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FACTORS INFLUENCING THE EFFECTIVENESS OF PARKING MANAGEMENT SYSTEMS IN PUBLIC HOSPITAL

Nadeera Mazlam¹, and Hafidzah Muhamadan²

Civil Department, Politeknik Premier Sultan Salahuddin Abdul Aziz Shah,
Shah Alam, Selangor.

¹nadeeramazlam@gmail.com, ²nurhafidzah@psa.edu.my

Abstract

This paper is to provide a review on the factors influencing the management of public parking in hospitals. The approach of this paper using literature review on related study from 2017 until 2021 to obtain the information. From the literature review conducted, there are several factors that influence the effectiveness of parking management system which involved space, technology and also safety & security. There are other side factors that also affect the effectiveness of parking management in hospitals, but they can be discussed as a study gap for future studies. This research is very important for the parking management especially for public hospital at the city areas. The results of the information obtained from this study are expected to provide recommendations for the hospital management and also facilities management field.

Keywords: Public Hospital, Factors, Space, Technology, Safety & Security, Parking System, Management.

1. Introduction

Providing a good parking management system is one of the main factors that can attract customers or users. This research to review the factors influence the effectiveness of parking management systems at Public hospital. The objective of this study is to identify the factors influencing the effectiveness of parking management system in public hospital. Space management is always being a hot topic when talking about hospitals, especially hospitals in big cities. In other words, there is uncertainty about how quickly demand for parking spaces will decline during the transition period of years, how much change in the spatial pattern of parking can be expected in the future, and how much time planners have to develop strategies

and adjust for possible changes in this globalisation world. According to (Zhang & Wang, 2020),

The Penang General Hospital (Malay: Hospital Pulau Pinang) is the main public hospital in the city of George Town in Penang, Malaysia. The largest public hospital in Penang, it also serves as the reference hospital within northern Malaysia.

A strong parking management system is essential for a facilities management company to improve its quality. The problem of how to address parking demand concerns in public hospitals has sparked debate among public and transportation planners. An abundance of parking raises building costs and fosters reliance on private vehicles, whereas a scarcity of parking space causes traffic congestion and puts the public at risk. Documented Transportation Demand Management (TDM) practices have mostly come from countries that contrast markedly with Malaysia, which has higher car ownership and lack an organised public transport system (Ali & Hassan, 2020). This management method can also aid in enhancing an organization's image. Furthermore, it can assist us in time management because a good parking management can help boost customer satisfaction, and a parking management system can be upgraded from time to time for continual improvement.

2.0 Parking Management System

Management is an important element to create an effective parking management, for the good framework or planning of the project, starting with a good management system. Management theories are a collection of ideas that recommend general rules for how to manage an organization or business. They address how supervisors implement strategies to accomplish organizational goals and how they motivate employees to perform at their highest ability. Management in parking space system must be continuous improvement because of the increasing in population. Management solutions should be used whenever they are more cost effective than adding more parking supply. (Kong et al., 2018), the supply of parking infrastructures has not been able to keep up with the increasing growth of traffic mobility because of the poor management. Management solutions should be used whenever they are more cost effective than adding more parking supply. Management needs to act before this problem becomes so severe that it affects the image of their organization. Due to the logistical challenges that come along with the problem parking lot management, so the management needs to do a thorough study in ensuring that the management method is in line with the methods used today.

2.1 Space

A parking space is a location that is designated for parking, either paved or unpaved. Parking spaces can be in a parking garage, in a parking lot or on a city street. It is usually designated by a white-paint-on-tar rectangle indicated by three lines at the top, left and right of the designated area. Based on article from (Publishing, n.d, 2019) To create an effective parking management system, standards must be followed, such as the minimum size of a standard parking space, which is nine feet wide and eighteen feet long. Parking spots in covered garages must be at least ten feet wide and twenty feet long on the inside. To ensure that there is enough parking, a formal parking or site traffic analysis may be required, especially during peak hours, which are often between 10:00 a.m. and 2:00 p.m. Monday to Friday. A maximum of one space per bed can be estimated for the number of visitors per inpatient and daily visiting patterns (daytime versus evening), but this will be highly dependent on the community, both in terms of the number of visitors per inpatient and daily visiting patterns (daytime versus evening), as well as hospital visitation policies. As we know that the existing parking facilities could be managed more efficiently for example, used another suitable space for parking instead of build something else such as a storage or unnecessary things (Litman, 2019). Parking management has become a key aspect in our urban society especially hospital demand where high vehicle density and parking space shortages require efficient management. Less availability of parking or improper parking people park 2-3 car in the space of 15-30 car parking space (Thromde, 2019).

