Universal Design Practice in Malaysia: Architect's Perceptions of its Terminology

Mohamed YUSOF [a,1] and David JONES [a]

[a] *School of Architecture & Built Environment, Deakin University, Australia*

Abstract. Universal Design is a concept that embraces and covers issues of accessibility in the built and natural environments. The concept has progressively been introduced into the Malaysian built environment and architecture practice. However, its implementation in Malaysia is still considerably deficient. This paper investigates the contemporary perceptions of Malaysian architects towards the implementation of Universal Design in Malaysian built environment practice with an emphasis on their understanding of the terminology of Universal Design by means of face-to-face interviews. Findings indicate misconceptions towards the terminology of Universal Design exist in Malaysian practice due to a lack of understanding of the terminology that is negating its implementation in built environment practice.

Keywords. architect's perceptions; Malaysia; terminology; universal design

Introduction

Universal Design is a concept that promotes solutions which enhance accessibility and usability of products, environments, programs and services for all ages and abilities to the greatest degree possible and a concept that evades the specialised features or design focusing only for people with disabilities or elderly people [1][2]. In other words, it is a concept that takes into consideration the aspect of accessibility and usability from 'cradle to grave'. Implementing Universal Design is one of the means that can improve accessibility in the built environment. However, accessibility in the built environment is commonly associated with people with disabilities solely and consequently hinders its improvement in community and professional comprehension. These misconceptions and biased perceptions are that Universal Design only benefits people with disabilities [3].

In this context, perception plays a significance role. Perception can be defined as understanding an idea and is synonymous with words including insights, awareness, knowledge, opinions and observation that derived through human contact with their surroundings [4]. This study however focuses on architect's perceptions. The decision of focusing on architect's perception is because architects are the linchpin between the end user and the built environment. Decisions, supported by Wickman [5], validate that architects today give priority to business and aesthetic values rather than the end user(s) of their design(s) and Skinner [3] affirms that there is a need for discussions about the

---

[1] Corresponding Author, Ms Mohamed Yusof, School of Architecture & Built Environment, Deakin University, Locked Bag 20001, Geelong 3220, Australia

benefits of Universal Design to the profession due to the complex processes in implementing Universal Design in the built environment.

Accordingly, this paper seeks to discuss the perceptions of contemporary Malaysian architects towards the implementation of Universal Design with an emphasis upon terminology because this plays an important role in its implementation as the misinterpretation of a term or concept may mislead its original intentions and aims.

1. Methodology

Data was collected through interviewing 30 Malaysian architects who are currently practicing in private architectural firms. Potential architects from Lembaga Arkitek Malaysia (LAM) existing contact lists were initially approached and introductions were made through phone call. In order to collect a wide range of insights and information, the architects have been selected randomly. Five architects from Terengganu, Pahang, Melaka, Negeri Sembilan, Selangor and Kuala Lumpur respectively with diverse educational background and years of practicing were successfully recruited and willing to co-operate in the interview and research project.

As the aim of the study was to investigate architect's perceptions towards the concept of Universal Design and its implementation in Malaysia rather than to search for external course, qualitative method of face-to-face semi-structured interviews were employed [6-7].

The structured interview questions were designed to investigate architect's perceptions by means of investigating their awareness, knowledge, opinions and observations towards the concept of Universal Design and its implementation through five sections. The five sections comprise the architect's background; awareness and understanding of the terminology and concept related to Universal Design; awareness and practice of the legislation and standards related to Universal Design; initiatives of governments and professional institutes and actions in promoting Universal Design and the issues; and, facilitators and barriers associated with Universal Design.

During the consented interviews, notes were taken and discussions recorded using a digital voice recorder. The data was then processed and analysed using Nvivo, qualitative data analysis (QDA) computer, using three significant themes: terminology; legislation and standards; and, facilitators and barriers. The themes discussed in this paper specifically relate to terminology.

