

Concept Awareness of Universal Design in Interior Design Program in the U.A.E.

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ABSTRACT

Universal Design (UD), a term coined by Ronald L. Mace is a concept of equality of use of space, built environment and products irrespective of the limitations and disabilities users may have. The concept is founded on eradicating the discrimination, marginalization and social disengagement of the disabled. In addition to those born with disability, and those who have become disabled because of mishaps, a more disconcerting situation is the demographic change caused by a steadily growing aged population across nations. The elderly, as with other disabled populace, find it difficult to complete even their routine daily tasks due to diminished accessibility. The goal of this paper is to assess the awareness of UD amongst students pursuing interior design in the U.A.E. Since most of the academic institutions in the region are run either by the American, Canadian or British Universities, this work will be able to reflect on the importance such universities give to UD in their curriculum. Healthcare and social engagement of the disabled is the main concern, hence. Providing avenues for the disabled implies creating universally accessible and usable built environments and products. Designers need to be cognizant of

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the relevance of UD as an integral part of their profession. Such awareness requires that the values and concept of UD be taught during the formative years in the schools and colleges. More specifically the designers of built environment – the Architects and the Interior designers should take concerted efforts to understand and implement the philosophy of UD.

Keywords: Architectural domain, inclusive design, interior design, universal design

INTRODUCTION

Since the 20th century, the average human life span has been on the continual increase (from 47 years in the start of 20th century to 76 at the start of 21st century (Connell, 1997; Overall, 2005), owing to better health care and living conditions. Such an ever-growing ageing population has significantly changed world demographics. Aged people are prone to have diminished ability or even disabilities in their later stages in life and are often unable to complete daily routine tasks without help. This not only makes them dependent, but also limits them access to many avenues in built spaces, or able to use products that have become commonplace in their lives previously.

In addition to this, there are other people who have been disabled from birth or those who have been injured through accidents or when at war. All of these people need access to everyday utilities and unhindered access to and the easy use of space as well as products in order to avoid

stigmatization, marginalization and to also be engaged socially and democratically. The inclusiveness of those suffering from a disability lies in the concerted efforts of designers to create spaces and products within the built environment that are easily accessible.

Universal Design (UD) is a philosophical concept projected into the design of space and products. Social recognition regarding the need for ‘inclusive design’ or ‘design for all’ appeared within European nations earlier than the rest of the world (Kennig & Ryhl, 2002). Ronald L. Mace, designer, academic and architect coined the term ‘Universal Design’ in the 1970’s, and formalized the concept through the formation of The Center for Universal Design in 1989. The main emphasis of this movement was to remove discrimination and inequality between those with and those without disabilities (including children and the older generation) when accessing and using living spaces and products.

However, the awareness of the concept of Universal Design still seems to seek due recognition and consideration in the realms of design ethos of architectural and product creation. Literature on Universal Design exposes a lack of concept awareness and thus seeks remedial action through different means, chiefly through the introduction of the concept at academic levels. This paper seeks to establish further facts by conducting a structured interview of students pursuing a program in Interior Design in the U.A.E. in institutes affiliated to American Universities.

Researchers seek to emphasize the importance of, and lack of awareness of Universal Design, alternatively called 'Inclusive Design' or 'Design for All' by defining it as a social, academic and professional movement (Froyen et al., 2009; Olguntürk & Demirkan, 2009). In the 21st century, there is growing need for awareness regarding Universal Design, given the rapid technological advances and multiple avenues for engaging people with disabilities socially. Disabilities may appear in different forms: those related to old age (physical or mental), temporary (caused by accidents), or permanent (accidental or from birth). However, the architectural design environment at present does not conform to philosophical tenets and theoretical principles regarding Universal Design, and as such, impedes continued social engagement of the disabled (Danford, 2003). This lack of awareness in fact is a global issue in academic and professional practice (Powell & Pfahl, 2018).

Danford (2003) exemplified the success of the concept of by implementing Universal Design via an experiment. This experiment comprised taking a group of 32 adults (24 of which had at least some form of disability (visual/hearing/mobility, whilst the remaining eight did not have any disability) on a tour of a 'Universally Designed' building. He sought their opinion on the ease or difficulty of completing standard, routine expectations, such as accessing and using washrooms, entering confined spaces and other sundry tasks. All the participants reported that the tasks presented no difficulty.

