EXPLORING THE IMPACT OF CYCLING INFRASTRUCTURE ON CYCLING ADOPTION IN SMALL CITIES

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Summary

The paper covers the issue of exploring the impact of cycling infrastructure on the adoption of cycling in small flat cities, Adelaide (Australia) in particular. It has been noted that the cyclist facilities around the globe are different due to the different levels of investment, acceptance and adoption. Cycling has already become a means of transportation in Australia. However, some cities require substantial improvements in the sphere of the infrastructure. The aim of the paper is to examine the impact that is made by cycling infrastructure on its adoption and provide some recommendations which will improve the situation. Qualitative research methods were chosen to analyze the data.
Exploring the Impact of Cycling Infrastructure on Cycling Adoption in Small Flat Cities

Introduction

The cyclist facilities offered around the world are varied. The use of a bicycle as a transport mode has different levels of investment, acceptance and adoption in different countries. Some countries like the Netherlands and Germany have a large and developed bicycle infrastructure and cycling is a part of the everyday life. In less developed countries, it might be of vital importance in the low-income classes of the society (Brundtland 1987). Due to the inability to absorb the car traffic needs of the modern world, some European countries are forced to improve cycling conditions to encourage more people to use this transport mode. The world experience shows that cycling may be made popular and safe only in case if there is a sufficient number of cyclists (Gehl 2002, p. 35). The infrastructure is a key component of a cycling culture development as good cyclist facilities require an extended and improved infrastructure.

Cycling is considered to be the most viable alternative to help relieve traffic congestion, air pollution, noise and emissions of greenhouse gas. It has also been viewed as an important component of an integrated transport system. Among the barriers to creating a better infrastructure of cycling is the fact that walking and cycling still remain ultimate in the discussions on transport policy and that this status in usually reflected in national budgetary allocations. Australian cities are no exception in this regards (Cycling Infrastructure for Australian Cities 2009).

Cycling has recently become a means of transportation in Australian cities. It has been promoted as an active transport that offers health benefits, a part of sustainable systems urban transport and a low-cost means of short journeys. In spite of the fact that the cycling commuter rise is covered by a variety of radio programs and local newspapers as well as the bicycle sales
boom, the actual levels of cycling in Australia are low. There are many factors that influence a
determination of cycling rates at the household. Cycling is as a complex issue for policy makers
as the modes of collective and motor vehicles (Glover 2009 p. 1). More and more people are
invited to cycle but a lot more should be done to create a safe cyclist network.

Cycling in Adelaide is rather scarce and dangerous. Not many people dare to take up the
challenge to cycle on the street roads. Cycling is not treated as a part of the city culture (Gehl
2002, p. 35). It is evident that cities need an improved cycling infrastructure and walking
networks rather than the roads for the cars (Albanese & King 2012). The Adelaide City Council
has decided to take an active part in developing some cycling infrastructure projects which will
lead to the adoption of it in the city (Adelaide City Council Details Cycling Infrastructure
Projects 2011). According to the national survey, over 18% of Australians are engaged in cycling
for recreation and transport. This number has been increasing calling to all government tiers to
provide better environment for cyclists (Findings of the Nation's Largest Cycling Survey
Released 2011).

The bicycle infrastructure in the city is mainly noted in the city centre. However, due to
the fact that it is very inconsistent and underfunded, it does not create a coherent network. The
disjointed bicycle lanes which may be found around the city need continuous safe options and
improvement. The city has a long way to go to provide a decent cycling infrastructure
(Scuttlebutt 2013). It has been stated that creating a safe and good quality cycling network will
result into encouraging more people to choose cycling as the most convenient form of transport
(Bicycle Infrastructure Group to Improve Cycling Infrastructure in Adelaide 2012).
Bicycle usage can be increased through some structural changes. In order to provide a good infrastructure for the bicycles, it is necessary to create safe ways, routes, and paths, and the facilities for safe parking. It is also worth addressing the cultural barriers against bicycle use.

**Research Questions**

This research will address cycling infrastructure and its impact on cycling adoption in small cities, Adelaide in particular. The collected data will determine the ways of the already mentioned impact. The following questions will be used to gather information:

1. What is the importance of cycling infrastructure?
2. Why is cycling adoption beneficial for the society?
3. What is the world practice in cycling as a means of transport?
4. What are the main barriers for development of cycling infrastructure in Australia?
5. What are the main factors which influence cycling adoption in Adelaide?
6. What should be done to promote cycling in Adelaide?

