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Accessibility For Disabled In Public Transportation Terminals

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ABSTRACT: Accessibility is important in our daily life especially when dealing with environment. Realizing the fact that most of the public transport terminals is still lack in terms of good design and facilities among disabled user, a serious concern for the matters is needed to ensure the convenient for all. It has been widely accepted that disabled people generally have fewer opportunities and a lower quality of life than non-disabled people. Disabled who commute using current public transport terminal tend to rate a higher level of discomfort especially towards the travelling environments. Added with poor accessibility, the disable face more challenges and difficulties while travelling using the public transport. Therefore it is becoming increasingly difficult to ignore the disabled issues while travelling or while using the facilities of the public transport. This study will also look into the standard terminal design guidelines for the disabled group. This study utilizes a quantitative method as it involved with a disabled public transport commuters survey in which a personally administered questionnaire was used as the methodology. The data collected were analyzed by means of a statistical package, SPSS. The study concludes with a discussion of results. These findings enhance the understanding of the accessibility issues where the infrastructure for disabled should be considered as one package in earlier stage of design so that everyone can get equal access to the environment.

Keywords: Accessibility, Disabled, Infrastructures, Public Terminals

1. INTRODUCTION

The inefficiency of accessibility in public transport terminal has led towards inconvenienced and prohibits many disabled from moving around freely. According to Henry (2009) inaccessibility to the built physical environment is one of the more significant barriers to the full participation of persons with disabilities in society. Griffin (2000) further added that the simplest way of increasing the use of public transportation facilities is to establish an environment where pedestrian access is safe, convenient, and comfortable. Progress has been made to identify the factors affecting disabled accessibility to the public transportation terminals because disabled are considered as a group of people who would face the difficulty of accessibility to the environment.

Haber and Blank (1992) revealed that the present provisions are inadequate and not disabled friendly. They also highlighted that there is an increasing awareness, particularly in the industrialized countries, pertaining to the disabled. Kennedy and Hesla (2008) further supported that people with disabilities have not

been treated as equals. They pointed that the disabled is very unique, and have limitation in accessibility in use of built environment needs further attention in a society as compared to a normal people.

Due to little research that has been directed towards the open environment and discovering the disabled accessibility in public transportation terminals, therefore the intention of this research is to consider the design of infrastructure for disabled especially when transport terminal is concern. This is to make the environments more responsive to individuals and groups with lower level of environmental competence and to ensure that all people can access to public transport terminal buildings.

The aim of the research seeks to demonstrate the impact of current legislation and standards design for disabled concerning the accessibility aspect of public transportation terminals. Specifically, the objectives of the research are as follows:

- i. To identify and highlight accessibility in approaching, the spaces in the transport terminals
- ii. To evaluate the interior infrastructure that affects disabled accessibilities in the transport terminals
- iii. To suggest recommendations for the improvement of the accessibility in the terminals for disabled

2. REVIEW OF RELATED LITERATURE

Accessibility is increasingly recognized as a key element of a high quality, efficient and sustainable transport system. Indeed all of us as users of the transport system benefit from easier access to buses, trams, trains, planes and ships (Cullen, 2006). Designing buildings it is important that everybody including PWDs is able to access and use the internal and external facilities associated with the development, building or facility (Bezzina & Spiteri, 2005).

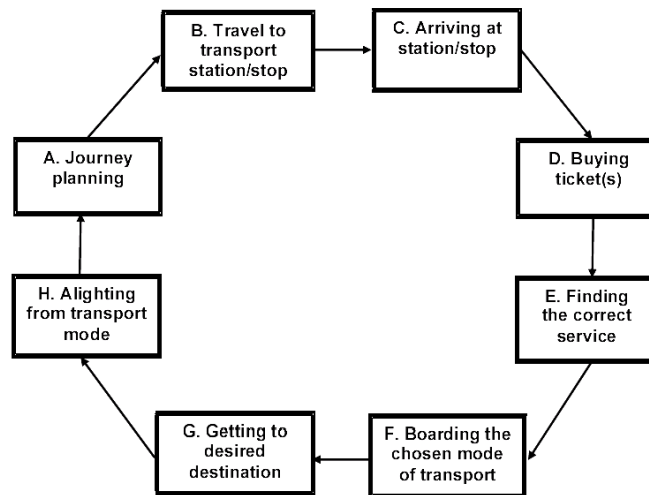


Figure 1 : The Journey Cycle

Source: *Assessment of Accessibility Standards for Disabled People in Land Based Public Transport Vehicles*, Lafratta (2008)

