Bicycling in the Balance

A Case Study of Factors Affecting Urban Bicycling in Tampere, Finland

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Abstract

The purpose of this project is to explain what factors affect urban bicycling in the city of Tampere, Finland; and how urban planning could tackle with these factors. Theories about sustainability and how urban bicycling can be related to it, is the point of departure in this project. Different dimensions of sustainability, including environmental, economic and social along with their linkage with urban bicycling are explained. The factors affecting urban bicycling, which are found from the literature and other studies, help to create a theoretical model. Through the theoretical model, an analytical frame is established which again helps to investigate in what extend and how urban planning can influence bicycling in urban areas.

The use of different methods i.e. interviews, documents and social media, help to find out the factors in the case study that are perceived problematic in the city centre of Tampere. The factors found are then analysed using the analytical framework which enables to formulate recommendations for the local level. These recommendations are measures related to; planning documents, planning processes and more technical considerations. Through these actions the conditions for urban bicycling can be improved.

PREFACE

This report has been created in the period from 1st February to June 10th 2010 as a final thesis in the Master of Science Programme in Urban Planning and Management, Aalborg University, Denmark.

References to the literature are done by the APA style and references in the text are mentioned by the authors name and year, where more than two people, main author is mentioned, followed by ´et al´. If it is not possible to state the author, the organisation responsible for the production is mentioned. Reference used in front of a full stop references to the sentence and reference after a full stop reference to the section.

All photographs in the report without reference are taken by the author. The quotations from social media and interviews are all my own translations. I owe endless thanks to the following persons who have been of great help in gathering information regarding the project work:

- Timo Seimelä, City of Tampere, Department of Planning, Project Manager for the Development of City Environment
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Taru Uusinoka

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1. INTRODUCTION

The focus of this report is to find out the factors affecting urban bicycling in the city of Tampere, Finland and furthermore find out ways how urban planning can influence these factors. The point of departure is to explore the interlinkages between different dimensions of sustainability and urban bicycling. The existing conditions and potentials for improving the urban bicycling in the city are introduced and the plausible effects of implementing better bicycle facilities for the overall goal of sustainability are considered.

Without any doubt, sustainability has become an integral part of city policies and practices across the world. Sustainability is being addressed in many fields, including urban and transport planning. Various studies have investigated how urban transport could be more sustainable in terms of the environment, economy and society. Sustainable transport could be elaborated to be transport that takes the needs of today into account, while ensuring that the needs of future generations will be met. (World Commission on Environment and Development 1987) It is evident that the way people are dependent on private cars is unsustainable when taking into account today's and future generations' needs (Tolley 2003).

Problem formulation

As will be shown in later parts of this report, there is a linkage between sustainability and urban bicycling. The investigation of this process is to first discuss how urban bicycling can be related to sustainability. Secondly, different factors affecting urban bicycling are evaluated. This is done in a theory level. The factors found form an analytical frame applied to the case of Tampere. The main problem formulation of the report is:

What is the role urban bicycling plays in cities aiming to be more sustainable, and how and in what extent can urban planning influence the different factors affecting urban bicycling, in this case in the city of Tampere, Finland?

The potential ways of urban bicycling towards the sustainability is investigated in theoretical level whereas the case study of Tampere guides the answering of the second part of the main problem formulation.

The following sub-question has enabled this investigation to answer the first part of the overall problem formulation.

Sub-question 1. *What is the importance of urban bicycling in working towards urban sustainability?*

The second part of the main problem formulation focuses on the case study. The following two sub-questions helped further answering the main problem.

Sub-question 2. *What plausible factors affecting urban bicycling urban planning can have an influence on?*

The last sub-question enables the investigation to give recommendations to the case.

Sub-question 3. *Which recommendations urban planners can give to increase the share of urban bicycling in Tampere?*

These three sub-questions has guided the way to the conclusion of this project.

1.1 PROJECT STRUCTURE

This project aims to answer the questions presented before and will be structured as shown in the following with six chapters:

In order to understand the theoretical vantage point of the project a theoretical model is created in **chapter 2**. A look is taken at theories dealing with different dimensions of sustainability, those of environmental, economic and social. This chapter explains how these issues relate to urban bicycling. It concludes with theoretical model which puts forward the different factors affecting urban bicycling and helps to build up an analytical frame later on in chapter five.

In order to understand the methodology of the project, **chapter 3** describes the methods applied. The reason for using a case study to answer the research question is discusses and tools to gather and analyse information are described. The methods used in this project include interviews, social media and document analysis.

Chapter 4 starts by introducing the case study itself. Here the case is described by using methods previously presented in the chapter three. A closer look into city´s official documents are offered. This includes documents related to sustainability and urban bicycling i.e. Aalborg Commitments and different plans. Following this, social media i.e. online blogs and discussion forums are investigated in order to gain knowledge about problems related to urban bicycling in the city of Tampere. The chapter concludes by focusing on findings from interviews.

Chapter 5 begins with an analytical framework that is based on the theories presented in chapter two. The chapter brings together the main problems found from the case study and discusses them both from a practical point of view, but also from a more general theoretical point of view. Furthermore this chapter offers recommendations for the case itself.

Chapter 6 offers concluding remarks and summarises the main findings found. Therein one can also find a perspective on the project and discussion what could be further investigated.

2. THEORETICAL ASPECTS

This chapter describes the theoretical framework used in this project. It deals with theoretical issues that have been related to sustainability, more precisely to sustainable urban transport, and what is the role of the bicycle in that. This chapter is structured into five sections. In Section 2.1, the broad picture of sustainability with the focus on sustainable transport in urban areas is presented. Three different dimensions of sustainability, those of environmental, social and economic are explained in Sub-sections 2.1.1; 2.1.2 and 2.1.3. The Sub-section 2.1.4 offers some critics over the idea of sustainability. In Section 2.2 the problems of motorised traffic in relation to sustainability are explained and Section 2.3 discusses how bicycling is a potential form of transport in urban areas. Section 2.4 offers theoretical model with the categories of traffic safety, level of facilities, climate and topography, individual features; and urban layout. The whole chapter ends with conclusion in Section 2.5 where some practical examples are given.

2.1 SUSTAINABLE TRANSPORT

Before discussing the ways and means how urban transport can be sustainable, the term sustainability should be investigated further. To give a precise and clear definition of *sustainability* can be a challenging task. Several articles provide a wide variety of different interpretations of the sustainability concept (e.g. Steg & Gifford 2005; Newman & Kenworthy 2000). As the range of literature about *sustainability* is far too wide to be reviewed here, instead of putting too much weight on defining the whole spectrum around the concept, as that is clearly not the purpose of this research, the discussion is limited to a few different aspects about *sustainability*. Furthermore, the focus will be kept on a *planning perspective*.

The main emphasis of *sustainability* has commonly been placed on environmental issues. However, more recently broader interpretation including not only environmental, but also social and economic dimensions have been integrated into the definition (Miller 2004). Several authors have discussed the concept of *sustainability* pointing out the fundamental problem that sustainability stems from uncertainty.For instance, it is not yet being agreed among researchers that the global climate is getting warmer (Andersen et al.. 2007).

One the most common definitions of sustainability has been provided by the Brundtland Commission in 1987. In their report *Our Common Future* (World Commission on Environment and Development 1987:43) it is stated that for development to be sustainable, it has to ”*ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.*” This definition can be criticised for being rather vague and it can be understood and interpreted in many ways. At this point, it makes sense to mention that the roots of the sustainability concept are more closely related to political discussions than to academia (Newman and Kenworthy 1999).

The so-called “*three-pillars”* concept has become the most common way to describe sustainability. The idea of it is that all the different dimensions are equally taken into consideration in any decision-making process, or as Newman & Kenworthy (2000:109) have described: ”*Sustainability is now a generic word to express the need for a long-term perspective where there is reduced demand for environmental resources and on environmental sinks: it also expresses the need to make necessary changes in ways that are economically and socially beneficial.*” This is being illustrated in figure 2.a..

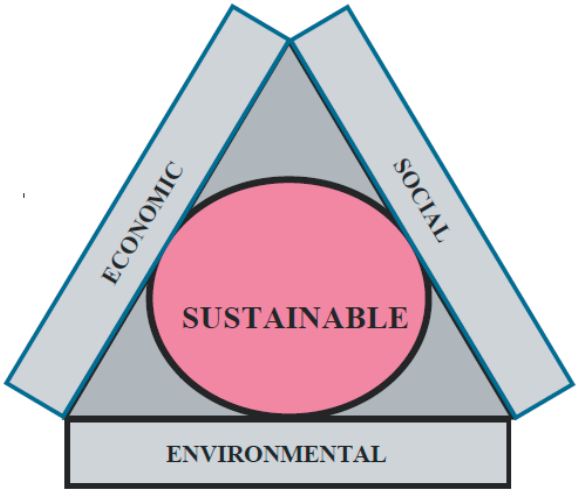

Figure 2.a. Three-dimensional framework for sustainability

Although there is no standard, universally accepted definition for a sustainable transportation system, the concept is largely being defined through the impacts of the system on the environment, on social well-being, and on the economy (Mihyeon & Amekudzi 2005). Defining each component of sustainability and distinctly; its relation to urban transportation helps to organise the actions required to approach better sustainability in real life. Addressing and defining the different dimensions of sustainability regarding the urban transportation is an important step in the development of factors to assess sustainability in transportation systems (Mihyeon & Amekudzi 2005). Thus all of the different components of sustainability will be elaborated in the following, with the emphasis on sustainable transport.

2.1.1 Environmental sustainability

Environmental sustainability embraces both global and local environments, combined with issues such as air pollution. Today, a wide range of air pollutants can be found in urban environments, which, besides poor air quality, can cause human health problems (Banister 2005). In contrast to a relatively more environmentally favourable trend in industry, the transport sector has not shown the marks of decreasing. On the contrary, the transport sector has become a heavier polluter of the environment in the past decades. (Nijkamp 1993, International Energy Agency 2009)

The work by Newman & Kenworthy (2000) focus on the car dependence aspect of sustainability. Therein a list of different problems associated with car dependence can be found, including urban sprawl that occurs when people move far out from urban centres and where their jobs are, thus requiring cars to move between the different functions. Other problems found are toxic emissions and noise pollution, to mention few. In their earlier research (1999:369), Newman & Kenworthy mentioned that *regional air pollutants*[1] can either contribute to photochemical smog or are problems by themselves, for instance lead. Johnson (2001) surveyed the literature on urban sprawl and found out it can have many environmental impacts, such as increased traffic congestion that again leads to more air pollution. Other environmental impacts of urban sprawl stem from higher energy consumption and destruction of open space, to mention a few.

All these above mentioned issues are contributing not only to negative human health effects but also increasingly to negative effects on overall quality of life. For example, urban sprawl contributes to reducing people´s participation in community activities (Putnam in Næss 2006). Thus apart from negative environmental consequences, urban sprawl affects social sustainability.

2.1.2 Social sustainability

There is growing awareness that the high social costs of motorised transport have harmful effects to society. The social aspects of sustainable transport relates mostly to mobility issues of different people.

1 Regional air pollutants include for instance CO, CO_2, CFC, NO_X, and VOC

At times, and in some places, people are becoming more and more car-dependent, which again, can be related to different social problems. These social problems, or in other words, "social costs", can be referred to the loss of street life, community and public safety, as well as problems stemming from the isolation and lack of accessibility for those living without cars, and those with disabilities in remote suburban areas. (Newman and Kenworthy 2000)

In his study about the rights of non-motorised traffic compared to motorised traffic Litman (2004) has pointed out, to the favour of bicycle use, that the external costs of driving a car are more than 20 times higher than those of bicycling. By external costs he (2004:8) means "*the costs that are not directly born by individual users, like for instance general tax expenditures, including parking subsidies, congestion delays imposed to other road users, the risks of accidents, environmental damages, and the opportunity cost of land devoted to roads.*" He goes on to argue that, far too often, the non-motorised road users are paying a great deal of roadway costs. The foundation for his argument is that bicyclists are funding for *local roads* that are, again, based on general taxes. Thus, a far greater portion of funding should be devoted to bicycling. (Litman 2004) Furthermore, taking into account the internal costs of driving e.g. initial investment, maintenance, fuel, it is evident that not everyone can own a car. (Litman et. al. 1999 in Gaffron 2005) The vulnerable groups that are often left without the possibility to own a car often include people like the elderly, children, young and the unemployed. Furthermore, compared to driving a car, bicycling is widely available to different people as around 75 % of people in Europe and North America can ride a bike (World Health Organization 1998 in Gaffron 2005). (Newman & Kenworthy 2000, Gaffron 2005).

Whitelegg (1993:83) touches slightly on the concept of socially sustainable transportation when he mentions the term *social speed* and "*how bicycles have little difficulty in beating the car on average social speed"*. This term, originally mentioned by Seifried (1990 in Whitelegg 1993), points out that taking into account the external costs of driving a car i.e. accidents, air and noise pollution and road construction, the bicycle is much faster mode of travelling than private car. Could mobility then be used as one measure in defining social exclusion? This depends a lot on the context. As Pickup & Giuliano (2005:46) stated: "*We do not have a sufficient understanding of how transport problems contribute to social exclusion and how socially excluded people cope with restricted mobility.*" It can be said that the social aspects of sustainability are increasingly important and accessibility is one of the criteria for evaluating this dimension of sustainability.

According to Burton's (2000) research, one of the indicators for a compact, socially inclusive city was greater opportunities for walking and bicycling. Furthermore, Danish urban designer Jahn Gehl (1987) emphasises that urban design represents an important basis for people's interaction in the city and urban environment. According to him, physical environment plays an important role in stimulating various activities that take place in the city and this could also be related to social sustainability and thus equity.

If the city is built primarily for private cars in mind and where walking and bicycling is not prioritised, the social interaction among people will be limited. Although we have the Internet and other kind of technological means to interact with each others, we still have a need for personal, face -to-face contact. This can limit the ability to maintain social contact of certain groups. This is at least true among low-income elderly who usually have to rely on public transportation.

The feeling of being "*trapped",* as Pickup & Giuliano (2005:38) describe it, can cause the feeling of hopelessness in society. The same has been described by Wilkinson and Marmot:

> "*It is not simply that poor material circumstances are harmful to health: the social meaning of being poor, unemployed, socially excluded or otherwise stigmatised also matters. As social beings, we need not only good material conditions but, from early childhood onwards, we need to feel valued and appreciated. We need friends, we need more sociable societies, we need to feel useful, and we need to exercise a significant degree of control over meaningful work. Without these we become more prone to depression, drug use, anxiety, hostility and feeling of hopelessness, which all rebound on physical health."*
>
> (Wilkinson and Marmot 2003:9)

This leads to the conclusion that cities that contribute to different ways of movement and mobility[2], create also healthier societies in general. It is thus important to keep in mind that the concept of social exclusion varies between different countries.

When thinking of Finland that, according to United Nations Human Development Index[3], can be considered a socially equitably country, the social issues in cities related to transportation are not so severe than compared for instance mega-cities, like New York. In countries like United States of America, not to talk about developing world, the concept of poverty is on a different scale. Nevertheless, difficulties accessing facilities occur also in Finland, although on a smaller scale.

2.1.3 Economic sustainability

Although economic development is fundamental to human well-being, growth often fails to recognise the limits of, for example, natural resources and the environment in general, and is therefore a basis for decline of quality of our lives (Pacione 2005). Fundamentally the concept of economic sustainability does not really differ from that of social and environmental dimensions. It also strives to take future generations into consideration and live with the fact that actions we make today have impact on others and the world on large.

Newman and Kenworthy (2000) elaborated more on the economic problems of car dependency. The problems they referred to were external costs from accidents and pollution, congestion costs, highway infrastructure costs due to urban sprawl and loss of urban land to bitumen. The external costs are hard to measure and thus giving a precise example is a demanding task.

Traffic congestion is perhaps the clearest example of the external cost to the road user, as it is one of the main reasons of road delays in urban areas (Docherty & Shaw 2008, Nijkamp 1993). Traffic congestion causes economic inefficiency due to extra time lost in traffic delays and increased fuel consumption. Moreover, congestion causes other, more long-term external costs in cases where the congestion is tried to be solved by constructing more roads (supply) which, in a long run causes more congestion (demand). (Downs 2004)

2"Term mobility refers to the ability to move between different activity sites. As the distances between activity sites have become larger, because of lower-density settlement patterns, accessibility has come to depend more and more on mobility, particularly in privately owned vehicles. Although the need for mobility is a consequence of the spatial separation of different types of land use in the city, enhanced mobility also contributes to increased separation of urban land uses because improved transportation facilities enable people to travel farther in a given amount of time than they could previously." (Source: Hanson, S.1995. The Geography of Urban Transportation New York:Guildford Press;Handy, S. and Niemeier,D.1997.Measuring accessibility Environment and Planning A29:1175-94. In Pacione 2005:267)

3 The United Nations publishes annually a Human Development Report that ranks countries by the "level of human development". (Source: United Nations Human Development Index http://hdr.undp.org/en/ [accessed 15.5.2010]

This example of traffic congestion showed that economic and financial considerations have a central role in transportation. As pointed out by The World Bank (1996:5): "e*conomic and financial resources had to be used efficiently and that assets be maintained properly*" Again the text goes on to say "*the primary economic and financial objective is to make transport more cost-effective and continuously responsive to changing demands*".

Transportation has also an impact to human health. One may also assess the effects of transportation to public health, moreover its costs to health. The physical inactivity can be linked to many health problems such as coronary health disease, stroke, certain cancers, diabetes and depression. (Sallis et al. 2004) The benefits of bicycling can be quantified and the main direct effects related to bicycling can be related to for instance public health and saving made in reduced public health care costs. (Nordic Council of Ministers 2005; Sallis *et al*. 2004)

The conclusion to be drawn at this stage is that there is a certain synergy among the different dimensions of sustainability. The term itself is complex and a broad approach is needed which considers several interrelated factors. The different dimensions should not be seen as competing with each other, but instead support each other.

Nevertheless, the concept of sustainability has not been faced without any criticism.

2.1.4 Critics towards the idea of sustainability

The concept of sustainability is challenging to understand on a theoretical or discursive level and is also difficult to realise in practise. The success of sustainability is limited only by the imagination; and in some cases killed by the solid facts.

Miller (2004) points out some critical aspects about sustainability and the ways decision-makers realize it. The term sustainability, as was pointed out earlier in the text, has so many different aspects that the term itself might not be very clear, and is in fact, as de Roo (2004:165) also stated, "*cursed with fuzziness"*. Although the concept itself could be easily politically accepted, the different interpretations around it cause real problems (de Roo 2004). Furthermore, as has been pointed by Newman & Kenworthy (1999), the term itself is complex and there is no simple way of applying the term *sustainability* into practise in cities because the practical measures are not made crystal clear in initial documents such as Agenda 21. These documents work more as guides and the ways and means for implementing them are left for cities themselves.

As Andrews (1997 in Miller 2004) claims, sometimes competing interest of politicians can redefine the sustainability term to better suit their own political agendas. This could be the case for instance if the city officials are trying to reach the consensus on what is sustainability and where the emphasis should lay. This flexibility around sustainability and how to define it can thus cause problems between decision-makers.

As was pointed out by Miller (2004), in order to achieve a good balance between all the dimensions of sustainability, the ways we live today should be changed radically. Nevertheless, although people would commonly agree that car use should be reduced in order to manage the problems it causes, many are not willing for measures that actually restrict their own car use (Steg & Gifford 2005). These kind of behavioural changes usually cause resistance among the residents, due to the fact, as pointed out by Steg and Gifford (2005:60) "*people prefer technological solutions to behaviour changes, because the latter is perceived as more strongly reducing the freedom to move.*"

Still, technological solutions can cause other problems. Technical solutions, like less-polluting cars require initial investments and can be rather expensive and thus out of reach from above mentioned low income groups like students or the unemployed.

As land-use plays a particular role in transportation planning, it is quite obvious that the emphasis should be in efficient use of land. Devuyst (2001) argues how, instead of using the term sustainability, we should rather talk about *smart growth. "Smart growth strategies aim to channel new development into existing urban areas and away from undeveloped areas and to improve the viability of alternatives of car"* (Handy 2005:1). To avoid problems for instance urban sprawl causes, cities need to be more compact, resource-efficient that support mix land uses. More compact cities thus are more energy-efficient, also what comes to transportation. Sustainability and smart growth are closely related. Thus the strategies of smart growth should be seen as a way, or rather as a tool, of battle against urban sprawl and building better communities. (Handy 2005)

2.2. THE PROBLEMS OF PASSENGER CAR AND CAR-DEPENDENCY

The main problem concerning passenger car traffic is its large number of users and the continuous growth rates (Steg & Gifford 2005). As mentioned before, one of the main problems motorised traffic is causing, are various environmental problems, including noise and air pollution.

