Chapter 15
Design of a Hospital Interactive Wayfinding System: Designing for Malaysian Users

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ABSTRACT

United Nations reported the importance of wayfinding as part of providing sustainable and beneficial accessibility to the public in built environment such as a hospital. Despite this, the survey conducted in this study found that current wayfinding system in hospitals does not meet the requirements of the Malaysian demography which is multilingual and multicultural. Furthermore, the various literacy levels in this country make the design more challenging. The objective of this study is to design, develop and test a hospital interactive wayfinding system (HIWS) that is targeted towards the West Malaysian population. Using the established symbols that has been validated by other studies and from the survey feedback obtained, the HIWS was designed and developed and tested with 24 Malaysian users using the lab based user experience testing. Although the results seems promising whereby 83% of users liked the system, the qualitative feedback revealed various improvements to the system, that would be valuable to the design and development team to improve HIWS.

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INTRODUCTION

Wayfinding system is a method for users to find ways to their desired destination that is not based merely on signage. It is a complex system that includes environment and behavioral aspect enabling users to interpret and endure their surroundings to get to their destination without long thoughts. The growth of population, trend and the expansion of technology precipitate the development of effective communication to fulfil the needs of people with various levels of literacy, memorizing ability and social culture. This requires a universal system that can easily be understood by various levels of age, literacy, language, culture and gender. Human’s high demand and level of persona had created a need of optimal user experience (UX), a crucial factor in the development of a highly effective Interactive Wayfinding System (IWS). International standards such as ISO 21542:2011 (“ISO 21542:2011 Building construction -- Accessibility and usability of the built environment,” 2011) specifies a range of requirement and recommendation for signage and wayfinding for internal and external environment. A United Nations report by (Rapley, 2013) has also emphasized the importance of wayfinding as part of providing sustainable and beneficial accessibility to global public in built environment, transport systems and in information and communication technologies (ICT). Wayfinding has become important for both outdoor and indoor building environments. For instance, in the design of shopping malls, various color themes has been used to indicate various areas to ease wayfinding in the shopping mall. Study (Ashok Sivaji, Downe, Mazlan, Soo, & Abdullah, 2011) found that when it comes to the design of shop layout, some shopping mall owners pay attention to the Gestalt principle of similarity (Soegaard, 2010), which indeed assist the consumer’s in wayfinding. This is achieved by advocating similar design concepts in terms of shop label and color scheme which helps the consumer to form and associate with the shopping theme (whether shopping for souvenirs or clothes, or food) within the shopping mall.

According to (Mollerup, 2009), there are few reason why people have difficulty in finding their way around the hospital. Firstly, hospitals accommodate large real estate and complicated built environments. Secondly, the rapid nature of change and development in hospital environment to meet the changing needs of the demography. Thirdly, the usage of medical terminology for signage that is not familiar to visitor and/or patients. In the design of The Royal Children’s Hospital in Melbourne, Australia designers and architects (Whittle, 2009) have created design inspired by nature that stimulates and engages children mentally and socially. For instance, it was shown in (Whittle, 2009) that dappled colors helps wayfinding. Additionally, views up and out of the street provide simple and strong wayfinding cues with consistent connection to external landmarks. Wayfinding has widely been used for inpatient and staffs to ease their way around when under stressful conditions (Sansom & Brooks, 2012). A good wayfinding system can be installed in hospitals to benefit patrons as it promotes ‘healing’ by enabling patrons to be in control of an environment to find healing. The key factor is to reduce stress, anxiety and fear, which are common feelings that undermine the body’s ability to heal (Arthur & Passini, 1992).

The objective of this chapter is to firstly understand the requirement and challenges faced in a government hospital in Malaysia. To achieve this objective, a survey was conducted among the patients and visitors to a hospital. Based on the feedback, the second objective is to design a prototype IWS system and the third objective is to validate the design based on some established UX methods.

The scope of this chapter is only for the specialist clinics of a hospital. Hence the requirement gathering was confined to Malaysians ranging from three major ethnics, which are Malay, Chinese and Indians (including Punjabis) who do not suffer from visual impairment. This study was confined to Peninsular or West Malaysian population; hence it does not involve other Bumiputra who are mainly settled in East Malaysia.
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