APPLICATION OF UNIVERSAL DESIGN IN PUBLIC BUILDINGS IN PUTRAJAYA

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requirement for the award of the degree of
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To my late parents of blessed memory

who has been so strong and supportive all through this educational journey.

To my children,

you are my inspiration to reach beyond my potential and goals

I love you all.

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ABSTRACT

The planning through the implementation of ergonomics while at the same time considering the unique requirements of the various people living with disabilities such as children, the elderly people, is referred to as Universal Design. However, as the issue of having an easy access into commercial, residential and or public buildings has become an essential part of our living. Universal design is targeted at making simple every part of our daily activities by providing a usable community to several individual at little or no extra cost. The purpose of this research is to investigate the applicability of the concept of universal design at the entrance of public and commercial buildings in Putrajaya. This study adopts a qualitative multiple case study to collect data from the interviewed participants. Collected data were transcribed, coded and analyzed with the use of content analysis and some element of the constant comparison method to sort out the emerging themes relevant for theme development. This study finds that the cost of designing inclusive building may not necessarily be among the main reasons for non-implementation of the concept of Universal Design at the entrance of public and commercial buildings in Putrajaya. This study suggested some efforts that could be made to enhance the implementation of the concept of universal design in Putrajaya.

ABSTRAK

Perancangan melalui pelaksanaan ergonomik yang mengambil kira keperluan tertentu dari pelbagai aspek kehidupan terhadap golongan kurang upaya seperti kanak-kanak, orang tua dikenali sebagai Reka Bentuk Universal. Walau bagaimanapun, isu untuk mendapatkan faciliti akses yang baik dan memberi kemudahan kepada semua peringkat pengguna di bangunan-bangunan komersial, kediaman dan atau orang awam telah menjadi sebahagian keperluan penting di dalam kehidupan masyarakat hari ini. Konsep Reka bentuk sejagat adalah bertujuan untuk memudahkan aktiviti harian kita dengan menyediakan kemudahan masyarakat yang mampu memberi kemudahan terhadap semua kategori pengguna samada melibatkan kos tambahan minimum mahupun tiada. Tujuan kajian ini adalah untuk mengkaji pelaksanaan konsep reka bentuk sejagat di beberapa pintu masuk bangunan awam dan komersial di Putrajaya. Kajian ini menggunakan beberapa kualitatif kajian kes bagi mendapatkan data dan maklumat daripada peserta yang telah ditemuramah. Data yang dikumpul telah disalin, dikodkan dan dianalisis dengan menggunakan analisis kandungan dan beberapa elemen kaedah perbandingan yang tetap untuk menyelesaikan tema baru yang relevan untuk tema pembangunan. Kajian ini mendapati faktor kos bagi tujuan rekabentuk dalaman bangunan di kawasan kajian tidak boleh dijadikan faktor penghalang untuk tidak melaksanakan konsep Reka Bentuk Universal di pintu masuk bangunan awam dan komersial di Putrajaya. Kajian ini mencadangkan beberapa usaha yang boleh dibuat untuk meningkatkan pelaksanaan konsep reka bentuk sejagat di Putrajaya.

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LIST OF ABBREVIATIONS

ADA   Americans with Disability Acts

CCC   Certificate of Completion & Compliance

DDRR   Demand Side Respondent

ISO   International Standard Organization

MS   Malaysian Standards

PWD   People with Disability

PJ   Putrajaya

SSRR   Supply Side Respondent

UN   United Nations

UD   Universal Design

USA   United States of America

UFAS   Uniform Federal Accessibility Standard

UBBL   Uniform Building By Laws

WC   Water Closet

WHO   World Health Organization

CHAPTER 1

1.1   Background of the Study

The planning through the implementation of ergonomics while at the same time considering the unique requirements of the various people living with disabilities such as children, the elderly people, is referred to as Universal Design (Mueller, 1990; Aisha et al., 2011). However, the understanding of the average males and females human forms in the relationship with the built environment is also known as Ergonomics. Particularly, it is viewed as the number of open space required for people to perfectly achieve their responsibilities (Aisha et al., 2011). Traditionally, the philosophies of ergonomic were built by the military with the aim of manufacturing better and efficient weapons. These philosophies were crafted for able bodied people. Though, when these philosophies were implemented to industrial commodities, they appeared to be perfect for the minority (Mueller, 1990). Contrarily, it is emphasized on proper principles of ergonomic within the society and an array of adopters.

