012). No access to a car could have limited the access to services for example Daniel, Sara and Matilda. However, access to public transport facilitated their participation on the labor market (see Harvey, 2008).

Car ownership is to large extent determined by income, and low-income families are less likely to own a car. Daniel and Sara used public transport because it was a cheaper alternative to own and drive a car (see Bopp et al., 2013; Buehler & Pucher, 2012; Paulley et al., 2006; Polk, 2001).

“I have no choice as I cannot borrow the car on daily basis and cannot afford one of my own” (Daniel)

This may possible be indications that economic resources were influencing the travel mode choice and provided accessibility to a car or not (see Scheiner & Holz –Rau, 2012). However, it is not possible to determine travel behavior only on socioeconomic factors, as the need is different depending on where in the lifecycle the users were (see Baslington, 2008; Holmberg & Brundell-Freij, 2012; Ipsos, 2015). Victor and Hanna, who had small children to fetch, illustrated this, and also Peter and Eva who had dogs to care for.

Cost of travel

All nine respondents considered public transport to be a cheaper alternative to the car. Thomas argued that it is expensive to own and drive a car, but believed that

“The bus is too expensive” (Thomas)

Kottenhoff & Byström (2010) implied that car users have a tendency to overrate the cost for public transport, and according to Eliasson (2001) the cost for driving has less influence on the mode choice than to cost for public transport. Thomas thought public transport was too expensive, although he (unless cycling) chose the car, the more expensive alternative. Eva’s husband drove his car regardless of the cost. The price for the public transport period card has the last year drastically increased, and was perceived too high, and explicit pointed out by two of the respondents with a negative attitude to public transport. Hanna stated that if it would be cheaper, she would probably buy the period card and use it on a more regular basis. This could be an indication that Holmgren’s (2013) finding that increased public transport fares, decreases the use. Matilda had no other choice than to use the bus, but argued

“Public transport is too expensive, if it would be cheaper, the choice of using public transport would be much easier” (Matilda)

Previous research suggests a relation between higher income and higher value of time (see Eliasson & Mattson, 2006; Kottenhoff & Byström, 2010). According to Gehlert et al. (2013) and based on the rational choice theory, decisions are based on the maximization of utility,
and therefore people would be prepared to pay more for a faster travel mode. Eva, who belonged to the higher socioeconomic class, illustrated this

“The car saves me a lot of time, two hours every day”, and “the cheaper alternative of using public transport doesn’t compensate the extra time it takes” (Eva)

Also Matilda, who however was in the medium socioeconomic class, argued

“Comparing the costs in relation to time saved, the bus and car are rather equal” (Matilda)

Peter, who had the highest income of all, asked

“What is time worth?” (Peter)

Hagman (2003) argue that the cost for driving do matter, although Buehler & Pucher (2012) suggest that the habitual car driver is not very price sensitive. However, Eva compensated the cost for her driving

“... I bought an ethanol fueled car, so it is cheaper now ... ” (Eva)

Eva wouldn’t stop driving, but found an alternative that was both cheaper and more environmentally friendly. Her husband was striving to do secondary errands on the main journey

“... but maybe more for economical reasons rather than environmental” (Eva about her husband)

Matilda and Sara argued that pro-environmental behavior is to some much extent linked to the economy, and the economic resources determine what transport mode was possible (see Paulley et al., 2006). Matilda implied that it is the economy that sets the limits

“The economy is more influencing the choices than anything else ....... it is often more about the economy than about the environment” (Matilda)

Although the sample was limited, the findings appeared to indicate that economic resources were influencing the mode choice. The economic situation influenced the possibly mode options.

6.1.5 Convenience
For most respondents the requirement for a travel mode was a good door-to-door perspective (see Buehler & Pucher, 2012; Engström & Hansen, 2011; Eliasson, 2001), that could minimize the travel time and maximize the individual utility. High frequency, high availability and an overall easy travel journey was a reason for Maria, Hanna and Matilda to choose public transport (see Eliasson, 2001; Beirao & Sarsfield Cabral, 2007).

“Taking the bus is the easiest and most practical option” (Maria)

Peter and Maria were driving less today than they used to, because the bus was close and convenient. The car was the most practical and convenient option, as for Victor because of his complex travel pattern (see Ipsos, 2015), or for Peter, Eva and Matilda’s husband who were travelling between peripheral areas (Eliasson, 2001).

“I am lazy and the car is convenient” (Eva)

6.1.6 Freedom
As the car allowed flexibility in time and route, and individual control, it gave a feeling of freedom (see Beirao & Sarsfield Cabral, 2007; Polk, 2001; Urray, 2004, 2012).

“He likes the freedom of driving his own car” (Eva says about her husband)

Daniel argued that a car would have allowed him freedom to do secondary errands. For Hanna the car allowed flexibility regarding what time she could leave in the morning, which the bus
didn’t allow for Maria. Eva’s enjoyment of driving could be interpreted as a feeling of freedom.

6.1.7 Health
A few categories involving health and influencing the mode choice were arising from the interviews. As health is a principal for social sustainability it is an important category, and the overall national goal is to create opportunities for the habitants to enjoy good health (see Swedish Government Offices, 2014d; Swedish National Institute of Public Health, 2010). Although influenced by structural conditions, health is determined by peoples’ own choices and habits.

Physical Activity
Regular physical activity is an important determinant for good health and well-being (Swedish National Institute of Public Health, 2010). It is possible to meet the daily need of physical activity through physical active transportation, or through commuting to and from public transport (Bopp et al., 2013; Clark et al., 2012). Three respondents intentionally sometimes chose a physical active transport mode in order to get physical activity. This could be a rational choice to maximize the time (Bamberg & Schmidt, 1998), as leisure time in the evening doesn’t have to be spent on physical activity. Maria made an active choice every morning and afternoon

“I also by choice get off the bus earlier, so I get 20 minutes walk before coming to work” (Maria)

However, for some respondents the geographical location or the travel pattern was limiting whether a physical active transport mode was possible or not. Eva now worked too far away, but used to cycle to work before when her job was closer (see Sandberg et al., 2011). Peter and Victor wanted to cycle, but both had complex travel patterns due to family obligations (walking the dog during lunch hour and fetching children), which prevented them from choosing an active mode

“I wouldn’t be able to fetch the children in time” (Victor)

Also Matilda wanted to cycle, but was prevented by her poor health (see Bopp et al., 2013).

Social Interaction
Public transport is an important service to provide mobility for groups with no access to other forms of transportation, and a key component for sustaining social networks and inclusion, which is crucial for health outcomes (Currie & Stanley, 2008; Socialstyrelsen, 2014). For Sara public transport was crucial to access to public sphere and for participation in social life. It was an arena for social interactions, and she enjoyed the bus for this reason

“I enjoy seeing and meeting people” (Sara)

Contrary Daniel and Tomas did not like public transport because of travelling with other people.

Relaxing
Maria and Sara felt that they could relax during the travel with public transport (see Beirao & Sarsfield Cabral, 2007; Eliasson, 2001; Goodwin & Lyons, 2009). Maria argued that this was especially true when comparing with the car and the risk of congestions

“I don’t have to get stuck in traffic congestions and I can relax during the journey” (Maria)

Hanna felt relaxed when she was a passenger in her husband’s car in the mornings.
“We can talk without children interrupting…. it is quite relaxing not to have to drive myself” (Hanna)

Infections
Both Maria and Matilda worked in the health care sector and associated the bus with source of diseases

“… the bus increases the risk of becoming infected with a virus or something…”
(Maria)

Nevertheless, it had no impact on their mode choice.

6.1.8 Information
Knowledge about public transport service is an important factor for the use of it (see Eliasson, 2001; Ipsos, 2015), and a facilitator according to EMGB. All nine respondents argued they had adequate knowledge, and only Thomas had not considered the option of public transport. However, some lack of knowledge was found regarding time differences between driving a car and using public transport (see Eliasson, 2001; Kottenhoff & Byström, 2010). Peter thought public transport took longer time than it actually did. Maybe because he was counting the time from a door-to-door perspective regarding travels with public transport, but only the actual driving time for the car, which led to an underestimation of public transport’s capacity to fulfill his need, at least regarding the time aspect (see Ipsos, 2015; Kottenhoff & Byström 2010). However, it might be the case that public transport would take too long, and as Sandberg et al. (2011) argue, if there is an option, public transport seems to only be a competitive alternative to the car, if the time spent on travel is almost the same as for the car.

6.2 External factors
The categories of comfort, public transport service, time, spatial planning and policies that indicated to influence the mode choice are explained in this section.