Universal Design (UD) has thus a created environment with products and features that all users, irrespective of abilities, can use and access easily without specific, concerted adaptations (Story, 1998). Socially, the need for specific adaptations that disabled people require to access daily life and activities in both public and private environments often lead to stigmatization and sometimes become noticeable as 'different'. Story (1998) explained that disabled people might utilize more effort to complete mundane tasks, and that 'normal' people saw this as 'disconcerting'. Taking it further, such stigmatization may impede social participation and consequently, and more importantly, social engagement through 'productive' contribution. Thus, a lack of 'Universal Design' could ultimately lead to marginalization of people with disabilities (Knight & Ricciardelli, 2004).

It could be said that the well-being and quality of life of people with disabilities depends on the number of activities they can perform independently, including social pursuits and engagements. Studies note that a lack of awareness of UD evident in the current 'designer' ethos impacts those who are disabled negatively. A lack of UD concepts in the built environment and within production design creates barriers for the disabled (Burgstahler, 2015; Demirkan, 2007; Kadir & Jamaludin, 2013). Furthermore, it leads to isolation, social disengagement, and ultimately can be seen as accentuating physical disability (Bennett, 2005; Brown et al., 2008; Glass et al., 1999; Grundy & Bowling, 1999).

Universal Design is a concept and a theoretical premise that when embedded into an overall design ethos would allow all users of living spaces and environments (as well as products) to use them equally, without specific adaptations, stigma, or disconcert. In general, the design of UD products are universally accommodating and fulfill the needs of all users (Goldsmith, 2007). Implementing UD in architecture, products, or utilities has many important ramifications, such as independence, equality, engagement, social health, and associated benefits, both tangible and intangible for those who require it. However, academic institutions training architects, design engineers and environmental planners (such as town planners and entertainment sites) do not include UD as a core curriculum subject (Aslaksen, 1997). Thus, designers are mostly oblivious to the core ethos UD – its theoretical and philosophical base. Secondly, most built environment and product manufacturing adhere to and revolve solely around codes and regulations.

Designers 'best practices' rarely, if at all, consider UD as a mandatory part of spaces designed by architects or even products created by design engineers. Academics profess that incorporating UD into day-to-day living requires minimal additional cost, whereas built environments show that accommodating such changes requires, for example extra layout floor/height (Horne et al., 2008). This comes at a premium in modern urban settlements and clients of the designers that offer UD may not agree to the increased costs, unless imperative. In order to include UD in the architectural domain, related research from the literature includes:

1. Incorporating UD as a theoretical, mainstream subject, with proper definitions, practices, and use with its tangible and intangible benefits (Afacan, 2011; Hosny & Anous, 2015; Olguntürk & Demirkan, 2009; Türk, 2014).
2. The design process should involve disabled users and recognition of their considerations should be included in practice (Ergenoglu, 2013).
3. Explore newer avenues through collaboration with a wider spectrum of designers across professional, socio-cultural and national boundaries to evolve designs that transcend codes and regulations (Singh & Tandon, 2018).
4. Evolve cost-effective solutions to engage the client and seek to add value to design (Carr et al., 2013).

Designers create spaces for clients considering aesthetics, utility, lived experiences and interactions with built environments. However, experiences can be subjective and prone to change (Poldma, 2010). In order to imbibe such knowledge into architectural design, Strokerson (2010) suggested a theoretical framework of the "implicit, naturalistic, ecological cognition of everyday existence." As a reflection of this, implementing UD is a concept with a philosophical outlook. All stakeholders, designers, architects, engineers, clients and users should be aware enough to look beyond their own needs and experiences in built spaces and products and should seek to engage all users, irrespective of their abilities and limitations in order to access all

facets with equality and moreover, without stigmatization or marginalization (Carr et al., 2013; Null, 2014).

Since UD is often claimed as an invisible design feature (Null, 2014), this article provides some of the best practiced examples in order to clarify this:

1. UD Teaching Facility: Kansas State University

According to White (Jo White & Annis, 1995), the laboratory has many features such as; 1) hands-on integration of the universal design concept into both resident- and off-campus instruction and 2) applied research on user-based environmental design innovations. Five state-of-the-art prototypes testing and demonstration areas include an office/work environment, kitchens, bathroom/restroom modules, a lecture/focus group area, and an open product testing space.