Within the past three decades, after investigating the characteristics of buildings created for people in wheelchairs were beneficial and usable for everyone, the concept of UD was coined by Ron Mace (Dion, 2004). Looking at the potential of 39.4M baby boomers in the age bracket of 65 years and above by the year 2010, UD is anticipated to become increasingly relevant (Perry, 1999). Not minding wide accepted views of past researchers, less than 5% of the USA population above 65 years of age is residing in any long-stay accommodation at any considered period (USCB, 2000). Actually, many old people prefer to stay in their current accommodation when they are 65 years and above (Gibson and Hazelton, 1999; Umaru et al., 2012). Opinions also have it that inappropriately designed building may

result to growing old in an individual's apartment uncomfortable, difficult, and even unfeasible.

Previous publications have revealed that accessible building varies from accessible public buildings. However, the terminology Accessibility in public buildings means Visitability (Goldsmith, 1997). The ability to enter a building and its living rooms, and been able to make use of the facilities in the apartment with ease is called Visitability. This term encompasses much more, and it further means livability and also Visitability. Users of such apartment should be capable to carry out their daily activities with less stress, not minding their, size, ability or age. The main importance to conclusion of several every day activities comprises universal design (Perry, 1999). Authors have reported that the problem of inaccessibility in public building is an essential area of research that is yet to witness adequate investigation as compared to car-centric communities and neighborhood pathways (Perry, 1999; PAS 2010). However, bringing UD to public building has conventionally not been the roles of the planners. To make available a truly detailed methods to environmental urban design, community, and to make sure that everybody can enter and can be comfortable in own apartment as they grow old or become less mobile, policy designers must encourage the philosophy of universal design in public buildings and the built environment (PAS 2010).

However, as the issue of having an easy access into commercial, residential and or public buildings has become an essential part of our living. There is the familiarity of design characteristics such as curb ramps for wheelchairs, reserved handicapped parking spaces, closed captioning on television, and grab bars in showers. Unfolding scenario of UD is much wider as compared to accessible design. Universal design is targeted at making simple every part of our daily activities by providing a usable community to several individual at little or no extra cost. The design principles integrates products, building characteristics, and site components which, to the highest degree feasible, could be adopted by everyone whatever their circumstance in life –short or tall, physically-challenged or not, left or right-handed, young or old, English-speaking or not, to offer just a few instances (Steinfeld, 2010). In the year 1997, an operational assembly of architects, product designers, engineers,

and environmental design researchers came together to put together seven widely acknowledged principles of universal design. Asiah et al. (2011) reported that universal design environment is highlighted as being an important attribute to achieve comfort in the built environment including at the waterfront. They posit that the definition of universal design is usually inappropriately considered as being similar to barrier free. However, barrier free environment is a design principle to provide a built environment accessible to people living physical disabilities and or aged individuals by eliminating architectural barriers available in buildings that have been previously constructed (Garabagiu, 2008).

However, the most commonly cited definition of physical disability is that of the World Health Organization in 1976, which draws a three-fold distinction between impairment, disability and handicap, defined as follows (WHO, 1980; Miyake, 2001). 'An injury is any loss or deformity of mental, physiological or anatomical arrangement or purpose; a disability is any constraint or lack of ability to carry out an activity in the way or within the speed perceived normal for a every person; someone who is disadvantaged to carry out any particular task as he desires is considered a handicap person. Universal design is crucial in helping older people with diverse and changing abilities to remain active in society. However, inaccessible built environments, low-quality urban spaces, unsuitable architectural design features in buildings and facilities with barriers currently hamper the full participation of older people. The principles of universal design can feed into the planning, design and construction processes to support quality of life in the ageing society of the island of Ireland (CARDI 2011; Petzinger, 1999; Duncan et al., 2012).