6.2.1 Comfort
Comfort during the travel, was something all five public transport users mentioned (see Kottenhoff & Byström, 2010). They did not enjoy the crowded buses, although it didn’t influence their choice. This was however a reason argued by Thomas for not liking the bus.

6.2.2 Public Transport Service
The overall public transport service, such as bus routes, frequency and connections was influencing the mode choice for all except Thomas (see Kottenhoff & Byström, 2010). A poor or inadequate public transport service the option was not considered, as for Eva and Peter.

6.2.3 Time
Travel pattern
Complex travel patterns made Peter, Eva and Victor feel that they were forced to use the car because it allowed them flexibility and saved them time (see Engström & Hansen, 2011; Eliasson, 2001; Sandberg et al., 2011), which often is the case in the modern lifestyle, Urry (2004, 2012a) argues.

“The only reason why I choose the car is because it is the fastest and the most convenient” (Victor)

Buehler & Pucher (2012) estimate that for a family the car makes a dramatic difference, as for Peter, Victor and Eva who otherwise would have spent hours every day using public transport, because of their complex travel patterns.

“I have to go home during lunch and walk the dog, there is no alternative other than the car” (Peter)
Because Peter was travelling between peripheral areas, his journey included changing buses, which was time consuming (see Eliasson, 2001).

“... the connection has low frequency...... the option is to wait sometimes 30 minutes or walk for 20 minutes” (Peter)

Eva worked far away and on her way to work she had to leave her dog at the day care

“... so I am dependent on the car and have no other choices for now” (Eva)

It is a time consuming process to manage all activities around a family life, and young families are limited in their choice of transport mode, which often makes the car the only feasible alternative. Public transport often does not meet the need (see Baslington, 2008; Ipsos, 2015), which was illustrated by Victor.

“Without the car I wouldn’t be able to fetch the children on time” (Victor)

However, Hanna had the same activity, although no access to the car, and therefore went by bus or bicycle.

“I have to use the fastest way to come home in the afternoon, as my children have to be fetched from day care” (Hanna)

**Travel time**

Time is shown to be one of the most important factors when people are choosing travel modes (see Beirao & Sarsfield Cabral, 2007; Engström & Hansen, 2011; Eliasson, 2001; Sandberg et al., 2011), which the nine respondents agreed on. This can be explained by the rational choice theory where people try to maximize their time utilization (Bamberg & Schmidt, 1998). The interviews illustrated examples of that the respondents wanted to spend as little time as possible on travel.

“I want to spend as little time as possible on travelling” (Peter)

“The cheaper alternative of using public transport doesn’t compensate the extra time it takes” (Eva)

The time aspect includes the door-to-door perspective, thus frequency, waiting time, transfer, distance to bus stop etc. have to be considered (see Buehler & Pucher, 2012; Eliassson, 2001; Engström & Hansen, 2011; Kottenhoff & Byström, 2010; Sandberg et al., 2011). Waiting time was a frequent argument against the bus, and Thomas stated

“I dislike waiting for the bus” (Thomas)

and preferred the car, or alternatively cycling (see Buehler & Pucher, 2012). The same was true for Hanna

“.... it is a mental feeling of coming home faster” (Hanna)

I could be guessed that the respondents made an evaluation of time in relation to other factors in order to find the most advantageous option (see Bamberg & Schmidt, 1998; Gehlert et al., 2013), as all nine respondents that had the option chose the least time consuming alternative (see Kottenhoff & Byström, 2010). Often the car was the most attractive choice (see Engström & Hansen, 2011; Sandberg et al., 2011).

“The car saves me a lot of time, two hours every day” (Eva)

Kottenhoff & Byström (2010) suggest that people today are prepared to spend more time on commuting and thus are prepared to commute longer distances. Eva accepted a job offer far away. Maria had thought about taking a job closer to home, which wouldn’t involve commuting, but reasoned her present job had higher satisfaction, and therefore she took the inconvenience of commuting. Thus, the job satisfaction seemed to offset the time aspect.
6.2.4 Spatial Planning

Geographical factors

Geographical factors influence on travel mode choices that have been described by Buehler & Pucher (2011), Jones (2012) and Xenias & Whitmarsh (2013) are not in control of the individuals. It can be described as the trip context according to EMGB. Matilda’s husband was forced to use the car, as there was no public transport service to where he worked. Geographical factors were linked to spatial planning, and functional divided areas forced people to travel to work (and shops) (see Kummel, 2006; Urry, 2004). Thomas gave voice to this

“our society is built around the car, and it is sometimes hard to manage without it” (Thomas)

Both Nåntuna/Vilan and Sävja are residential areas with access to maintained cycling paths all year round, but the far out location made walking and cycling less attractive (see Buehler & Pucher, 2011). Hence, Sävja (approximately 7 km from the city center), was a psychological barrier for Daniel and Sara to cycle,

“… it feels it is too far away to cycle” (Sara)

Safety

Safety can be another reason for using the car (see Andersson, 2005; Levin & Faith-Ell, 2011; Kottenhoff & Byström, 2010). Matilda felt uncomfortable and unsafe when walking to the bus station after work at night (see Andersson, 2005; Levin & Faith-Ell, 2011; Kottenhoff & Byström, 2010).

“I get a feeling of discomfort” (Matilda)

This is a common reason for women to avoid public spaces and public transport at night (Hagman, 2003; Kottenhoff & Byström, 2010). However, Matilda did not have that option because she lacked access to the car, which was her preferred option. Matilda and her husband also did some extra driving to fetch their children at night for this reason (see Andersson, 2005)

“We don’t feel it is safe for them to be out alone, especially our daughter” (Matilda)

Although, the feeling of unsafely didn’t impede Matilda’s access to the public sphere (see Andersson, 2005), it did for her daughter who was encouraged to avoid it by her mother. Andersson (2005) implies that the consequences of gender inequalities can impair the access to the public sphere and cause feelings of unsafely, as for Matilda’s daughter. The consequence of this is according to Andersson (2005), that gender inequalities are reinforced when women avoid the public spheres.

Car Parking

A good door-to-door perspective includes the overall most convenient travel mode, and is a common reason for using public transport (see Beirao & Sarsfield Cabral, 2007; Eliasson, 2001; Hagman, 2003). This is exemplified by Maria and Hanna’s choice. The reason for public transport being the most convenient and practical for them was the lack of parking (Engström & Ingelström, 2010; Hagman, 2003).

“... very limited number of parking places, so driving now is not an option” (Hanna)

“Taking the bus is the easiest and most practical option” (Maria)

This was however not a limitation for Eva’s husband who drove the private car every day to the same location.

Although Daniel didn’t like public transport, he admitted

“... the bus is in some way easier, due to the lack of parking in the city center” (Daniel)
The aim from Uppsala Municipality is to promote sustainable everyday habits and encourage sustainable transports (see Uppsala Municipality, 2013). Planning characteristics as explained above for some respondents a facilitating or forcing factor for the use of public transport. Utility maximization or preferences were for these respondents no longer possible, which put behavior theories out of action (see Nilsson & Kuller, 2000).

6.3 Intersectional analysis with respect to gender, age and socioeconomic class

An intersectional analysis (de los Reyes, 2005; & Mulinar, 2005; Henriksson, 2014) was used to illuminate if and how the previous identified factors in section 7.1 and 7.2 differed between and within groups. The category gender was central, and age and socioeconomic class were used to interpret differences in travel mode choice based on power relations (de los Reyes & Mulinar, 2005; Lykke, 2003, 2005). The interpretation was based on the pre-understanding of the local context and the identified meaning of sustainable transportation.

6.3.1 Gender

The category gender involved the analysis between men and women. Levin & Faith-Ell (2011) argue that traditional spatial and transport planning have taken men and women’s different needs into consideration, but lacked to recognize the inhomogeneity within the groups. The interview sample was limited, and not much was found that differentiated the interviewed men and women’s travel patterns, which much previous research has showed (see Currie & Stanley, 2008; Gilboa Runnvik, 2014; Ipsos, 2015; Polk, 2001). Among the respondents, both men and women had family obligations that made their travel complex, and because of this, time seemed to be the main influencing factor for both the men and the women.