2. Terminology Related to Universal Design

Universal Design was first used and promoted in the United States by Mace [8]. Despite the most cited definition of Universal Design by Mace [2], who defined it as 'the design of products, environments, programmes and services to be useable by all people to the greatest extent possible without requiring adaptation or specialised design', there are many definitions for Universal Design that are evident in the literature. [1, 9, 10-12]. These definitions share a common aim that is to improve accessibility and usability in the built environment by means of including everybody in the context.
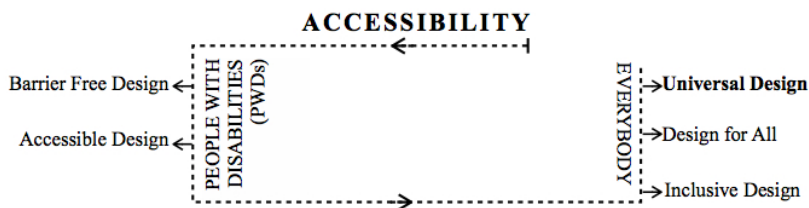
Figure 1. Terms associated with Universal Design

As demonstrated in Figure 1, there are also several terminologies that are associated with Universal Design internationally. Universal Design evolved from the concept of Barrier Free Design and Accessible Design and has the same nomenclature background and aims with Inclusive Design and Design for All [8-9, 13-14]. Being under the umbrella of accessibility, Inclusive Design, Design for All, Barrier Free Design and Accessible Design all reflect similar ideas but some have different definitions and intentions. Even though some of the concepts are broader and some are narrower, it is affirmed that these concepts emphasise certain aspects over others [9].

2.1. Barrier Free Design

Barrier Free Design is defined as a concept or design that that removes the barriers that hinder the social participation of people with disabilities by means of four categories which are physical matters, information, system and consciousness [15]. The concept started in 1953 as a movement to remove barriers for the physically handicapped in the field of architecture [15], and gradually reported around the world as a concept to remove barriers for people with disabilities from the built environment [8]

Focusing merely on removing barriers for people with disabilities instead of tackling the issues for a bigger population, Barrier Free Design distinguishes itself from the concept of Universal Design. However being the pioneer in tackling the issues of accessibility especially in the built environment, and disregarding that the target group is people with disabilities, it's imperative is to acknowledge that Barrier Free Design underpins the emergence of Universal Design internationally. It is the underlying concept of Universal Design [8, 15].

2.2. Accessible Design

Notwithstanding the importance of the Barrier Free Design movement, this term was later replaced with the term Accessible Design [8]. Such is recognised as specialised design that is regulated by prescribed design standards, regulations and building codes or criteria to accommodate people with disabilities [14. 16-17] and focuses on international issues of mobility, especially wheelchair access [8].

Similar to Barrier Free Design, and focusing exclusively on issues regarding people with disabilities, Accessible Design is different from Universal Design. While Universal Design is process-thinking that considers a broad diversity of population throughout their life, Accessible Design follows a set of regulations to accommodate people with disabilities [16]. This results in Universal Design giving more flexibility to architects to solve issues of accessibility in a specific or local oriented context through

bigger or international perspectives during the thinking and decision-making processes rather than following rigid regulations and codes that restrict their creative thinking constraining better solutions. Nonetheless, Accessible Design can be regarded as a preliminary point for Universal Design [17] and thus it contributes significantly towards the evolution of Universal Design should not be denied.

2.3. Inclusive Design

Inclusive Design is defined as the design of mainstream products or services that are accessible and usable by people with the widest range of abilities within the widest range of situations without the need for special adaptation(s) or specialised design(s) [18]. The popularity of this term is gaining internationally. Sharing the same background and aims with Universal Design [19], gradually the term is being used interchangeably with Universal Design [8].

The intent of Inclusive Design is to minimize unnecessary design segregation for mainstream products especially for people with disabilities [20] which are likely to have the characteristics that accommodate specific populations but yet still benefit everyone [21].

2.4. Design for All

The term Design for All is also claimed to have the same nomenclature background and intent as Universal Design. The concept has been applied as a non-stigmatizing and inclusionary approach [14]. It targets products, environments, and services that can be used by many people without the need for adaption [18].