In view of the above studies, this particular research is aimed at studying Putrajaya, the Malaysian modern administrative capital and understands if the principles of universal design are implemented in designing and constructing public buildings in the green city. This research is further necessitated because of the belief that Putrajaya is known to be a new city tagged as a green city, one would generally expect that urban planners and town planning officials who designed the city would include the design for all concept in the construction of public buildings in the city to make more accessible and usable to all not minding the ability status of individual

users. At the end of this research problems would be identified, issues would be raised and recommendations proffered for public policy makers, stakeholders in the urban and regional planning sector and other interest parties for proper future decision making.

Table 1.1: Accessibility Facilities in Public Buildings in Putrajaya

S/no	Building type	Stair case	Stair case/ramp	Universally Designed
1	Putrajaya Mosque	✓		No
2	Putrajaya Hospital		✓	No
3	Prime Minster Building*		✓	No
4	Ministry of Finance		✓	No
5	Perdana Leadership Foundation		✓	No
6	Immigration Building*		✓	No
7	Bahagian Pinjaman Perumahan		✓	No
8	Menara Usahawan		✓	No
9	Kemanterian Perdagangan dalam Negeri		✓	No
10	Menara Ikhlas		✓	No
11	Istana Kehakiman		✓	No
12	Perbadanan Putrajaya		✓	No
13	Apartment (Residential Building)		✓	No
14	Perbendaharaan Malaysia		✓	No
15	Menara Seri Wilayah		✓	No
16	Restaurant	✓		No
17	Kompleks Jabatan Perdana Menteri		✓	No
18	PICC		✓	No
Total		02	16	0
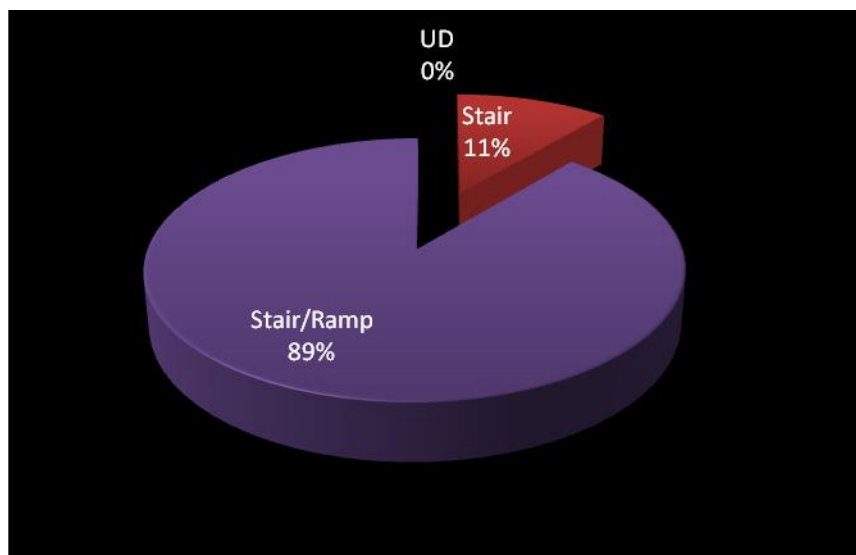
Figure 1.1: Accessibility Design in Public Buildings in Putrajaya

Table 1.1 and Figure 1.1 reveals that out of a total of 18 public buildings surveyed by the researcher in Putrajaya, none (0%) among them adopted the concept of universal design in its construction. This shows a huge problem in Malaysia despite the Putrajaya Corporation and other stakeholders referring Putrajaya as the most modern and green city of the country. Furthermore, in order to have a clear understanding of steps followed to obtain the above information, a brief report on the 5 public buildings that the researcher was able to observe at close range are presented in the below.

