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City sustainability: the influence of walkability on built environments

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Abstract

A vital issue in community is providing an easy access to the transport network for different range of community members such as; very young, old, children and disable people. The functions that walking and walkable area can be support includes community involvement, health, meeting and gathering and recreation which has positive effects on sustainability and vice versa. Walkability is the basis of sustainable city. The same as bicycling, walking can be known as ‘green’ type of transportation which except crowding reduction and also has low level of environmental influence, energy conserving without any air and noise pollution. It can be more than a purely useful type of travel to shopping, school and work. Also have both social and recreational importance.

This research aims at supporting urban design knowledge and practice and contributing to the broader field of “walkability” by refining the methods and measures used to analyse the relationship between walking behaviour and physical environment and its impacts on city sustainability. In order to integrate knowledge from theories and research on walkability from different fields and of different perspectives, it is crucial to first build a broader view and a more comprehensive understanding of how the built environment influences walking. What has been done during the earlier part of this project, and will be shown in this research, is to provide a better understanding of the complexity of the relationship between the built environment and walking and also the complexity that lies in both of these entities, the urban form and walking activity.

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1. Introduction

Walking mostly has been known as a sustainable types of transportation. It has numerous social and individual benefits i.e. has positive effects to increasing the health improvements and social equity as well as reducing the greenhouse gas emissions. Moreover, it has been reduced to use as a general types of travel mode for different purposes as day-to-day travelling or leisure. One of the main factors that effects on declining of walking is transformations of the built environment of cities. Spreading of the cities, towards increasing of urban sprawls leading to use more vehicles which increase the car travel and vehicles transportation as well.

As Brownson (2009) stated, the examination of built environment for the appropriateness and attractiveness of the walking has been considerable for many decades in various fields of science such as urban planning, psychology, geography and public health as well. In each fields walking introduced by individual definitions. For instance according to Ewing and Handy (2009), urban planners defined walking as a factor to the decreasing of vehicle travels, urban sprawls and greenhouse gas emissions. Moreover, public health researchers are interested in walking as an important factor to decreasing of the obesity, cancer and chronic diseases according to daily amount of exercise has been recommended by USA government.

Research on walkability and built environment is consist of representing of the correlation of walking with “the D’s” (density, destination accessibility, design, diversity, and distance to transit). (Badland & Schofield, 2005, Fitzhugh. et al. 2010)

Many studies have down about urban issue and built environment’s effects on green types of transportation (biking and walking). Some researchers believe factors of density, diversity, and street design have much impact on biking behaviour (Barnes & Krizek, 2005, Owen. et al, 2010). Moreover several studies mentioned the relationship between walking and built environment is vary across the different classes, race and also socioeconomic status (Lovasi et al, 2009). Though socioeconomic factors and individual superiority has major influence, the built environment also has a significant effects on people’s walking. (Lee & Moudon 2006). One of the main research questions of this study is how assess the built environment and walking behaviour to find the relationship between them through walking. To investigate the influence of walkability on the built environment, we need to understand the meaning of walking and walkability’s concept, the relationship between built environment and walking behaviour and explaining the environmental features influencing walkability as well.

2. Walking and Walkability

Walking generally recognised as a movement which is one types of the man’s transportation. Generally in urban context walking defined as short distance moving from one point to the other point.

Walkability is a concept which is known as measurement of the pedestrian-friendly’s degree of an area. This term recently have been focused by urban designer and planners to make a sustain environment to communicating, recreation, and shopping by pedestrian base.

Burden states walkability as “the extent to which the built environment is friendly to the presence of people walking, living, shopping, visiting, enjoying or spending time in an area” (2010).

The first concept of walkability that identified in scientific paper back to the early in nineties which introduced by urban designers and spatial planners (Southworth, 1997; Southworth and Ben-Joseph, 1995; Southworth and Owens, 1993). It was about the elements of the built environment and factors which contributed to walkability issue (Southworth et al., 2005, 1995, 1993).

Much studies from the earliest terms of walkability until now worked on the concepts of walkability in various areas such as; architecture, transportation, urban design and planning, and public health. Each of scientific research described walkability in different terms and characteristics by different variables and measurements (Fitzsimons, 2013). “Making London as walkable city” is one of the researches have down in 2004, the mayor of the London defined walkability as “the extent which walking is readily available to the consumer as a safe, connected and pleasant activity”. The research stated, walkable city is:

- 1) Connected,
- 2) Convivial (friendly, lively and enjoyable),
- 3) Conspicuous (attracting notice or attention),
- 4) Comfortable and
- 5) Convenient.

Therefore, walkability is more than physical activity in order to health term in a physical environment, it also include “social environment”, “perception of the area” and also “comfort of pedestrian” (Lo, 2009).

3.1. Walkability and the benefits

Walking more than a transportation type has specific effects on community health condition. Beside by health researchers who believe walking is a kind of physical activity, urban designers introduce walking as a kind of social

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