Although the sample was limited, almost all interviewed households owned at least one car, and echoing previous research, it was mainly the men who used it (see Gilboa Runnvik, 2014, Polk, 2001) while the women used public transport or bicycle (see Levin & Faith-Ell, 2011; Polk, 2001). Women only had access to a car within the families with two or more cars (Eva and Victor’s families). Larsson (2006) suggests that women are using public transport more often although also taking the larger household responsibility. Two men who took household responsibilities, used the car as their travel involved complexed pattern. Polk (2001) suggests that men have a stronger attachment to the car and therefore are less willing to change to other transport modes. Cedersund & Lewin (2005) argue that men more often take the car for granted. Maybe this was the reason for Victor to purchase a second car (see Cedersund & Lewin, 2005), as he argued public transport was not a feasible option. He claimed that the car was a necessity for him to manage the fetching of his children. Hanna had no access to a car, and had to take the fastest mode alternative in order to fetch the children. Scheiner & Holz - Rau (2012) suggests that the availability of good public transport connections for one part in the family may allow the other part to use the car. This could have been the reason for Hanna, and was the reason for Maria to leave the car for her husband. Victor saw no other options than driving to fetch his children, while Hanna was considering different options, also including a car. Levin & Faith-Ell (2011) implies that women are expected to be more influenced by environmental concerns and that this could influence their mode choice. This could have been the underlying environmental reason for Hanna’s choice not to buy an additional car. However, the overall environmental concern was fairly equal between the interviewed women and men.
Polk (2001) argues that Swedish men spend more money on transportation than women do. The interviews illustrated that the five women more often than the men used the cheaper and more sustainable transport modes, as the men were driving the car more than the women. However, Indebetou (2010) argues that as women’s opportunities are becoming more equal to men’s, they start taking up similar behavior pattern to men, and drive private cars more. Indications were found that economic resources perhaps could impair gender inequalities, and the wealthier Eva had the opportunity to drive her own car. However, her job situation more or less forced her to, and if the family only could afford one car, she could have been the one using it.

Andersson (2005) argues that women more often feel unsafe in the public sphere, but only one woman, Matilda, mentioned this. Nevertheless, it did not influence her mode choice, although she wanted to drive a private car partly for this reason.

6.3.2 Age
According to age, the respondents were divided into four analytic categories. The younger category, who still hasn’t settled a life of their own (up to 25), the category with small children (25-40), the category with teenagers (40-50) and the category with grown up children (50+). Although the sample is limited, it is still useful to categorize according to age in order to identify trends. Caused by social structures, age is a significant determinant for power, and power increases with age, de los Reyes & Mulinari (2005) states. As car ownership is linked to income (see Bopp et al., 2013; Buehler & Pucher, 2012), it was not surprising to find the lack of access to a car for the young category. The young Daniel used public transport because of economic reason (see Bopp et al., 2013; Buehler & Pucher, 2012). Young people are more open for change to sustainable transport modes, Nordlund & Westin (2013) suggest, but this wasn’t true for Daniel. His attitude could perhaps be explained by his childhood experiences (see Baslington, 2008).

The category with teenagers and grown up children drove the car more (see Anabel, 2005; Thøgersen, 2006). Ipsos (2015) states in their report that the age group 45-64 years is the major car users. These are perhaps the individuals with the most stable economy, thus having the economic resources to own a car and drive. Thomas with grown up children, was driving although no parking, while Hanna with small children believed the parking situation was constraining car use.

People with younger children have often a complex travel pattern and limited time to use on travel (see Baslington, 2008; Cedersund & Lewin, 2005; Ipsos, 2015), which was apparent for the group with small children, Hanna and Victor, whose travels were influenced by what mode was feasible for fetching their children in time. Thus, different positions in the lifecycle involved different travel patterns.

The environmental awareness was fairly high regardless of age. This was however not reflected in the travel behavior and travel mode choice. Although driving the car every day, Victor shared his great concern for the links between car use and environment. Also Hanna showed environmental awareness, and a possible explanation could be that they were concerned over the future of their small children. They were also young enough not to have been assimilated into habitual car driving without learning about its consequences.

Although the limited sample, the interpretation is that age seemed to influence travel behavior, as the older were driving the car more although situational constraints. However, it is possible that this is a cause of economic resources (that seemed to be linked to age) rather than age itself.
6.3.3 Socio-economic class

The average income in Nåntuna/Vilan is according to statistics from Uppsala Municipality high and in Sävja as low/medium (Uppsala Municipality, 2015). Nåntuna/Vilan is more homogenous than Sävja regarding income, education and car ownership (Andersson, 2015). Based on education, profession, income (Landon, 2006), housing condition and car ownership [lifestyle attributes] (Bourdieu, 2012 in Currie & Stanley, 2008), family characteristics, and SCB (2015a) income classifications (appendix 2), the respondents illustrates examples from different socioeconomic classifications. Socioeconomic classifications are of interest when studying differences in travel behavior, as socioeconomic background involves different opportunities. The respondents’ income levels seemed to be linked to their level of education. The classification resulted in the division of three socioeconomic levels; low, medium and high socioeconomic. Three respondents (Eva, Thomas and Hanna) from Nåntuna/Vilan, and two respondents (Peter and Maria) from Sävja were classified high. Victor from Nåntuna/Vilan, and Matilda form Sävja were classified medium. Daniel and Sara from Sävja were classified low.

The distance to the city center only slightly differed between Nåntuna/Vilan and Sävja. According to UL (2015) the use of public transport was higher in Sävja than in Nåntuna/Vilan. Location of residence and workplace, distance to bus stop, or bus frequency (Buehler & Pucher, 2012; Engström & Hansen, 2011; Eliasson, 2001), cannot fully explain the differences. Peter and Sara both lived in Sävja and had almost the same travel patterns, but used different transport modes and had different reasons for it. Economic factors, such as income and access to a car, and time seemed to limit their choices (see Gehlert et al., 2011; Paulley et al., 2006; Polk, 2001). “It is expensive to own and drive a car”. Car ownership was for three respondents linked to income (see Bopp et al., 2013; Buehler & Pucher, 2012; Paulley et al., 2006; Polk, 2001). Low socioeconomic classed Daniel and Sara who couldn’t afford a car, and medium socioeconomic classed Matilda who couldn’t afford a second car, is examples of this. Medium socioeconomic classed Victor was resident in a high economic area, which could have influenced his choice of a second car, as subjective norms, are influencing factor for travel mode choices (see Gehlert et al., 2013; Engström & Hansen, 2011; Goodwin & Lyons, 2009). Additionally, the area of Nåntuna/Vilan where Victor lived in is planned as a single house residential area where it is easier to allocate two cars regarding parking. In combination with economic resources, this could be an explanation for the overall higher use of cars in Nåntuna/Vilan than in Sävja.

The correlation of car ownership and the use of it (see Buehler & Pucher, 2012; Paulley et al., 2006) illustrates by the fact that six households (out of eight) participating in this study owned at least one car. All cars were used in daily travel to work. This seemed to indicate that, the fact that the car was available influenced the choice of it as most convenient. However, in some of these households, one person was in the need of the car in order to reach his or her job, or within a acceptable timeframe. In these situations it could be argued that the car use is justified.

The respondents mentioned costs in relation to both car and public transport. The cost for travel did not influence the mode choice to much extent, and the perception of cost for transports seemed to be individual and perhaps related to other circumstances. Previous research hasn’t agreed on the influence of cost of public transport (see Eliasson, 2001; Kottenhoff & Byström, 2010). Matilda (medium) argued that if public transport were cheaper, the choice would be more relevant. Maria and Peter (high) did not care much about the price either for public transport or private car, while Thomas (high) thought travel cost for both car and public transport was expensive. Thomas illustrated Buehler & Pucher’s (2012) founding
that the habitual car driver is not very price sensitive. He was ready to take the extra cost of driving.

The respondents from the higher socioeconomic class were more aware of the benefits from physical active mode choice, and exemplified by Maria “I also by choice get off the bus earlier, so I get 20 minutes walk before coming to work”, and Thomas “It is better for the environment and good for the health”. Socialstyrelsen (2014) points out in the Öppna jämförelser Public Health report, the more educated are more physical active, which could explain why the two less educated and low socioeconomic classed, Daniel and Sara, perceived the same distance an obstacle.

The environmental awareness and the impact from different transportations were fairly high among all respondents. However, given that the sample was limited and travel mode choice can be made from different individual and situational reasons, the higher socioeconomic classed respondents in this study used the car more, as their economic resources allowed them to (see Bopp et al., 2013; Buehler & Pucher, 2012; Polk, 2001; Paulley et al., 2006). But on the other hand, they also used sustainable physical transportations to a larger extent than the two lower socioeconomic classed. The two respondents with the lower economic resources were prevented from adopting the more unsustainable travel behavior, as they couldn’t afford a car, and same for Matilda who couldn’t afford abroad holidays. It seemed that the respondents with better economic resources to a larger extent could influence their mode choice (see Winner, 1980). Travel mode choice is taken from different reasons and not only based on economical terms, but Eva with sufficient economic resources to own and drive a car, could take a job offer although far away. Sara was more geographical limited. Although access to the public sphere through public transport, the less wealthy Sara were more limited to on equal terms participate in social structures (see Harvey, 2008; Winner, 1980). The consequence could be a reproduction of inequalities. However, Sara perhaps had access to a social network with opportunities not given to Eva that was not illuminated in the interview.