**Aims/Objectives of the Project**

While studying the adoption of cycling in small flat cities, we have faced the problem that appropriate cycling infrastructure is of utmost importance. We find it important to study and investigate the impact of cycling infrastructure on cycling adoption.

The main aim of the research is:

- to establish what a good and safe cycling infrastructure is
- to carry out a comprehensive literature review on the motivation and barriers associated with cycling
- to learn about cycling infrastructure in Australia
- to identify the biggest barrier for new cyclists in Australia
to state the factors that influence cycling adoption
- to study the impact of cycling infrastructure on cycling adoption in Adelaide
- to provide recommendations for the government on the cycle route design that is required
to encourage the growth of cyclists.

**Literature Review**

The main purpose of the literature review is to study the already conducted relevant research in the field of cycling infrastructure and its impact on cycling adoption in small flat cities. The main contributors in the studied field are Gehl, Glover, Scuttlebutt, Bauman, Ker, SidebottomIN, Rissel, Speidel, Fishman and others.

Glover (2009) covers the issue of a technology for urban mobility highlighting the fact that most Australian cities are car dependent and the situation remains unchanged since World War II. However, cycling was more common till the middle of the twentieth century. The author speaks about negative sides of modern motorized mobility, a quick pace of life and human sedentary habits. He provides data related to road injuries and deaths which are highly dependant on the way of modern life. Glover states that cycling has already become a high-profile transportation means in many Australian cities. It has been revealed that cycling is a set of distinguishing characteristics which require special attention in the policy of transport and urban planning. The problem which is evident for a lot of small cities is that the roads need planning, designing and managing to meet the user requirements and reconciliations achieved between motor vehicles, bicycles and other modes of transport. The scientist emphasizes the fact that cycling has already attracted public attention and has become a matter of concern. The situation is different in many cities and cycling infrastructure as well as cycling adoption and promotion should be treated taking into consideration any city or town.
The evaluation of Australian cycling infrastructure projects has been discussed by Ker & Sidebottom in (2006). The adoption of cycling infrastructure, according to the scientists, has numerous positive community and individual benefits and they are very well understood by all levels of governments which are involved in developing cycling strategies and increasing cycling funding. It has been stated that the prioritization of bicycle infrastructure proposals needs comparable information across a diverse initiative range, a framework that is necessary to undertake comparative information assessment and techniques for handling information and its quality including descriptive, monetary, qualitative, quantitative, policy-derived, analytically-derived and professional judgment. The authors speak about the current practice in the area of bicycle infrastructure project evaluation in Australia which ranges from the analyses of formal multi-criteria to subjective internal rankings.

A national study was carried out by Bauman et al (2008) on the barriers against cycling. It has been found out that well connected and appropriately designed bicycle infrastructure may encourage participation. At the same time, a lack of good cycling infrastructure is the main barrier for infrequent cyclists, non-cyclists and regular riders. The scientists speak about the necessity of the provision of high quality, integrated bicycle routes in order to meet the increasing participation challenge in recreation and active travel (Bauman et al. 2008, p. 21).

Attempts were made to isolate facts that may affect the decision to travel by bicycle. Krizek and Johnson (2006) examined the influence of distance between a person’s place of living and a bicycle facility in the travel behavior. The scientists found that the use of on-street bicycle facilities usually correlates with the proximity of facilities to the user’s residence. Dill and Carr (2003) carried out a research which showed that the presence of cycling infrastructure in a city is considered to be the main variable in determining the rate of bicycle commuting.
Gehl (2002) has been engaged in the transformation of urban environments around the world. He takes part in the cycling infrastructure development in Adelaide. The author speaks about the cycle network in Adelaide which needs substantial improvements. Gehl also gives different pieces of advice concerning the positioning of cycling lanes and ways to avoid the injuries. The State Government of Adelaide has funded cycling improvements for the next ten years. It has evoked a growing interest for improving cyclist conditions. He highlights that some efforts to improve the existing infrastructure have been made, but it is not enough to provide safe and developed cycling facilities. According to the architect, it should become an integrated part of the city culture. He compares cycling facilities round the world and speaks about the necessity of cycling adoption that is beneficial in many ways (p. 35). Scuttlebutt (2012) also supports the idea that the cycle network should be greatly extended and improved. The system of locating the lanes between the rows of parked cars and the foot paths on an elevated plane should be followed by many cities as it has proven to be the best improvement of cycling infrastructure (p.77).