Motorised traffic is a great source of carbon dioxide which is a main contributor to climate change. Other, more regional pollutants include for instance volatile organic compounds, dust and other particles that have adverse effects on human health. The car industry has responded to these problems by introducing technological solutions that are aiming to reduce the negative effects of cars to the environment, like noise and air pollution. One of these ways has been to make cars more energy-efficient thus reducing the negative impact per car per kilometre. (Steg & Gifford 2005) Nevertheless, as has been pointed out by Steg and Gifford (2005), although these kind of technological solutions might reduce some environmental problems, they cannot solve some other problems, mostly related to social sustainability, like that of urban sprawl and accessibility. When the speed we travel increases, so does the distance. Basically, the more infrastructure is created for cars, the more traffic is also generated and the more congested the infrastructure becomes, which thus demands more infrastructure. As a result, which has also been pointed out by Kenworthy and Laube (1999), the time spend in travelling between the origin and destination is actually not declining. In fact, regardless how fast people move, the average time they tend to spend on their daily trips has been shown to remain roughly the same (Whitelegg 1993). In other words, a faster moving traffic allows urban dispersion and in a long term the amount of traffic will grow. More problems emerge from the attempt to remove traffic congestion by building more capacity. This focus on building more capacity i.e. roads as the primary means of reducing traffic congestion has definitely been a disaster. Additional capacity for car traffic does not solve the problem in the long-term, rather, in most cases it only increases traffic because more capacity is available. (Downs 2004)

Safety and environmental problems caused by passenger car or, more generally, car traffic are causing problems as well. Accidents on urban roads are indeed a serious problem (Short 1984). Also environmental problems are born largely because of road traffic. Cars and other motor vehicles have caused a double problem of noise and air pollution which are both a serious health risk to people. It furthermore affects the wildlife and natural sources.

Transport also changes the landscape as a result of construction of streets and parking spaces. While walking takes the least space compared to other forms of transport, it is the slowest. It is worth noting that a single person driving a car is by far the most space-consuming mode of transport (Short 1984, Whitelegg 1993).

2.3 THE POTENTIALS OF BICYCLE IN URBAN AREAS

Bicycling, or more precisely urban bicycling, does not pose the same problems as passenger car traffic does. On the contrary, as the research by Kallioinen (2002) pointed out, traffic congestion can be reduced by replacing passenger car traffic with bicycle traffic. This is mainly because bicycles do not require as much space as cars. A study by Navarro et. al. (1985 in Whitelegg 1993) compared the space required for different modes of transport choices. He found out that while a bicyclist take only 3 m^2 of urban space, a car with one person driving 40 km/h can take as much space as 60 m^2. This is clear evidence that at least in some urban areas, where driving hardly exceeds 40 km/h, bicycle is very competitive option what comes to the amount of space required.

Of course, the problem is more complex than the solution suggests and bicycle is a good option for commuting if the distance is less than 5 km. While it is not suggested that the car should be replaced entirely in favour of bicycles, from an environmental viewpoint bicycles are obviously better options than cars as they cause hardly any noise pollution and definitely zero amounts of exhaust fumes (Hülsmann 1990). Thus bicycling (and walking) is really "*ideal way of travelling from the point of view of energy conservation, environmental impacts and social equity"* (Tolley 1990:13). Bicycling as a mode of commuting also takes less space than passenger car traffic because of smaller sized vehicles and a slower speed.

So if the car is the problem and bicycle is the solution, then it is fair to ask why improving urban bicycling can be so difficult. The following theoretical model elaborates more the different factors influencing urban bicycling, and further expands the potentials bicycle has in urban areas.

2.4 THEORETICAL MODEL

If it seems evident that the bicycle is in some extent, such a sustainable form of transport, then why is it that increasing the urban bicycling is often so hard in many cities? The above-cited studies around sustainability and sustainable transportation work as an important base for examining whether and how we could reach more sustainable transport systems.

The next important question is how to find out different factors that might have a plausible effect for urban bicycling. These factors can either work as barriers that discourage the bicycle use, or as potential ways to increase the use of bicycle as a travel mode. This section identifies different factors that have a potential impact on bicycle use. These theory and research based conceptions of diverse factors affecting urban bicycling will be used as the basis for the analysis of urban bicycling in Finnish city of Tampere. The factors presented in the following can and should be overlapping, thus they should not be seen in isolation. For instance, providing good bicycle lanes and paths through the city centre might not be enough, if there is no place to park the bicycle at the final destination. At the same way, I am not suggesting that city centres should be totally car-free.

As with the definitions of transportation sustainability, however, a standard framework for evaluating the factors affecting urban bicycling does not exist. Nevertheless, when looking into literature, certain factors and indicators affecting urban bicycling emerged more often and became evident.

Therefore, the factors showed here became most evident when searching through the literature. It could be said that the factors presented in the following, are the most significant ones and therefore certain elements the effect of civic activism are left out.

These factors enable me to create an analytical framework which provides "a yardstick" to measure the performance level in the city in question, in this case Tampere. All in all, the purpose is to find out which of the factors, if any, are affecting the urban bicycling.

2.4.1 Traffic safety

There is no doubt that safety plays an important factor for urban bicycling and can, in worse cases, become the biggest barrier for increasing bike use. This has become apparent from most of the researchers (e.g. Rietveld & Daniel 2004; Pucher & Buehler 2006; McClintock 1990; Forester 1994; Dill & Voros 2006). Traffic safety and thus undesirable conditions for bicycling can become a major barrier to ride a bike. Nevertheless, traffic safety is a subjective factor since it can depend on people´s perception of safety (Dill & Voros, 2006). Still, the prospect of getting killed or injured can act as an obstacle for bicycling.

The work in the field of bicycle safety by Forester (1994) served to identify different kind of crash types, or collisions, from which three of them are explained in more detail:

- *Single-bicycle collisions* mean mostly falls with a bicycle, which are the source of an injury. These kinds of single-bike accidents, or incidents, can be cause for instance by bad road surfaces, lack of winter maintenance (snow and ice) or by bicyclist´s error while biking, like insufficient speed. Furthermore, a bicycle´s mechanical failure, i.e. broken brakes can be a cause, although accidents cause by a bad maintained bicycles are rare. Sure, the cause of a single-bike collision can be also due to the lack of bicycling experience or training.

- *Car-bicycle collisions*, as the name tells, happen between bicycle and motor vehicles, like cars. These, compared to the other collisions are most feared ones. Study by Cross and Fisher showed that car-bicycle collisions are mostly a problem in urban areas; and most of these kind of accidents happen when turning or crossing the street. The same study showed that about half of these accidents were because bicyclists who had obeyed the traffic rules, whereas half was cause of car-users who, for instance did not see the bicyclists until late.

- *Bicycle-pedestrian collisions* happens among so called "general public" who think it is safer to bicycle in pedestrian areas than together with heavier traffic, i.e. in roadways. The bicycle-pedestrian collisions happen usually on pedestrian areas: bicyclists simply cannot predict the movements of pedestrians since they [pedestrians] wonder around, changing directions and speed suddenly, without any sign, whereas motorised traffic generally follow certain, conform rules.

The level of safety, i.e. risk of death or injury, discourages the use of bicycle and can act as a barrier for bicycling. The study of Jacobsen (in Pucher & Buehler, 2006:268) shows that "*higher level of bicycling are very strongly correlated with lower levels of bicycling deaths and injuries*." Thus there is a reason to believe that more bicyclists can led to safer bicycling; the more and better facilities available, the more motorists take bicyclists into account and again the safety level increases.

This phenomenon becomes clear from many researches thus it can hold over time and across countries and cities. This correlation can be seen in figure 2.b.

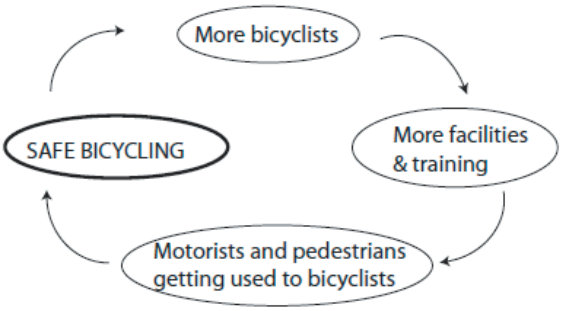

Figure 2.b. Investing to safer bicycle facilities encourages the use of bicycle

2.4.2 Level of facilities

If bicycling is to be a viable mode of transportation, it must have appropriate facilities. Studies by Dill & Carr (2003) have managed to prove the positive correlation between the number of facilities i.e. lanes, paths and parking possibilities provided and the relative amount of people that use bicycling for commuting purposes.

The amount of bicycle facilities is not enough - the quality matters. For example, they must connect the popular origins and destinations to encourage bicycling as a mode of commuting (Nelson & Allen 1997). The design, quality and maintenance also plays a role in increasing bicycle use. The poor condition of road surfaces discourages the bicycle use, and furthermore affects the safety, as was already revealed earlier. Thus fully integrated, quality bicycle network encourages bicycle use.

Pucher & Buehler (2006) have identified more detailed reasons, why and how facilities can play a part in urban bicycling and thus their absence or flaws can work as a barrier. The randomly parked bikes in public spaces, like on sidewalks, plazas and alleys can obstruct pedestrians and can be considered by some to be a visual eyesore and thus giving a bad image to bicyclists. Therefore, to have proper parking places for bicycles, do not serve just bicyclists themselves, but also other users of public space (Pucher & Buehler 2008). Furthermore, safe and convenient parking facilities for bicyclist is one of the fundamental inducements to bicycle; and the absence of secure storage places for bicycles can act as a barrier; just like proper parking places for cars are a precondition to drive. As well as the overall quality of parking facilities, the location is an important factor. Possibility to park your bike at transit stops is important, so bicycling and public transportation can be better integrated. If proper parking facilities are not provided for bicyclists, that does not encourage using your bike and in a worse case can obstruct people to use also other, sustainable means of transport, like public transportation; and in the worst case: encourage them to use private car. (Pucher & Buehler 2008 and 2006)

According to the research by Rietveld and Daniel (2004), the bicycle speed is an important variable that can either discourage or encourage bicycle use. The speed refers both to the amount of stops people have to make in their journey but foremost in the average speed people can bike. The speed again is linked to travel time. The more detours and stops the bicyclists have to make the more the demand for choosing bicycle as a way of commuting decreases. (Rietveld and Daniel 2004)

2.4.3 Climate and topography

Aspects related to weather and climate refers to wind, rain and snow. As it is not always easy to protect oneself against wind, this element certainly diminishes the pleasure of riding a bike. Furthermore and as revealed by Rietvald and Daniel (2004), wind affects the effort the bicyclist has to make when riding against it.

This again refers clearly to individual features, in this case physical fitness of a person. It is easier to protect oneself from the effects of rain although it does have an effect to the comfort level of bicycling. The preventive measures against the rain are the use of waterproof clothing or postponing a trip until the rain stops. In northern latitudes, like in Finland, commuter bicyclists must ride either in the morning or evening darkness during the winter months.

Other aspect obvious for winters in the north is snow and ice, which time to time can make bicycling hard, even dangerous. Furthermore, warm temperatures and humidity, especially in southern Europe during the summer time, can make bicycling intolerable.

The topography, i.e. the presence of hills and slopes can work as a barrier for urban bicycling since bicycling relies on muscular power. Rietveld and Daniel (2004) studied different barriers for bicycle use in selected cities in Netherlands and found out that a hilly city can decrease the bicycle use by as much as 70 % compared to a flat one. Thus, topography can be a strong barrier for bicycling even in a flat country like Netherlands.

2.4.4 Individual features

Local support could very well be considered a "*key factor*" in a city´s transportation system. No matter how good the infrastructure or how convenient bicycling can be made, bicycles will not be used if the local culture does not welcome them to the urban scenery. Transport plans, no matter how sustainable they try to be would be greatly opposed if users, i.e. general public believes the plans will significantly reduce their quality of life (Steg & Gifford 2005). Thus, so called *psychological factors* affect the individuals´ attitudes and acceptability of different transport plans. People´s attitudes play a role as well. Although many today agree that the use of car should be reduced to manage the problems it causes, many drivers are not keen on measures that can restrict their own car use.(Steg & Gifford 2005) Thus, as was pointed out by these above mentioned researchers (2005:61) "*improvements in collective qualities of life, as aimed in sustainable transport, may conflict with individual short-term interests, especially when individuals must adapt their lifestyles in order to reach the sustainability goals.*"

Furthermore, the level of physical fitness can affect the level of bicycling. It could be assumed, based on the research by Rietveld and Daniel (2004) that young people are relatively more fit than the older ones, thus in cities where the relative amount of young people is high, there should be more potential bicyclists. Furthermore, assuming young people i.e. students have relatively lower incomes and they cannot [yet] afford a car, so they should be more eager to bike.

The study of Moudon et al.. (2005) on bicycling in US cities concluded that *socio-demographic* factors, like age and gender play part when choosing the mode of travel. Rietveld and Daniel (2004) identified race and cultural differences playing a part in modal choice. They referred to *socio-cultural* factors, that may play a role within some minority, non-native groups who have not adapted the bicycling as a normal way of commuting from their home countries.

2.4.5 Urban layout

Small, compact cities are more amenable to bicycling since more destinations are accessible within a short bike ride. It has been argued for instance by Kallioinen (2002) that the comfortable distance to bike is about 5 km. Tolley (1990:13-14) points out that "*use of cars causes facilities and services to become more widespread, often to the point where they are beyond the bicycle users*".

A practical example of this is the building *commercial cities* and other enclosed shopping malls constructed far distance from the cities themselves. Rietveld and Daniel (2004:539) used a concept *density of human activity* which describes the distance between different functions people are still willing to bike. Long distances between different functions might become an obstacle for bicyclists. Thus inappropriate land use planning, i.e. long distances do not encourage people to bike (McClintock 1990, Forester 1994).

Mixed land uses can furthermore promote the use of bicycle as jobs, shops and leisure activities are located close to one another. This is one of the principles of before-mentioned *smarth growth*: by putting different functions and facilities close to one another, mixed land uses can contribute to sustainability since it can encourage the use of alternative travel modes to car, for instance bicycling and walking. It has been found out in many empirical researches that when there is a wide range of different facilities at the local neighbourhood level and in short distance from one another, the use of car is reduced (Van and Senior 2000). Furthermore, as Burton (2000:28) states "*mix use is the most important aspect of compactness of social equity*". This again can be referred to social sustainability.

2.5 CONCLUSION

As it has been seen, the issues of sustainability in cities and the plausible role of bicycle in sustainable transport planning and related theories and concepts are of great concern of academics and practitioners. The reason behind this concern is, as has been stated by World Commission on Environment and Development (1987) the concern of the well-being of future generations to-become. It has been shown how, at least in some degree, favouring urban bicycling as a travel mode could be likely to affect the sustainability, in a positive way. Although this is not an easy task, there are ways and means in the urban planning context to influence these issues mentioned in this chapter. For example, inclusionary practices, putting more emphasis on urban layout so biking is more convenient.

Other method of making urban bicycling more popular is making the use of private car less convenient. Whether a city gives up to the pressures of car-centric growth and car-dependence, or whether it becomes more "bicycle-friendly" - the choice is often made by local governments. Thus, most of the above mentioned factors can be traced back to the different government policies, like for instance transport and parking policies. If government policies show a green light to a passenger cars and other motorised traffic, and if these different policies are fundamentally based on views seen from car window´s perspective, then the bicyclists can easily become the payers of the bill. These kinds of pro-car policies can make driving inexpensive as well as convenient. (Gardner 1998)

Pucher & Buegler (2008 and 2006) found out some positive examples of how to promote the bicycle usage. The good examples these two researchers found were on selected cities in Germany, Netherlands and Denmark. These examples showed a full range of different restrictions on car use, for instance parking restrictions, limits on speeds, turns and on direction of travel. In some cases the car use was prohibited all together in so called "car-free zones". Thus, different policies can act as supporting factor for choosing bicycle as a mode of travel; or vice versa: they can act as a barrier.

If the bicycling is being ignored as a mode of travel; and if the federal funding are allocated to other modes of transport than bicycling; for instance, if the parking policies favour the use of private car, that can encourage using the car in the city centre and, at worst, discourage the use of bicycle. Moreover, land use policies can foster developments that generate longer and thus less bike trips, which again encourages car use.

It is not only the local governments who have an influence to these issues. The media and public play their part in the game. If the sticker policies for the use of cars are opposed by public or by media, this can discourage politicians from even considering of suggesting car-free zones, to give an example. Similarly, there might be just a little support for having more restrictive rules for car parking, reduced speeds in certain areas and limiting the passage of cars through the city centres. (Pucher & Buehler 2008)

Next chapter describes the methods applied to acquire data for the case analysis.

3. METHODS

The purpose of this chapter is to identify and explore the methods used in this project. Section 3.1 starts with explaining why the city of Tampere was chosen as a case after which the reasons behind case studies in general are explained after which the research approach that best fits this case is investigated. In Section 3.2 different methods together with the reasons for using them, are explained including interviews, social media and documents. The whole chapter is concluded by delimitations in Section 3.3.

3.1 CASE STUDY

The focus of this research will be on the city of Tampere, Finland. The choice of Finland and locally the city of Tampere is based on the fact that the issue of urban bicycling has been a hot topic among inhabitants of Tampere, city authorities and politicians for the past few years.

Another mentionable, more practical, reason for choosing a Finnish city as a case is the fact that being from Finland myself, choosing the case from my home country will guarantee that no language barriers occur while conducting the study as most of the documents about the case study are in Finnish. Also the interviews are conducted in Finnish and all the writings in social media are in Finnish. This would not be the case, if case study would have been conducted for instance in Denmark.

Another, reliable argument of choosing Finland, and locally the city of Tampere as a case is that, as also Leedy and Ormrod (2005:139) argue: "*...in some cases researcher has had a personal experience related to the phenomenon in question and wants to gain a better understanding of the experiences of others. By looking at multiple perspectives on the same situation, the researcher can then make some generalizations of what something is like from an insider's perspective."*

This is exactly the case in this thesis. As I have been living in Tampere many years, I know the local culture of the city. Furthermore, as a former inhabitant of Tampere, I have "grass-roots" knowledge of the city, its people, politics and, in some degree, I have also been following the debate going on around urban bicycling for some years.

Case study as a method

There are many good reasons why case studies are considered a useful research approach. Yin (2002:2) argues that "*...the distinctive need for case studies arises out of the desire to understand complex social phenomena*". Case studies as methods are especially useful to use as a bridge between the gap between academia and the so called "real world" (Flyvbjerg 2006). This being the case, empirical research is truly in order since it helps to make a link between the initial research question and real world.

The strengths of making case studies are their ability to make sense of variety of evidence for instance interviews and different kind of documents (Yin 2002). As will become apparent, other evidence as is the case in this project includes writings in social media.

According to Yin (2002), there are two different ways of doing a case study: single and multiple case studies. There are pros and cons in both of the options and the first task is to choose the appropriate one. As Yin (2002) states, the disadvantage of a single case study is that the case can easily turn out to be something else than was originally thought and the investigation can thus be biased. The entire nature of the case study can turn out to be totally different than the initial problem formulation neglects, and the evidence might begin to address a different set of initial research questions (Yin 2002). Nevertheless, as also Yin (2002) states, this kind of weakness of a single case study can also be turned into its strength since it gives more flexibility to the researcher.

To avoid the disadvantages of single case studies, multiple-case studies can be chosen instead. There are some obvious disadvantages of multiple-case though: it often requires more time and other resources from the researcher, which might not be available. (Yin 2002)

As might already became apparent to the reader, it was decided against multiple case study. This is due to resource limitations. I feel that my research efforts would be better spend on a single case where I could dive deep into the subject at hand. Given the tight time frame of completing the project, and the fact I am working alone, strengths my view of choosing a single case study instead of a multiply one. Thus, this project is carried out as a single case study with many units of analysis. As Yin (2002) reveals, unit of analysis refers to what is being studied. In the case of Tampere, unit of analysis are sustainability in general and factors affecting urban bicycling.

There exist several rationales in a single case design. As has been pointed out by Yin (2002), the single case study is more suitable when the focus is on one of these rationales. The rationale for the case study in this thesis is a typical case. Yin (2002) states that the main objective of a typical case is to capture the circumstances and conditions of an everyday situation. This is exactly the case in the case of Tampere, I will be working: I will try to capture the problems related to urban bicycling in everyday situations in the city of Tampere.

Other rationales to choose from are an extreme case or a unique case that is used when investigating a rare of extreme situation; revelatory case that can be used when obtaining new revelatory information; and a longitudinal case, where the same case is being studied in different time periods (Yin 2002).

According to Flyvbjerg (2006) there are two different ways of choosing a case: a “random choice” and an “ínformed choice”. In a random choice the sample size is important in order to make a statistical generalization, whereas in an informed choice, the amount of information should be maximized by collecting few small sample cases and then selecting among them. If the goal is to get as much information about the research question as possible, as is the case in this project, the informed choice might be the best one. The approach used in this project is deductive, meaning that the empirical work is based on the analytical framework, which again, is based on the literature review.

3.2 METHODS OF RESEARCH

The emphasis of this project will be on qualitative research methods because of its complex nature. Qualitative methods can be described in short as how the world is seen, experienced and constructed by social actors. They can also been described as a set of tools to pursue the epistemological mandate i.e. the knowledge about the study. (Schutt 2006)

The main methods used in this study include qualitative interviews and interpretation and analysis of social medial. These two qualitative methods form the skeleton for analysing the case itself. In addition, a selection of planning documents, policies and some other studies related to urban bicycling in the city of Tampere are used to get some background information on the subject.

The results presented in this project are interpretations of the real world. The results are made through interpretation of different ideas, words and actions. A hermeneutic approach is used in this report. This basically means that the understanding comes through interaction of cognitive and social dimensions. The cognitive dimension means the facts the researcher knows beforehand, whereas the social dimension is the other knowledge gained by using i.e. interviews, social media (as is the case in this project) and literature study. (Willliams and May 1996) The whole process of knowledge-making can be summarized by the cycle of hermeneutics (Willliams and May 1996, Schutt 2006).

The knowledge, in this case, knowledge of urban bicycling in Tampere, is built through the continuous dialogue between *before-knowledge* and *subject*. As is the case in this project, subject is being approached through interviews, social media and different documents. According to hermeneutics, prejudice is not to be considered an error, but is instead a premise for understanding, where understanding is understood as the field where the interpreter's prejudice (before-knowledge) meets the object of interpretation.