2. Center for Real Life Kitchen Design

This is located at The Virginia Tech College of Liberal Arts and Human Sciences, Blacksburg, Virginia. According to Byron, *“The newly launched Center for Real Life Design now offers faculty and students a multifaceted laboratory for exploring design and technology solutions for people with a range of physical and cognitive abilities and consumers who want to be environmentally responsible”* (Byron, 2017).

Both of these offer the best examples, taking into consideration the usability needs of people with various disabilities and also equal consideration to those of various ages and sizes (Null, 2014).

METHOD

The goal of this paper is to assess the awareness of UD amongst students pursuing interior design in the U.A.E. Since most universities and academic institutions in the region are either run by American, Canadian or British Universities or affiliated with them, this work should reflect on the importance such universities give to UD within their curriculum. This work hypothesizes that there is a need to increase awareness of UD in the professional realm. The literature review shows that such awareness is missing in academia and that incorporating further studies and information would help students be more appreciative of the needs of disabled and elderly people when designing and creating built spaces and products. The methodology follows a ‘structured analysis’, as outlined by Krathwohl (2004).

Questionnaire Design

The questionnaire consists of a list of main questions followed by examples of illustrative reasons to back up this main question. Such a method helps the researcher to ascertain the participant’s depth of understanding in regard to the main question. The design of the questionnaire also helps investigate the awareness of UD in interior design. Since the literature review

emphasizes the importance of incorporating the awareness of UD into the curriculum of programs taught within interior design, this questionnaire targeted students pursuing such programs in the UAE, in the 'in studies.

The questionnaire was based mainly on the first question, where students were asked to define Universal Design. It aimed to understand their awareness of UD as a concept. The follow-up question sought to understand the implications of UD, as understood by those who were able to answer the first question. Participants were required to explain the definition they had offered (in regards to UD) by illustrating the answer with examples that they had observed within built or themselves.

The next question sought to how students understand the importance of UD within

interior design. Thus, the questionnaire was exploratory in nature and sought to delve deeper into the accrued meaning of UD and how students understood UD as both a concept and in practice. Each interviewee was interviewed independently, and the time taken for each individual interview was approximately seven minutes. All interviews were recorded for accuracy and for future reproduction and analyses. The salient points were noted in writing by research assistants in the field.

Participants

All fourth-year students studying an Interior Design Program in 2015-2016 from seven universities in the UAE that offered this program were contacted to participate in this study. They were chosen because they were

Table 1

The number of students who participated in the survey

	University name	Program	State, city	Numbers of students interviewed	Total number of students in the program	Percentage of participation
1	University of Sharjah	Interior Architecture and Design Program	Sharjah	42	42	100%
2	American University in Sharjah	Interior Design	Sharjah	18	22	82%
3	Ajman University	Interior Design	Ajman	23	39	59%
4	Abu Dhabi University	Interior Design	Abu Dhabi	19	19	100%
5	American University in Dubai	Interior Design	Dubai	11	32	34%
6	Canadian University in Dubai	Interior Design	Dubai	9	22	41%

Table 1 (Continued)

	University name	Program	State, city	Numbers of students interviewed	Total number of students in the program	Percentage of participation
7	Al-Hosn University	Interior Design	Abu Dhabi	7	7	100%
Total				129	183	70%

seniors in this program, had completed their internship successfully and mostly working on their graduation project.

Amongst all those contacted, 129 students attended the interview. Table 1 shows the students participation according to university. Although the target is to get 100% participation, however, it was not achievable as some of the students were not available during the interview.