6.3.4 Intersections
Winner (1980) argues that the society structures transportation, but everyone is differently situated to influence the use and the structure itself. The interviews illustrated that everyone wasn’t in the same position to influence their everyday travel mode choice. An interpretation through the lenses of gender, socioeconomic class and age, indications seemed to appear that these categories could influence mode choices (see Kaijser & Kronell, 2013). Material resources in form of the car facilitated everyday life actions for some (see Reyes & Mulinari, 2005), and the lack of the same limited the individual freedom of actions for others. Hence, as the respondents lived and worked in different geographical locations, power relations could have been shaped by the geographical and social context, and reproduced in everyday life actions, as Kaijser & Kronell (2013) suggest. However, the intersectional analysis indicated that also other power structures could have influenced the respondents’ mode choice (see Hanson, 2010; Kaijser & Kronell, 2013; Scheiner & Holz –Rau, 2012). Travel mode choice was found to be complex (see Anable, 2005).

The interpretation of the result indicated some gender differences. Among the nine respondents, three out of four men had access to the family car and used it, while four out of five women traveled by public transport. As Indebetou (2010) argues, the difference was less among the higher socioeconomic classed, and for the nine respondents, car ownership seemed to be linked to income. In turn income seemed to be linked to education and age. Women as Eva and Hanna, with better economic resources, had better opportunities to influence their
travel mode choice compared to the Sara and Matilda with lower economic resources (see Bopp et al., 2013; Buehler & Pucher, 2012; Scheiner & Holz-Rau, 2012). Eva and Hanna had the opportunity to choose their preferred alternative, while Sara and Maria didn’t have that choice. The low socioeconomic classed Daniel had less economic power to influence his travel mode choice than the higher economic powered Eva. However, travel mode choice can be made for reasons other than economic. Although a limited sample, this show examples of that socioeconomic situation was a strong influential factor, as economic resources influenced the availability of mode choices. Matilda illustrated this “The economy is more influencing the choices than anything else”.

Scheiner & Holz-Rau (2012) suggest that differences in economic power within the household may reinforce household inequalities, and preserve gender roles. This could be suspected in Matilda’s case. Although it was a negotiated decision within the family that her husband needed the car (Scheiner & Holz-Rau, 2012), she felt unpowered by the lack of economic resources, as she couldn’t influence her own daily travel. In Thomas and his wife’s case; was it a negotiated decision, or did Thomas with the higher income use his economic power to force access to the car while his wife had to use public transport? His wife had her work located in a more peripheral area with better parking options, but used public transport or cycle.

The feeling of unsafely is gendered, according to Andersson (2005). Matilda illustrated an example of this. Walking to the bus station at night was associated with the feeling of unsafely, and driving a car would have made her feel safer. However, as economic resources influenced travel mode choice options, a car wasn’t feasible for her. Thus, Matilda experienced the feeling of unsafely but felt that she couldn’t influence her situation. However, she did influence the mode choice regarding her daughter, as she as the older mother took the decision to fetch her daughter with her car at night. Thus, being a young woman restricted her freedom of actions and limited her access to the public sphere (see Andersson, 2005).

The high socioeconomic classed Eva from the older age group and with more habitual driving, was working outside Uppsala, and therefore driving the car. Medium socioeconomic classed Matilda used public transport although she wanted to drive the car. If the economy had allowed, Matilda would have bought herself a car. High socioeconomic classed Hanna on the other hand, didn’t buy a second car, for environmental reasons. Different contextual situations in combination with economic resources seemed to influence their travel mode choice. This illustrates how important it is not to treat any group as homogenous. Economy indicated to facilitate resources that in turn indicated to influence travel mode choices, as well as job opportunities. Transport needs were also different depending on where in the lifecycle the respondents were (see Baslington, 2008; Ipsos, 2015). The two families with younger children, where more constrained by time partly because their complex travel pattern, and thus more limited in their options.

As de los Reyes & Mulinari (2005) point out, the elderly have a higher status than the young, and are by this more powerful. Kaijser & Kronell (2013) suggest that individual emissions of CO₂ are primary determined by income, and income is the main determining category for lifestyle. The interviews showed examples of differences in public transport and car use regarding age, gender and socioeconomic class. The richer respondents and the men used the car more. However, they also used physical active transport modes more. Interpreting this on the limited number of respondents from Näntuna/Vilan and Sävja, the statement that CO₂ emission is a question of class and power, isn’t fully relevant in the study context. Looking at
preferences and actual mode choice, the study sample illustrates that men, older, and richer, seemed to have more opportunities to take their preferable mode choice.

7. Discussion

The empirical findings were analyzed in relation to previous research and to the theoretical framework. The findings illustrated examples from the local context of Nåntuna/Vilan and Sävja in Uppsala of what previous research already knew. The intersectional analysis indicated that differences in travel mode choice could be a result of power structures. This section will discuss the method and the result, and answer the research questions.

7.1 Method Discussion

The extensive literature research contributed to the understanding of travel behavior and travel mode choices, and being a resident in the study area allowed me to have a pre-understanding of the local context and its inhabitants. This made it possible to in the short time frame, share and understand the respondents’ experiences. By using in-depth interviews the individual experiences came into focus, which according to Anabel (2005) and Goodwin & Lyons (2009) is important as travel mode choice is complex and can be taken on different grounds. The respondents were chosen without knowing either their travel behavior or their preferences, which allowed them to share their travel experiences from their own view. However, studying power relations can be problematic, as there is a risk of taking a normative position. My own position was acknowledged (Bryman, 2008; Haraway, 1997), which meant that as a white, middle class and middle age women, with my pre-understanding of power structures and the local context, as well as of sustainable transportation, I might have influenced the respondents. Although not intentionally, this could have lead to a decision from my side on what power position would be more important. This could also have influenced the interpretation of the respondent’s experiences, which is important to reflect upon (see Lykke, 2009).

In the application of the intersectional analysis, Lykke (2003, 2005) suggests that only the relevant categories for the purpose of the study have to be used. For the purpose of answer the aim, socioeconomic class and age were used as analytic categories. However, ethnicity is also a relevant category, but was excluded for two reasons. Firstly, it is important to think from whom it is possible to obtain relevant answers. Being a white, majority Swedish, middle class woman and studying individuals with different ethnicities, appearances and/or religions, is not always as easy as it can be perceived (Rydhagen, 2002). Although being resident in the study area, this showed to be true. The sampling of respondents was a result of my own participatory position, based on Haraway’s (1997) Modest Witness, thus it was easy to find respondents with the same ethnicity, color and religious background as myself, but more difficult and time consuming to find a respondent from another ethic and/or religious background who agreed to participate. Maybe this is one reason for why this aspect hasn’t, to my knowledge, been usually studied, and would have required more time to include. This is something to keep in mind for future studies. As a result, only respondents with white, majority, and Swedish backgrounds were included. Although this is not a limitation, it is important to highlight that people with a different background might share different experiences and raise different issues in relation to travel mode behavior and mode choice. For example, Swedish Television Uppdrag granskning has shed light on the fact that women wearing hijab (symbol of religion) in Swedish society are often discriminated in the public space and suffer from harassments and threats (Hansson, 2015), and which could influence their travel behavior and mode choice. This wasn’t stressed in this thesis. Thus, applying
other categories, such as ethnicity, religion and functionality, would be greatly useful, and should be included in a larger study as it is rarely addressed in relation to mobility. However, Lykke (2009) argues that there is a point in studying the privilege norm in order to understand its reproduction, hence the result is still of value. Secondly, due to the time frame of this master thesis the analysis was chosen not to include too many categories. Hence, taking only socioeconomic class, gender and age into account.

Some of the respondents were not comfortable with being recorded hence notes were carefully taken. This could however have influenced the result, as it was not possible to go back and listen all to the interviews again. All respondents were aware that the field of study was transportation and sustainable development, and perhaps this was the reason for the respondents to bring up sustainable transports, or perhaps this is a public discourse today. However, the respondents shared their habits regardless of whether they were pro-environmental or not, so the interpretation was that this background information did not affect their answers.