In the following the philosophical background for each of the method is briefly explained, together with the way it is used in the case study itself.

3.2.1 Interviews

Qualitative interviews are one of the main sources of first hand data in this report. Interviews are used to gather information on how different officials experience the factors affecting urban bicycling in the city of Tampere. Interviews are thus valuable source of information for understanding the planning traditions in Tampere, and its problems related to urban bicycling. Interviews in this report are done using the hermeneutic approach, as explained before.

Robson (2002) says that there are three different kinds of interviews: structured, semi-structured and unstructured interviews. Structured interviews can also come in the form of closed or open ended questions. Closed questions being the one found in questionnaires where boxes are ticked, open ended with more space for expression from the interviewee. As a "rule of the thumb" the interview should act more like a guided conversation than rigidly structured query.

In this project, interviews were used in two different ways. The initial questionnaires were sent to five of the interviewees beforehand. These kind of expert interviews, in the form of e-mail correspondence, were used to gather information on factors affecting urban bicycling in the city of Tampere. In the case of this project, few key individuals were contacted.

According to Mikkelsen (1995) key individuals have particular knowledge about the issues under scrutiny. This applied to the interviewees in this case, as they are, or have been deeply involved with urban and transport planning in the city of Tampere, or are otherwise actively promoting bicycling in the city of Tampere. Interviewees will be introduced in chapter four.

The questions were generated through a process where I studied relevant literature related to urban bicycling and possible factors affecting it. The first task that the interviewees had to do, was to fill a form. In this form, the key factors that have a plausible effect on urban bicycling are listed. After getting the forms back, two additional, more focused interviews were conducted via Skype. Some of the questions were based on the forms the interviewed had filled beforehand. By using this kind of hermeneutic approach, the interviewer can learn beforehand the thoughts of the interviewed.

According to de Leeuw (1992) compared to interviews made by telephone, in face-to-face interviews, interviewer can use non-verbal cues to motivate the interviewee. Furthermore, the advantage of face-to-face interviews over telephone interviews is that interviewer can monitor the non-verbal expressions and react on those (de Leeuw 1992). These non -verbal signs are very hard, if impossible to grasp in the telephone (de Leeuw 1992).

Although face-to-face interviews would have given an advantage, since then interviewer can have more impact on respondent´s behaviour compared to telephone interviews; due to resource limitations, interviews were conducted by using Skype. There are some other good sides of conducting interviews by Skype.

As argued by de Leeuw (1992) with the telephone interviews, the interviewer is only a "voice in the other side" thus the interviewee is less restricted on his personal space and can be more relaxed. The same can be said about e-mailing the initial questionnaires -the interviewees get even more personal space than was the case in interviews made by using Skype.

3.2.2 Social media

Together with the interviews, social media plays a considerable part in the case study. I use social media to find information on how does the public perceive the urban bicycling in Tampere. The findings from social media thus supplement the findings from interviews. The main reason for using social media as a method in this project is that it is easily accessible online.

New kinds of interaction methods, such as discussion forums and blogs can provide valuable material for exploring people´s views and experiences about different issues (Myers 2010). As has been revealed for instance by Forward (2003) the way we travel has been affected by number of factors, one important being our attitudes and needs. Therefore, the first step for making a change is to better understand the people´s motives and attitudes around different issues, like urban bicycling, as one of the main themes is in this thesis. This is where social media can be used as an effective tool, similar to a survey. This kind of "survey", made by using social media, can be used for finding out the evidence what factors affect the urban bicycling in the city of Tampere.

Social media includes user generated content such as blogs, forums, microblogs (for instance Twitter) and other social networks found on the Internet. This is how social media is being determined by one social media analysis company: "*Social Media is a term used to define various online user tools through which people share information and experiences in different formats (text, video, audio, pictures, ..). People can share information with others, connect with others and in this way create online communities and networks."* (Attentio 2009:4) So in social media people share their opinions and experiences about different issues online.

Myers (2010) points out the fact that since social media works in the Internet, it enables the fast proliferation of information among different people in different parts of the world in no time (Myers 2010). Lietsala and Sirkkunen (2008) argued that in comparison with more traditional methods, such as surveys, the problem with social media is that there is not a straight-forward definition of it. They furthermore state that it is almost impossible to have one permanent definition for social media that could be the same all the time because social media is relatively new concept and furthermore, by nature constantly evolving. Social media is sort of online diary where people share their subjective experiences, opinions and thoughts (Lietsala and Sirkkunen 2008).

Blogging is a way to share information, but also to gain new thoughts and expertise in the area of interest (Wheaton 2004). In some sense, blogs and forums could be compared to more traditional letters to the editor where people are allowed to express their views and opinions about different issues -online version of these "*letters to the editor"* are just much more efficient, and more people can have access to them. Blogs and forums thus take up some of the functions of more traditional ways of information gathering, i.e. newspapers.

"*The differences of social media from more traditional media stem from the concept of social media: two-way communication and mutual engagement between users. While traditional media or offline media are based on a one way presentation of information to the user (you cannot immediately interact with*

news accessed via a traditional newspaper), Social media depends upon the interaction among participants." (Attentio 2009:5). The differences between blogs and forums are further elaborated in the following table, see figure 3.a.

Strengths and weaknesses of social media in relation to this project

The strength of using social media as a method is that it is easily accessible. This is important in relation to this project when site visit and thus making a survey is not possible due to resource limitations. Due to the dynamic nature of social media, it is sometimes impossible to trace back the blogs and forums. This is because social media is evolving all the time and bloggers can change their writings or erase them totally. To avoid this disadvantage of the method, a list of different blogs and forums with the main arguments used in this project can be found in Appendix A and B. In addition, CD-ROM in Appendix C includes all the blogs and forums used in this project (NB: all the blogs and forums are in Finnish)

Nevertheless, even with more traditional surveys, the views of the people are changing depending on time. Although Keen (2007) criticized that in social media only the loudest gets his opinion through, the opposite might be more closer to the truth: as (almost) everyone can have a blog, and especially write to discussion forums, then the silent get their views; what they usually would not say out loud. Compared to survey, results are not influenced by wording of the questions; and use of social media is much more time efficient.

The weakness of using different kinds of *social media* as a research method is that it does not necessarily represent all the people who have their view about the issue and the data got from this source is very subjective (Kilpi 2010). Nevertheless, more traditional surveys also have subjective data, which is what I am actually looking for in relation to this project.

As revealed previously, *social media* is based on use of different kind of online discussion forums, blogs and similar data sources. To use the Internet as an information source has been criticized for instance by Keen (2007). He points out the weakness being that in social media "*the loudest and most opinioned seems to survive."* (Keen 2007:15). Nevertheless, this weakness Keen points out is not really relevant in this project. This is because the way I am searching different blogs and forums from Internet is such that takes into account all the relevant ones.

Blogs	Forums
The central content is the main purpose, thus there is not always additional comments	Aim is to generate discussion about a particular topic, permitting posting of various comments/answers
Designed for limited, usually for single-user	Requires many participants
Comments are possible but not required	Participation is expected and encouraged
Few but long messages	Several but short messages
Frequently no log in or registretation is requires, although bloggers can monitor comments	Log in and registretation are required to write messages, sometimes even to read them
Replies are tend to be directed more at the primary author	Broader look at the larger number of members as they interact with one another
More focused as blogs are created and edited by one author	Discussion is created rather than focused by the group, all members have the ability to post new topics that can digress in unpredictable directions

Figure 3.a. Differences between blogs and forums (Source: Attentio 2009:13)

It has been argued for instance by Kilpi (2010) that the weakness of using social media as a method is that most social media participants participate in conversations anonymously. Therefore, demographic data is often difficult to grasp. Then again, taking into account the nature of this project, the demographic information is not important because what I am looking from social media is primarily the problems associated with urban bicycling in Tampere and thus to know more about the ones stating the problems is not important.

How social media is used in this project

The first step when using social media as a method in this project is to decide and plan the analytic approach that can best help to decide what kind and how to make the inquiry within social media. The analytic framework presented before in chapter two, was used as a basis for analyzing the content in selected blogs and forums. The next step was to find the blogs and discussion forums relevant enough to this project. As a "rule of a thumb" I have used Google blog and forum research with keywords such as "*pyöräily tampere"* (bicycling tampere), "*pyörä tampere"* (bicycle tampere). In addition, the key information sources has been blogs from a local newspaper Aamulehti.

When analyzing the data obtained from social media, the aim was to find out the different factors that affect urban bicycling in the city of Tampere, Finland. Fundamentally, in reading and analyzing the factors found from different sites, the aim was not to evaluate whether they were "truthful" or not. Rather, the aim was to obtain an enhanced understanding of people´s experiences in relation to urban bicycling in Tampere.

Both the blogs and forums were followed from the year 2007 until March 2010. All the blogs and forums where the keywords occurred were systematically gone through. From these the relevant ones were chosen for further investigation. The relevant blogs and forums were the ones containing writings about the factors affecting urban bicycling in the city of Tampere. The analytical framework served as a guide when deciding whether the blog/forum is relevant enough. Still, although some of the factors affecting urban bicycling discussed in social media were not mentioned in the analytical framework, they were nevertheless included to the analysis itself.

3.2.3 Documents

I have systematically gone through all the material I have gathered from the city of Tampere including official plans, reports and different researches published by either the city of Tampere or by the different Universities of Tampere. Although documents are one method in this project, it is good to mention that it plays a minor part and mainly acts in the background, helping me to get a overall view of Tampere, its transportation policies and agreements related to sustainability.

According to Yin (2002), document analysis is relevant to every case study topic. The choice of documents must be carefully done, and none of the documents should be taken as literal recordings of the events in question. The documents do not contain the ultimate truth. Therefore, it is good to maintain a critical eye when going through the documents being analyzed. After all, "*every document has been written to some specific purpose and to some specific audience"* (Yin 2002:87).

One of the disadvantages of using documents, as it is in this project, is that major part of the relevant planning documents are only available in archives of the city of Tampere and in the libraries of the city, including the university library in Tampere. As was mentioned before, due to the research limitations, a site visit was not possible. Thus there was no access to the local libraries and other information sources.

3.3 CONCLUSION

Qualitative research relies typically on various sources of evidence. The data collection in this project rests primarily on two different methods, those of interviews and use of social media, although documents form a part of the methods as well. Nevertheless, the three-pillar approach to data collection meant that a methodological triangulation was achieved. By achieving this it is possible to maximise construct validity because multiple sources of evidence provide multiple measures of the same phenomenon (Yin 2002). In other words many sources of evidence, when used in conjunction with each others, strengthen the analysis. See figure 3.b.

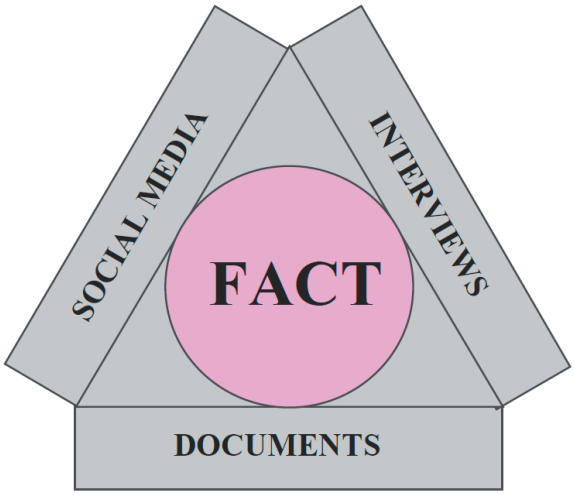

Figure 3.b. Methodological triangulation (Source: Yin 2002)

Delimitations

The evaluation of the factors affecting urban bicycling could have been based on only one of the elements in theoretical model, and this approach would have allowed a more in-depth analysis to take place on a single issue. However, the aim of the investigation was to analyses the factors affecting urban bicycling in the city of Tampere as fully as possible, taking both the financial and time restrictions into account. Therefore, it was decided to take all the possible elements into account.

4. CASE STUDY -TAMPERE

This chapter introduces the case study to the reader. The chapter is divided into four Sections. The chapter starts with Section 4.1 where an overview of the city of Tampere´s bicycle conditions are introduced including an explanation of city´s bicycle network, differences on bicycling network in summer and winter time; and bicycle parking. In Section 4.2 city´s ways to promote sustainability are described. This is followed by information about different policies and practises concerning city´s transportation plans, with the focus on urban bicycling. Section 4.3 focuses on social media i.e. online blogs and discussion forums; and how urban bicycling is being perceived by public. Finally, in Section 4.4 the different viewpoints from different, more official stakeholders such as planners, politicians and local NGO's will be studied.

4.1 INTRODUCTION TO THE BICYCLING CONDITIONS IN THE CENTRE OF TAMPERE

The city of Tampere is located approximately 200 km north of Helsinki, with a population of 210 000 people. Figure 4.a illustrates the location of the city in relation the rest of the country. Tampere has three major universities and is considered to be a major university city in Finland. Geographically Tampere is located in a narrow esker, lake Näsijärvi in the north and lake Pyhäjärvi in the south of the city. The map in figure 4.b furthermore illustrates detailed map of the city centre with bicycle facilities i.e. recommended (in red) and secondary routes (in blue), bicycle racks and location of the stations. Tammerkoski rapids divides the centre into two sections. The main street of Hämeenkatu has the secondary bicycle route while the recommended route goes via Puutarhakatu street.

Figure. 4.a. Map of Finland shows the location of Tampere (orange circle)

The city's bicycle network consists of three different kinds of routes:

- Bicycle lanes dedicated only to bicyclists
- Lanes shared with pedestrians and bicyclists
- Lanes shared with bicyclists and motorised traffic. This type of route is used in certain places especially during the winter months.

The primary recommended bicycling route through the city goes through Puutarhakatu street, crossing the Tammerkoski rapids from Patosilta bridge. The character of the route itself varies a lot. As can be seen from the figure 4.c, although this is the primary route, bicyclists and pedestrians still have to share the same space at Patosilta bridge. The only uniform uninterrupted bicycling route passes the central area from a distance following the ring route in the north of the city.

Map in figure 4.b points out the location of these two routes and illustrates the place where the pictures are taken. The map in figure 4.d illustrates the more detailed map of the main bicycle routes through the city centre with bicycle stands.

From this figure it can be seen that there is four main bicycle routes through the centre in north-south -axis, whereas in east-west axis, parallel to the main street of Hämeenkatu there is two recommended routes, one via Puutarhakatu, one via Satamakatu streets.

Winter vs. Summer-time

Moreover, the bicycling rules are different during the summer and winter at the main street of Hämeenkatu, as well as that of Itsenäisyydenkatu. During the summertime, people are allowed to bicycle on sidewalks, but during the winter, the sidewalks are reserved only for pedestrians and bicyclists are using

Figure 4.c. The main recommended bicycle route going via Puutarhakatu Street and Patosilta Bridge. Although there is a clear segregation at the Puutarhakatu Street, the same cannot be said about the bridge where pedestrians and bicyclists are integrated. The location of the different parts of the route is marked in map in figure 4.b. below.

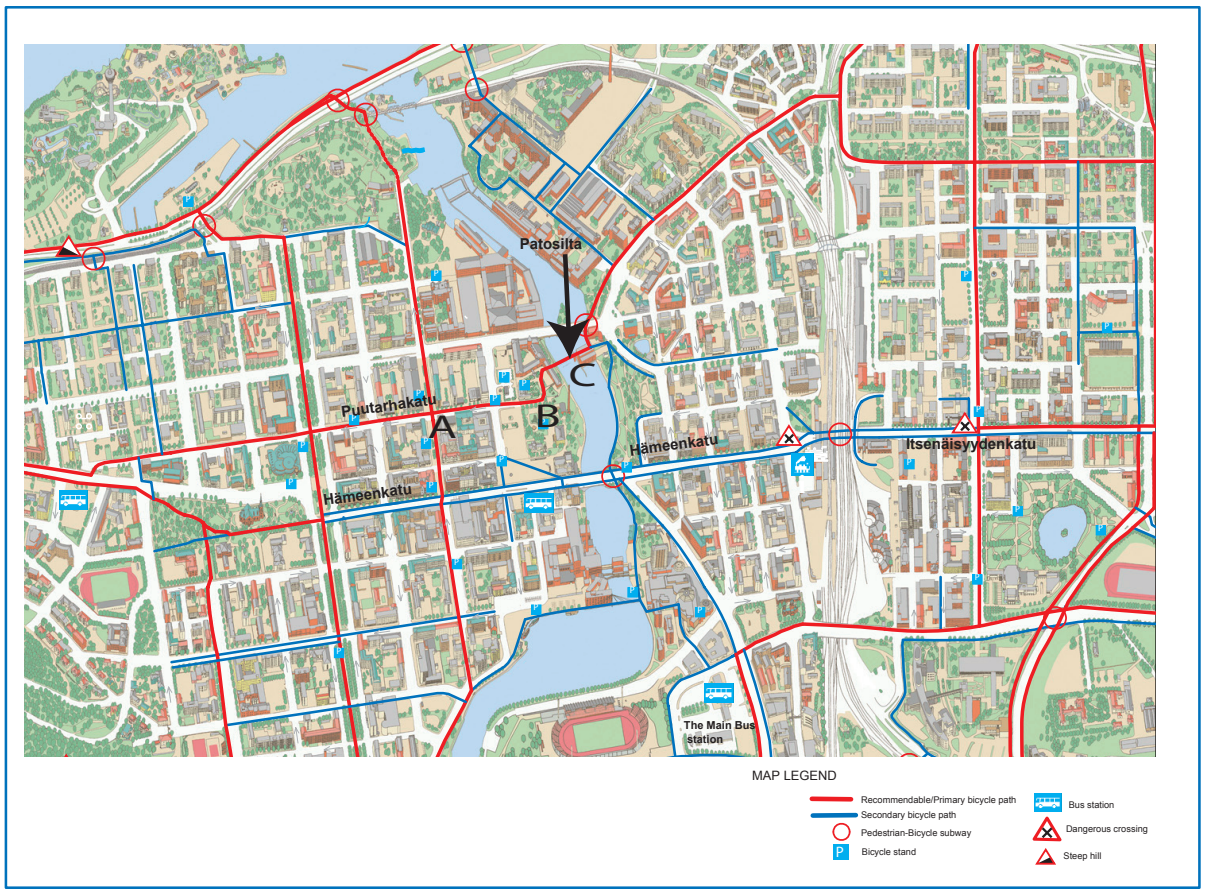

Figure 4.b. Map of Tampere (Source map: City of Tampere www.tampere.fi)

the roadway, as seen in figure 4.e. It should be noted that the official winter time, when bicyclists are not allowed to bike on pavements, lasts from 1st October until 1st May. Rules for both, Hämeenkatu and Itsenäisyydenkatu change during the winter and people are no longer allowed to bicycle on sidewalks.

Bicycle parking

Figure 4.b illustrates the location of the most important bicycle stands. As can be seen from the figure, there is a higher concentration of bicycle stands close to Puutarhakatu Street via which the main route goes. Compared to the main street of Hämeenkatu, Puutarhakatu has double the amount of bicycle stands than on the main streets. Although the map in figure 4.b suggests that there are no bicycle stands at the railway station, the map 4.d states otherwise.

Figure 4.e. The main street of Hämeenkatu during the winter and summer-time. Starting from 1st of October until 1st May, bicyclists are forced to use the roadway, while during the summer sidewalks are reserved both to bicyclists and pedestrians. (Source for the winter-picture in the left: (http://www.aamulehti.fi/moro/uutisellista /67793.shtml)

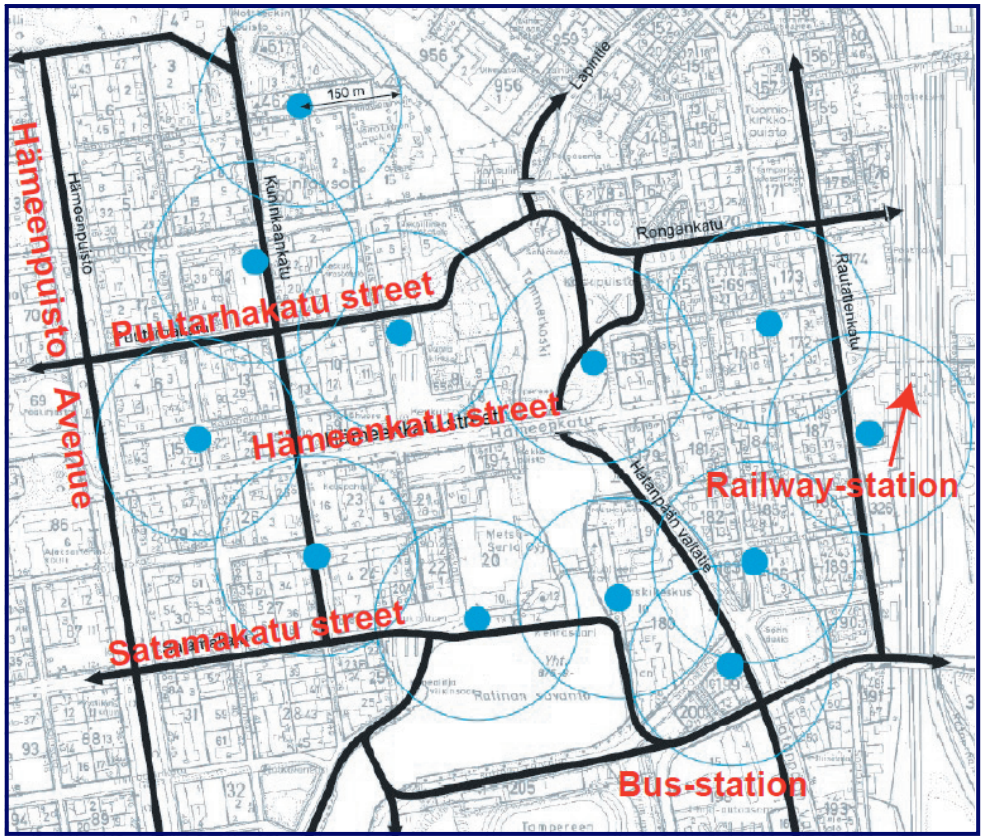

Figure 4.d. The recommended bicycle routes with the main bicycle parks (Source map: City of Tampere www.tampere.fi)

4.2 A VIEW UPON SUSTAINABILITY AND PROBLEMS RELATED TO URBAN BICYCLING AS PRESENTED IN DIFFERENT DOCUMENTS

City of Tampere accepted the Aalborg Commitments[1] as principal quidelines for sustainability agenda in 2007. (City of Tampere 2008) These commitments work as a base for city´s strategies. There is altogether 10 different themes in Aalborg Commitments, that each of them deal with sustainability and the ways cities can promote it. The City Councils themselves have a right to decide, which of the themes they wish to emphasise (City of Tampere 2008). The themes that can be related to urban bicycling, are theme 5 that refers to planning and design; and theme 6 which refers to mobility and traffic. These two themes can be further elaborated and therefore better mobility could eventually mean "*increasing the share of journeys made by public transportation, on foot or by bike"*(Aalborg Commitments 2009:3).