RESULTS AND DISCUSSION

In Figure 1, the results of question one (the definition of UD) shows that more than half of the students (57%) were not aware of the UD concept, or did not have enough

of an idea to define what Universal Design is. This implied that they would not be able to illustrate the concept with relevant illustrations. Hence, they were not required to answer the follow-up questions. Less than half of the respondents (43%) could attempt to define UD, implying that they had at least some idea in regard to the concept. Out of those who attempted a definition of UD, only 18 (14% of the total participants and 33% of those who attempted) could answer the question correctly and with confidence. Examples of stated definitions are as follow:

- UD is the understanding of the environment (cultural, social, and behavioral)

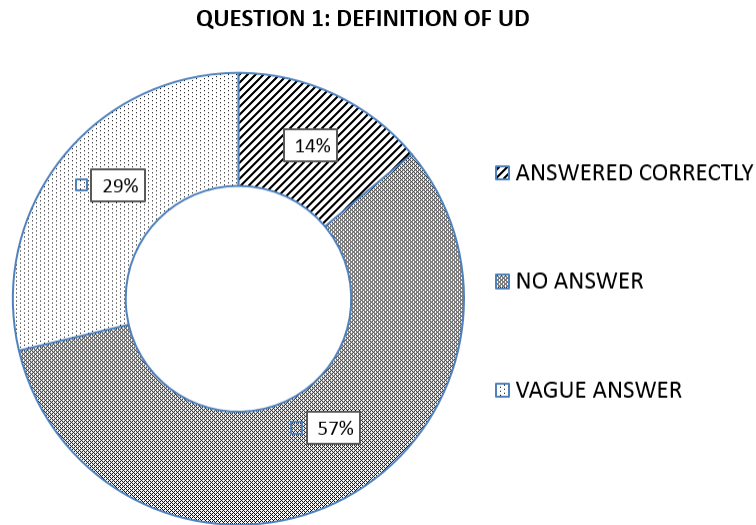


Figure 1. Question 1. Definition of Universal Design (UD)

- UD defines designs that serve people who have a specific disability, such as visual impairment
- UD sends a message especially to us (as a candidate of interior designer) to not ignore the people with diverse disabilities from the rest of the society
- UD is an internationally acceptable design
- UD is a product design that is gaining an acceptance by all people.
- UD serves user groups from diverse religions
- UD reflects the ideas and lifestyles of sociologists

In the second category, 37 (29% of the total participants and 67% of those who attempted) responses to the first question did not relate to the concept and differed vastly from the standard expected response. Hence, such responses were deemed as inaccurate. Responses were recorded during the interviewing process to reveal the understanding of UD from the participants' point of view. Some of the definitions of UD given by participants are as follows:

- UD is just in relation to ergonomic design

The results of the second question (example of UD in interiors) as shown in Figure 2 shows that among the 55 (43%) students who had some idea on UD, 60% were unable to provide specific example of UD, 23% provided irrelevant illustrative examples and only about 17% of the respondents that understood the concept gave a good example of UD.

The results of the third question (the importance of UD in interior design education) in Figure 3 shows that:

(a) 15% of students believe that UD is a crucial part of interior design in the present, due to the changing demographics owing to

QUESTION 2: EXAMPLES OF UD IN INTERIORS

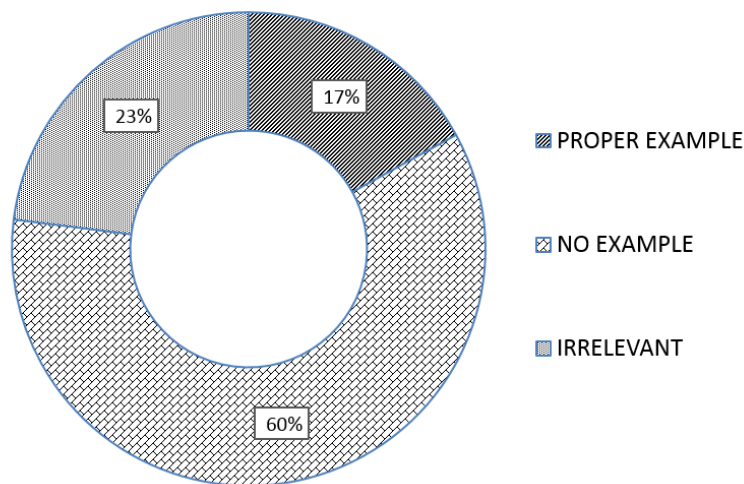


Figure 2. Question 2. Examples of UD in interiors (given by students)

a growing aged populace. They gave well-formulated, logical opinion and responses.

(b) 18% of the respondents said they believed that UD could be learnt whilst in the profession and has no relevance in the professional curriculum as it would interfere with technical nature of the course and dilute the rigor. In addition, they believed that the curriculum already had enough content and that UD would be an additional, unnecessary burden.