1. **Putrajaya Mosque -** Most of public buildings in Putrajaya such as mosque, commercial, administrative, residential, hospital and healthcare do not take into consideration the entrance for the disable people. In the case of this mosque, it is only the stairs that is included for people to access the mosque through the main entrance of the building. It is very unfortunate that a mosque which is supposed to be a place of prayers for all did not consider people with disability in its design, not even ramp is included in this building, not minding that Putrajaya is a new and modern city. However, the design of the Putrajaya mosque is new/modern but did not consider the accessibility for the disable people in its construction especially in the main entrance of the building. When the researcher went to the mosque, it was difficult to find the

entrance for the disable people around the main entrance, but finally it was discovered to be at the far left hand corner of the building. This situation is not satisfactory enough to the people living with disability and also in this present era of design for all. When the researcher discussed with a few disable people who visited the mosque about their opinion, they revealed their unhappiness and marginalization because their plight was not put into consideration in designing the building and this makes life very hard for them whenever they want to enter the building for prayers. Many foreigners such as tourist who visited these buildings disclose their un happiness about the non implementation of the concept of universal design in designing the mosque. Hence, the accessibility of disable people was not considered in designing the main entrance of the mosque (see Appendix D2-D5).

2. **Residential Apartment -** There are many residential buildings in Putrajaya. As observed by the researcher, the difference between the ground floor and the main street is too much (3.0meters high). It is visible that in these types of buildings it is very difficult for everyone to easily move into the building/apartment. Children, mothers with trolleys, senior people, pregnant women and disable people will find it very difficult to go into the apartment with convenience. Also it will be very hard to move furniture works into the apartment in Putrajaya especially the residential apartments as a result of the height of the floor to the main entrance (see Appendix D16 & D17).

3. **Kementerian Perdagangan Dalam Negeri -** This is an administrative building in PJ. In the main entrance of this building we can easily see both the stair case and the ramp. It is suggested that instead of using the stair and the ramp which is a two component design structure. The universal design could be a better alternative which caters for the people living with disability. Also considering the cost implication, past supporters of the UD concept reports that the benefits of inclusive design outweigh the cost differentials. Furthermore buildings with UD is believed to be more beautiful, accessible and more easy for disable people to use. The researcher observed that disable

people can go inside but very difficult for them, because the ramp is too long, and the slope was not designed following proper specifications.

4. **Putrajaya Hospital -** This is a healthcare facility which requires every category of human being to go there for the purpose of treatment, work and business. But on examining the entrance of this huge public building, it was discovered that the concept of universal design was not implemented. The building contains a stair case and a small ramp, if compared to other public facilities, a health care complex is supposed to implement the UD to cater for all visitors. There is an observation that the disable people find it very difficult to enter this building, this is among such buildings that are expected to implement UD because many of such disability people need to patronize the hospital on a daily basis for treatment and healthcare services.

5. **Ministry of Finance -** This is an administrative building that attracts several people from all walks of life being located in the seat of power. Many of the people who patronize this building are old, healthy, pregnant, and disable people. But in close observation the building was found to have a stair case and a ramp for people to go in through the main entrance of the building. However, for such kind of building it is expected that Putrjaya been a modern city will implement the concept of universal design. This is because as authors reported that the cost of implementing the UD is not too much compared to the cost of implementing the stair and ramp separately. However, looking at this design and the importance of this building to the public, it will be very difficult for disability people to go into this important building for both official and private business (see Appendix D18 & D19).

In the course of assessing the transportation and accessibility features of Public buildings in Malaysia with particular focus on Putrajaya which is considered as the newest city and the seat of political and administrative power of the government of Malaysia. There exist the need to move closer to the structures and take a closer look at the transportation and accessibility facilities at the entrance of

these buildings, and also there is the need to take photographs of the entrance of such buildings to indicate the stairs, ramps and or universal design structures where applicable or available. In the cause of doing that, the researcher was only allowed to take pictures of 5 of the 18 public buildings he selected among his sample population which covers commercial, administration, hospital and health care and residential facilities for observation and assessment. The reasons given for not allowing the researcher move closer and take pictures of some of the facilities as mentioned by the security officials on the remaining 13 buildings are not unconnected to security issues as he tried to explain that Putrajaya is the seat of power and there is need to be highly security conscious. Such buildings where the researcher could not take pictures are indicated in above table 1 in asterisks.