When looking at Tampere´s application of Aalborg Commitment regarding urban bicycling, one can clearly see that one of the aims is to promote alternative modes of transport to the private car. While the main emphasis is on making public transportation more attractive, urban bicycling, especially in the city centre, also gets its share of attention. In the document, it is recognised that "*the bicycling conditions should be improved especially in the city centre and a development plan for urban bicycling in the city centre should be created"*. (City of Tampere 2008:50)

The latest city strategy, *Tampere flows,* describes how the city of Tampere should be developed, also in accordance of the Aalborg Commitments (City of Tampere 2009). One of the aims, clearly related to urban bicycling, is that walking and bicycling in the city should be made easy and safe. Another goal in this document is to increase the share of bicycling and walking as a travel mode. (City of Tampere 2009) Nevertheless, the city strategy does not elaborate how much (in pc.) the share of bicycling should be increased, as it does in relation to public transportation.

When looking at the latest Master Plan of Tampere´s city centre, it is obvious that one of the Plan's major objectives is to reduce the environmental impacts of transportation, while increasing safety (City of Tampere 2006). Furthermore, other major objectives seen in the Master Plan include for instance drawing more attention to the comfort of different users of urban space. The main problems related to urban bicycling in Tampere are (City of Tampere 2006 & City of Tampere, A-insinöörit, 2008) :

- The bicycle network in the city centre is fragmented and ragged
- The bicycle network during the winter-time is inadequate
- The quality of bicycle network varies a lot from place to place
- The number and quality of bicycle parking is inadequate
- There is hardly any segregation of bicyclists and pedestrians on the sidewalks.

As it is now in the centre of Tampere, the bicycle network is partially fragmented, thus following the rules can be unambiguous. Even at places where the network is continuous and in excellent quality, it loses its meaning if these parts are short and the signage is poor. During the winter time the busiest and most important networks for bicyclists are turned into sidewalks. On the other hand, in places where there is no separate bicycle lane, bicyclists are forced by law to use the roadway. Also in existing bicycle lanes, the winter-maintenance is inadequate, even at peak hours when people are biking to school/ work. The quality of the network varies, and there is many barriers for bicyclists, including high kerbs and traffic signs for cars on existing bicycle lanes, as seen in figure 4.f.

1 *Aalborg Commitments* is a common document for the cities and communities in Europe that are aiming to be more sustainable. *Aalborg Commitments* basically offer quidelines to cities to follow.

Figure 4.f. Sometimes traffic signs meant for motorists create a barrier for bicyclist. Common sight from the centre of Tampere, at Satamakatu Street. (Source: City of Tampere, A-insinöörit, 2008:8)

According to the research made by City of Tampere & A-insinöörit (2008) sometimes cars are parked on lanes which clearly pose problems to bicyclists. The fact that bicyclists and pedestrians have to share the same space can be problematic to both. The pedestrians furthermore can act as a ”barrier” for bicyclists by slowing them down and making overtaking difficult. In places where the demand for bicycle parking is the greatest, i.e. by the bus station and on the main street of Hämeenkatu, the racks and other parking possibilities are too few. (City of Tampere, A-insinöörit 2008)

As becomes apparent, the problems related to urban bicycling are being recognised in the different documents. Regarding to these problems, it has been decided that

“*...In downtown area, there should be a comprehensive, integrated and safe network for bicycling which should be placed beside the road. This should be taken into account when constructing the down town areas. In places where there is a lot of both pedestrians and bicyclists, the bicycle network should be clearly separated from the road.”* (City of Tampere 2008:6)

Nevertheless, as will be seen from the following bits of this chapter, although the problems of urban bicycling are being recognised, the actual actions are something else.

4.3 PEOPLE´S PERCEPTION OF THE PROBLEMS RELATED TO URBAN BICYCLING

In order to gain an understanding of the public´s perception of problems associated with urban bicycling, that furthermore supplement the different authorities´ perception on the issue, I have used social media as a resource. The arguments for using social media has been explained in chapter three. The complete list of different online blogs and discussion forums used in this project can be found in Appendix A and B. Furthermore Appendix C (CD-ROM) has all the blogs and forums found from the internet (n.b. data in Appendix C is in Finnish).

4.3.1 Findings from online blogs

Online blogs is one form of social media used in this project. According to Attentio (2009) blogs are usually designed for limited users and there are not always additional comments, as is the case in discussion forums. Overall 46 relevant online blogs were found, where issues concerning urban bicycling in Tampere and problems related to it have been discussed. From these, the majority were private blogs (36 blogs), whereas political blogs counted for 10. The different blogs were followed over 4 years, from the beginning of year 2007 until March 2010.

As can be seen from figure 4.g that summarises the main arguments found, the amount of blogs where there occurred some sort of arguments for urban bicycling in the city of Tampere, has increased. In 2007 only 4 blogs had some points of view on the issue, whereas in 2008 the amount was already 16, and in 2009 22. Nevertheless, although the quantity of blogs are in steady increase, the arguments presented for or against urban bicycling, have not changed over years.

This steady increase in using blogs can either indicate the fact that social media is becoming more and more popular as an expression of opinion, or that people have only recently started to discuss urban bicycling issues in the city of Tampere.

Facilities

The main issues found in the blogs throughout the years are closely related to the level of facilities. The facilities the blogs refer to, for instance, are the high kerbs that make getting on and off one's bike when crossing the street difficult, see figure 4.h. There is a lack of bicycle lanes and proper parking possibilities for bicycles, especially in the areas where people would need them most. In some of the blogs the railway station and at the main street of Hämeenkatu and its surrounding streets were cited as places with too few parking possibilities. Fragmented and ragged bicycle network in the centre; and the overall quality of existing bicycle lanes was seen as problematic, as well as signage that was told to be misleading at times.

Figure 4.h. High kerbs cause problems to bicyclists in Tampere

ARGUMENT	YEAR 2007 (4 blogs)	YEAR 2008 (16 blogs)	YEAR 2009 (22 blogs)	YEAR 2010 (2 blogs)	Together (46 blogs)
Attitudes towards bicycling negative	3 private	5 private 1 political	5 private 2 political		13 private 3 political
Cars parked on bicycle lanes, motorists driving too fast	1 private	2 private	2 private 2 political		5 private 2 political
Conflicts between pedestrians and bicyclists i.e. pedestrians not following the rules → Pedestrians in bicycle lanes, especially in the main street of Hämeenkatu		6 private 1 political	6 private 1 political	1 private	13 private 2 political
Bicyclists do not respect the rules/know the rules	1 political	2 private 2 political	6 private 1 political	1 private	9 private 4 political
Bicycling made difficult in tampere->low quality facilities, i.e. too narrow lanes to bike, high kerbstones,chips that brake the tires, lack of proper bicycling parking-possibilities in the centre and at the rail way station, not enough bicycle lanes/paths, bicycling network fragmented and ragged, rules are not clear to understand, bad or no winter maintenance	1 private 1 political	6 private 2 political	6 private	1 private	14 private 3 political
The city planned for motorists/cars, car has too much weight in decision making	1 political	2 private 1 political	3 private 1 political		5 private 3 political
In City Council level Bicycling seem more like a leisure activity of for the kids, not the way of commuting	1 private		1 political		1 private 1 political
Terraces and advertisement billboards make the combined pedestrian/bicycle lanes narrow		2 private			2 private
Impossible to bike in the centre		2 private	1 private		3 private
People planning and deciding on bicycling do not bike themselves		1 political			1 political
Impossible to bike to some shopping centres outside city centre			3 private		3 private

Figure 4.g. Summary of main arguments found from different online blogs, from beginning of 2007 until March 2010.

At times bicyclists have been blamed for not respecting the traffic rules. Nevertheless they have themselves pointed out reasons for that: unclear markings and vague rules on different bicycle ways, which are costing troubles for bicyclists, as it has been argued in the following:

" I really love bicycling. Yet, it is very hard to bike according to the rules in my hometown Tampere. Our bicycle network is fragmented and ragged. Hämeenkatu street [main street] *is not the only problem here. When discussing about bicycling we should "see the forest from the trees" and look at the city as a whole..."*[2]

Attitudes and behaviour

The claim that bicyclists do not either know the traffic rules, or just do not care about them was another main issue discussed in blogs. Some people have negative attitudes against urban bicycling and are against bicyclists, claiming that bicyclists do not follow the rules, especially in the city centre. The juxtaposition between different groups i.e. bicyclists, pedestrians and motorists became an obvious argument found in the blogs. Most commonly, the ones being criticised repeatedly are bicyclists and pedestrians, either by pedestrians or bicyclists. Comments such as "*Pedestrians are constantly walking on bicycle lanes although they have their own space […] and if I as a bicyclist dare to use the bell, I get really evil glances*[3]*"* &

"*As well as motorists, bicyclists and pedestrians simply ignore the rules. People walk where ever, and walk, bike and drive against the red traffic light, furthermore people do not respect the rules*[4]*"*

-were commonly found from online blogs. Especially bicycling on sidewalks have been criticised a lot, because that apparently causes a feeling of insecurity among pedestrians, especially among the older and disabled ones. The above mentioned quotes indicate some negative attitudes towards bicyclists and that there are obvious conflicts between bicyclists and pedestrians in the city.

The main motive behind the negative attitudes can also be that in many places pedestrians and bicyclists are using the same lane. At times, as in the main street of Hämeenkatu, this dilemma has been tried to be solved by painting a temporary white line in the middle of the pavement during the summer, see figure 4.i. This trial on the main street of Hämeenkatu really seemed to "raise the voices" both in online-blogs but also in discussion forums where people wrote their opinions for and against it. Moreover, the whole dilemma of urban bicycling seems to be culminated at the main street of Hämeenkatu.

Figure 4.i. The trial during the summer at the main street of Hämeenkatu. The white lane divides the space between bicyclists and pedestrians. The trial did not end up to be the final solution. (Source: http://hpguru.net/tampere-hameenkadun-pyorailyratkaisu/)

2 Political blog with the topic: *how about our commune?* http://www.vihreatehdokkaat.fi/elina.harju/?p=5 written 6.9.2008

3 Private Blog: with the topic *Defencing the bicyclists* http://counttcthulhu.blogs.fi/2007/06/20/pyorailijan_puolustuspuheenvuoro~2488949/ written 20.6.2007

4 Private blog: with the topic *Tampere, a heaven for bicyclists???* http://joogihirmu.spaces.live.com/blog/cns!814D8C26E950A061!1691.entry?wa=wsignin1.0&sa=271615489

Traffic safety

Pedestrians are not the only ones requiring improvements for their security. The following comment criticised city´s decision for not allowing bicycling on sidewalks during the winter time:

"Bicyclists should have equal rights with other modes of commuting in the city. The current arrangement where City changes the combined bike/pedestrian pathways to sidewalks during the winter times, where it is forbidden to bike, causes several close-hit situations for bicyclists who then have to use the roadway with motorised traffic. Some of the bicyclists do not dare to risk their lives and still bike on sidewalks during the winter -even with a threat of getting a fine from the police.[5]"

It was claimed in another blog[6] that by not allowing bicycling in some places during the winter time, the City actually saves from the maintenance costs since the winter maintenance is not only the City´s duty i.e. ploughing the snow away from the areas that are only meant for pedestrians. In these cases the property owners alongside the street have the responsibility. Nevertheless, as stated in the same blog, these savings are minimal due to the fact that winters are not as hard in Tampere as they used to be some years before. The "winter-season for bikes" starts always in the beginning of October.

Planning favouring private cars

Other mentionable issues found from the online blogs were the claim that the city of Tampere is built primarily for the private cars and that some shopping centres outside the city centres are hard to reach by bike. Furthermore, cars are claimed to drive too fast in the city centre. The following quote probably the best describes the ways bicyclist experience the urban bicycling in Tampere:

"*The impression I have about my hometown Tampere is that it really is the most hostile city in what comes to bicycling. In winter, most of the centre area is prohibited from bikes and bicyclists are forced to use the same space as motorists […] motorists that drive like mad men. In addition, the new bike lanes (that we finally got) seem to serve as car-parks and loading places for trucks. So the bikes are again forced to use pavements, which is not popular among pedestrian...and again we the bicyclists get the blame! Furthermore, decision-makers have a general picture that bicycling is more a childhood activity or a way of exercising, rather than a way of commuting.[7]"*

One of the arguments, cars parked in bicycle lanes was relatively common argument found from 8 of the blogs. Although the Puutarhakatu street that has one of the primary bicycle lanes through the city centre got especially mentioned in the blogs, other streets in the city centre got attention as well, see figure 4.j. from Satamakatu Street. Other than parked cars in the existing bicycle lanes, advertisement billboards are claimed to make the sidewalks narrower.

The claim that some City councillors see bicycling more as a leisure activity than the mode of commuting has been furthermore emphasised by one political blogger. All together 8 blogs claim that the planning in the city centre favours motorised traffic of these three blogs were political. The claim that bicyclists do not seem to either follow or know the rules, may root from the fact that bicycling network is so splintered. Furthermore, the signage is often misleading for bicyclists, for instance time to times it is hard to know where it is allowed to bicycle.

5 Political Blog, *´young socialists in Tampere´* with the topic: *Bicyclist is not a criminal* http://solidaarisuus.blogspot.com/2009/09/pyorailija-ei-ole-rikollinen-muista.html written 18.9.2009

6 Private Blog with the topic: *About winter biking and bicycle lanes*. http://www.anttikaakinen.fi/?p=50 written 12.10.2008

7 Private Blog: with the topic: *On behalf of the bicycling in Tampere*. http://ajankulu.blogspot.com/2007/05/tamperelaisen-pyrilyn-puolesta.html written: 4.5.2007

Figure. 4.j. Car parked on bicycle lane at Satamakatu Street. (Source: City of Tampere, A-insinöörit, 2008b:8)

4.3.2. Findings from discussion forums

The main difference between online blogs and discussion forums is that forums require many participants whereas blogs are designed usually for single user. Discussion forums furthermore have several and short messages and participants interact with one another. (Attentio 2009) The discussion forums were followed along the same period as the online blogs. As can be seen from the figure 4.k. in the following page, 17 discussion forums were found. Some of the discussion forums go back for over two years, some only two weeks. In addition, the forum activity i.e. how many active debates there are in every forum varies a lot (see Appendix B). Furthermore, some forums list the total number of forums participants while others do not disclose this information. Some forums are far more active than others and the forum activity varied from 14 up to 142 debates. Nevertheless, regarding this project, the forum activity was not taken into account due to methodological delimitations.

The complete list of forums with the forum activity can be seen from Appendix B and C.

State of the facilities

Some of the obvious similarities with blogs were that the level of facilities was highlighted also in discussion forums. The level of facilities, like high kerbs, having bicycle facilities i.e. lanes and parking possibilities for places where people normally do not move, were discussed frequently in different forums. Again, some arguments against paying more attention to urban bicycling was the claim that people do not even use the existing lanes. Then again, as has been claimed in the same discussion forums, the lanes meant for bicyclists are in the areas where there are hardly any shops and in places people do not normally go to anyway. The same claim was emphasised with the parking possibilities for bikes, as can be seen from the figure 4.l.

Unclear rules and negative attitudes

As with online blogs, the most discussed topics in forums have been the bicyclists who either do not know the rules or who just are not willing to follow them, i.e. people bike on sidewalks during the winter instead of the roadway and do other such violations. Again, opponents claim that biking in the roadways, especially during the winter time, can be dangerous. Furthermore, the winter-maintenance of existing bike lanes are poor and often non-existing, thus making the biking an uncomfortable (and unsafe) experience.

Other popular issues in discussion forums through the years have been the negative attitudes towards bicyclists in the centre. These are normally the longest threads among the participants.

Reason for car-dependency?

The issue that did not become so evident from the online-blogs than from discussion forums was that many people claimed that the private car has too much weight in decision-making. For instance, lot of parking possibilities are created in the city centre for cars, at the same time forgetting that also bicyclists need secure places to park.

Nevertheless, some people claimed that motorists´ needs should be prioritised since they are the main customers for the shops down town as the following quote claims:

"The use of private car should be allowed and even encouraged in the centre of Tampere. This is because motorists are the ones bringing money to the shops downtown, not the ones using buses, not to talk about bicyclists who can hardly carry a package of carrots on their bikes...".[8]

One writer pointed out, based on his personal experience, that living city centre can be functioning also with more calm, pedestrian areas:

YEAR (amount of forums) Argument	2007 (5)	2008 (9)	2009 (8)	2010 (3)	Together (15)
High kerbs, bicycle lanes in places where people do not naturally move, quality of signs for bicyclists poor (impossible to follow the rules); bicycle network fragmented and ragged; hardly any separate bicycle lane in the centre	3	4		2	9
Cars parked in bicycle lanes	2	1		1	4
Bicyclists do not respect the rules/know the rules (i.e. Bike where they not supposed to; do not use lanes delicated for them; no lights in the bike, biking in pavements of Hämeenkaty during the winter time)	1	2	4	3	10
Conflicts between pedestrians and bicyclists i.e. pedestrians not following the rules → Pedestrians in bicycle lanes, especially in the main street of Hämeenkatu	1	3	2	1	7
Motorists not used to bicyclists in the centre → conflicts between bicyclists and motorists		2		1	3
Bicyclists are forced (by law) to use roadway instead of combined pedestrian/bicycle way in the centre/during the winter. (→ main street of Hämeenkatu has cobblestones: bicyclist supposed to bike there during the winter when biking in pavements is not allowed ->incomfortable; bicycle lanes in bad condition	2	1		1	4
Bicycling in the center not safe (especially in the main street of Hämeenkatu)	1		1	1	3
Attitudes towards bicycling negative	1	4	4	2	11
The city planned for motorists/cars, car has too much weight in decision making i.e. Lot of good parking places for cars in the centre/on road; some entrepreneurs claim that motorist bring more money to the shops in the centre than any other group. (like bicyclists or the ones using public transportation) so they need all the possible parking places	1	4	2	3	10
Topography and two lakes pose problems to planning				1	1

Figure 4.k. Summary of main arguments found from different discussion forums, from beginning of 2007 until March 2010. (Note that some of the discussion forums go on for longer that one calendar year, therefore the total amount of forums does not match)

8 http://www.aamulehti.fi/keskustelu/thread.jspa?forumID=222&threadID=47547&messageID=693090#693090

"...for instance in Vienna they have large car-free areas with pedestrian streets that have many cozy caffés and restaurants. How would you explain that those shopkeepers are doing well although the centre is car-free?"

Quality check -letters to the editor

Although the so-called traditional media was not one of the methods in this project, it is still used as a "quality check" for the social media. Figure 4.m. presents the findings from the letters to the editor from the regional newspaper, *Aamulehti*, from years 2007 and 2008. The relevant writings concerning the bicycling in the city of Tampere were chosen.

As can be seen from the figure 4.m. in the following page, the main problems associated to urban bicycling are related to different conflicts between pedestrians and bicyclists, one of the main conflicts being that bicyclists do not follow traffic rules. Other arguments that were referred to were the bicycle facilities in the city centre, especially the misleading signage and high kerbs. When compared the findings from traditional media to social media, it can be seen that the arguments are similar. This makes it clear that compared to the more traditional media as a way of getting people´s views over different issues, social media is very competitive method.

Figure 4.l. Location matters: although there is good quality parking possibilities for bikes in the centre (left), people want to park their bikes where it is most convenient for them. The picture in the right is from the main street of Hämeenkatu where there are no proper tracks to park your bike. Both of the pictures are taken on a weekday.

Year (amount of letters to the editor) Argument	2007 (17)	2008 (14)	Total (31)
Conflicts between pedestrians and bicyclists i.e. pedestrians not following the rules → Pedestrians in bicycle lanes, especially in the main street of Hämeenkatu	5	6	11
More bicycle facilities and attention to bicycling needed in tampere	1	1	2
Bicyclists not following the traffic rules i.e not using the lights, bells, biking too fast	8	4	12
Bicycling perceived dangerous motorists driving too fast, they are not careful enough againts bicyclists	2	1	3
Bad facilities for bicyclists in the city centre i.e bad signage, markings, high kerbs	3	2	5

Figure 4.m. Summary of the main arguments found from the letters to the editor in regional newspaper Aamulehti from years 2007 and 2008.