As summarised by Mellors [22], it implies the design of products, services and environments to be usable by all people, to the greatest extent possible without the need for adaptation or specialized design which mirrors the same perspective in literature, and thus it has the same definition with Universal Design.

3. Dominant in Terminology Internationally

Cultural differences are apparent in terminology [8]. The concept of Universal Design is sometimes known by other names in different parts of the world [9, 13]. As discussed earlier, dominant terms that are equally as Universal Design are Inclusive Design and Design for All.

Figure 2 shows the dominant terminology in different countries. The term Universal Design is prevalent in United States, Japan Australia and Malaysia [8, 23-24]. However, in Japan the term Barrier Free Design is widely used to imply Universal Design because it is considered to be a concept that has evolved from Barrier Free Design [15]. In terms of the United States, Universal Design has been muddied with its gradual interchangeably with Inclusive Design [8] as what has also occurred and is occurring in Australia and Malaysia; the terms are progressively being incorporated into their legislation and standards [23-24].
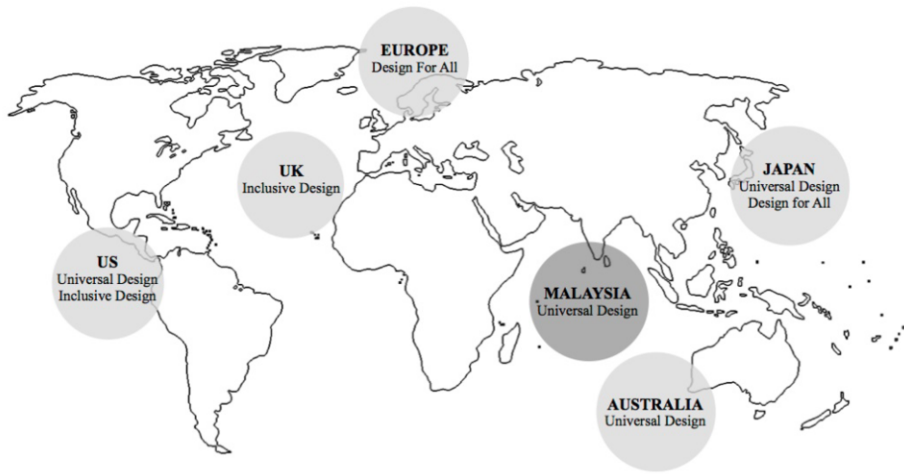
Figure 2. Dominant terminology in different countries

Inclusive Design on the other hand, is more established in United Kingdom than Universal Design and Design for All has become more prevalent in United Kingdom [8, 13, 25]. Within European countries, the term Design for All is more commonplace and pre-dominant [9, 13]. Nevertheless, apart from Design for All, Inclusive Design is used equally even though Universal Design is used by the Council of Europe and the European Union for its resolutions [8].

4. Is Terminology a Barrier?

How we define and understand a term and concept is fundamentally crucial. The same concept can be interpreted differently by two different people depending on how they understand the term. Different interpretations then lead to misunderstandings of what the concept intends to achieve. The majority of people have biased knowledge on Universal Design and create their own idea about what it means, when actually Universal Design is not just for people with disabilities but also for people without disabilities [3]. Evolving from the concept of Barrier Free Design and Accessible Design, and having the same nomenclature background and aims with Inclusive Design and Design for All [8, 14, 26], the term Universal Design faces the same situation.

Some authors believe that the differences lead to a healthy engagement but several authors disagree and consider that the differences lead to confusion than progression. Contrary to the perspective of Story [9] whom asserts that differences in terminology are an indication of healthy engagement with practitioners seeking wording that is useful for a variety of specific purposes, the authorship consensus is not necessarily consistent. Kose [27] for example argues that the terms are sometimes interchangeable, often misunderstood, and the subtleness of the differences may lead to confusion. Story [9] alleges that regardless of terminology, the goal of the concept is more important in making our built environment more accessible and usable for the diverse population. Kose [27] disagrees stating that there is a lack of clear distinctions and understandings between these terms that leads to more confusion than progress. The

argument between these authors is supported by several key authors. The most important argument derived from these authors is that Universal Design is interchangeably misunderstood as a concept that only targets and focuses the most often excluded in the built environment which in this context refers to people with disabilities. Thus it possesses a negative connotation that has been associated with negative perceptions that has led to barriers that hinder its implementation [2, 14-15, 17, 25, 27-30].