The preliminary findings from the researcher's observation and brief interview with 5 tourists and 5 disability people and by physical assessment of some of the buildings, taking of pictures of 5 most essential buildings that he had access to. This report turned out the above table and pie chart which is used to assess the degree of accessibility for disability people in public buildings in Putrajaya. As the researcher found in this regards that, out of the 18 public buildings he physically observed. However, for the purpose of this section, 5 sample populations are enough to turn out the report which clearly reveals the statement of the problem for this study.

From Figure 1.1, it shows that of the total sample population of the buildings surveyed, 89% have stairs and ramp, 11% have stairs alone while (0%) none of the buildings are universally designed. This is a huge gap of research and that is why the researcher wants to study this topic and provide solutions and recommendations to policy makers, town planning officials and professionals for future decision making on how to address this problem and make life bearable to people with disability in Malaysia. Also evidence from this study will be useful for publication in international conferences and journals as reference point to future researchers and upcoming generation in Malaysia and beyond on the subject of universal design and accessibility. However, it is reported in empirical studies and several other reports that adopting the concept of universal design in both public and private buildings is a

way of enhancing inclusiveness to both people with ability and disability which eradicates marginalization of any segment of the society. This huge problem is also in itself a theoretical gap of knowledge in Malaysia. In view of this above reasons, the researcher shall only focus on the five buildings where pictures where allowed to be taken and a mention of others will be made in this research.

1.2 Statement of the Problem

Universal Design may be conceived by several users of the built environment mainly as accessibility for people living with disabilities. Some users may also relate accessibility for people with disabilities with an unappealing, "institutional" décor. Nevertheless, a public building that is Universally Designed may not have to appear like a single family nursing home (Perry, 1999). For instance, some construction designers integrate 5' spacious hallways into apartments, thereby providing adequate space for a wheelchair to move around. The general implication is a more spacious look that improves the value of the building (Ismail, 2003). Furthermore, this problem has not been emphasized on like that of car-centric communities and neighborhood pathways. Hence, introducing UD to both commercial and public buildings has conventionally not been the task of the planners. To design a very detailed strategy to neighborhood, community, and urban design, and to guarantee that all everyone can enter and can be comfortable in their apartment as they grow old or become less mobile, urban planners should advance universal design principles in housing design and the built environment (PAS 2010).

Manley (1998) questioned that as the list of people living with disabilities involves nearly all categories of people, including pregnant women, people who are temporarily impaired and children, it is a wonder why UD is still of little interest to many. She opined that the role of the authorities and decision makers in drawing the policies and implementing them is an integral aspect in fulfilling the basic civilized human needs of future urban design (Asiah et al., 2011). However, Dion (2004) stressed that universal design in public facilities is a non-ending solution and a

process, which is lasting. If that is the situation, how best do we evaluate a universal design environment in the public buildings in Putrajaya?

This research focuses on universal design for people with disabilities as applied to public buildings, spaces and environments with particular emphasis on Putrajaya, the federal government administrative capital of Malaysia. Several similar studies related to the elderly population have been performed, but not much of the studies are related to accessibility in the built environment and specifically the entrance of public buildings in Putrajaya. This aspect of people with disabilities have long been worried about the reasons why their path to entrance into public buildings, commercial or residential buildings has always been placed at the left hand corner of such buildings. This location makes the people with disabilities develop a sense or rather a feelings of non-inclusiveness and the psychological feelings that they are been socially excluded from other people without disability. However, this scenario has created a huge challenge to urban planners, architects, designers and construction engineers of both public and private buildings on the need to design buildings with an entrance that is non-discriminatory and inclusive to all. The evolution of such category of buildings is known in some quarters as "design for all".