Summary of the main findings

Online blogs, discussion forums and letters to the editor of the regional newspaper all point out to some fundamental problems in Tampere. The attitudes are clearly very negative towards bicycling and there is a certain juxtaposition between people. For instance, there are often conflicts between pedestrians and bicyclists. It became obvious that frequently the bicycle facilities are either in low quality or in the wrong places. It could be that the conflicts between different people root from bad level of facilities. After all, sometimes bicyclists do not have their own lane, but they are sharing the same space with pedestrians; and in winter times, they share the same space with motorists.

Misleading signage can furthermore cause confusion among bicyclists who do not always know where to bike legally. This again can cause conflicts with pedestrians and motorists. The parked cars in existing bicycle lanes add up to the impression that the bicyclists´ rights are somehow accused.

The bicycling is, among some people seen more as a childhood activity and a way of exercising than as a mode of commuting. Indeed, when looking at writings from social media, it seems the urban bicycling and its needs are not considered as important as the needs of motorists and pedestrians, even in city council level where the decisions are made.

4.4 FINDINGS FROM INTERVIEWS

As stated already in the methodology chapter, two interviews were conducted. In addition to that, the questionnaire concerning the plausible problems of urban bicycling was sent to 3 respondents, each representing different stakeholders. The following people were both interviewed; in addition, they both filled in a questionnaire

• Traffic engineer *Reijo Väliharju* was working for the city of Tampere as a head of planning department (until March 2009). His responsibilities were chairman for the planning projects for the city of Tampere i.e. transportation, streets and park projects.

• Traffic engineer *Timo Seimelä* has been working for the city of Tampere in urban development department where one of his responsibilities is the development of pedestrians´and bicyclists conditions.

In addition to the two above mentioned planners, the following people filled the questionnaire:

• Environmental Manager at Sustainable Community Unit *Kaisu Anttonen* in the city of Tampere.

• *Sanna Karppinen*, chairman of the local non-governmental organisation for bicyclists in Tampere *Tampereen polkupyöräilijät ry*. The organisation was founded in 2007 and the goal of *Tampereen polkupyöräilijät* is to support, promote and improve the use of bicycles in the city of Tampere.

• Former deputy Mayor (2007-2008) *Tarja Jokinen* has been a strong advocate for developing bicycle facilities in the city of Tampere. Although not working as a Debuty Mayor any longer, she is still a City Councillor.

The following table in figure 4.n presents the viewpoints these different people have on problems related to urban bicycling in Tampere. The answers are colour-coded; the green stands for very little or no effect to urban bicycling, yellow colour stands for moderate effect and red for significant effect.

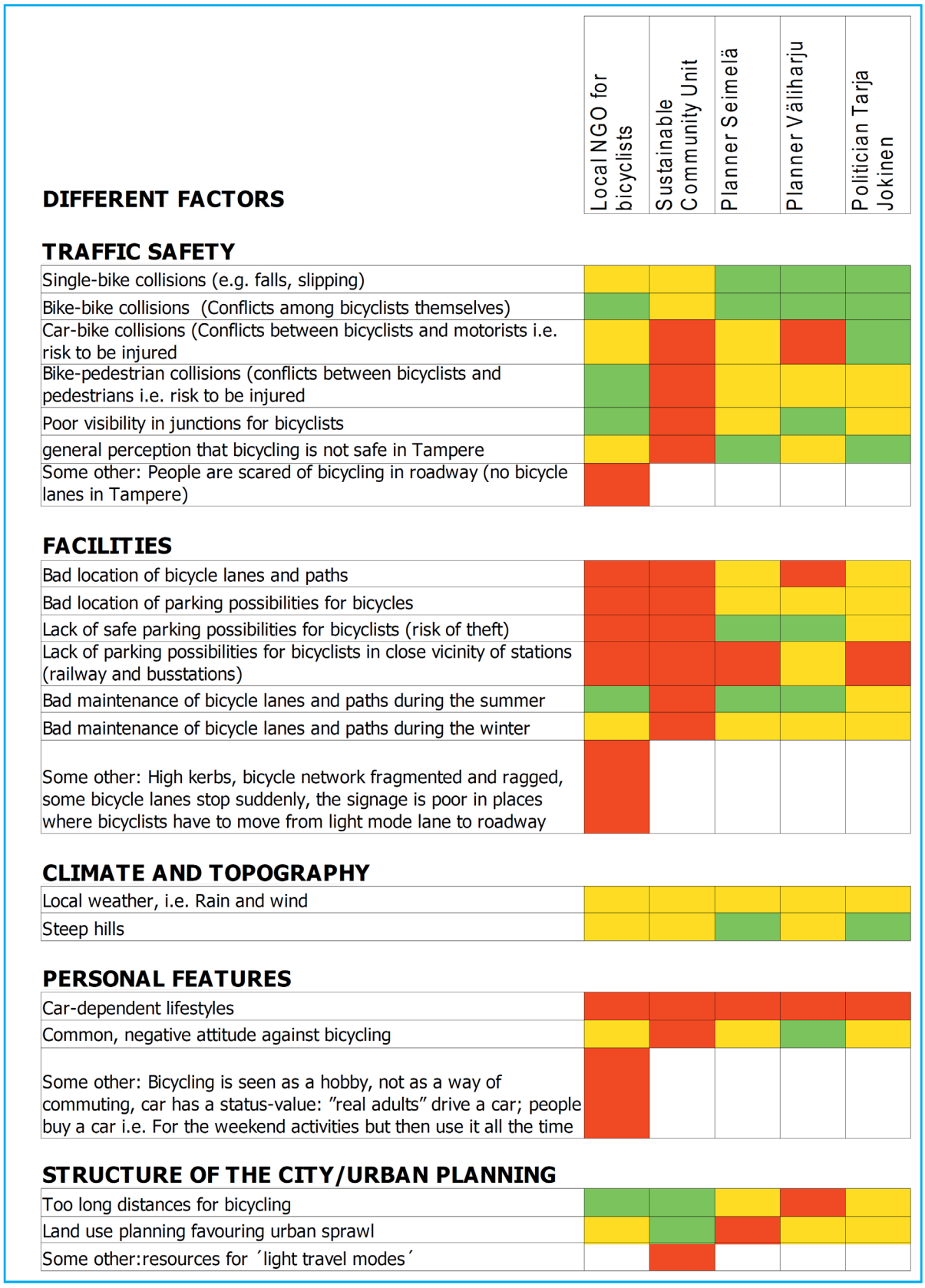

Figure 4.n Findings from the questionnaire

Figure 4.n summarises the viewpoints different stakeholders have on urban bicycling and its problems. As can be seen from the figure, people do not agree on all the possible barriers urban bicycling can have in the city of Tampere. As can be seen from the table, there is a full spectrum of different viewpoints related to the factors affecting urban bicycling. Both the chairman for local NGO for urban bicycling, *Sanna Karppinen,* and the Environmental Manager for the city´s Sustainable Community Unit, *Kaisu Anttonen,* are the ones most critical for the conditions of bicyclists, especially what comes to bicycle facilities. Two planners who both filled out the form, seem to agree on most of the arguments when compared to one another.

The issues people agree on the most are the arguments related to climate and topography. The weather i.e. rain and wind make bicycling occasionally an unpleasant experience. Some parts of the city are also rather hilly and require more muscular power from bicyclists (Seimelä 2010). Winter poses some maintenance problems on bicycle facilities in Tampere and all the interviewees and respondents pointed out, that the maintenance of bicycle lanes and paths during the winter time have a moderate or even significant effect to urban bicycling. As became apparent also from the social media, some of the combined pedestrian-bicycle ways are transformed into pavements during the winter time. At that time, bicyclists are forced to use the roadways, see figure 4.o. According to Seimelä (2010) this is first and foremost political decision. Other reason, as he point out is the fact that,

> "*by not allowing bicycling on sidewalks during the winter time, City actually saves some money. This is because the winter-maintenance belongs to City´s responsibilities in combined pedestrian-bicycle ways, but on sidewalks the property owners/businesses of that specific street have to take care of the maintenance. But mostly this is political decision...*" (Seimelä 2010).

Also, what became apparent from the social media, *the official winter season* in Tampere is fixed and starts always from beginning of October, although the weather would be still optimal for bicycling. Seimelä (2010) revealed the reason for such a long *winter period* being

Figure 4.o. At winter times, bicyclists are sharing the same space with motorists. Picture taken from the main street of Hämeenkatu (Source: http://www.aamulehti.fi/moro/uutisellista/67793.shtml)

in decision that was taken 10 years ago and that rule is being still followed. He (Seimelä 2010) also recognized that,

"*every spring and autumn there is some discussion in the local newspaper whether this winter-season should be postponed because the winters do not usually start so early. Nevertheless, every year we also make a new proposal that is anyhow not accepted in the City Council level...so then we just go on with the old decisions...*".

As was seen, people have to bike on roadways during winter times, and there is hardly any proper bicycle lanes in the city centre of Tampere. This can, in addition to insecure feeling for bicyclists, cause conflicts between bicyclists, pedestrians and motorists. The reason why bicyclists then bike in the sidewalks although they should use the roadway, already became evident from the social media: the bicyclists often do not feel safe when biking with motorised traffic. The chairman of local NGO claimed that people are scared of bicycling on the roadways. The same was proven by Väliharju (2010) who furthermore stated, that at least in his opinion, this is more psychological/emotional problem than real. Seimelä (2010) again pointed out a counter-argument saying that the most conflicts are between bicyclists and motorists, especially in junctions. Thus there is a clear difference between the viewpoints of the two planners.

The bicycle facilities got the worse "marks" from the respondents. The location of bicycle lanes, paths and parking possibilities did not get an acceptable mark on any of the respondents, see figure 4.n. The claim found from the social media; bicycle network being fragmented and ragged was proven also by the respondents in the questionnaire. Väliharju (2010) for instance, admitted that since he is not working for the City any longer he does not follow the bicycle rules in the city centre so precisely:

"*...the solutions we have made for bicyclists in the centre of Tampere are clearly not so good. I have to admit that even I, as a professional brake the rules when bicycling in the centre. This is because time to time the whole bicycle network is so fragmented and I think at places it really makes no sense to follow the ´official rules´...*"

When asking for the reasons why constructing the proper bicycle network both planners Väliharju and Seimelä (2010) point out that the fundamental problem in Tampere is *motorists with their money,* as stated by Väliharju (2010):

"*Currently there is a strong image in the City Council level that the motorists bring the money to the shops in the city centre. For instance when I was working as a planner in the City of Tampere, I soon realised that I cannot come up with the solutions that would affect the on-street parking* [of cars]. *Therefore the solutions, although not so good, are somehow half-way [....] I know that the whole process of removing some of the on-street parking places was experienced difficult to present to the public.*"

Seimelä (2010) goes on, pointing out the negative impression the shopkeepers have on bicyclists:

"*there has been a discussion about A-stands* [advertisement billboards] *in the main street of Hämeenkatu. City wants the shopkeepers to remove them because they act as a barrier and disturb both pedestrians and bicyclists, making the existing sidewalk much narrower. In turn, the shopkeepers themselves claim that the bicyclists are the bigger problem at Hämeenkatu street than their adverts. This most probably describes the attitudes shopkeepers have towards bicyclists.*"

Seimelä (2010) points out that the main fear shopkeepers might have is the disappearance of the on-street parking places in front of their businesses. Seimelä´s claim relate clearly to the fact that there has been some discussion in Tampere whether, once the *Hämpin Parkki*[9] (underground parking area) is completed, at least one of the parking rows could be removed in the streets of downtown Tampere and bicycle lane build.

9 *Hämpin Parkki* is a huge underground parking area currently being constructed in the centre of Tampere

The reasons for the bad location of bicycle parking in downtown can be found from the quotes above: the cars take too much space. As discussed in the social media, there is a lack of parking places for bicycles around the train station area. This same claim became obvious from the respondents of the questionnaire, see figure 4.n. As has been argued by Seimelä (2010), the State Railways, who owns the area surrounding the railway-station, removed some of the parking stands for bicycles few years ago. This was mainly because aesthetic reasons and because bicycles were always parked so that they formed a barrier to the people passing by.

The figure 4.n shows, that one of the fundamental problems in Tampere in relation to bicycling is car-dependency, and all the respondents thought that being one of the main barriers for urban bicycling. This is clear also when looking at the shopkeepers claims that require the maintenance of on-street parking places in front of their shops. The urban planning furthermore favours urban sprawl thus distances are occasionally experienced as too long in Tampere, as can be seen from figure 4.n. Nevertheless, as was stated by Seimelä (2010) in Finland the bicycle is not experienced so strongly as travel mode on its own; bicycling and walking are generally seen together.

What also became apparent from the claim from the local NGO (chairman *Sanna Karppinen*, see figure 4.n) in Finland bicycling is seen more as a hobby, not as a way of commuting. This same claim become apparent from social media.

5. ANALYSIS & RECOMMENDATIONS

This chapter reviews the results from the documents, interviews and social media, and discusses how the earlier research supports these findings. The emphasis will be on main factors found to be significant in Tampere. This chapter is structured into fours sub-sections. In Section 5.1 analytical framework, based on the theoretical model presented earlier in Section 2.4 will be constructed. Section 5.2. presents the main problems related to urban bicycling in the city of Tampere including for instance fragmented bicycle network, attitudes and conflicting viewpoints. Section 5.3 takes a closer look at city´s sustainability agenda and points out how, currently, there is no explicit linkage between the sustainability and urban bicycling and finally, in Section 5.4 recommendations for improving the conditions of urban bicycling will be offered through the categories of planning documents, planning processes and technical considerations.

5.1 ANALYTICAL FRAMEWORK

The initial research question referred to the role of an urban planning in sustainable transportation in cities, more-over to the ways urban planning can influence the more sustainable mode of travel, that of bicycling. Urban planning can influence some of the factors [see section 2.4] to varying degrees. Nevertheless, some of the factors like weather and topography, cannot really be influenced by urban or transport planning.

Figure 5.a summarises the different factors affecting urban bicycling. The figure furthermore serves as an analytical framework when investigating the case itself. Here are drawn together and combined the earlier threads of knowledge presented [see section 2.4]. The analytical frame establishes the setting for analysing the research question through empirical research. In the process it is investigated how and which of the factors affect the urban bicycling in the city of Tampere. In other words, what effect the factors have on urban bicycling.

The arguments presented in the figure elaborate more how urban planning could have an influence on the different dimensions affecting urban bicycling. The scale is based on assessment that is again based on the different theoretical positions and practical examples and findings [see chapter 2]. Thus the readers of this report should mark that, because the assessment is based on subjective interpretation, the scale is more indicative than precise. Furthermore, it is investigated how and which of the factors affect the urban bicycling in the city of Tampere.

The analytical framework is a useful instrument to explain how urban planning can influence the factors found from the real life. For example, for the dimension of *level of facilities*, it was stated earlier that the location of parking places for bicyclist can have an effect on are people willing to bicycle in the city. As can be seen from the table, together with urban layout, level of facilities has got the highest score. Thus urban planning can have a great influence on the level of bicycle facilities. For instance, there could be more parking facilities provided in near vicinity of railway and bus stations, so people could better combine the bicycling and public transportation; the maintenance could furthermore be influenced by urban planning.

FACTOR	SUMMARY [theoretical model]	SCALE*	INFLUENCE OF URBAN PLANNING	FINDINGS FROM TAMPERE
Traffic safety	Different kind of accidents/incidents including: 1) single-bicycle collisions, can be caused by poor maintenance, bicyclist´s error or mechanical failure; 2) car-bicycle collisions happen mostly in road junctions,and because either bicyclists or motorist obey the rules; and 3) pedestrian-bicycle collisions, common on integrated bicycle/pedestrian routes	2	1) Some safety measures can be done: segragation of bicyclists from pedestrians and motorist NB: in some cases integration is better in terms of safety; better maintenance 2) Individual´s bicycling/driving skills cannot be directly influenced by urban planning	Hardly any segragation of pedestrians and motorists from bicyclists; poor maintenanced bicycling routes, especially during the w inter; bicycling is experienced insecure during the w inter on a roadw ay
Level of facilities	1) The quality and quantity of different types of bicycle routes i.e. segregation vs integration of bicyclists, pedestrians and motorists; location of primary routes, 2) bicycle parking i.e. Location and the quantity of different bicycle tracks	3	Relatively easy to influence by planning: for instance byconstructing 1) more good quality bicycle facilities 3) Uniform and continuos bicycle netw ork; and 2) taking into account the location of facilities i.e. Parking possibilities to the stations and w here people normally move,	1) The bicycle netw ork fragmented and ragged 2) bad maintenanced bicycle lanes and paths during the w inter 3) integrated routes w ith pedestrians and bicyclist & motorists and bicyclists 4) Bad location of parking possibilities especially at the main station areas; and 5) poor signage
Climate & Topography	Rain, snow ,ice, w ind, darkness in northern latitudes during the w inter times; topography: hills vs. flat surface	1	Impossible to influence the w eather by planning; influencing topography as such is a difficult task as w ell (good example: bicycle lifts in Trodheim)	Weather i.e. Rain and w ind is a moderate factor in Tampere, topography and the fact that Tampere is situated betw een tw o lakes poses some problems to planning
Individual features	psychological factors (attitudes, car-dependent lifestyles); level of physical fitness; socio-demographic factors (age & gender); Socio-cultural factors (race and culture)	1	Hard to directly influence by urban planning; indirectly can be influenced by creating good conditions for bicycling i.e. Facilities, paying more attention to safety	Negative attitude tow ards bicycling, car-dependent lifestyles, Tampere has three universities → assumngly the amount of students is high
Urban layout	City size, density & location of different functions and facilities	3	Land use planning can have an influnce to urban layout	Distances for bicycling can be too long → to some shopping malls putside the city, urban spraw l

* Influence of urban planning with the scale 1-3 1: poor, 2: moderate 3:good

Figure 5.a. Analytical framework with different variables affecting urban bicycling and the assessment to the city of Tampere

5.2 PROBLEMS DISTILLED FROM THE CASE

Based on the findings from previous chapter, the main factors affecting urban bicycling in the city of Tampere are the following triad:
1) the level of facilities i.e. the bicycle infrastructure; 2) safety and 3) individual features i.e. people's attitudes and car-dependent lifestyles. It should be noted that all these factors are co-dependent and should not be seen in isolation: by paying more attention to bicycling facilities in the city centre could provide preconditions for urban bicycling, and the positive attitude of people could led to the selection of bicycling as a mode of commuting whenever possible.

The research reported by Neuvonen (2002) illustrates the factors affecting bicycling and walking in Finland. He also points out the fundamental problem with these two modes of transport being the bicycle facilities and people's attitudes. Although the main emphasis of this analysis will be found on these three main factors from the case of Tampere, as yet some other minor factors emerged from the case study, which will be briefly looked into.

Bicycle facilities & Safety

Firstly, what become apparent from all the sources of evidence, the level of facilities is experienced problematic. The fragmented and ragged bicycle network together with the unclear signage causes problems for bicyclists in the city centre. Nevertheless, the location of existing, segregated bicycle lanes divides the opinions into two, this became apparent both from the social media and from the interviews.

As Vaismaa (2010) points out, the general problem in Finnish cities is that bicycle routes hardly ever connect the popular destinations. This became apparent also in the case of Tampere where the recommended bicycle route through the city centre bypasses some of the main destinations. Some people experienced the location of primary routes through the city centre good enough pointing out, that before even considering constructing more lanes for bicyclists, the existing ones should be fully utilised. For instance planner Seimelä (2010) raised a question whether the main street of Hämeenkatu should be totally dedicated for pedestrians and the existing, primary bicycle route at Puutarhakatu Street should be enough.

Other frequently mentioned factor, both in social media and in interviews was the lack of bicycle racks at popular destinations. As became evident from social media, sometimes people park their bikes in places where there are no proper racks. In addition to the lack of provision of bicycle parking, Pucher & Buehler (2006) argued that these kinds of randomly parked bicycles can give a poor image of bicyclists, although that is clearly not done in purpose. The importance of the location of the bicycle tracks has been pointed out for instance Stinson & Bhat (2004) who state that the presence of bicycle tracks at important destinations, like at work, increases the likelihood of commuting by bicycle. Nevertheless, since field survey was not conducted, it is impossible to say anything about bicycle tracks offered by different work places in Tampere.

There is some evidence regarding people's willingness to use more bicycles if the preconditions would be better, as the common opinion found from social media was the claim that some people would bike more if the facilities would be better. The same claim has been argued for instance by Dill & Carr (n.d) that when the proper facilities are available, commuters are also willing to use them. This positive correlation between good quality bicycle facilities and the amount of bicyclists has also been argued by Nelson & Allen (1997) on their study about bicycle facilities in United States of America. This is not always the case though. For instance, if a city does not have any bicycle facilities to start with, it does not really help to build a few lanes in some places: the bicycle ways should be undisturbed, not fragmented.

Furthermore, if a city already has a good bicycle network and the amount of bicyclists is high, then apparently constructing even more facilities will not necessarily lead to more bicyclists.

The conflicts between different road users became apparent from both the social media and interviews. The conflicts between bicyclists and pedestrians route from the fact that most of the time there is no segregation between these two groups. People are furthermore scared of bicycling on the roadways, especially in the winter. In addition the maintenance of existing bicycle routes during the winter-time is poor in Tampere. Thus the lack of safety can act as a barrier for urban bicycling. The same was argued by Rietvield & Daniel (2004) who found that Dutch municipalities with a higher safety level for bicyclists also have a higher share of bicycling for short trips up to 7,5 km. Although, in some sense segregation of bicyclists from other road users can provide more safety, this is not always the case. There is evidence (Godefrooij & Pettinga 1993) that segregated bicycle lanes can in fact be detrimental to bicyclist safety, especially at intersections where the bicyclist suddenly comes into the realm of the motor vehicle. Motorists are then less aware of bicyclists when these two modes are segregated.