In reviewing accessibility for the disabled in public transport terminals there are several factors that need to be taken into account to get the correct picture of the journey cycle. It is important to consider the of journey cycle for a better understanding and experience the whole journey of the accessibility for disabled. It also helps to know the problems faced by person with disabilities. Based on the breakdown above, this study will examine the external environment to and from the terminal, buying ticket(s), finding the correct service, waiting at the terminal, getting on and off from the transport mode and getting to desired destination.

2.1 A Practical External Environment

In 2000, Cowan (2000) reported that well designed public spaces are functioning parts of a network of pedestrian routes, providing for the needs of all users including disabled and elderly people. Bezzina and Spiteri, 2005 described that in designing buildings it is important that everybody including persons with disability is able to access and use the internal and external facilities associated with the development, building or facility. In 2006, Smith conclude that, a good means of access would be a route that does not incorporate obstacles and hazards, and it's not problematic to people, including those who have impaired sights, impaired mobility use walking aids or use wheelchair.

Lacey, 2004 highlighted that cars are the only practical method of transport for some disabled people, and accessible parking is therefore an important consideration. As

being defined by Bezzina and Spiteri 2005, car parking, setting down and are important activities at the beginning or the end of journeys. However in 2006 Cullen claimed that a single step at the entrance to a station or a curb without a ramp in the road outside could make the most carefully designed terminal inaccessible to people with certain disabilities. Sawyer and Bright 2007, discussed that the provision of appropriately designed, constructed and managed ramps is of importance to all users, but especially those using wheelchairs, pushing buggies or trolleys, and people using walking frames.

At least one accessible route shall be provided within the site from accessible parking spaces and accessible passenger loading zones; public streets and sidewalks; and public transportation stops to the accessible building or facility entrance they serve, (ADA, 2004). Cullen 2006, pointed that for people who are blind or who have little residual vision, tactile surfaces are essential for the safe progress through the street environment.

2.2 A Practical Internal Environment

Early study done by Griffin, 2000 who conducted a study on transit facilities pointed that entrances must be fully accessible and integrated with the accessible paths within the local pedestrian network. Entrances must provide convenient access for passengers and fit appropriately within the surrounding urban context and community. In 2004, Lacey agreed that new buildings, the principal entrance (or entrances) should be accessible. He further added that the provision of parking lot for disabled is to ensure that non-disabled drivers do not occupy bays intended for disabled people.

A lot of disabled and older people find standing for any length of time uncomfortable or even impossible, so providing seating at appropriate points throughout the terminal is very important. It is worth remembering that some of the distances people have to negotiate within a terminal are considerable (Cullen, 2006). Sawyer and Bright 2007, stressed that the provision of accessible toilet facilities in the building is important. At least one toilet should be provided at each location for the wheelchair user. It may determine whether the building is truly accessible for a disabled.

3. METHODOLOGY

Research design refers to the actual plan for the collection and analysis of data (Shamsuri, 2005). According to Remenyi, William, Money, & Swartz (1998), discussed that there are many factors that can be considered when choosing an appropriate research methodology. The selection of research method depends on the research topic and the specific research question. They further added that a qualitative approach is more appropriate when the researcher is trying to understand and explain a phenomenon rather than search for external causes. In addition, Salkind (2003) stressed that qualitative research is more preferable research to choose because there were no statistical analyses involved. However, in contrast, quantification often makes our observation more explicit. In other words, the presence of numbers makes it easier for readers to understand and to interpret facts because numbers are countable (Shamsuri, 2004). Therefore this study proceeds with a quantitative approach.

This research started by first defining the population of the study. The main target population in this study consists of the disabled commuters especially at KL Sentral and Klang Central Station. In total, only disabled commuters aged between 18 years and above who depend on public transport to connecting from Klang Valley were considered in the survey. From there, a sample size was determined using a statistical formulation of appropriate sample size. At the same time, an instrument in the form of questionnaire was design to gather the required information on perception towards the accessibility of the public transportations terminals. After completing the data collection, the set of 30 questionnaires were compiled for the purpose of data editing, cleaning as well as data coding. Data processing and analysis were done using a Statistical Package for Social Science (SPSS). The statistical analysis was utilized to study the relationship between infrastructure designs, principle of universal design towards disabled accessibility.