Hanson (2010) argues that knowledge isn’t much worth if it isn’t put in relation to a local, social and geographical context, hence, knowledge that is to some extent generalizable and at the same time contextualized is desirable. The intersectional approach emphasizes the local context, and has been the point of departure. Consequently, the result may not necessarily be transferred to other contexts. This was however not the aim of this thesis, as the focus was on Nåntuna/Vilan and Sävja. Additionally, individual experiences are as important in order to understand travel behavior, and travel mode choice in particular. As travel mode choice can be made for many reasons this thesis only illustrated examples of such. Other situational factors could make the travel behavior and mode choice significantly different. Noteworthy to admit, people might have had different underlying reasons for their choices not revealed in the interviews. Nevertheless, this thesis has gained deeper knowledge about the experiences within the local context of Uppsala, Sweden and the areas of Nåntuna/Vilan and Sävja in particular.

7.2 Result Discussion

Hanson (2010) and Rydhagen (2013) claim that equality and transportation go hand in hand, as transport choices in addition to preferences and situational factors, are shaped by power structures. Equality and social sustainability require increased needs of transports. At the same time environmental sustainability requires reduced CO\(_2\) emissions and reduction in transports. Thus, increased mobility has to be sustainable and including. Improving environmental sustainability by reducing CO\(_2\) emissions will increase future ability to ensure economic sustainability. Ensuring an inclusive and safe society, where equal access to the public sphere and its opportunities promotes good public service and good public health, and henceforth improves social sustainability (see Harvey, 2008; Olsson, 2012). Transportation facilitates the connection of physical and social networks. Public transport provides an important service for people with no access cars, and at the same time reduces the amount of cars. Thus, public transport is a key element in a sustainable society.

The political goal to double the use of public transport is grounded in the urgent need to decrease the atmospheric concentration of CO\(_2\). Yet, the transport objective targets all dimensions of sustainability, and aims at creating a sustainable transport system that can facilitate human health, sustainable mobility and urban development. Thus, the purpose of a sustainable transport system is to promote sustainable travel mode choices in everyday life. The national goal is to create conditions for good health, as health is a key to social
sustainability. This includes interventions to strengthen both physical and mental good health (see Swedish Government Offices, 2014d). Lifestyle and habits are behavior in everyday life that the individual can influence. However, the societal structures are limiting or facilitating the everyday choices. Whilst everyone is not equally able to make either sustainable or healthy everyday choices, others are powerful enough to make unsustainable choices. Transport behavior is shaped by the existing transport system, structures in the society, and the result indicated that also power structures influence the mode choice. Uppsala municipality claims that they are supporting “every day right” choices in order to promote sustainable development. The nine interviews in this study indicated that the support might be more a forcing than promoting factor, and this will be further discussed in following sections.

7.2.1 What factors influence people’s travel mode choice?
One aim of this thesis was to identify factors influencing people’s travel mode choice. The nine interviews identified factors listed in Box 1.

<table>
<thead>
<tr>
<th>Box 1. Identified factors influencing people’s travel mode choice.</th>
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<tbody>
<tr>
<td>- Attitude and Environmental concern, personal preferences</td>
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<td>- Habits</td>
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<tr>
<td>- Personal norms and values</td>
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<tr>
<td>- Car ownership and access to a car</td>
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<td>- Income</td>
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<td>- Cost for travel</td>
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<tr>
<td>- Individual constraints</td>
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<tr>
<td>- Time; travel time, waiting time, travel pattern</td>
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<tr>
<td>- Convenience, freedom</td>
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<tr>
<td>- Spatial planning; location of residence, child care and work, Parkings, Safety</td>
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<tr>
<td>- Public transport service; frequency, routes</td>
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<td>- Knowledge about public transport service</td>
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<td>- Crowded buses</td>
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<tr>
<td>- Health aspects; Physical activity, risk of infections, social interaction, relaxing</td>
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</tbody>
</table>

Grounded in the extensive literature reviews of previous research, the point of departure was that transport mode choice is unequal divided between groups and within groups, and therefore an intersectional perspective could illuminate this and shed light on power structures facilitating or limiting the choice. The nine respondents within the study context shared different experiences and preferences that indicated that the initial belief could be true and illustrated that travel mode choice can be made for different reasons, and different reason can lead to the same choice. Transport mode choice is according to rational choice theory (Bamberg & Schmidt, 1998) influenced by preferences and perceived barriers, and a decision will be based on the alternative with the overall highest advantage. Depending on individual and structural circumstances, the respondents’ travel experiences and travel mode choices demonstrated examples of different modes could be the most convenient and practical. Time was for all nine respondents the central aspect when choosing a travel mode. They wanted to spend as little time as possible on commuting to work, and the car was perceived the most time saving alternative. Three out of four car users perceived the car as the only choice, as the time had the higher value.
Nevertheless, as previous research has agreed on (Gehlert et al., 2011; Hagman, 2003; Urry, 2004, 2012a), car ownership seemed to shape people’s life. All nine respondents had the car as a reference when thinking about travel and travel mode choice regardless if they had access to a car or not. When having access to a car, the car appeared to be the most convenient, i.e. time saving, easy and accessible. Managing family responsibilities and commuting to work outside the city center was with no doubt facilitated by the car for some respondents. The aim from a planning perspective is to prevent car use within the city center (Uppsala Municipality, 2013). Thus, working in the city center made the choice of public transport the most convenient for three respondents, as parking was limited. Contrary, working outside the city center, made the car the most convenient for three respondents, as the travel pattern with many connections would be too time consuming. Having additional errands, such as fetching children or pets, made other choices than the car unfeasible to undertake with public transport. In the six households with at least one car, all cars were used. This could be a sign of how deep the car use and the value of time are established in people’s everyday life, which in turns influence on their decisions. However, to be able to value time more than other factors and allow time to influence the mode choice, the economic resources are crucial. This wasn’t a privilege for everyone in the study as was illustrated.

All respondents didn’t always consider the most convenient travel mode choice. Attitudes, subjective norms and past behavior, appeared to have higher influence on some respondent. When other factors were facilitating or limiting, the attitude was for one respondent determining. A negative attitude towards public transport made him find the option of public transport unthinkable. Contrary, a positive attitude towards public transport facilitated the choice of public transport for one woman, and her environmental concern could have strengthened her choice of public transport further. As a habitual car driver in combination with the negative attitude towards public transport, the environmental concern did not influence the mode choice for the previous man, although he had a bad conscious.

Increased us of public transport can be promoted by the spatial planning. Unconstructively, the planning has failed to ensure safety for all in the public spaces. For one woman this had resulted in avoiding public spheres and had lead to additional car driving, which is counteracting the promotion of equality and decreased use of the car. As the feeling of safety is an important aspect of accessibility and usability of the public spheres, as well for a democratic society, this is an important, but limited addressed aspect of equal mobility and sustainable travel behavior.

Most of the nine respondents seemed to have a contradictory relation to the car. The car was perceived a fast and convenient alternative, but nevertheless costly and with a negative environmental impact. This was a concern for some respondents, although of secondary order. Only one woman let this concern influence the mode choice. Despite the knowledge about negative environmental impacts, two respondents were still driving with a bad conscious. It also appeared that respondents were uncertain whether their own behavior would make any difference. This is a concern regarding pro-environmental behavior in general as to make a noticeable difference many need to make the same change. As Nilsson & Kuller (2000) argue, the actual behavior is more influenced by the individual’s background and resources, which the interviews indicated. In addition to individual situational constraints and circumstances, the economic resources appeared to be a strong factor as it was suggested to shape the available options. Although wanting to choose a sustainable travel mode, it was not always practical or possible. Likewise, the respondents shared experiences illustrating that circumstances were forcing a sustainable mode choice. For example, two respondents with the
feeling of no other option than public transport expressed a will to drive a private car. They might change their transport mode as soon as their situation admits them to. Switching to the car would in this situation be a failure for the doubling goal, as the goal is to make car users switch to sustainable alternatives. To achieve the overall environmental and transport goals, the use of public transport has to increase. The new users have to be the individuals that today are driving private cars. However, the shorter distances should preferably be undertaken by more physical active transport modes, which could improve the physical health situation.

7.2.2 What are the barriers to use public transport?

Another aim of this thesis was to identify barriers impeding the use of public transport. The nine interviews identified factors listed in Box 2.

