CONCEPTUAL FRAMEWORK OF BUILT ENVIRONMENT FACTORS ON CYCLING BEHAVIOR AMONG RESIDENTIAL NEIGHBORHOODS

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ABSTRACT

Cycling is one of transport mode that support physical activity as well as promote healthy environment in residential areas. Although cycling is beneficial, it has been found that cycling activities in the neighborhood were not one of the main physical activities. Previous research has shown that this was due to characteristics of built environment were not encouraging enough for existing and potential cyclists. The purpose for this study is to identify built environment determinant that influence the level of cycling activity of residential neighborhood. Those determinants were extracted from content analysis of previous studies related to cycling and built environment entity. The main aspect to determine the relationship between all built environment factors that influence behavior of individuals and personal characteristics. The result of analysis showed that all physical and built environment factors are potentially become catalyst to cycling activity among residential neighborhood. The study also found that bicycle infrastructure related with cycling behavior and environment. This research was considered in promoting residential proper planning of residential neighborhood by enhancing actual and perceived environmental conditions. The new conceptual framework of cycling behavior is expected to help designers, planners in producing a better and active lifestyle within neighborhoods.

Keywords: built environment factors, cycling behavior, conceptual framework

1. INTRODUCTION

Cycling activities and non – motorized transportation also related to the significant impacts of physical activities and physiological health. It is an activity with more common as an exercise or recreational activity. (Ane Vernez et al., 2005). 15% of American adults and 24% of Canadian adults report cycling at least once a week for recreation or exercise purpose. Instead of previous research showed that cycling could become a travel mode and a form of exercise and sport is well organized, a comprehensive understanding of cycling behavior and its environmental correlates is lacking. This study will focus on the factors that related to cycling behavior among the residential neighborhood.

1.1 Problem Statement

The Problem statements for this study listed below to conduct comprehensive research of theoretical and literature. There are four problem statements listed; First, the research and planning of cycling facilities are well organized by a group of local authorities and private sectors. But the lacking comes with a better understanding of a relationship between physical condition and behavior. Most of the development of cycling facilities only focus on physical development such as route quality, traffic conditions, signalize, cycling lane design. The most important is to recognize the mix of a relationship between physical factors

and behaviour. Secondly, the planning of cycling lane and design still lack on Level of Services. It must be assessing cyclist safety based on routed related variables. Thirdly, there still require people's decision factors to choose either to bike or not. The list of significant factors that affect an individual's choice to cycle yet undeniable during developing and planning of cycling facilities. Fourthly the main contributing factors to enhance cycling behaviour among residents is the social factor, personal factors, natural environmental factors and built environment factors. (Wang et al., 2015) Based on the related previous theoretical study, the main factors to enhance cycling behaviour is built environment factors.

1.2 Objectives

Several objectives have been identified;

1) To provide a comprehensive review focus on planning and design of residential neighbourhood
2) To determine the specific factors that can enhance the cycling behaviour in the residential neighbourhood.
3) To identify general and specific characteristics of built environment factors that can enhance the level of cycling.
4) To develop a conceptual framework of built environment factors on cycling behaviour.

2.0 METHODOLOGY

2.1 Research Methodology

The research methodology has been separated and classifies by level of the stage. There is three phases in conducting the study. Phase one is focusing on establishing the literature review. The comprehensive literature review was concentrate on research related to cycling activity. It is also associated with cycling behaviour and types of people that cycling. The other consideration is to identify the determinant factors that enhance cycling activity. Stage two in this research is to develop a methodological research design. From the considerations listed that influencing on cycling behaviour, the primary review on built environment factors has been established. The findings from this factors review were determined from the journal papers that embracing the study related to cycling activity and cycling behaviour. The last stage is developing the conceptual framework on determinant factors. The main factors in enhancing the cycling behaviour are built environment factors.

2.2 Novelty

Conceptual framework via built environment factor is a new way of guidance and interactive input in the development of cycling infrastructure. It can demonstrate step-by-step applications, especially in Urban and Regional Planning when constructing a dedicated bike lane in neighbourhood area.

2.3 Benefit

It allows remote guidance, for the local authority, developer, stakeholders to conduct and proposed a bike lane in a residential area within a specific framework. The behavior of residents must be in consideration to make a balance between the demand of cycling infrastructure from residents and propose development.

2.4 Commercialisation potential

The conceptual framework for cycling behaviour is part of development in cycling infrastructure approach. Local authorities with a specific and detail guidelines of cycling lane can be accessed easily and effectively

throughout this conceptual guidance. This will ease the proposal and master plan development process, especially from residents (users) perspectives. The bigger picture of the implementation of cycling development is the quest for a framework of built environment factors. This framework can be extended to other technical and development plan.

3.0 CONCEPTUAL FRAMEWORK

Previous research in urban planning and transport policies, and practices indicate that many potential factors, mostly on built environment factors, may influence cycling behaviour. By reviewing the literature, the key theme for built environment factors that were affecting cycling behaviour to emerge as shown in Figure 1.

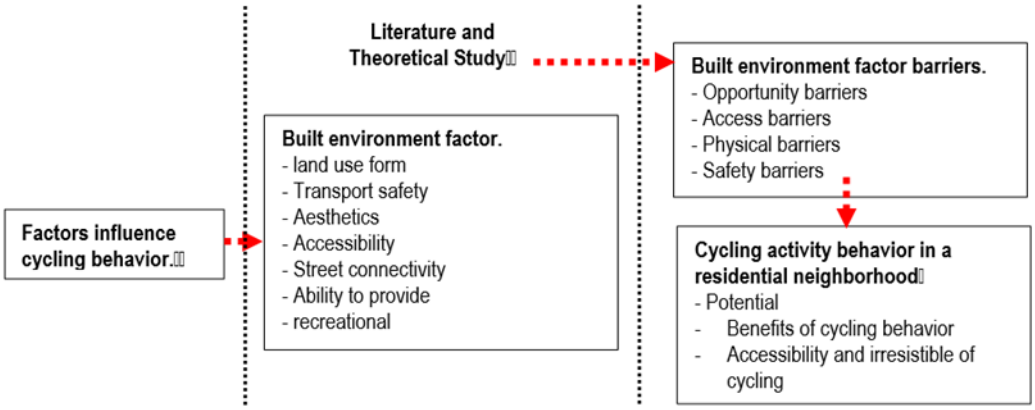

Figure 1. Scheme of the Conceptual Framework of built environment factors

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