This paper reviews the author's argument based on the research undertaken in Malaysia. The study found that confusion on terminology of Universal Design exist amongst Malaysian architects and this confusion does lead to barriers that eventually hinders the positive progress of Universal Design implementation in Malaysia. Despite opposite opinions by Story and Kose, this study concurs with both authors to a certain extent. The study concluded that having few terminologies can lead to positive consequence in Universal Design implementation specifically in Malaysia given that alternate terms share the same intent with Universal Design such as Design For All and Inclusive Design because the aim of the concept is more vital rather than finding suitable terms. However, Universal Design should be articulated clearly to Malaysian architects because of the differences of its intent to Barrier Free Design and Accessible Design, otherwise as conceded by Kose, these confusions will loosen the strength of what Universal Design seeks to achieve.

5. Findings

5.1. Terminology of Universal Design in Malaysia

Universal Design is relatively a new concept in Malaysia. The credit of promoting the term Universal Design in Malaysian built environment can be given to the KAED Universal Design Unit (KUDU) in the Islamic University Malaysia. KAED's efforts can be witnessed through their organization of international conferences, symposiums, workshops and hosting product competitions on Universal Design that especially target professionals including architects, planners, engineers, academics as well as officers from local authorities [31].

Reinforced by obligations under United Nations (UN) charters and agreements resulting from Malaysia signing and ratifying the United Nations *Convention on the Rights of Persons with Disabilities* in 2008 and 2010 respectively [32], the Malaysian government has consciously sought to endorse laws and standards to improve accessibility in the Malaysian built environment. Even though the focus of these actions has been upon people with disabilities, the concept of Universal Design has increasingly being incorporated into Malaysian legislation and standards. The penetration is evident in the *Persons with Disabilities Act 2008* and the latest guidelines by *Ministry of Housing and Local Government: Garis Panduan Perancanganan Reka Bentuk Sejagat* [trans. Planning Guidelines for Universal Design] that supersedes *Garis Panduan dan Piawaian Perancangan Kemudahan Golongan Kurang Upaya* [trans. Planning Guidelines and Standards for People with Disabilities]. This marks a positive transformation that Malaysian is foreseeing a shift of focus on providing accessibility through the perspective of people with disabilities to seeing it being implemented in the bigger context for everybody.

However, since confusion in terminology regarding Universal Design is evident in the literature and in oral and practice use in Malaysian national legislation, the understanding of Malaysian architects towards the concept and the terminology remains uninvestigated. Given this dearth of research, this study considers the perceptions of the Malaysian architects towards the terminology of Universal Design.

5.2. Misconception of Universal Design Terminology in Malaysia

There are many barriers and challenges in implementing Universal Design in the built environment. One of the biggest barriers in its implementation from the eyes of Malaysian architects is the muddied misconceptions of the concept and the terminology. The terminology section in the interviews focused upon the Malaysian understanding of Universal Design, Inclusive Design, Design for All, Barrier Free Design and Accessible Design, and whether similarities or dissimilarities of these terms can be distinguished.

The study found that most architects could not differentiate the dissimilarities of Universal Design with Barrier Free and Accessible Design due to two reasons. First, there is lack of understanding on both the terms of Universal Design itself as well as all others terms studied resulting in the respondent conclusion that all terms carry the same meanings and intents. Secondly, the aspect of accessibility is understood as only focusing on people with disabilities and hence Universal Design from the respondents perspective is a concept that orientates on accessibility issues and is the presumption was evident that it was a concept that only benefitted people with disabilities. The findings indicates that even though the concept is slowly being introduced into Malaysian legislation and standards, the understanding of the concept in practice is still lacking pointing to misconceptions of the concept and terminology among Malaysian architects.