- Negative attitude towards public transport
- Habit to drive
- Personal norms
- Access to a car
- Time; travel time, waiting time, travel pattern
- The car is convenient
- High public transport fare
- Planning factors; location of residence, child care and work
- Public transport service; frequency, routes
- Knowledge about public transport service
- Crowded buses
- Risk of infections
- Feeling of unsafely

Box 2. Identified barriers for using public transport

The transport objective aims at increasing the use of public transport, and one instrument to achieve this is the doubling goal. Before planning interventions for this, it is important to understand the present travel behavior and the reasons for choosing one transport mode before another. Understanding the barriers for choosing public transport is fundamental in order to overcome them. The nine interviews in this although limited case-study undertaken in Nåntuna/Vilan and Sävja in Uppsala, shared experiences of internal and external barriers for using of public transport.

As already discussed, a negative attitude towards public transport was a barrier for some. One woman with negative attitude didn’t have access to a car and therefore used public transport, and despite planning constraints she wanted to switch to a private car if the economy had admitted her to. Although car use was constrained by spatial planning factors, the negative attitude towards the bus stopped two men from using public transport. They both had an almost door-to-door connection with the bus, and an awareness of the negative environmental impacts of driving the car. In combination with the negative attitude, their preferences of convenience appeared to be a barrier for choosing public transport. However, as argued before, travel behavior is complex. These men were the older category and had a habitual driving, and are according to Thøgersen, (2006) hard to make change, which they illustrated. The category with young children showed indications of being more open for change, especially with regards to the environmental benefits.
Even though wanting to choose a more sustainable transportation, it wasn’t perceived feasible by all. Geographical location of the workplace in relation to residence and childcare was for one respondent a barrier and for two a factor preventing them from using public transport. Lack of public transport services forced the husband to one respondent to drive the family car, and working outside Uppsala made the travel pattern for another respondent too complex and time consuming for undertake with public transport. The same was true between peripheral areas within Uppsala city. These type of journeys were by two respondents perceived taking too much time. If public transport services and connections would be improved between peripheral areas and not primary based on the city center hub, the choice of public transport could be easier and more often a realistic option. One respondent suggested a circular bus route serving only the peripheral areas. The public transport service from both Nåntuna/Vilan and Sävja to the city center was good and frequent. However, connections between the two areas were experienced more limited. One respondent lived in Nåntuna/Vilan and had childcare in Sävja, which required a journey in the opposite direction in relation to work. He argued he could not manage to bring/fetch children on the way to/from work by using public transport, especially as he had additional connections to reach his work in a peripheral area. Thus public transport was not a realistic option for all with respect to time and routes. For some respondents neither cycling was an option for the same reason. This is a planning issue, which should be considered when planning social services. If planning factors like this restricts people, who want to use public transport, or a more physical active mode, the aim to double the use of public transport is harder to achieve. But as stated in Ipsos (2015) report, families with small children often face this situation, but when the children grow the situation changes. It was also suggested that families with younger children indicated be more environmentally concerned, and if so, as soon as they get the option to switch transport modes, they might do.

In reality, the time difference between car and public transport wasn’t always that big, but there was a perception among some respondents that there was. This could be an indication of the attitude to and value of time, but also a lack of information about public transport services. Thus, attitudes and perceptions could limit the acquisition of accurate information, and subsequently the use of public transport.

Four respondents perceived the cost for public transport being too high, and if it would be cheaper the choice for public transport would be easier, they stressed. However, Eliasson (2001) implies that people are often overrating the cost for public transport in comparison with the car. The public fare in Uppsala was among the most expensive in Sweden for single tickets, which was the most used by the respondents using public transport. No one argued that it was beneficial to buy the period card, as the total price for their use would have been almost the same. Single tickets allowed them greater freedom to also choose other travel modes. A price on the period card that is perceived cheap enough to be competitive to the car, could encourage the purchase of period cards, and hence, encourage increased use of public transport in favor of the car. Much research agrees on that a fare system that is easy, convenient and economically competitive with the private car can increase the use of public transport (Buehler & Pucher, 2012; Eliasson, 2001; Engström & Hansen, 2011, Stridsberg, 2014). However, the limited sample is not enough to draw any assumptions whether this is true in Uppsala or not. The use of public transport for daily travel to work was in Uppsala lower compared to other large cities, but this could be an indication that the share of physical active modes are rather significant.
Although physical active modes would be a barrier for public transport use, the aim is not to make people to swift from it. As a few respondents mentioned, they used public transport during the winter period and more physical active transports in the summer. Nevertheless, after planning or economic constraints, the time preference was among all nine respondents the most considered factor when choosing transport mode, as they wanted to spend as little time as possible on travelling. However, no one put time in relation to physical activity, and how time could be gained by choosing a physical active transport mode instead of performing physical activity in their leisure time at night. Only one respondent put time in relation to environmental impact, as she chose the fastest travel option but purposively not involving a car.

Another barrier for the use of public transport is the request for more environmental friendly cars. Three respondents made car use justified by the use of ethanol fuelled and electric cars, and therefore didn’t drive, or planned to drive, less. One respondent put car use in relation to the widely habitual aero travels, and the car wasn’t perceived to cause extensive negative environmental impacts in relation to flying. Environmental values and beliefs seemed to influence the environmental awareness but had less impact on the personal obligation to act (see Stern, 2000) and the actual travel behavior. Most of the nine respondents had concerns about to what extent the individual behavior had effect on the larger scale, and perhaps the reason for the obligation to choose a more sustainable transport mode had minor influence.

The links between environment, everyday mobility and public health seems to be fairly understood, but not always diffused to everyday life choices. Internal and external constraints were prohibiting and obstructing people from putting ideas into actions. Weather the use of public transport can increase appeared to be influenced by the service provided, and vice versa. Planning for this requires understanding about people’s travel behavior and travel patterns within their local contexts, which was one aim of this case-study. Although it was limited, it exemplified different experiences from everyday travel. Public transport seemed to have hard to meet all respondents’ needs, and if it doesn’t meet people’s needs, very few with other options will use it as the experiences demonstrated. Making people use public transport on other grounds than free would perhaps be hard to sustain. If public transport can become competitive and attractive for its own advantages, the possibility to keep the users would be much higher.

7.2.3 How do these factors differ between gender, age, and socioeconomic class, and where do they intersect?
Local context and situation enables or limits the individual’s freedom of actions. The nine respondents shared their experiences, which indicated that everyone didn’t have the same possibilities to influence their mode choice. Some had more control than others. Kaijser & Kronell (2013) and Lykke (2003) suggest that power relations are influencing and often determining actions in life, which in turn reproduce power relations. These are from the intersectional perspective important to elucidate. Weather it was different power structures influencing the respondents choices cannot be settled with this limited study, but the examples the respondent shared indicated that this could have been the case. On the other hand, in some families it could likewise have been a negioated decision within the family. Although having the will to choose a certain mode of transport, individual and contextual factors seemed to influence the respondents’ choice. Economic resources seemed to shape the material resources that could facilitate everyday actions. For three of the respondents with access to a car, the car was an enormous advantage and time saver. However, a car wasn’t feasible for all, and lack of economic resources prevented car ownership for some.
Although economic resources could offset gender and age inequalities (see Indebetou, 2010), there appeared to be an indication of a gender aspect in access to car. Four out of five men had always access to a car, while the same was found only for one woman and in a household with additional cars. As mentioned before, it is not possible to draw any conclusion as the division of the car use in each family could have been negotiated decisions based on travel patterns, spatial planning, or equal share of household responsibilities, rather than the male dominance, based on men’s higher economic power grounded in their often higher income (see Scheiner & Holz –Rau, 2012). However, being a woman with weaker economic resources might be limiting the choices, which one woman shared her experience of. In her case, enough economic resources could have given her the option to buy an additional car for the family. Economic resources gave some respondents opportunities to choose travel mode based on other factors than economy. Belonging to high socioeconomic class allowed these respondents to put a value on time, which in turn influenced their mode choice. All respondents from low and medium socioeconomic class didn’t have the option to let the time aspect influence their mode choice to the same extent. The interviews indicated, that being an older man from a higher socioeconomic class, made it possible to choose the transport mode of preference. Two respondents, one older man and one younger woman, both living in Nåntuna/Vilan and with almost the same work place location and almost the same economic resources, took to different mode choice decisions. Spatial planning was a forcing factor for public transport use for the woman, while it didn’t prevent the older man from driving. It could have been that the woman’s environmental attitude was the reason for her seeing the spatial planning as a preventing factor (see Levin & Faith, 2011), while the man’s habits made him overcome the constraints.

It was argued that the car is a part of modern lifestyle and often a requirement to manage daily activities, and this attitude did not differ between genders, age or socioeconomic classes. Yet, the literature review revealed that women’s mobility patterns are different to men’s. Men drive the car more, while women travel with public transport or cycle more (Polk, 2001). The five women in the study demonstrated a larger use of public transport, but it was also observed that men had complex travel patterns. However, the two men with complex travel pattern stressed that the car was a necessity for managing their activities, and they had the power and the means to reinforce the use of the car.