**Theoretical Framework and Methods**

Research is considered to be a process which defines problems that formulate suggested solutions hypothesis with the help of summarizing, organizing collecting, and evaluating different data to reach the solutions with careful testing. Hence, it refers to knowledge search, whereas methodology is considered to be a procedure or a set of procedures that are used to find answers to problems. To meet the objective we have conducted qualitative research. It has been defined as a systematic empirical inquiry into the meaning (Shank 2002, p. 5) and involves a naturalistic and interpretive approach meaning that qualitative researchers study things and phenomena in their natural settings trying to interpret them in the same meanings as they are interpreted by people (Lincoln & Guba 2000, p. 3)
Theoretical underpinnings on the research subject will be undertaken on the basis of a detailed survey of the available literature on cycling infrastructure. Herein, we establish the research approach and strategy which will be used to explain how the research question has been addressed and how the conclusion has been reached. The chosen methodology includes the scientific approach, the methods of data collection, chosen theories and their critique and key term definitions.

Qualitative interviewing has been defined by the nature of our research questions as the most appropriate method as it would provide a lot of data on the cycling infrastructure. Qualitative data collection was used by creating a survey. A survey is the way of gathering information about certain needs, opinions, or characteristics (Tanur 1982). Surveys are characterized in the following way: the collected information is gathered by asking predefined and structured questions. The answers are the analyzed data; the purpose of a survey is to make quantitative descriptions of some aspects. Hence, a survey research is considered to be a quantitative method that requires standardized information about the subject which is being researched; the information is collected in the way of findings generalization (Pinsonneault & Kraemer 1992). As survey is a descriptive method, it is very helpful in the process of collecting data. It can be done online, face-to-face, via telephone or via other means of communication.

As we seek to provide a deep understanding of the level of cycling infrastructure in Adelaide and its impact on cycling adoption, qualitative research was also found to be the most appropriate form for our research topic. Qualitative interviewing is considered to be very flexible as it responds to the direction of an interviewee and adjusts to the research with the emphasis on the most important issues that might appear while interviewing. This type of interviewing provides a greater interest in the interviewee’s ideas and beliefs and reflects the researcher’s
concerns. In the qualitative interview, interviewee is encouraged to go off the topic as it helps see what point is the most interesting or important for the person and allows revealing the nuances. Qualitative interviewing does not require following any schedule or guide. Even if any guides or schedules exist, interviewers are allowed to depart from them. Interviewing is regarded to be a view in order to interchange between two or more people on a topic of mutual interest. It helps to see the centrality of human interaction and emphasizes the social ‘situatedness’ of the research data (Kvale 1996, p. 14). The order of questions may be changed, and the questions may be even paraphrased. The question should motivate the respondent to give precise and full answers and avoid biases caused by conformity, social desirability, and other disinterest constructs.

Inductive analysis provides us with a systematic set of procedures which enable to analyze qualitative data. Though this type of analysis does not provide comparatively strong analytic strategies for the development of a model or theory, it gives very simple and straightforward approach for deriving useful information from the evaluation questions. It is considered that qualitative studies are identified due to their commitment to inductive analysis. The analysis is defined as working with data on specific cases to more general ones. Inductive analysis helps us in outlining the statement, concept and hypothesis about population, its shift and preferences. In spite of the fact that our study is explorative, it is necessary to emphasize the fact that it is guided by theoretical concepts. We make an indirect examination to study how cycling infrastructure impact adoption of cycling in small cities.

Secondary data is used to analyze the studies which have been made by others (Boslaugh 2007, p. ix). Secondary data analysis “can include any data that are examined to answer a research question other than the question(s) for which the data was initially collected” (Vartanian 2010, p. 3). Implementing secondary data analysis, the researcher analyzes the data collected by
another researcher to address the posing questions. Some things should be done before using secondary data for analysis. The researcher who uses the data is not familiar with it as he did not collect it. Thus, the researcher must thoroughly review it. Among the strengths of secondary data analysis is the ability to use search engines and web-based materials; it uses already existing information, and captures comprehensive information.

Participants of the study will be people from Adelaide and government representatives. The number of people involved in study will be about 100. The anticipated costs will be not high as the study does not need any special equipment as well as fieldwork. The only expenses will be given for the travel to Adelaide to interview people.
Reference List


Krizek, KJ & Johnson, PJ 2006, ‘Proximity to trails and retail: effects on urban cycling and walking’, *Journal of the American Planning Association*, vol. 72, no. 1, pp. 33-42.