5.3. Consequence of Misconceptions of Terminology in Malaysia

The biggest misconception among Malaysian architects about Universal Design is that it is perceived as a design template for people with disabilities. This misconception contributes to negative consequences towards its implementation and acceptance in Malaysian practice. The consequences on Universal Design being perceived as only benefiting people with disabilities are:

- The concept being given little consideration both by public and professional as well;
- The acceptance of the concept by Malaysian architects is slow;
- The facilities provided are presumed as being not fully utilised thus becoming a waste;
- There is an assumption that a greater increase of cost will be incurred;
- There is a challenge in convincing clients to provide these facilities or changed due to cost factors and a lack of understanding of the importance of the concept amongst clients; and,
- There is an assumption that there is less demand in providing accessibility.

6. Conclusion and Suggestions

New concepts normally take time to be established especially if the knowledge and understanding of the concept is lacking. Lack of knowledge and understanding will lead someone to interpret it according to their own perception. Since the concept of Universal Design in Malaysia is relatively new concept, it faces this dilemma.

The biggest contributor to the slow pace of implementation of Universal Design in the Malaysian built environment is the terminology itself. Universal Design is perceived as having the same aims and intents with Barrier Free Design and Accessible Design. Notwithstanding the importance of the Barrier Free Design and Accessible Design in improving accessibility in the built environment and as underlying concepts of Universal Design, it is important to distinguish the difference between these two terms with Universal Design. As the study found, in the Malaysian context, these misconceptions have led to the concept losing its foundations and strength in providing accessibility and usability that accommodates everybody to the greatest degree possible.

Hence, this research suggests that the most important step is to clarify the misconception and misinterpretation by educating professionals by means of more holistic and continuous promotion on Universal Design through conferences, symposiums, mandatory continuing professional development courses, workshops and product competitions. Even though, initially this paper suggests that Inclusive Design and Barrier Free Design should be promoted in line with Universal Design, priority in promoting and educating the concept should be given to Universal Design due to the reason that Universal Design has already been integrated in Malaysian national legislation and guidelines. Thus, education about the term Universal Design consistent with the application of the term in the legislation will avoid more confusion in the future. Another issue that needs to be taken into consideration is the mindset and attitudes of professionals not only towards Universal Design but about people with disabilities as well. As changing perceptions takes time, in order to shift attitudes of professionals towards a more positive acceptance of the concept, early education of the concept should been implemented in order to provide better understanding and acceptance in professional practice. Apart from understanding terminology, legislation and standards also plays equal importance together with improving the implementation of Universal Design in Malaysian built environment, together with promoting by the government through legislation and standards related to Universal Design that should be in accordance with promoting the concept of Universal Design itself. Legislation and enforcement will make Malaysian architects be obliged to implement legislation and standards into practice and to ensure a better understanding of best practice in this realm. In other words, legislation and standards will aid better understanding and will ensure quality implementation of Universal Design in Malaysian built environment.

References

[1] J. Palmer and S. Ward, *Your Home Technical Manual.* Fourth ed. Australian Department of the Climate Change and Energy Efficiency, Canberra, 2010.
[2] R. Mace, Universal design in housing, *Assistive Technology* **10** (1998), 21-28
[3] J. Skinner, Public places, universal spaces: taking accessible design to the next level, *Planning* **74** (2008), 10-13.
[4] R. Efron, What is perception?, Proceedings of the Boston colloquium for the philosophy of science 1966/1968 Boston Studies in the *Philosophy of Science* **4** (1969), 137-173.
[5] R. Wickman, Mind the gap: an architect devotes himself to the pursuit of universal access using some very basic strategies, *Canadian Architect*, **53** (2008), 61-62.

[6] D. Remenyi, B. William, A. Money and E. Swartz, *Doing Research in Business and Management: an Introduction to Process and Method*. Eds.Sage, London, 1998.

[7] A. Bryman, *Social Research Methods.* Third ed. Oxford University Press Inc, New York, 2008.

[8] E. Ostroff, *Universal Design Handbook .*Eds. McGraw-Hill, New York, 2011.