Equity is a fundamental aspect of sustainable development (Government Offices of Sweden, 2015b), which involves equal access to opportunities and services provided by society. Thus, equal access to mobility is the critical issue as it connects people. As not everyone are equal situated to own a car or can undertake physical active transportation, public transport can provide mobility for these. The result of the interviews indicated that there are structures in society that influence people’s mode choices more or less. Structures on the political planning level seemed to shape the available options, but also looking at preferences and actual mode choice, the respondents who were men, older, or richer, appeared to have more opportunities to take the preferable mode choice. Is this an indication that different power structures influenced the individual’s daily choices more than the individual’s preferences?

8. Summary and recommendations

Social sustainability and the planning of public spaces includes transportation, which plays a key role in order to be inclusive and promote social relations, equality, diversity, good health, and ensure safety. However, environmental sustainability requires a reduction of CO₂
emissions and therefore transportations have to be sustainable. In a sustainable society, all members should have adequate access to transportation, and therefore public transport is a vital component for the ones with no access to car, as it connects quality of living with education, work and health care. The point of departure has been that public transport and physical active transport modes are sustainable ways of transportation, and should be undertaken by most. Although there might still be situations where the use of cars is justified. However, public transport can only be sustainable if enough people are using it, and the Swedish Public Transport Association suggests that public transport is a natural way of travel in a sustainable society, and has set the ambitious goal to double the use of public transport by the year 2020.

This thesis has in addition to an extensive literature review, accomplished a limited case-study with the aim of gaining deeper understanding in travel mode choices and to identify barriers for increased use of public transport. The literature review gained a profound knowledge of travel behavior and travel mode choices, and the nine in-depth interviews illustrated experiences from two areas of Uppsala city, Nåntuna/Vilan and Sävja. Although Uppsala is one of the largest cities in Sweden and has according to Rhudin et al. (2014) a well developed public transport service, the respondents expressed some barriers for extended use. The literature review highlighted that travel mode choice can be made for different reasons, and in order for planners to understand what actions to take, the local experiences illuminated barriers maybe not possible to be seen from an average point of view. In addition to barriers, reasons for using public transport were also elucidated. Local voices confirmed what the literature research revealed, and showed examples of context specific situations. As travel mode choice can be made for many different reasons, and different reasons can lead to the same choice, the result can only portrait the respondents’ experiences, and is therefore not a truth outside this study. Travel behavior is complex, and everyone’s experience is of value and contributes to the bigger whole. In addition, there is an explicit point in letting people having their voice heard, and stressing the idea that their situation is of matter.

To form a sustainable transport system, many people have to choose more sustainable transport modes. If more people can think of public transport, cycling and walking as natural part of transportation in their everyday life, the acceptability for sustainable transportation can increase. It is this collective change that is needed in order to achieve environmental-, transport- and health objectives. The nine respondents admitted that they preferred the most convenient travel mode option with respect to time. However, attitudes were suggested to influence what option was considered convenient, and economic resources appeared to influence the availability of options. As the number of respondents were limited, it is not possible to draw any conclusions of the situation in Nåntuna/Vilan and Sävja. Nevertheless, spatial planning was for a few respondents constraining their car use, and travel between peripheral areas within Uppsala city was for others perceived a barrier for the use of public transport. Thus, planning factors seemed to be both facilitating and limiting the choice of public transport. Improvements in connections between areas without connecting via the city hub could improve the possibilities to meet more people’s needs. However, it is not realistic to believe that public transport, or physical active modes, can meet everyone’s need, but in order to reach the doubling goal public transport has to attract more users. It is therefore suggested that UL conduct more research about customers’ needs regarding the routes, as it appeared to be linked to time, which seemed to greatly influencing the respondents’ mode choice. Additionally, public transport was perceived too expensive. To increase the use, public transport has to be competitive by its own strengths, so that people can choose it by free will, and not as a punishment. Only then there is likelihood to keep the customers and
make more people to switch. The individual and the collective benefits from public transports need to be highlighted, structural constraints have to be removed. As Winner (1980) argues there has to be a social structure that controls the car use. Community planning has to be supportive of everyday sustainable behavior and involve a holistic perspective with the human and environmental health in focus. The link between everyday mobility and public health needs deeper understanding, especially as a great proportion of the population doesn’t reach requirements of everyday physical activity (Socialstyrelsen, 2014). Both are key components for sustainable societies. Further research is therefore suggested about health and societal benefits from physical active modes and the link to public transport.

This thesis has contributed with an extensive and profound literature review. Apart from that, the intersectional approach with its emphasis on the local context is the methodological contribution to the field of mobility. Extensive research has been conducted on gender and mobility, but less with a focus on age and socioeconomic factors. This thesis has given a voice to individuals at different age and with different socioeconomic situations. The intersectional perspective has indicated that power categories might influence, hamper or enable everyday travel mode choice. However, more research is needed to make stronger statements. There are other categories not illuminated here, that are of interest and importance, such as for example ethnicity and functionality. These were excluded because of the timeframe of this thesis, as it appeared to be more difficult than first believed to approach a person with different appearance or ethnic background than myself. These are however important to include in future studies.

The most important and interesting findings are listed in Box 3.

**Box 3. Most interesting findings**

- Time and practicality appeared to be important influencing factors when choosing transport mode in everyday life travel
- Indications of that power structures influenced travel mode opportunities
- Safety in public spaces could influence on women’s mode choice
- Access to car indicated to be gendered; men had more often access than women
- Planning factors were both promoting and constraining sustainable travel
- Public transport had hard to meet everyone’s need and more research is needed for an increased use of public transport
- Improved public transport service between areas in Uppsala could increase the use
- Difficulties to reach all voices of society and more research is needed regarding the ethnic aspect

The sample in the case study was too limited to draw any conclusions, but the wealthier and the men used the car more. However, they also used physical active transport modes more. Thus, Kaijser & Kronell (2013) and Rydhagen’s (2013) statement that the powerful are the greater emitter of CO₂ is perhaps not true in the context of Nåntuna/Vilan and Sävja. As a sustainable transport system involves the total travel s, it seemed to be more complex. Additionally, the use of eco cars could mitigate some negative environmental impacts, but nevertheless, weaken health and social well-being. Furthermore, all car use demands more space in the denser city. However, looking at preferences and actual mode choice, indications were found that the respondents who were men, older, or richer, appeared to have more opportunities to choose their preferable mode choice. If it is so, that economic resources and power structures are shaping travel mode choices, the intersection of transportation, equality
and sustainable development needs further research, as transportation is a core element in a modern sustainable society. Public transport increases and enables access for the less powerful, but as long as public transport is only an option and not the natural choice in everyday travel, the more powerful can always find an applicable reason for instead choosing the car. If public transport were chosen from its own competitiveness, the potential to keep the public transport users and encourage others would be improved. This case-study has given voice to knowledge gained from the extensive and profound literature review and illustrated examples of everyday travel. As the local context is important in understanding power relations and travel behavior, the findings cannot negligently be transferred to other contexts, but can be used as ground for future research.

Too high concentrations of greenhouse gas emissions, crowded cities and increased health problems are concerns in modern lifestyles. The individual choice of using the car might not have a huge impact on the larger scale, it is the mass of people with the same behavior that causes the huge negative consequences. I am part of the society and I have a responsibility. It is about equity. My individual choice of sustainable transportation might not have huge impacts, but can encourage others to do the same. It is when many people switch, a real change can be seen. I am part of the bigger whole.

9. Acknowledgement

I have during the process of this thesis often felt confused about the complexity of the field and how to confront it. Therefore I am expressing my deepest gratitude to my supervisor Dr. May-Britt Öhman for her believe in me, for her encouragement, for her time and valuable guiding throughout the process. I am also greatly thankful to my evaluator Dr. Anneli Häyren and her invaluable feedback and constructive comments at the end of the writing process.

I would like to thank the Master thesis course coordinator Dr. Elisabeth Almgren for suggesting the more and more interesting field of sustainable transportation, and to Regionförbundet Uppsala who encouraged me to explore the field in the local context in Uppsala.

I also would like to thank my opponent, Sarah Kok, for her valuable comments on language and content, and my proofreader, Yolanda Cuthill. In addition I would like to express my appreciation to the nine residents in Nåntuna/Vilan and Sävja for their time and willingness to share their travel experiences.