In general, the bicycle facilities and their quality are seen as an important way to promote urban bicycling. Findings from the official documents, social media and interviews, as well as other, previous studies (i.e. Dill & Carr 2003, Nelson & Allan 1997, Pucher & Buehler 2006) prove the same. Thus by paying more attention to the inadequate facilities i.e. fragmented and ragged bicycle network and lack of bicycle tracks especially in the station areas, the urban bicycling could be made more popular. Nevertheless, the findings from social media and interviews indicate to the direction that the infrastructure development alone cannot significantly increase the bicycle use.

Individual features

Other determining factors affecting urban bicycling in Tampere was people´s values and attitudes. Apart from one, all interviewees experienced the attitudes of people having a significant effect to urban bicycling. Few noted that bicycling is often seen as a childhood or hobby activity.

In addition, the attitudes influence the individual people´s choices. It became clear from one interview (Väliharju 2010) that differences in attitudes affect decision making and thus urban planning. This same confrontation became apparent from social media, where it was claimed that some city councillors see the bicycling more as a hobby activity than a way of commuting. Neuvonen (2002) became to the same conclusion in his analysis of emergence of conditions for bicycling in Finland. Vaismaa (2010) again claims that a general problem in Finland is that both bicycling and walking are seen together as “one mass”, not as separate way of transport mode. The same claim was argued by a study of Kallioinen (2002) who examined the position of bicycling in transportation planning in Finland. According to her study (Kallioinen 2002) the essential institutional factors weakening the positioning of bicycling in transportation planning is the fact that in Finland bicycling is not seen as a way of transport. The main reason for this can be tracked back from the history: at 1960´s the transportation planning started to apply the same methods widely used in United States of America: the preconditions for transport planning were done with a private car in mind (Vaismaa 2010, Kallioinen 2002). As Vaismaa (2010) states, this characteristic feature can still be seen in urban and transport planning in Finland.

All of the interviewees who received the questionnaire saw car-dependent lifestyles as a major factor affecting urban bicycling. One of the interviewees explained that it is very common that people buy a car only for weekend activities but then use it all the time, also for shorter distances.

According to one interviewee in Finland people have a strong belief that a good childhood is only possible outside the big cities. Therefore, according to this interviewee some families move outside the city. Consequently, when the distances increase, these families purchase a car and became car-dependent, using the car also in shorter distances. Neuvonen (2002) found the negative correlation between car ownership and bicycling. According to his research, it is common that people, who own a car, choose the car instead of bicycle, also in shorter distances.

Car-dependency became apparent also when looking at the shopkeepers and other businesses´ viewpoints. Both planners Seimelä and Väliharju (2010) pointed out that removing on-street parking places would be politically a very difficult decision to make since shopkeepers at the main street of Hämeenkatu opponent that so strongly. The main reason for this is the businesses´ perception that the motorists bring money to downtown.

Signs of other individual factors affecting urban bicycling, like age, gender, race and status were not found from Tampere using these methods. Nevertheless, as mentioned before, Tampere is a university city with three different institutions of higher education. As stated for instance by Rietveld & Daniel (2004) young people i.e. students cannot yet afford a car thus they are more likely to bicycle regularly. Based on this argument, it could be assumed that the level of potential bicyclists is high in Tampere.

Other factors affecting urban bicycling

The level of facilities, safety and individual features emerged prominently from the case. Nevertheless, urban layout; climate and topography, although not the main features, became apparent factors influencing urban bicycling in Tampere.

According to all interviewees, weather i.e. rain and wind can have a moderate effect to the urban bicycling. The effect of weather did not arise from social media. Although weather can have a distinctive effect on bicycle use, there exist cities with high bicycle use with less suitable climate. A good example of cities like this is Finnish city of Oulu, approximately 500 km north from Tampere that has much colder winters than Tampere yet about 1/3 of all the trips are made by bicycle (Kurt 2008). Together with weather, topography is seen as a limiting factor for bicycle use in Tampere.

Conflicting viewpoints

As become apparent for instance level of facilities is one of the barriers for urban bicycling. Nevertheless, the main barrier in Tampere still seems to be the conflicting viewpoints people have. There are differences in values and how people perceive the problem of urban bicycling. The full spectrum of different viewpoints can be found from both social media and interviews. What also became apparent, there is some conflicts in City Council level concerning urban bicycling and how it should be developed. Apart from this, bicycling is seen separate from sustainability as seen in the following.

5.3. THE ROLE OF URBAN BICYCLING IN CITY´S SUSTAINABLE AGENDA

The city of Tampere has signed the Aalborg Commitments and is thus aiming to be a more sustainable city. Nevertheless, the role of bicycling did not become very apparent from the city´s documents concerning sustainability. The concept sustainability in general constitutes of three pillars: environmental, social and economic; and urban bicycling could be related to each of these [see chapter 2]. Nevertheless, as it emerged from the city of Tampere´s documents, urban bicycling is largely being isolated from sustainability agenda. Even at places where the urban bicycling and the need for its increase are mentioned, the deeper reasons for that are ambiguous.

Social sustainability

From Aalborg Commitments the theme that can be related to social sustainability i.e. human health is as follows: "*We are committed to protecting and promoting the health and wellbeing of our citizens*" (Aalborg Commitments 2009:3). Furthermore, in the same document (2009:3), it is stated that to do this the action should be made to "*mobilise urban planners to integrate health considerations in their planning strategies and initiatives*".

Nevertheless, in Tampere ´s application of Aalborg commitments, the role of transport i.e. urban bicycling is not yet being integrated into an overall public health strategy. Still, it has been proven for instance in a study by WHO (2006) there is a linkage between the public health, physical activity and transportation, although quantifying that link can be a challenging task. There exist several cost-benefit case analyses that take into account the health benefits of bicycling. For instance, Nordic countries have brought together an assessment where the cost-benefit analysis of bicycling takes health effects into account. According to this research (Nordic Council of Ministers 2005) the public health benefits per person commuting with a bicycle count for €350 - €900 (average values taken all the Nordic countries into account) annually depending whether the person in question is an average commuter or active person[1]. Thus the public health benefits are rather high, if it is possible to activate inactive persons (about 2,5 times higher compared to an average commuter).

Pucher & Dijkstra (2003) have advocated more bicycling for everyday travel as the most affordable, feasible and dependable way for people to get additional exercise they need. Urban bicycling has furthermore indirect influence to human health: when some of the trips made by cars are substituted by bicycling, the air and noise pollution from motorised trips are reduced (Sælensminde 2004). This again contributes to improvements in the quality of urban life. (WHO 2002) The other benefits of bicycling include for instance reduced parking costs and insecurity. Social sustainability can be furthermore related to aspects like social equity i.e accessibility and bicycle´s role in that is important, taking into account that bicycles can be afforded by all.

Again, when looking at documents from the City of Tampere, there is no connection between bicycling and social equity. The only aspects of social sustainability being mentioned in Tampere´s documents is safety and how bicycling in the city centre should be made more safe.

Environmental and economic sustainability

Urban bicycling could also be related to environmental and economic sustainability in different ways. All of these different dimensions of sustainability are interlinked. For instance, promotion of human health can be indirectly associated to economic sustainability in terms of savings made in public health. Again, compared to motorised traffic, bicycling is low polluting and both energy and space efficient. It is thus apparent that urban bicycling could be integrated to environmental sustainability.

Nevertheless, in Tampere the measures have remained fragmented and urban bicycling is seen separate from sustainability. The same lack of holistic approach, but in a national level, was pointed out by Myllärniemi (2010). Myllärniemi goes on arguing that although the promotion of bicycling has been acknowledged as an important, top-level goal, the actual strategies and measures have remained fragmented and relatively unimpressive in relation to climatic, environmental, health and safety objectives of Finland. Then again, as has been stated in the Aalborg Commitments [see section 4.2] cities can themselves decide how to take the different dimensions of sustainability into decision making and planning.

1 A person that does not exercise regularly, in this context: has been activated to commute by bicycle

5.4 RECOMMENDATIONS

The main professionals challenge regarding the improvements in urban bicycling is to compose optimal packages of combined measures to achieve desired outcome. Three main types of measures are required:

• Planning documents should reflect the objectives of sustainable city and the intelinkage should be clear.

• Planning process should tackle with different kind of interaction methods, such as social media.

• There are many technical considerations that could be solved, related to i.e. maintenanace and signposting

Planning documents

One of the main problems in Tampere is that urban bicycling and sustainability are not interlinked and there is an implicit linkage between these two. Therefore, the planning documents should fully reflect the objectives of the sustainable city, both in principles, but also in detailed design. Having more explicit linkage between different dimensions of sustainability and urban bicycling, for instance health and physical activity would need to become central concerns for the transportation field. To do this, there should be more collaboration between different disciplines, like transportation and health professionals. As a result urban planning could tackle more with the health aspects of urban bicycling.

Furthermore, to quantify the benefits of urban bicycling, cost-benefit analysis could be included to the planning documents. For comparison the external costs of motorised traffic could be integrated to the documents. ther crucial point is that bicycling and walking are often counted together and bicycling is not seen as a mode of transport on its own. Therefore, distinguishing bicycling as transport mode on its own is fundamental precondition for its development.

Planning Process

With the fast development of social media and increased use of this among the different people, it is possible for cities to be more engaged with the public. The potential of social media as a way of engage the public to planning processes is already in use in the city of Helsinki, Finland, see figure 5.b. Thus social media can be a transparent tool for urban planning to tackle with different planning problems, like in the case of Tampere problems related to urban bicycling. Social media could be used as an effective tool for public participation.

The information gotten from social media can be used to consider the satisfaction levels with the municipality's bicycle policies. The information gained from social media can be used to find out the residents' views on bicycle parking facilities, comfort, safety, and ambitions of the municipality. This has been done in the city of Helsinki, where the city has developed a web-site where bicyclists have direct and easy access to influence and point their views on urban bicycling in the city. Furthermore the efforts made by local authorities to improve the urban bicycling play a crucial role in planning process and thus the engagement of different authorities and professionals is important.

Example of the use of social media in urban planning

It is clear, since the social media is such a new concept, its potentials have not yet been totally realized by cities and urban planners. Still, positive examples of how social media could be used can be found from Helsinki, Finland. There the potentials of social media has been realized and it is used as a tool by urban planners. In Helsinki there is a web based service called Fillarikanava (bicycle channel) where people can freely discuss and comment on city´s urban bicycling, its problems, and also give new ideas to the city planners.

"The Fillarikanava is a web service provided by the city of Helsinki, which facilitates a new kind of direct and open dialogue between the city's citizens and its officers. Using the Fillarikanava everyone who is interested in Helsinki's cycling environment can discuss and ask about as well as comment on other people's messages. Traffic planners and those responsible for the maintenance of streets will follow the discussion and take part when needed. By answering the questions, the officers can reach a larger audience in one go. Comments that concern that area will be taken into account when new traffic solutions are planned."

(City of Helsinki 2010)

This example from Finland shows that the potentials of social media as a tool has been recognized in city level. In the case of Fillarikanava, first-hand data is produced by the bicyclists themselves.

Figure 5.b. Example of the use of social media from Helsinki Finland.

Technical considerations

There are a number of physical factors that affect bicycling in the city centre of Tampere and which should be looked into more.

• There is hardly any segregation between bicyclists and pedestrians. As it became apparent from the social media, some people see the segregation as one way of improving the safety. Nevertheless, as pointed out by Godefrooij (1993) segregation of bicyclists from motorists and pedestrians is not always the best option in terms of safety. At intersections where bicyclists suddenly come into realm with other road users (pedestrians and motorists), segregated bicycle lanes can be detrimental to safety. Motorists are then less aware of the bicyclists when these two modes are being segregated.

A better option could be to either provide bicycle lanes, or integrate bicycles with motorised traffic, while reducing the speed and volume of motorised traffic. Before making the decision whether integrate or segregate bicyclists from motorists and pedestrians, city officials should gain more knowledge for each section of the bicycle connection.

• Poor maintenance of existing bicycle ways was found problematic, especially during the winter time. This is mostly a management problem and to solve it, more resources i.e. manpower and money should be dedicated for the maintenance of bicycling facilities. Potholes and cracks in the bicycle route and uneven joints should be fixed. The different obstacles on existing bicycle lanes, like poles and traffic signs hinder bicyclists path and should therefore be removed.

• The bicycle network should have a good sign posting system to enhance its coherency and to clearly indicating a way to one destination to another (Camps 1993). Furthermore, the signposting should be uniform, so that bicyclists know what to expect. Also, when a destination is mentioned, it should be repeated until it has been reached.

• Bicycling network should be coherent and comprehensive, providing good connections between different destinations, without or with little delay. The network should be planned based on the main bicycle destinations. As argued by Hulsmann (1997), this is a logical way of providing bicyclists with a coherent network of bicycle facilities with direct connections and minimal travel time. To do this, analysis

of the potential origins and destinations of bicycle traffic is in order. This information can be obtained by means of different surveys. Overall, the bicycling should be competitive form of transportation compared to motorized traffic.

- Regarding the parking possibilities for bicyclists, more research on where people bike and what are the quality requirements for parking are needed, like at station areas. Bicycle parking facilities should be located close to the destinations, thus the analysis of the location should be done together with the bicycle network analysis.

6. CONCLUSION & PERSPECTIVE

The purpose of this chapter is to offer concluding remarks of the project as well as perspectives on the project work. The case study of Tampere applied some specific lenses to find out what and how different factors affect urban bicycling in the city. These different factors were found from the literature. In Section 6.1, the broad outlines of interlinkages between sustainability and urban bicycling are offered after which, the main findings from the case study are presented together with recommendations. Section 6.2 reflects the project work and offers concluding remarks for the reader.

6.1 MAIN FINDINGS

The goal of this project was to find out the role of urban bicycling in cities aiming to be more sustainable. The case study of Tampere was undertaken to identify the factors affecting urban bicycling and to find out which of the factors could be influenced by urban planning. The point of departure was to outline the potential of urban bicycling and its benefits compared to motorised traffic in relation to sustainability. This was done in a theoretical level. Sustainability can be divided into three different dimensions, each of them having interlinkages with urban bicycling.

- Environmental sustainability and urban bicycling are supporting each others since compared to motorised traffic, bicycling is low polluting (air and noise pollution) and both energy and space efficient.

- Social sustainability´s relation to urban bicycling refers primarily to the health issues. Again, compared to motorised traffic, urban bicycling has no difficulties of beating private cars in issues like social inclusion and public health. Urban bicycling has furthermore indirect influence on human health: when some of the trips made by cars are substituted by bicycling, the air and noise pollution from motorised trips are reduced.

- Economic sustainability and urban bicycling can be interrelated for instance by quantifying the public health benefits of bicycling.

Altogether five different factors affecting urban bicycling were found out from the planning literature and other studies. These include traffic safety, level of facilities, climate & topography, individual features and urban layout. Although all these factors have an effect to urban bicycling, urban planning can influence these in varied terms. For instance topography and individual factors i.e. people´s attitudes cannot really be influenced by planning. Level of facilities and urban layout can be directly influenced by urban planning, whereas traffic safety can be indirectly influenced for instance by improvements in facilities i.e. signage and maintenance.

Regarding the case itself, it was found out that the city of Tampere have some factors both in the physical form and in managing strategies that can have negative effects to urban bicycling and thus to city´s aim to be more sustainable. First of all the level of bicycle facilities was found to be inadequate i.e. fragmented and ragged bicycle ways and lack of proper parking possibilities for bicycles in important destinations.

The conflict between bicyclists, motorists and pedestrians was another obvious factor affecting to the perception of safety. As stated the general problem in Finland is that bicycling is not counted as a transport mode on its own but often seen together with walking.

Another obvious factor affecting bicycling in Tampere is car-dependent lifestyle, that again goes hand in hand with urban layout. Nevertheless, the main barrier for improving the bicycling conditions in Tampere seems to be conflicting viewpoints as the evidence pointed out that the factors experienced problematic varies a lot. As it emerged from the case, urban bicycling is also largely being isolated from city´s sustainability agenda as the documents related to sustainability only slightly touch upon urban bicycling.

Recommendations offered

This project has shown that there is certain measures that can be done to improve the bicycle conditions and to better integrate urban bicycling and sustainability. These recommendations can be related either to planning documents, planning processes, or more technical issues. The main recommendations are as follows:

• **Planning documents**: Having more explicit linkage between urban bicycling and sustainability in planning documents. In order to do this there should be more collaboration between different parties i.e. health sector and urban planning. For instance cost-benefit analysis of urban bicycling could be integrated into planning documents. Distinguishing bicycling as transport mode on its own is another issue to consider.

• **Planning processes**: Urban planning should engage more with public i.e. by using social media as a tool for public participation

• **Technical issues**: The effects (strengths and weaknesses) of segregation of bicyclists should be studied more closely. Furthermore, directing more resources (mostly research) to i.e. maintenance, signage and bicycle tracks to areas where they are needed is in order.

These recommendations can help planners and decision makers in Tampere to tackle the sustainability issues and to better integrate them to urban planning. All these recommendations support urban bicycling and furthermore offer help to make more explicit linkage between urban planning and sustainability. Nevertheless, as the case of Tampere indicates that there can be no definite answer; urban planning can support urban bicycling in some respect but not in others.

6.2 REFLECTIONS

There are many avenues of investigation which could have been engaged with in relation to the urban bicycling in the city of Tampere. In this project, the focus was on the apparent factors that affect the urban bicycling in the city centre. These factors become apparent both from social media but also from the interviews (including the questionnaire). Apart from that, city´s ways of approaching sustainability were taken look at. The case study took all the factors that could affect urban bicycling into account.

By choosing a narrower focus and intentionally leaving out some of the factors, more in-depth analysis of some specific factors would have been possible. However, by taking all the factors into account, more holistic approach was possible.

The project was limited to gather data from interviews, social media and selected official reports and plans. Other involved actors in the planning process are traffic researchers, the media, political parties, to mention few. Therefore, a further look into newspaper articles and City Council meetings would have been fruitful to get hold on discourses laying behind the documents. Nevertheless, as was already argued in the methodology [see section three], due to the resource limitations site visit was not possible. This is the main reason why newspaper articles were not taking into account.

This project´s case was single case study and instead of that, a multiple case design would have been a way to gather more knowledge about the issue. Although the case of Tampere was fascinating, this strategy could have added more perspectives to this project. In other words, by studying stories about integrating sustainability and urban bicycling elsewhere wider background knowledge could have been attained and the basis for analytical generalization strengthens. The reason for not conducting multiple case studies was, again, lack of resources.

Final remarks

The purpose of this project was to see how urban bicycling and sustainability can be interlinked and what factors affect the urban bicycling in the city of Tampere. Other points for further studies would be to investigate whether businesses´ and politicians´ perception on bicyclists can act as a barrier for improving the bicycling conditions in the city of Tampere. As an example of the plausible effect of these actors, planner Väliharju states in the case of constructing better bicycle facilities in the main street of Hämeenkatu:

"*Currently there is a strong image in the City Council level that the motorists bring the money to the shops in the city centre. When I was working for the city of Tampere I noted that I cannot come forward with the proposals what would strongly affect the on-street parking. Therefore the solutions I have presented are solutions that are some way ´half-way`. My interpretation is that even the bad solutions would not have been accepted if I would have suggested the solutions that affect the on-street parking a lot. I hope I have been right in this...otherwise I have really made a disservice for bicyclists."* (Väliharju 2010, Appendix D)

This implies that good intentions might be affected by investors and politics thus the urban life also.

Having said this, this project has pointed out some elements that could be improved to make the city of Tampere more sustainable and bicycle-friendly.

REFERENCES

Aalborg Commitments. 2009. http://www.aalborgplus10.dk/mediafinaldraftaalborgcommitments.pdf [accessed 10th March 2010]

Andersen, B., Essex, C. & McKitrick, R. 2007. Does a Global Temperature Exist? *Journal of Non-Equilibrium Thermodynamics* 32:1-27.

Attentio SA/NV. 2009. *Dashboard 3.0 User Manual.* Brussels: Attentio SA/NV.

Banister, D. 2005. *Unsustainable Transport -city transport in the new century*. New York: Routledge.

Burton, E. 2000. The Potential of the Compact City for Promoting Social Equity. In: Williams, K., Burton, E. & Jenks, M. eds. *Achieving Sustainable Urban Form*. London and New York: E & FN SPON.

Camps, L. 1993. Bicycle signposting as a means of bicycle use promotion. In*:* Michels, T. ed. *Cycling in the city, pedalling in the polder: Recent developments in policy and research for bicycle facilities in the Netherlands*. the Netherlands: CROW.

City of Helsinki. 2010. Fillarikanava. http://fillarikanava.hel.fi/info [accessed 24th February 2010]

City of Tampere, A-insinöörit, 2008. *Tampereen keskustan kevyen liikenteen kehittämissuunnitelma vuosille 2008-12*. Tampere: City of Tampere. [in english: A development plan for light mode travel in downtown area for years 2008-2012].

City of Tampere, 2006. *Keskustan liikenneosayleiskaava*. Tampere: Juvenes Print Painatuskeskus.[in english: Master plan for the city centre.]