1.3   Objectives of the Study

In Malaysia, several studies related to the elderly population have been performed, but none of the studies are related to accessibility in the built environment. This research seeks to focus on universal design for disability people as applied to public buildings, spaces and environments in Putrajaya, Malaysia. This aspect of universal design is crucial in helping disable people with diverse and changing abilities to remain active in society. However, inaccessible built environments, low-quality urban spaces, unsuitable architectural design features in buildings and facilities with barriers currently hamper the full participation of people with disability (Goltsman, 2001; Kendrick, 2003; WHO, 1980). It is important that policy for the future addresses this. There are some international action plans and

examples that can help to ensure that the principles of universal design feed into the design of public spaces and buildings in Malaysia. The purpose of this study is to ascertain consumers' levels of interest for integrating universal design features at the entrance of public buildings in Putrajaya. This is intended to be carried out through a consumer preference survey completed by selected persons visiting or works at selected public buildings in Putrajaya. Hence, this research is planned to achieve the following objectives:

1. To identify universal design criteria applicable to public buildings in Putrajaya.
2. To identify the factors influencing consumers' (planners, people with disability, builders) level of interest on universal design.
3. To understand issues on the lack of universal design implementation.
4. To find out if the cost implications of the inclusive building is responsible for the non adoption of the universal design concept in public buildings in Putrajaya.

1.4   Research Questions

1. How are the universal design criteria applicable to public buildings in Putrajaya?
2. What are the factors influencing consumer's level of interest on universal design.
3. What are the reasons for the non implementation of UD in designing buildings in Putrajaya?
4. Does the cost of adopting the universal design concept responsible for its non implementation in public buildings in Putrajaya?

1.5   Significance of the Study

This research shall provide planners, urban designers, architects and other interested parties with a fascinating knowledge of the design characteristics that allow people of different shapes, sizes, and abilities to operate with less stress as they try to access public buildings in Malaysia. Essential design requirements that to the building of a community supportive accommodation were recognized through a comprehensive investigation of universal design databases. The review of the principles of universal design will be beneficial to urban planners, design experts and researchers and serve as a point of rallying point to incorporate the principles into the schematics of residential, commercial and public buildings such as offices, shopping malls, apartments and recreation centers. Additionally, the outcome from this study will provide as the foundation for a UD guideline for public policy makers, contractors, urban planners and other designers in Malaysia and beyond when planning and public designs.

Outcomes from the data collection will be useful policy makers, municipal council officials, architects, and developers to compare user's curiosity in universal design characteristics to buildings for particular age, status and income brackets. The research was structured to expose which, if any, of the chosen UD concepts users, urban planners, designers and public officials perceive are desirable to incorporate into public buildings. The conclusion of this research may help educators, designers, and developers in their bid to assist users and public policy take adequately knowledgeable decisions when designing, building or remodeling public facilities.

1.6   Gap of Knowledge

From the pilot study carried out in Putrajaya the researcher's observation and brief interview with 5 tourists and 5 disability people and by physical assessment of some of the buildings, taking of pictures of some of the most essential public buildings that he had access to. This report turned out the above table and pie chart

which is used to assess the degree of accessibility for disability people in public buildings in Putrajaya (Table 1.1 and Figure 1.1). From the pilot investigation shows that of the total sample population of the buildings surveyed, 89% have stairs and ramp, 11% have stairs alone while none of the buildings are universally designed. This is a huge gap of research and that is why the researcher wants to study this topic and proffer solutions and recommendations to policy makers, town planning officials and professionals for future decision making on how to address this problem and make life bearable to people with disability in Malaysia. It is important that future policies address this. There are some international action plans and examples that can help to ensure that the principles of universal design feed into the design of public spaces and buildings in Malaysia. However, this design if adopted will speed up the attainment of the millennium development goals as it is in line with the goals.