I would like to thank my friends for their encouragement, especially Anna for your precious support. My deepest sincere gratitude to my husband and sons for their patience, understanding, encouragement, hope, and support during the years of studies. At last, but not least, I have to thank my ‘study buddy’, Simon the dog, who helped me sort my thoughts out during our long walks.
10. References


Accessed: http://www.goteborg.se/wps/wcm/connect/c62d9e004a2fb920b8dfb9ad899f744/?MOD=AJPERES&CONVERT_TO=URL&CACHEID=c62d9e004a2fb920b8dfb9ad899f744 [2015-04-28].


Unpublished material


Appendicies

Appendix 1 Population Statistics
Appendix 2 Socioeconomic classification
Appendix 3 Categories and Themes
Appendix 4 Interview Guide
## Appendix 1

### Population statistics


<table>
<thead>
<tr>
<th>Area</th>
<th>Nåntuna/ Vilan</th>
<th>Sävja</th>
<th>Uppsala Municipality</th>
<th>Gottsunda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>3 446</td>
<td>5 290</td>
<td>205 199</td>
<td>10 085</td>
</tr>
<tr>
<td>Number of families</td>
<td>1 263</td>
<td>2 507</td>
<td>111 053</td>
<td>5 058</td>
</tr>
<tr>
<td>Bostad - Rented</td>
<td>48</td>
<td>696</td>
<td>22 711</td>
<td>2 767/55%</td>
</tr>
<tr>
<td>Bostad - Condominium</td>
<td>34</td>
<td>1 124</td>
<td>37 808</td>
<td>1 009/20%</td>
</tr>
<tr>
<td>Bostad - Property rights</td>
<td>1 051</td>
<td>259</td>
<td>25 585</td>
<td>396/7.8%</td>
</tr>
<tr>
<td>Average yearly income (tkr)</td>
<td>396</td>
<td>238</td>
<td>270</td>
<td>213</td>
</tr>
<tr>
<td>Total population 20-64</td>
<td>1 784</td>
<td>3 094</td>
<td>127 283</td>
<td>6 147</td>
</tr>
<tr>
<td>Level of education-age 20-64</td>
<td>66</td>
<td>1 409</td>
<td>40 986</td>
<td>1 130/18%</td>
</tr>
<tr>
<td>- Pre gymnasia</td>
<td>549</td>
<td>1 372</td>
<td>44 357</td>
<td>2 407/39%</td>
</tr>
<tr>
<td>- Post gymnasia &lt; 3 years</td>
<td>347</td>
<td>489</td>
<td>24 446</td>
<td>953/16%</td>
</tr>
<tr>
<td>- Post gymnasia 3 eller &gt;3 years</td>
<td>803</td>
<td>765</td>
<td>45 171</td>
<td>1 480/24%</td>
</tr>
<tr>
<td>Participating in labour market</td>
<td>1 588</td>
<td>2 259</td>
<td>94 924</td>
<td>3 745/7.6%</td>
</tr>
<tr>
<td>Not participating in labour market</td>
<td>379</td>
<td>1 270</td>
<td>40 795</td>
<td>2 861/3.4%</td>
</tr>
<tr>
<td>Unhealth figure</td>
<td>12.6</td>
<td>31.3</td>
<td>20.2</td>
<td>34.2</td>
</tr>
<tr>
<td>Total number of cars</td>
<td>1 303</td>
<td>1 513</td>
<td>63 923</td>
<td>2 399</td>
</tr>
<tr>
<td>Families with access to car</td>
<td>972</td>
<td>1 261</td>
<td>50 557</td>
<td>1 944/38%</td>
</tr>
<tr>
<td>Families with no access to car</td>
<td>300</td>
<td>1 246</td>
<td>63 028</td>
<td>3 255/64%</td>
</tr>
</tbody>
</table>

2. Unhealth figure is based on number of sick leave days or rehabilitation, sick leave subsidy etc
3. Approximate numbers as statistics is incomplete
Appendix 2

SCB:s socioeconomic classification

Statistics of Sweden (SCB) (2015a) is classifying families according to total income level. Accordingly following classifications has been used.

<table>
<thead>
<tr>
<th>Socioeconomic Class</th>
<th>One Income Range</th>
<th>Total Family Income Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low socioeconomic class</td>
<td>one income &lt; 158.000 SEK/year</td>
<td>total family income &lt; 316.000 SEK/year</td>
</tr>
<tr>
<td>Mediumlow socioeconomic class</td>
<td>one income 158.000-265.000 SEK/year</td>
<td>total family income 316.000-530.000 SEK/year</td>
</tr>
<tr>
<td>Mediumhigh socioeconomic class</td>
<td>one income 265.000-452.000 SEK/year</td>
<td>total family income 530.000-904.000 SEK/year</td>
</tr>
<tr>
<td>High socioeconomic class</td>
<td>one income &gt; 452.000 SEK/year</td>
<td>total family income &gt; 904.000 SEK/year</td>
</tr>
</tbody>
</table>
Appendix 3
Categories and Themes

Following categories and themes were raised from the analysis (Bryman, 2008).

<table>
<thead>
<tr>
<th>Codes</th>
<th>Category</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather</td>
<td>Attitude</td>
<td></td>
</tr>
<tr>
<td>Environmental concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental attitude</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past behavior</td>
<td>Habits</td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td>Norms and Values</td>
<td></td>
</tr>
<tr>
<td>Social norms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective norms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to car</td>
<td>Socioeconomic factors</td>
<td>Internal factors</td>
</tr>
<tr>
<td>Car ownership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost for driving a car</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public transport fare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical</td>
<td>Convenience</td>
<td></td>
</tr>
<tr>
<td>Easy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility in route</td>
<td>Freedom</td>
<td></td>
</tr>
<tr>
<td>Flexibility in time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical activity</td>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Infections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge about schedule</td>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>Crowded buses</td>
<td>Comfort</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>Public Transport Service</td>
<td></td>
</tr>
<tr>
<td>Bus route</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel pattern</td>
<td>Time</td>
<td>External factors</td>
</tr>
<tr>
<td>Travel time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waiting time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsafely in public space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location of work</td>
<td>Spatial planning</td>
<td></td>
</tr>
<tr>
<td>Location of child care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car Parking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4
Interview guide

Interview no ______

Contact information: ____________________________________________

Background information
1. Gender: Women Man
2. Age:
3. Nationality/Ethnicity: Swedish Other
4. Residential area: Nåntuna/Vilan Sävja
5. Education: Compulsory school>9 years High school/Gymnasium University <3 years University>3 years
6. Study field:
7. Occupation:
Geographical location of work:
8. Housing: Owned (villa/townhouse) Condominium (aptn/townhouse) Rented aptm/other
9. Family situation: Single Common law
No of children to care for:
One income two or more incomes
10. Total family income before tax:
  per person SEK/year
    < 158.000 158-265.00 265.000-452.000 >452.000
per family SEK/year
    < 316.000 316-530.00 530.000-904.000 >904.000
26.000/month 26t-44t 44t-75t >75t
11. Drivers license: yes no
12. Access to car: no yes, always yes, sometimes/share car
  No of cars within family:
13. Distance to bus stop:

Questions regarding daily travel
20. Reason for daily travel: Work Education Other
21. Primary transport mode: Car Bus Bicycle/Walk Share car Other
22. For how long have you been using this transport mode?
23. Is this a choice of your own? Or are you forced?
24. Why this choice (motive)?
25. Do you think of why you took this decision (conscious choice)?
   (norms, values, attitudes, subjective norms, practical, convenient, required for work, complex travel pattern, health aspects, environmental aspects)
26. Did the motive change over time? If so how?
27. What are the advantages and disadvantages with your choice of transport mode?
28. Do you wish to use another mode of transport? Which and why?
27. Do you think that you should change, but not doing so?

**For public transport users**
28. Does public transport fulfill your needs? If not, why?

**For private car users**
30. What does the car mean to you? (*practical, status, symbol, freedom*)
31. Do you know how to use public transport in your daily travel?
32. Could public transport fulfill your needs?
33. What prevents you from using public transport in your daily travel? (*availability, public transport service, distance to bus stop, health, complex travel pattern, time, social norms, attitude, habit, price etc*)

**Questions regarding environmental attitude**
34. Environment and environmental activities (talk about attitudes, actions, behavior etc)
30. Regarding responsibility for the environment (political, collective, individual)
31. Will your individual pro-environmental behavior make a difference? For whom?
32. Are you prepared to change your own behavior for the sake of a better environment?
33. Do you think you should drive the car less?
34. Do you think about others thoughts when choosing transport mode?