2.2 Technology

Technology is the application of scientific knowledge to the practical aims of human life or, as it is sometimes phrased, to the change and manipulation of the human environment. Evolution of technology is a stepwise advancement of a complex system of artifact, driven by interaction with sub-systems and other systems, considering technical choices, technical requirements and science advances, which generate new and/or improved products or processes for use or consumption to satisfy increasing (Coccia, 2019). Based on (Das, 2019), states that, Technology can assist save fuel, time, and money, which can then be put to better use elsewhere. We can notice that we frequently spend 5 to 10 minutes looking for a parking spot. Despite the fact that the technology is notorious for its high cost, it is the most cost-effective approach to handle the parking problem. Those who want to reduce the cost of installation and maintenance of a building parking, especially buildings involving the government, such as Penang's hospital, which is one of the government hospitals in Penang, frequently debate the problem of construction costs being too expensive to provide technological parking. This statement proved again with (Lubis et al., 2019) said that, with the growing population, a large parking area, either horizontally or vertically, is not the best

solution because it costs a lot of money to acquire, build a parking management system, or build a high-rise building, especially for a government hospital, where there is no set number of visitors who come every day per hour. As a result, advanced technology cannot be utilised in government hospitals to manage parking because the finances available are insufficient, even though it is extremely beneficial in addressing the issues that all hospital users experience. However, more research into this topic is needed to improve the quality of parking management in Penang's hospital.

2.3 Safety and Security

Security is and often has to do with a group's efforts to protect its members from harm. Safety is most often relates to a personal feeling of being free from harm or danger. Security seems to define efforts and measures that are outside of an individual, while safety is closer to an inner feeling. the theory of safety and security could clarify the issue of safety and security in the whole range of the most general aspects. Helping to ensure that design features support a safe and secure environment for patrons and their vehicles is an important part of establishing an effective parking structure. Car owners and parking lot operators are concerned about their automobiles being stolen from parking lots, so they install CCTV cameras to detect theft. (Andriana et al., 2018), the security system should have a psychological effect on a potential criminal, discourage potential criminal for committing crime. There are so many things that need to be considered when related to safety and security especially hospital because every day has a lot of visitor comes to visit.

3. Discussion

Based on literature from the past of years, due to the rapid growth of vehicles and populations on the streets, finding an available parking space is becoming a big obstacle in modern life. An argue issue to be addressed is for cities with large number of residents or hospital, search for a free parking lot is a major problem and can be a frustrating experience as investigate by (Zacepins et al., 2019). Based on (Bazzi et al., 2017), state that the high cost of the available paid parking system the reason why this kind of technology for parking space management system cannot being used for the government building. (Andriana et al., 2018), The security system should have a psychological effect

on a potential criminal, discourage potential criminal for committing crime. This can be achieved by adequate lighting, the presence of CCTV, security guards, and signs installation indicating the presence of the security system. Most of the previous studies, the implimentation of applications to improve systems and iot are given attention to obtain the effectiveness of public parking management. However, there are research gaps that can still

be identified, especially for visitors parking in hospitals that have very limited space and for the future plan to make a parking for the visitor to the public hospital is find a suitable empty place near to the hospital.

4. Conclusion

Based on the reviewed literature, there are continuity between several factors that cause the effectiveness of the parking management system for visitors in the hospital. This research explain about the factors that influencing the effectiveness of parking management system which is space, technology and safety & security. These theories can be used to improve the parking management system at Penang's Hospital and contribute to an effective parking for visitors. Hence, for further improvements that can be extended to this study is conducted more reviewed papers also to focus on a specific system to narrow the related field. This article can being used for facility management's students to gain their knowledge about parking management system at compact area likes city. This research has to be continue to help management in manage the parking system and also for the facility management field.

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