City of Tampere 2008. *Aalborgin sitoumukset 2008* -Peruskartoitus. Tampere: Kirjapaino Ohrling Oy. [in english: Aalborg Commitments 2008 -basic mapping]

City of Tampere 2009. *Tampere Flows -Tampere City Strategy 2020*. http://www.tampere.fi/material/attachments/t/5m6pXm17U/Tampereen_kaupunkistrategia_ENG.pdf [accessed 1st April 2010]

de Leeuw, E.D. 1992. *Data quality in mail, telephone and face-to-face surveys*. Amsterdam: T. T. Publikaties.

de Roo, G. 2004. Coping with Growing Complexity of our Physical Environment: The Search for New Planning Tools in the Netherlands. In: Sorensen, A. Marcotullio, P.J. & Grant, J. eds. Towards Sustainable Cities -East Asian, North American and European Perspectives on Managing Urban Regions. England: ASHGATE.

Devuyst, D., Hens, L. & De Lannoy, W. eds. 2001. *How Green is the City?* New York: Columbia University Press.

Dill, J. & Carr, T. 2003. *Bicycle commuting and facilities in major U.S. cities: If you build them, commuters will use them -Another Look*. Washington DC: Transportation Research Board.

Dill, J. & Carr, T. n.d. Bicycle Commuting in Major U.S. Cities. *Transportation Reserach Record 1828*:116-123.

Dill, J. & Voros, K. 2006. Factors affecting bicycling demand: Initial survey findings from the Portland region. Submitted for presentation and publication 86th Annual Meeting of the Transportation Research Board.

Docherty, I. & Shaw, J. 2008. eds. *Traffic Jam -Ten years of ´sustainable´ transport in the UK*. University of Bristol: The Policy Press.

Downs, A. 2004. *Still stuck in traffic -coping with peak-hour traffic congestion*. Washington DC : The Brookings Institution.

Flyvbjerg, B. 2006. Five misunderstandings About Case Study Research. *Qualitative Inquiry 12*: 219-245.

Forester, J. 1994. *Bicycle Transportation -A handbook for Cycling Transportation Engineers*. USA: The MIT Press.

Forward, S. 2003. Attitudes to walking and cycling. In: Tolley R. ed. *Planning for walking and cycling in urban environments*. Cambridge: Woodhead Publishing Limited.

Gaffron, F. 2005. The Implementation of Walking and Cycling Policies. In: Donaghy, K., Poppelreuter, S. & Rudinger, G. *Social Dimensions of Sustainable Transport -Transatlantic Perspectives*. England/USA: Ashgate.

Gardner, G. 1998. When cities take bicycles seriously. *World Watch 11*:16-22.

Gehl, J. 1987. Life Between Buildings Using Public *Space.* Denmark: Bianco Lunos Bogtrykkeri.

Godefrooij, T. 1993. Criteria for segregation and integration of bicycles and motor traffic. In: Michels, T. ed. *Cycling in the city, pedalling in the polder: Recent developments in policy and research for bicycle facilities in the Netherlands*. The Netherlands: CROW.

Godefrooij, T. & Pettinga, A.D. 1993. Design and maintenanc of bicycle facilities. In: Michels, T. ed. *Cycling in the city, pedalling in the polder: Recent developments in policy and research for bicycle facilities in the Netherlands*. the Netherlands: CROW.

Handy, S. 2005. Smarth Growth and The Transportation-Land Use Connection: What Does the Research Tell Us? *International Regional Science Review, Vol 28 (2):*146-167.

Hülsmann, W. 1990. The 'Bicycle-Friendly Towns' project in the Federal Republic of Germany. In: Tolley, R. ed. The greening of urban transport: planning for walking and cycling in Western cities. London: Belhaven Press.

Hülsmann, W. 1997. Towards the bicycle-friendly town in Germany. In: Tolley, R. ed. *The greening of urban transport: Planning for walking and cycling in western cities.* Chichester: John Wiley and Sons.

International Energy Agency. 2009. *Transport, Energy and CO_2: Moving towards Sustainability*.

Johnson, M. 2001. Environmental impacts of urban sprawl: a survey of the literature and proposed research agenda. In: *Environment and Planning A 33:* 717-735.

Kallioinen, J. 2002. *Pyöräilyn institutionaalinen asema liikennesuunnittelussa. VATT-keskustelualoitteita*. Government institute for Economic Research, Helsinki: Oy Nord Print Ab. [in english: The institutional position of bicycling in transportation planning. VATT-Discussion Papers]

Kenworthy, J.R. & Laube, F. 1999. Patterns of Automobile dependence in cities: an international overview of key physical and economic dimensions with some implications for urban policy. *Transportation Research Part A,* Vol. 33 p. 691-723.

Keen, A. 2007. *The Cult of the Amateur -How Today's Internet is Killing Our Culture and Assaulting Our Economy*. London and Boston: Nicholas Brealey Publishing.

Kilpi, K. Social Media Analyst, Attentio SA/NV. Personal Communication 15th January 2010.

Kurt, V.H. 2008. *Literature Search -bicycle use and influencing factors in Europe*. EIE Programme 05/016. Intelligent Energy Europe.

Leedy, P. D and Ormrod, J.E. 2005. *Practical Research -Planning and Design.* 8th edition. New Jersey: Pearson Education Inc.

Lietsala, K. and Sirkkunen, E. 2008. *Social Media -Introduction to the tools and processes of participatory economy*. Tampere: Tampere University Press.

Litman, T. 2004. *Whose Roads? Defining Bicyclists´and Pedestrians´ Right to Use Public Roadways*. Victoria BC: Victoria Transport Policy Institute.

McClintock, H. 1990. Planning for the bicycle in urban Britain: an assessment of experience and issues. In Tolley, R. ed. *The greening of urban transport*. Great Britain: Belhaven Press.

Mihyeon, J., Amekudzi, A. 2005. Addressing Sustainability in Transportation Systems: Definitions, Indicators, and Metrics. In: Journal of Infrastucture Systems *11* (1): 31-50.

Mikkelsen, B. 1995. *Methods for Development Work and Research. A guide for practitioners*. New Delhi: Saga Publications Ltd.

Miller, D. 2004. Developing and Employing Sustainability Indicators as a Principle Strategy in Planning: Experiences in the Puget Sound Urban Region of Washington State. In: Sorensen, A. Marcotullio, P.J. & Grant, J. eds. Towards Sustainable Cities -East Asian, North American and European Perspectives on Managing Urban Regions. England: ASHGATE.

Moudon, A., Lee, C. Allen, D., Collier, C.W., Johnson, D., Schmid, T.L & Weathe, R.D. 2005. Cycling and the built environment, a US perspective. *Transportation Research Part D 10:*245-261.

Myllärniemi, K. 2010. *Tarvitaanko Suomessa pyöräilyn ja kävelyn poliittisia linjauksia? Poljin* 2010 (1): 8-11. [in english: Do we have a need for policy responses regarding bicycling and walking in Finland?]

Myers, G. 2010. *The discourse of blogs and wikis*. London & New York: Continuum International Publishing Group.

Nelson, A. & Allen, D., 1997. If you build them, commuters will use them. *Transportation Research Record: Journal of the Transportation Research Board, 1578:* 79-83.

Neuvonen, S. 2002. *Kevyen liikenteen käyttöön vaikuttavat tekijät*. Ympäristönsuojelutieteen pro gradu -tutkielma. Helsinki: Limnologian ja ympäristönsuojelun laitos. [in english: factors affecting light mode travel].

Newman, P. & Kenworthy, J. 2000. Sustainable Urban Form: The Big Picture. In: Williams, K., Burton. E. & Jenks, M. eds. *Achieving Sustainable Urban Form*. London & New York: Taylor & Francis Group.

Newman, P. & Kenworthy, J. 1999. *Sustainability and Cities: Overcoming Automobile Dependence*. Washington DC: Island Press.

Nijkamp, P. 1993. *Roads Towards Environmentally Sustainable Transport.* Amsterdam: Vrije Universiteit.

Nordic Council of Ministers, 2005. *CBA of Cycling*. Copenhagen: Nordic Council of Ministers.

Næss, P. 2006. *Urban Structure Matters -Residential Location, Car Dependence and Travel Behaviour*. London & New York: Routledge.

Pacione, M. 2005. *Urban Geography – A Global Perspective*. USA and Canada: Routledge.

Pickup, L. & Giuliano, G. 2005. Transport and Social Exclusion in Europe and the USA. In: Donaghy, K.P; Poppelreuter, S. & Rudinger, S. Eds. Social Dimensions of Sustainable Transport -Transatlantic perspectives. England & USA: Ashgate Publishing Limited.

Pucher, J. & Buehler, R. 2006. Why Canadians cycle more than Americans: A comparative analysis of bicycling trends and policies. *Transport Policy*, 13: 265-279.

Pucher, J. & Buehler, R. 2008. Making Cycling Irresistible: Lessons from the Netherlands, Denmark and Germany. *Transport Reviews 28* (4).

Pucher, J. & Dijkstra, L. 2003. Promoting Safe Walking and Cycling to Improve Public Health: Lessons from The Netherlands and Germany. *American Journal of Public Health, Vol. 93*: 1509-1516.

Rietveld, P. & Daniel, V. 2004. Determinants of bicycle use: Do municipal policies matter? *Transportation Research Part A 38:* 531-550.

Robson, C. 2002. *Real World Research: a resource for social scientists and practitioner*. 2nd edition. USA: Blackwell Publishers Inc.

Sallis, J.F., Lawrence, D.F., Saelens, B.E. & Kraft, M.K. 2004. Active transportation and physical activity: opportunities for collaboration on transportation and public health research. *Transportation Research Part A 38*:249-268.

Schutt, R.K. 2006. *Investigating the Social World -The Process and Practise of Research*. London: Sage Publications.

Seimelä, T. 2010. Interview with Timo Seimelä. Appendix E.

Short, J.R. 1984. *An Introduction to Urban Geography.* London: Routledge.

Steg, L. & Gifford, R. 2005. Sustainable transportation and quality of life. *Journal of Transport Geography 13:*59-69.

Stinson, M.A. & Bhat, C.R. 2004. Frequency of Bicycle Commuting: Internet-Based Survey Analysis. *Transportation Research Part D 10:*245-261.

Sælensminde, K. 2004. Cost–benefit analyses of walking and cycling track networks taking into account insecurity, health effects and external costs of motorized traffic. *Transportation Research Part A 38*: 593–606.

The World Bank. 1996. *Sustainable Transport: Priorities for Policy Reform*. Washington D.C.: The International Bank for Reconstruction and Development / The World Bank.

Tolley, R. 1990. A hard road: the problems of walking and cycling in British cities. In: Tolley, R. ed. *The greening of urban transport.* Great Britain: Belhaven Press.

Tolley, R. ed. 2003. *Sustainable Transport -planning for walking and cycling in urban environments*. USA: Woodhead Publishing.

Vaismaa, K. 2010. PYKÄLÄ tuottaa tuoreen tiedon ja menestystarinat Euroopasta Suomeen. *Poljin 2010 (2)*. [PYKÄLÄ brings the newest information and success stories from Europe to Finland].

Van, U. & Senior, M. 2000. The Contribution of Mixed Land Uses to Sustainable Travel in Cities. In: Williams, K., Burton, E. & Jenks, M. (eds.) *Achieving Sustainable Urban Form*. London and New York : E & FN SPON.

Wheaton, W. 2004. *Who Left the Blogs Out -A Hyperconnected Peek at the World of Weblogs*. New York: Biz Stone.

Whitelegg, J., 1993. *Transport for a sustainable future -the case of Europe*. United Kingdom: Belhaven Press.

Wilkinson, R. and Marmot, M. 2003. *Social Determinants of Health: The Solid Facts*. World Health Organisation: Regional Office for Europe.

Williams, M. & May, T. 1996. *Introduction to the philosophy of Social Research.* London: UCL Press Limited.

World Commission on Environment and Development, 1987. *Our Common Future*. Oxford: Oxford University Press.

World Health Organization, 2002. P*hysical activity through transport as part of daily activities*. Copenhagen: World Health Organisation.

World Health Organization, 2006. *Collaboration between the health and transport sectors in promoting physical activity: examples from European countries.* Copenhagen: World Health Organisation.

Väliharju, R. 2010. Interview with Reijo Väliharju. Appendix D.

Yin, R.K. 2002. *Case Study Research -Design and Methods*. 3rd edition. USA: Sage Publications.

APPENDIX A: Online Blogs

Google blogs, with keywords ”pyöräily tampere” ”pyöräkaista tampere” etc. (bicycle tampere)	What kind of blog	Blogtext created	When looked into	Main arguments
http://ajankulu.blogspot.com/2007/05/tamperelaisen-pyrilyn-puolesta.html	private	04/05/07	05/03/10	attitudes towards bicycling negative, cars parked on bicycle lanes, decision makers seem to keep bicycling only a way of sport or kid´s activity; not a way of commuting
http://countcthulhu.blogs.fi/2007/06/20/pyorailijan_puolustuspuheenvuoro~2488949/	private	20/06/07	05/03/10	pedestrians not following the rules, pedestrians in bicycle lanes, negative attitudes towards bicyclists
http://tampereenvihreat.fi/wp/?p=31	political	24/10/07	05/03/10	bicycling made difficult and Tampere is planned pretty much private car in mind; bad facilities; bicyclists do not respect or know the rules
http://donjaffa.blogspot.com/2007/11/kun-asiat-ovat-liian-hyvin.html	private	02/11/07	05/03/10	conflicts between pedestrians and bicyclists, too narrow lanes for both pedestrians and bicyclists
http://dartteri.idler.fi/blog/?p=7	private	17/04/08	05/03/10	narrow bicycle lanes, high kerbs, chips that brake the tires, hard to bike the main street Hämeenkatu → pedestrians constantly on the way, not safe to bike in the road cause of cars
http://blog.qkaasu.com/2008/07/01/tampereella-on-mahdotonta/	private	01/06/08	28/02/10	Attitudes towards bicyclist negative
http://bicilog.blogspot.com/2008/06/rotvalli.html	private	08/06/08	05/03/10	High kerbs that brake the tires and make bicycling uncomfortable
http://hpguru.net/tampere-hameenkadun-pyorailyratkaisu/	private	16/07/08	28/02/10	bicyclists not following the rules i.e. Biking in wrong direction, cars parked on bicycle lanes, pedestrians walking on bicycle lanes, in combined pedestrian/bicycling lanes bikes sometimes going too fast (main street of Hämeenkatu), terraces and advertisement billboards make the combined pedestrian/bicycle lanes narrow
http://tutkimukset.blogspot.com/2008/07/pyrin-sittenkin.html	private	29/07/08	28/02/10	Conflicts and negative attitudes between pedestrians and bicyclists; pedestrians walking in bicycle lanes, at least in the main street of Hämeenkatu

http://aamulehdenblogit.ning.com/profiles/blogs/2119722:BlogPost:3667	private	11/08/08	09/03/10	Conflicts and negative attitudes between pedestrians and bicyclists
http://tulikaupunkiin.blogspot.com/2009/08/long-kiss-goodnight-helsinki.html	private	11/08/08	28/02/10	impossible to bike in the centre
http://vesikeksi2.blogspot.com/2008/08/lk-tulko-mun-tielle.html	private	20/08/08	05/03/10	Conflicts and negative attitudes between pedestrians and bicyclists; pedestrians walking in bicycle lanes
http://yhteiskuntaoppi.blogspot.com/2008/09/pyrily-tampereella.html	private	01/09/08	28/02/10	City planned cars in mind, attitudes towards bicyclists negative
http://kylanmies.blogspot.com/2008/09/pyrtiekokeilusta.html	political	21/09/08	05/03/10	juxtapositioning of the viewpoints of the users of the main street of Hämeenkatu and some committee for transportation. The people who are in charge of the transportation committee favour the motorists (and only one of them bikes himself)
http://www.vihreatehdokkaat.fi/sami.kallio/?p=21	political	21/09/08	05/03/10	high kerbs, no proper bicycle parking places in the centre, not enough bicycle lanes/paths
http://www.vihreatehdokkaat.fi/elina.harju/?p=5	political	06/09/08	05/03/10	cycle path network is fragmented and ragged; attitudes of people → in general people not respecting another people in traffic, bicyclists´rules are unclear in the centre
http://www.vihreatehdokkaat.fi/iida.kalmanlehto/?p=38	political	05/10/08	05/03/10	its very hard to know what are the rules when you are biking, the system is not easy to understand. It seems that to motorised traffic there is money for huge projects, but none for bicyclist and better facilities for them → very short-sighted politics
http://joogihirmu.spaces.live.com/blog/cns!814D8C26E950A061!1691.entry?wa=wsignin1.0&sa=91794831	private	11/10/08	05/03/10	Negative attitude towards bicyclists; combined pedestrian/bicycle lane bad solution; bad parking possibilities by the rail way station; pedestrians walking in bicycle lanes, dangerous to bike with the motorised traffic
http://www.anttikaakinen.fi/?p=50	private	12/10/08	05/03/10	Bicycling not allowed on pavements during the winter time → bikes forced to use the same space with motorist. The argument for that is that if that could be allowed the city should pay for the maintenance.

http://zachris-vokolov.livejournal.com/5083.html	private	11/11/08	28/02/10	People walking on bicycle lane; About main street of Hämeenkatu: not enough space for bicycle lanes, terraces and parked cars take too much space
http://aamulehdenblogit.ning.com/profiles/blogs/karseeta-touhua-kaupungin	private	26/11/08	09/03/10	cycle path network is fragmented and ragged; rules unclear
http://aamulehdenblogit.ning.com/profiles/blogs/kolumni-kiroilevista	private	11/03/09	09/03/10	bad parking possibilities for bikes, attitudes towards bicyclists negative
http://huminaa.blogspot.com/2009/03/en-edes-keksi-talle-mitaan-mojovaa.html	private	27/03/09	05/03/10	the common attitude against bicyclist is negative, pedestrians aggressive to bicyclists
http://nelliina.indiedays.com/2009/04/29/itku-potku-raivari/	private	29/04/09	28/02/10	pedestrians in bicycle lanes, in the centre hard to bicycle, motorists driving fast from gateways straight to bicycle/pedestrian lanes, cars not respecting bicyclists enough
http://aamulehdenblogit.ning.com/profiles/blogs/pyoeraeilykielto-haemeenkadun	private	20/03/09	09/03/10	The conflicts between pedestrians and bicyclists
http://aamulehdenblogit.ning.com/profiles/blogs/moukkaasteella-1	private	21/05/09	09/03/10	people biking on pavements, pedestrians walking on bicycle lanes
http://justlikeheaven.pointblog.fi/Tamperelaiset-ja-pyoraily.html	private	29/05/09	28/02/10	Attitudes towards bicyclist negative, pedestrians in bicycle lanes
http://www.tarjajokinen.net/blogi/tarja_1241591475_2009-05-06_09-31/lapiajo.sallittu	political	31/05/09	09/03/10	speed limit for cars too high in the main street of Hämeenkatu, safety problem for bicyclists (and pedestrians)
http://aamulehdenblogit.ning.com/profiles/blogs/ensihavaintoja-tampereelta	private	11/06/09	09/03/10	The conflicts between pedestrians and bicyclists
http://jagfickfeeling.blogspot.com/2009/06/pyorailykaupunki-tampere.html	private	18/06/09	05/03/10	Parked cars in bicycle lanes
http://aamulehdenblogit.ning.com/profiles/blogs/pyoeraeilijoeille-1	private	26/06/09	08/03/10	bicyclists not following the rules, some dont know them, bicyclists bike too fast in combined pedestrian/bicycle routes

http://aamulehdenblogit.ning.com/profiles/blogs/kaupunkikeskusta-meillae-ja	private	27/06/09	09/03/10	city centre build primarily cars in mind,Impossible to bike to some shopping centres outside city centre
http://www.tarjajokinen.net/blogi/tarja_1246263069_2009-06-29_11-11/kaupunkikeskustasta	political	07/07/09	09/03/10	Car has too much weight in decision making; Attitudes towards bicyclists negative
http://aamulehdenblogit.ning.com/profiles/blogs/polkupyoeraen-ajokortti	private	27/07/09	09/03/10	the rules are unclear to bicyclists and pedestrians
http://aamulehdenblogit.ning.com/profiles/blogs/virallista-pyoeraeilijaet	private	29/07/09	09/03/10	city has unclear rules for bicyclists/bicycles, Rules are hard to know in tampere, bad marking and sometimes no signs;cycle path network is fragmented and ragged;
http://www.tarjajokinen.net/blogi/tarja_1217758515_2008-08-03_13-15/vastine.erkki.axenin.mielipidekirjoitukseen.tamperelaisessa.2.8.	political	02/08/09	09/03/10	at least in main street, not enough space to bike
http://www.tarjajokinen.net/blogi/tarja_1216625328_2008-07-21_10-28/liikenteesta.yleensa	political	02/08/09	09/03/10	people including pedestrians, bicyclists and cars not following the rules and not respecting one another
http://aamulehdenblogit.ning.com/profiles/blogs/anomus-poliisipaeaellikoelle	private	12/08/09	09/03/10	the rules are unclear to bicyclists and pedestrians; cycle path network is fragmented and ragged;
http://aamulehdenblogit.ning.com/profiles/blogs/kahtiajaon-aika-on-nyt	private	12/08/09	08/03/10	In Finland bicyclists and pedestrians are seen as a ”One mass”; car has too much weight in decision making
http://aamulehdenblogit.ning.com/profiles/blogs/pyoeraeily-ei-rauhoita	private	13/08/09	08/03/10	Bicycling rules are hard to know in tampere, bad marking and sometimes no signs
http://aamulehdenblogit.ning.com/profiles/blogs/20kg-ostoksia-repussa-ja	private	17/08/09	09/03/10	Impossible to bike to some shopping centres outside city centre
http://solidaarisuus.blogspot.com/2009/09/pyorailija-ei-ole-rikollinen-muista.html	political	18/09/09	05/03/10	impossible to bike in the city centre during the winter time because then bicyclists have to share the same space with motorists, they are not allowed to bike with pedestrians anymore

http://aamulehdenblogit.ning.com/profiles/blogs/lielahden-kodin-ykkoenen-ei	private	28/10/09	08/03/10	Impossible to bike to some shopping centres outside city centre
http://emminuorgam.wordpress.com/2009/11/03/pyorailijat-painukoon-kotiinsa/	private	03/11/09	05/03/10	no proper parking places for bicycles at the rail way station; attitudes against bicyclist negative; badly planned bicycle network in the centre
http://aamulehdenblogit.ning.com/profiles/blogs/paeaekirjoitus-pitaekaeae	private	04/02/10	08/03/10	city has unclear rules for bicyclists/bicycles; in general different road users (bicyclists, motorists, pedestrians) not respecting one another
http://aamulehdenblogit.ning.com/profiles/blogs/pyoeraeilijaenae-minua	private	26/08/10	09/03/10	the rules are unclear to bicyclists and pedestrians, people not respecting one another