3.1 Quantitative Approach

a. Questionnaire

The purpose of doing the questionnaire research is to obtain information that cannot be easily observed or that is not ready. The questionnaire will be in form of closed-ended questions. According to Remenyi et.al (1998) they pointed that close-ended questions is possible to pre-specify the categories of response. During the actual data collection, a personally administered questionnaire technique was used because through this technique, doubt can be clarified at that particular point and

the response rate is almost 98% ensured (Dixon & Leach, 1978). The questionnaire will design based on these journey cycle. A user's level of journey quality is dependent on the levels of accessibility afforded to them by the transport system(s) they wish to use (Lafratta, 2008). The respondents are required to answer the question been asked based on their recent experiences using the infrastructure provided in the public transportation terminals. The purpose of the focus groups was to obtain the experiences, views and observations of public transport users. Participants were asked to comment on their recent experiences of public transport, with sessions structured around the key stages in the journey cycle. These focus groups represent the PWDs such as ambulant disabled, wheelchair-bound, sensory disabled and temporary disabled. A set of questionnaire was designed to gather the information on issues pertaining to the accessibility of disabled at public transportation terminals.

Data below show the result of the survey according to the friendliness factor of disable facilities provided at the public transportation terminals. Most of the infrastructures rated as dissatisfied by the disabled commuters. According to the survey the poor design at public transportation terminal was at the platform. Ramps, steps, walkway and parking were also not good enough for disable use. Overall, disable facilities available in the current public transportation terminal is still lack in most of the area and intensive improvement needs to be done in order the make it more friendly to the disable commuters.

Table 1: Mean Score for Current Infrastructure Provision

Infrastructure	Mean
Current infrastructure:	
• Parking	3.73
• Steps	3.43
• Ramps	3.20
• Walkway	3.67
• Tactile	3.90
• Entrance	4.27
• Waiting	4.63
• Toilet	4.60

• Signage	3.87
• Escalator	4.30
• Lifts	4.07
• Platform	2.47

***1-Very Dissatisfied**

7-Very Satisfied

In order to get the better understanding of the accessibility for disabled the questionnaire were formulated to highlight the important of the journey cycle among the public transport commuters. Table 2 provides the feeling of safe for the breakdown of the journey cycle. These were emphasised as follows to determine the satisfaction level towards the current facilities provided.

Table 2: Mean Score for Level of Safety Indication on Journey Cycle

Travel Component	Mean Score (1-7)*
	*1-Very unsafe 7- Very safe
• Walking to and from terminal	3.00
• Buying Ticket	3.90
• Finding the correct service	3.77
• Boarding to the chosen public transport mode	2.03
• In Vehicle	3.53
• Audio system in vehicle	3.50
• Alighting from transport mode	2.03

Based on the data gathered above it is shown that most of the commuter feel unsafe with the current infrastructure. Walking to and from the terminal, boarding to the chosen public transport. Is the most critical part that needs to give attention in this study. Hence the design of physical environments involving the disabled should be emphasis in a building. Therefore it has been increasingly important to acknowledge their needs especially when accessibility to public transport is concern.

4. CONCLUSION

Many studies have focused on the disabilities study however, less research has been devoted to the specific area such as public transport terminal. Public transport serves as linkage between the public for the social activities therefore, it is important for all of us not to ignore the person with disabilities. As a whole after the analysis of persons with disabilities there is still experiencing discomfort when use of the facilities provided. This research is mainly to breaking down unnecessary physical barriers and exclusions imposed on disabled people by poor design of buildings and places. This research would significantly promote and enhance the public buildings for better value by focusing on the disabled friendly facilities and design, thus promote the friendliness atmosphere of the public transport terminals for better usage and accessibility. The main contribution in this research is to foster a better relationship between person with disabilities and normal citizens. In order implement a successful design for physical environment, this study will suggested that local authority should play an important role to established the ground and set the standard rules for designing the public facilities so that everybody can get an equal accessibility. It is also can increase awareness among designers and architects to respect designing for accessibility. Lastly, it is important for this conference to know in depth the importance of accessibility in our physical environment especially for person with disabilities.

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