[9] M.F. Story, *Universal Design Handbook.* Eds. McGraw-Hill, New York, 2011.

[10] Center for Universal Design, *Definitions: Accessible, Adaptable, and Universal Design*, 2006. <http://www.ncsu.edu/ncsu/design/cud/pubs_p/docs/Fact%206.pdf>.

[11] E. Karol, Inclusive design and the new home market: the west Australian situation, *Architectural Science Review (University of Sydney)* **51** (2008) 80-83.

[12] Center for Universal Design, Universal design housing for the lifespan of all people, *Design Research and Methods* **1** (2011), 1-16.

[13] T. Vavik, and R. Gheerawo, *Inclusive Buildings, Products & Services: Challenges in Universal Design*. Ed. Tapir Academic Press, Trondheim, 2009.

[14] M. Erkiliç, Conceptual challenges between universal design and disability in relation to the body, impairment, and the environment, *METU Journal of the Faculty of Architecture* **28** (2011), 181-203.

[15] T. Akiyama, Japan's transportation policies for the elderly and disabled, Paper presented at the *Workshop on Implementing Sustainable Urban Travel Policies in Japan and Other Asia-Pacific Countries* ,Tokyo, Japan, 2005.

[16] J.P.S. Salmen, *Universal Design Handbook.* Eds. McGraw-Hill, New York, 2011.

[17] R. Rossetti, *Ten Myths about Universal Design*, 2010. <http://www.udll.com/media-room/articles/ten-myths-about-universal-design/index.cfm>.

[18] L.L. Nussbaumer, *Inclusive Design: a Universal Need*, Fairchild Books, New York, 2012.

[19] CEBE Special Interest Group in Inclusive Design, *an Introduction to Inclusive Design*, 2001. <cebe.cf.ac.uk/learning/sig/inclusive/whatisinc.pdf

[20] S. Waller, P. Langdon and J. Clarkson, Designing a more inclusive world, *Journal of Integrated Care*, **18** (2010), 19-25.

[21] D. Hitch, H. Larkin, V. Watchorn and S. Ang, Community mobility in the context of universal design: inter-professional collaboration and education, *Australian Occupational Therapy* 59 (2012), 375-383.

[22] W. Mellors, 2009, *Inclusive Buildings, Products & Services: Challenges in Universal Design*. Ed. Tapir Academic Press, Trondheim, 2009

[23] Law of Malaysia, *Persons with Disabilities Act,* Percetakan Nasional Berhad, Malaysia, 2008.

[24] Australian Standard, *AS 4299: Adaptable Housing,* Australian Standard, Australia,1995.

[25] J. Bringolf, Calling a spade a shovel: universal, accessible, adaptable, disabled-aren't they all the same?, Paper presented at the *Asia Pacific Network for Housig Research (APNHR)*, Sydney, Australia, 2009.

[26] S.A. Kadir and M. Jamaludin, Applicability of Malaysian standards and universal design in public buildings in Putrajaya, *Procedia - Social and Behavioral Sciences* **36** (2012)**,** 659-669.

[27] S. Kose, How can the exploding senior population be accommodated? Japanese struggle towards inclusive design, *Journal of Engineering Design* **21** (2010), 165-171.

[28] J. Bringolf, Barriers to universal design in Australian housing, Paper presented at the *International Conference on Best Practice in Universal Design,* Toronto, Ontario, 2011.

[29] S. Iwarsson, and A. Stahl, Accessibility, usability and universal design-positioning and definition of concepts describing person-environment relationship, *Disability and Rehabilitation* **25** (2003), 57-66.

[30] S. Szenasy, *Universal Design Handbook.* Eds. McGraw-Hill, New York, 2011

[31] A.A. Rahim, Application of universal design in Malaysia: KAED universal design as research and training provider for Malaysia, Paper presented at the *3rd International Conference on Universal Design in the Built Environment*, Putrajaya, Malaysia, 2013.

[32] United Nations, *UN at a Glance*, 2012. <http://www.un.org/>.