Private blogs: 36
Political blogs: 10

APPENDIX B: Discussion Forums

Google forums, with keywords i.e. "pyörä tampere" (bicycle tampere)	what kind of forum/few words about the topic of the discussion	amount of messages (how active forum)	Forum created (the first post)	When looked into	Main arguments
http://www.fillarifoorumi.fi/forum/showthread.php?p=1035245	Bicycling magazine´s *Fillari* discussion forum	Year 2007: 61 Year 2008: 10 Year 2009: 7 Total: 78	First post: 05/04/2007 Last post: 22/04/2009 Duration: 24 months	19/03/10	Year 2007: High kerbs, bicycle lanes in places where people do not naturally move, cars park in bicycle lanes (Puutarhakatu), signs for bicyclists are bad and chanking all the time in the centre so its impossible to follow the rules; bicycle network fragmented and ragged, attitudes of motorists arrogant towards bicyclists and pedestrians, main street Hämeenkatu has cobblestones and bicyclists should bike there during winter times (not in pavements) cobblestones are very incomfortable; Year 2008: bicycle network fragmented and ragged; bicycle lanes in bad condition; Year 2009: Bicyclists and pedestrians not following the rules
http://www.fillarifoorumi.fi/forum/archive/index.php?t-26979.html	Bicycling magazine´s *Fillari* discussion forum	36	First post: 27/04/2007 Last post: 10/08/2007 Duration: 4 months	19/03/10	high kerbs; motorists are not used to bicyclists; in the centre and during the winter time bicyclists are forced to use roadway instead of combined pedestrian/bicyclist way.
http://www.aamulehti.fi/keskustelu/thread.jspa?threadID=10812	local (tampere) newspaper Aamulehti´s discussion forum	Year 2007: 4 Year 2008: 10 Year 2009:1 Total: 15	First post: 12/09/2007 Last post: 12/01/2009 Duration: 16 months	19/03/10	Bicyclists not following/knowing the rules
http://www.aamulehti.fi/keskustelu/thread.jspa?threadID=15507	local (tampere) newspaper Aamulehti´s discussion forum	Year 2007: 2 Year 2008: 54 Total: 56	First post: 21/11/2007 Last post: 04/11/2008 Duration: 12 months	19/03/10	Year 2007: Bicycling in the centre, especially in the main street of Hämeenkatu not safe; Year 2008: some bicyclists do not have proper lights in the bikes, general confrontation between motorists, bicyclists and pedestrians

http://www.aamulehti.fi/keskustelu/thread.jspa?forumID=222&threadID=39647&messageID=483146	Aamulehti Newspaper discussion forum	Year 2008: 29 Year 2009: 23 Total: 52	First post: 14/05/2008 Last post: 11/01/2009 Duration: 8 months	18/03/10	Year 2008: bicycling network fragmented and ragged, during the winter time bicyclists have to share the same space with the motorists, negative attitudes towards bicyclists, city centre planned for motorised traffic -> loads of proper parking places for cars in the centre; high kerbs; Year 2009: attitudes towards bicyclist negative; motorised traffic is necessary in the centre; some entrepreneurs against bicyclists in the centre -> claim: motorists bring most of the money to the shops downtown
http://www.pakkotoisto.com/vbulletin/showthread.php?73864-Ruusuja-risuja-Tampereesta/page9	discusses about positive and negative sides of tampere in general	109	First post: 27/06/2008 Last post: 15/07/2008 Duration: 2 weeks	18/03/10	negative attitude towards bicyclists; no proper separate bicycle lanes ; bicyclists not respecting other people; there is hardly any separate bicycle lanes in Tampere, most are combined with pedestrians
http://www.aamulehti.fi/keskustelu/thread.jspa?threadID=41816	local (tampere) newspaper Aamulehti´s discussion forum topic: parking facilities	Year 2008: 11 Year 2009: 3 Total 14	First post: 09/07/2008 Last post: 06/01/2009 Duration: 6 months	18/03/10	Year 2008: Lack of proper (also safe) parking facilities for bikes in the centre → now people park their bikes whereever, some entrepreneurs against building more parking places for bicycles in the centre -> claim: motorists bring most of the money to the shops downtown and they need the parking places more; Year 2009: Bicyclists not respecting pedestrians in the centre, not following the rules.
http://portti.iltalehti.fi/keskustelu/showthread.php?t=159832&page=9	iltalehti newspaper discussion forum	109	First post: 23/05/2009 Last post: 21/11/2009 Duration: 6 months	18/03/10	Bicyclists not using the existing bicycle lanes in the centre (Puutarhakatu), both bicyclists and pedestrians not respecting each others in combined lanes; pedestrians in bicycle lanes

http://www.aamulehti.fi/keskustelu/thread.jspa?messageID=1212639	Aamulehti Newspaper discussion forum	77	First post: 22/01/2010 Last post: 23/01/2010 Duration: 1 day	16/03/10	bicyclists do not know/respect the rules, the signs and marking for bicyclists are unclear; lack of proper bicycle lanes; motorists park their car in bicycle lanes, the planning favours too much motorists in the centre
http://www.aamulehti.fi/keskustelu/thread.jspa?messageID=1289545	Aamulehti Newspaper discussion forum	142	First post: 05/03/2010 Last post: 10/03/2010 Duration: 5 days	19/03/10	Attitudes towards bicyclists negative; bicyclists not knowing/respecting the rules i.e. They dont always know that during the winter it is illegal to bike in pavements; biking during the winter times is made too hard (→ by closing the pavements from bikes); authorities close their eyes from the problem; bad markings/signs for bicyclists; topography and two lakes pose some problems to planning; The planning in Tampere favours motorists; motorits and pedestrians not respecting the bicyclists i.e. pedestrians in bicycle lanes;
http://portti.iltalehti.fi/keskustelu//showthread.php?p=3098814	Newspaper	47	First post: 22/01/2010 Last post: 21/03/2010 Duration: 2 months	22/03/10	attitudes against bicyclists negative; bicyclists braking/not knowing the rules; bicyclists not using the existing separate bicycle lanes in the centre; city planned primarily cars in mind
http://www.digitoday.fi/keskustelut/?threadID=78576&offset=20	Newspaper	87	First post: 10/10/2007 Last post:24/10/2007 Duration: 2 weeks	19/03/10	traffic culture in Tampere is bad in general: Motorists having negative attitude towards bicyclists and pedestrians are disrespectful; because of bad planning bikes are forced to use the same space with pedestrians → causing negative attitudes towards bicyclist; entrepreneurs are in favour of private cars parking in the core of the city; the bicycle routes are fragmented and ragged; cars parked in existing bicycle lanes

http://www.aamulehti.fi/keskustelu/thread.jspa?forumID=222&threadID=42268&messageID=596699#596699	Aamulehti Newspaper discussion forum	Year 2008: 69 Year 2009: 6 Total: 75	First post: 23/07/2008 Last post: 06/01/2009 Duration: 5 months	19/03/10	Year 2008: general attitutes of people: bicyclists are complaining about pedestrians and motorists, pedestrians and motorists about bicyclists. Motorists parking in existing bicycle lanes; Year 2009: Bicyclists not knowing/respecting the rules
http://www.aamulehti.fi/keskustelu/thread.jspa?forumID=222&threadID=45564&messageID=633994#633994	Aamulehti Newspaper discussion forum	Year 2008: 56 Year 2009: 8 Total: 63	First post: 11/10/2008 Last post: 06/01/2009 Duration: 2 months	19/03/10	Year 2008: City planned primarily for cars in mind; Attitudes of people basically negative, not respecting other road users.the rules are unclear to bicyclists ; Year 2009: Negative attitude towards bicycling
http://www.aamulehti.fi/keskustelu/thread.jspa?forumID=222&threadID=47547&messageID=693090#693090	Aamulehti Newspaper discussion forum	Year 2008: 78 Year 2009: 5 Total: 83	First post:08/11/2008 Last post: 10/01/2009 Duration: 2 months	19/03/10	Year 2008: City build primarily private cars in mind; claim: bicyclists not brinking money to the centre, like motorists are, some disagree a lot, some people think that motorists are the ones brinking money to the centre and centre dies if there will be limitations of cars; low density → cars needed; Year 2009: negative attitude towards bicyclists; cars needed

APPENDIX D: Interview with Timo Seimelä 9.4.2010

Q: Could you explain a little about yourself and your work in Tampere?
A: I am a traffic engineer and working in the city of Tampere as a project manager for the development of city environment. My responsibilities include, among others, the management of plans for pedestrians and bicyclists. This is just one of my responsibilities though although I could say that I am the one who has the main response of the plans regarding the urban bicycling facilities in Tampere. I have been in this job for only 4 months and kind of taking over the work of Jukka Kyrölä, who had the main responsibilities before me. I am taking over this ´bicycling issue´ because he did not really have resources (time) for focusing on light travel modes (bicycling and walking). Although I have not been working with these issues for long, my aim is to systematically develop the planning for light travel modes.

Q: I have been reading many official documents about Tampere and as it seems to me, although the problems related to urban bicycling and bicycle facilities are being acknowledged in Tampere, the actual solutions are either only just presented in the formal documents but no real actions are taken; or; in a worse case the solutions are not even presented. What is your point of view on this?
A: For instance the city strategy called *Tampere Flows* has clear goals for increasing the amount of bicycling as a mode of transport. And of course, in the same strategy there is some environmental goals...so for sure there is a pressure in that direction. This basically means that there should be more resources directed to light modes like bicycling. But to your question: as I told you in the beginning, I am aiming to get this whole planning to work systematically and in a holistic manner. So meaning that if and when we do something, it always supports the city strategy: to increase the amount of bicycling. As a good and practical example I could say the lowering of kerbs. Even today in Tampere, the new kerbs are too high and this needs to be changed really in the beginning. So as it is now, no one has the holistic view about this... there is some individual plans but the holistic view is missing and no one has the strings in his hands, no one has the response. Now I try to get some sort of holistic view to this so that things could work.

Q: About the bicycling during the winter time. Why some of the combined pedestrian-bicycle lanes are changing during the winter time so that only pedestrians are allowed to use them and bicyclists are forced to use the roadway? And why the winter season starts already beginning of October although it usually starts snowing earliest in December.
A: At least in the main street of Hämeenkatu, this is very much a political decision. We planners can only present solutions and plans but politicians make the decisions. Of course, one of the reasons of not allowing bicycling in the pavements of Hämeenkatu and Itsenäisyydenkatu streets in the winter time is that winter maintenance in bicycle ways belongs to the city but on sidewalks where bicycling is not allowed, it belongs to the property owners in that street. So city can save some resources in that sense. But mostly this is a political decision.
What comes to the ”official winter season”, this decision was taken in early 2000 and this decision we have just followed for years. Every spring and autumn there is some discussion in local newspapers that why not to change the season because the winters are usually not so hard. Nevertheless, every year we make a new proposal that anyhow is not accepted in the city council level. In my opinion, if we want to increase the share of bicycling as a mode, the bicycling network should be made better and also working well all-year-round. When thinking of the center, partly because of Hämeenkatu street that is so problematic; the main route through the city center in East-West -axis goes through Puutarhakatu Street to Patosilta bridge and again to Rongankatu street etc. Although this network is good, that does not change the fact that Hämeenkatu street is problematic for bicyclists.

Q: How about this network through Puutarhakatu street...is there any reason people would go there ´naturally´...
A: Is it then necessary to bike in Hämeenkatu street? People could bike somewhere else and then Hämeenkatu street could be only for pedestrians...the process for making a development plan for the city center is being started this year. What come to Hämeenkatu street, no individual solutions are being made, everything is made at the light of the development plan so we can get a holistic plan in Tampere.

….
Also Parked cars in bicycle lanes is a problem in the center For instance at Puutarhakatu street the bicycle lane is used by service traffic. In general parked cars in bicycle lanes are a problem in Tampere.

Q: How about the businesses in the center, and now I am not just talking about Hämeenkatu street. What is your impression, what is their (businesses/shopkeepers) view of bicyclists?
A: For instance now, there is a discussion about A-stands (adverts) at the Hämeenkatu street. City does not want the adverts to be there because that is making the sidewalks even narrower and they disturb both pedestrians and bicyclists. Then again, many shopkeepers claim that it is the bicyclists that is the bigger problem in the main street [than the advertisements]. This most probably describes the attitude shopkeepers have towards bicyclists. Of course, when looking at the media, the biggest problem for shopkeepers is that they are very concerned about the on-street parking and whether it is disappearing if the bicycle lane is decided to build there. So there is a clear juxtaposition. This *Hämpin Parkki* is partly made because then the center can be developed more and the center would better serve all traffic modes, including bicycling. It will be interesting to see whether this huge underground-car park will actually remove any of the on-street parking rows. Furthermore this Hämpin Parkki should work as a parking place, not just for customers of the center´s shops but also residents.

Q: About the parking possibilities for bicycles in the center What do you mean about the bad location of the bicycle parking? Is there some bicycle tracks in the city center that people do not really use?
A: In one of the main squares, there is 34 places for bikes. When thinking of the existing bicycling network, the location is good but no one seems to use these. We try to make them more visible so people could actually see them and use them. I still think the location is good. At the railway station there is no good places to park your bike because the state railways, who owns the real estate and its surroundings have the power to decide on this. There is a small area where people can park the bicycles but that is very small and always full, thus does not attract bicyclists. There has been a better place to park your bikes just in front of the station. The state railways anyhow removed that place few years ago. I think the main reasons for that was that the parked bikes acted as barriers thus making the perpetrating difficult and most probably were not so pleasant for the eye. That parking was not so well planned and thus bikes were not organized nicely.

State railways will anyhow hold a meeting soon where the ways of making the railway square more attractive will be discussed and we will be part of that meeting. In the meeting we will also make suggestions concerning bicycle facilities i.e. Parking possibilities and bicycle lanes leading to/from the station. I hope we can come to some sort of a solution in the meeting.

In the development plan for light travel modes there is some suggestions for increasing the amount of bicycle parking. I think there is some good thoughts there that we can use so we can build good bicycle parking possibilities in good places.

Q: About the traffic safety. What kind of conflicts there is between bicyclists and pedestrians? How about bicyclists and motorists?
A: In combined pedestrian-bicycle routes in the city center there is always some minor conflicts but I think the most conflicts are between motorists and bicyclists: when motorists are turning right they do not always see that there is a bike coming although bikes have a right to go. Nevertheless, compared to other cities in Finland this is not a huge problem in Tampere.

Q: In questionnaire I send you, you marked the car-dependency as one of the reasons that affects bicycling in Tampere. How do you experience this, what are the roots of car-dependency in Tampere and in general how could the society shift from car-dependent society to society that favors more urban bicycling?
A: The integration of urban structure is one think we can do. So the urban structure we have now is a barrier for increasing the amount of urban bicycling → distances are long. For instance families often move to surrounding municipalities and then the distance easily increases up to 20 km, even more. Long distances do not attract people to bike more. We do have a good network from the city center to surrounding municipalities but the network in the city center is not as a good. So all in all, the total amount of network in kilometers is long. The culture affects as well: in Finland bicycling in not seen as a separate mode, its more seen together with walking (light travel mode). For instance in Denmark and in Holland bicycling is seen as a mode of transport. Of course the winter conditions are different here than compared for instance in Denmark. But with winter maintenance a lot can be done...We have kind of lost few generations what comes to planning... In 1950´s everyone biked, after which the motorization started...the topography restricts as well, Tampere is much hillier than cities in Denmark.

APPENDIX E: Interview with Reijo Väliharju 24.3.2010

Q: Could you explain a little about yourself and your work in Tampere?
A: I have been working as a project manager for the development of city environment (i.e. traffic, streets and parks)

Q: Could you explain your views about the possible conflicts between bicyclists and motorists?
A: Bicycle is a vehicle and its place is on the roadway. Still, bicyclists seem to experience that bicycling in a roadway is somehow dangerous. This is the reason why bicyclists time to times use sidewalks althought according to the law they should bike on a roadway. I do not have any ”raw data” on this but my feeling is that the reasons people are scared of biking on roadway is more on ´emotional´ side, not that its actually dangerous. People experience cars to be dangerous and they think that motorists drive over them...this is anyhow my own analysis from the discussions I have had with people and the city council members.

At Puutarhakatu street there is a good example of well-done bicycle lane in Tampere. There has been discussion going on that bicyclists and pedestrians should somehow be separeted from one another. Outside the city centre this is working well, but not at the city centre. You know, in Finland we have this word ”light mode” that basically means combined pedestrian-bicycle lanes. Still, there is a clear difference between bicyclists and pedestrians and I also think that the problem should be solved in the city centre. As it is now, the bicyclists´ place is on roadway and if the space for own lane should be taken from somewhere it should be taken from sidewalks. The solutions we have at the moment in Tampere are not very clear and they are low-quality solutions. The segregation of bicyclists and pedestrians is not very clear; there is a minimal space for bicyclists. And as you might already know, hardly in any plans have we dared to remove even one of the parking rows (that are in both sides of the road in most of the places in the city centre). We have just tried to fit the bikes somewhere, but not in an expense of the motorists. Now, when looking at these solutions I can really say that some of these solutions are very weak... and then the bicycle network that is fragmented and ragged. Although I am proffessional myself, I have to admid that now when not working for the city anymore, even I am braking the law sometimes and biking against the rules This is simply because the rules and bicycle network is so unclear in the city centre. For me it makes more sense to ´not follow the rules´ precisely. And what comes to Puutarhakatu street where we have a good bicycle lane: people park their cars there and trucks use it for uploading.

Q: What is your view about the on-road parking places? Why some of them just cannot be removed and bicycle lane build instead? Even at some places? What is the force behind...
A: Currently, there is a strong image in the City Council level that the motorists bring the money to the shops in the city centre. When I was working for the city of Tampere I noticed that I cannot come forward with the proposals that would strongly affect the on-street parking. Therefore the solutions I have presented are solutions that are somehow ”half-way”. My intepretation is that even the bad solutions would not have been accepted if I would have suggested the solutions that affect the parking for motorists a lot. I hope I have been right in this...othwise I have really made a disservice for bicyclists.

Q: How about the *Hämpin Parkki* (the huge underground-car park). Sshouldn´t that affect the on-street parking once complited?
A: We already have plans what is going to happen to on-street parking when the *Hämpin Parkki* is ready. The question is how these plans are going to be brough to public and how to decide on this. This whole thing is still in the process and I do not work for the city of Tampere

anymore so I do not know. I just know that the whole process of removing some of the on-street parking places was experienced difficult issue to take into the public. It might be that people are far too careful what comes to decision-making...this whole issue of removing the car parks is just experienced so difficult...The representatives of shopkeepers has been talking about this too and the last decision made, was to raise the price of parking in the centre and decrease the time. As it is now, the price has raised but the time allowance is getting longer. This is due to the requirements of businesses.

Q: The general about people not following the traffic rules, what do you think, why?
A: In Tampere many people are experiencing bicycling very difficult and and therefore they do not even try because they think its hard anyhow...Bicyclists either do not know the traffic rules, or just dont care about them. When thinking of myself, when I was working for the city I was really following the traffic rules when bicycling. Now I dont care so much anymore. This is because I can see that some of the solutions are just so ridiculous. When using your muscle-power the choosing of the shortest route just sometimes makes much more sense that choosing the ”right one” and sometimes I cannot even justify the reasons for myself, why to choose the ”legally right route”. Myself I think that bicycling in sidewalks is much bigger problem in Tampere. This is because bicyclist are going fast and close pedestrians. I think that biking on the roadway with the traffic is a better option. But I know I represent the minority here....what comes to bicycling in the main street of Hämeenkatu I also feel that biking on roadway does not always feel safe neither comfortable because of the cobblestones.

When bicycling was allowed in the sidewalk of the main street of Hämeenkatu during the summer time, people automatically expanded their rights and started to bike in all sidewalks in the city centre. Again, I do not have ´pure facts´to this claim, this is my view of the issue. As a planner I would underline that the fragmented and ragged bicycle network in the city centre that causes problems. And the network in the centre should also be a bit more dense. Furthermore markings are not good and therefore sometimes bicyclists do not know where to bike... Before I left the City of Tampere there was some plans to improve the markings by painting more marks on the streets. Nevertheless, I have been bicycling in the centre for years and I think that is the fastest way of commuting in the city centre.

APPENDIX C: CD-ROM with all online blogs and discussion forums