1.7   Scope of the Study

The scope of this research is limited to the entrance of public buildings in Putrajaya, Malaysia. However, by public building, the researcher means such facilities like commercial buildings, residential buildings, administrative buildings, mosque and religious houses.

1.8   Limitation

The limitation of this research is that, very sparse literature is available on universal design especially in Malaysia. Search into databases have returned little publications concerning universal design in Malaysia. Furthermore, the inability of the researcher to have unhindered access to some of the important public buildings in Putrajaya may be a limiting factor to achieving the full aim of this study.

1.9   Summary

Town and transportation planning are regarded as planning carried out in respect to the standard of living in the urban community. In the urge of Malaysia to become an a developed nation, it is critical that the country does not lose focus of the very aim of planning and the key concepts of effective planning of a city consisting of a proper facilities for all, and good city planning is incomplete without an inclusive and efficient transportation planning. This is imperative, in case the country become a prosperous yet faceless community, with the absence of self-satisfaction, lacking a feeling of communality, and with the ever-present physical and social challenges. This is the reason in the setting up of Putrajaya; the planners should strive to look back to recognizing and creating the essence of cities and try to respond to the significance of town-making.

This research goes far to illustrate that township planning could play an essential role in Putrajaya not only making available the space, but also by identifying and enhancing the inter-relationship between the different urban components and human actions. In essence, the planning and development of Putrajaya should strategically incorporate the rudiments of good authority and town planning that could be copied by other communities because one key thing that is lacking is the non adoption of the concept of universal planning in the public buildings as seen in Putrajaya.

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APPENDIX A

Interview Schedule for Participants

Objective of the Study

The purpose of this study is to ascertain consumers' levels of interest for integrating universal design features at the entrance of public buildings in Putrajaya. This is intended to be carried out through a consumers and designers survey completed by selected persons visiting or works at selected public buildings in Putrajaya. Hence, this research is planned to achieve the following objectives;

1. To identify universal design criteria applicable to public buildings in Putrajaya.
2. To identify the factors influencing consumers' (planners, people with disability, builders) level of interest on universal design.
3. To understand issues on the lack of universal design implementation.
4. To find out if the cost implications of the inclusive building is responsible for the non adoption of the universal design concept in public buildings in Putrajaya.

Research Questions

1. How are the universal design criteria applicable to public buildings in Putrajaya?
2. What are the factors influencing consumer's level of interest on universal design.
3. What are the reasons for the non implementation of UD in designing PJ buildings?
4. Does the cost of adopting the universal design concept responsible for its non implementation in public buildings in PJ?

Section A: Demographic Characteristics of Respondents
1. What is your name?
2. What is the name of your company?

3. What are your educational qualifications?

4. What are your professional qualifications?

5. How old are you?

6. What is your gender?

7. What is your type of disability?

8. What kind of work are you engaged in?

9. What is your position?

Section B: Interview Schedule for Disable People

1. Do you feel that you are treated differently or segregated on because of non-implementation of Universal Design?

2. Are you faced with any difficulty when you use the entrance of public building in PJ?

3. What do you understand by the term Universal Design?

4. What is your opinion to implement Universal Design in entrance of public buildings in Putrajaya?

Section C: Interview Schedule for Professionals

1. What do you understand by the term Universal Design?

2. What is your opinion to implement Universal Design in entrance of public & commercial buildings in Putrajaya?

3. Do people living with disability feel segregated upon due to non implementation of Universal Design?

4. Do you think that people living with disability should be segregated upon?

5. In what directions should Putrajaya adopt the concept of Universal Design in the entrance of public buildings?

6. Do you think the cost of designing an inclusive building is responsible for the non implementation of the concept of Universal Design in Putrajaya?

7. What is your opinion about the current type of design in entrance of public and commercial buildings in Putrajaya? and their effect on disable people.

8. What is the current policy to promote the concept of Universal Design in Putrajaya?

9. Some designers who incorporate Universal Design features into the planning

stage of construction believe that most of the features do not add substantially to the cost of building; what is your opinion about this statement?