About 67% of students were unaware of the application of UD in the interior design field or did not have any idea as to how UD could be implemented in interior spaces. As such, they did not provide a definitive opinion to the query.

Overall, the result agreed with the literature suggesting that UD awareness is missing in academia as students have

had no formal introduction to UD and are generally therefore not aware of the importance or relevance of UD within built spaces and the environment. Out of 129 interviewed, only 18 (14%) defined UD accurately, although the grasp of the concept (impact on practical use, factors to consider whilst designing, usefulness of UD towards social engagement, and the like) was not sufficiently strong. As per the design of the questionnaire, the 18 students who answered the first question correctly were asked the follow-up questions to illustrate their answers as clearly as possible with examples.

This group of students was aware of the importance of the concept. Further questioning regarding the source of their awareness towards UD revealed that that their knowledge of the concept was formed

QUESTION 3: THE IMPORTANCE OF UD IN INTERIOR DESIGN EDUCATION

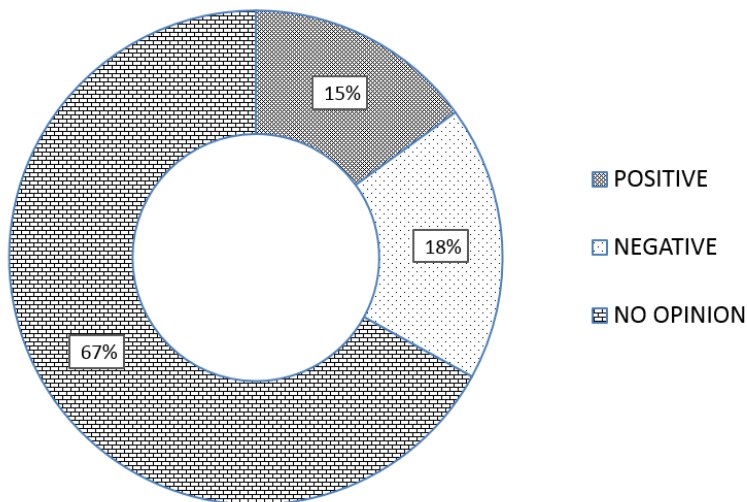


Figure 3. Question 3. The importance of UD in interior design education

by their own interest, studies, and research. They also mentioned that they had used the values of UD in their design projects, and their projects were distinctly different when compared to those of other students, in a positive way. They were pleased to be offered a chance to design the given spaces with an awareness of potential disabled users. It is also important to note that out of the 18 students who answered correctly, 10 (56%) were from American University of Sharjah where there is one elective course on UD offered under the ID program. Whereas in the other 6 universities, no specific course on UD is offered in the curricula.

CONCLUSION AND FUTURE WORK

UD is becoming increasingly relevant in current times as equality, well-being, inclusiveness and social engagement improve. UD has a philosophical premise and also tangible physical implications within the realms of design, including that of the built environment as well as production design. However, the awareness of this important facet of design is very low, if not completely absent amongst professionals and students of interior design and architecture. This study shows that UD is not a well-known concept amongst students where 86% of students in the survey were unable to give a proper definition of UD. The result of the survey seems to support the claim that universities do not include UD as a mainstream (theory and practical assignment), independent subject at any stage of the program. The results demonstrate the need for increasing

the awareness of UD amongst interior design students by having UD as part of the curricula in the UAE and also elsewhere as universities in the UAE are run either by American, Canadian or British Universities, or are affiliated to them. Even those who recognize the importance of providing equal opportunities to all find it difficult to provide solutions for the disabled due to lack of formal training and sufficient insight into the concept of UD. Health care and social engagement of the disabled is a growing concern, hence providing avenues for the disabled implies creating universally accessible and usable built environments and products.

Further research needs to be done to investigate the advantages of UD as a social paradigm and the same should be made evident to students of interior design and product manufacturing. The next step would be to investigate the effectiveness of a specially designed course on UD as a step towards incorporating UD as a theoretical, mainstream subject in ID program. The course should involve disabled users in the design process and recognition of their considerations should be included in practice. Commentators believe that such exposition would invoke student interest in this important facet of spaces and product design. Incorporating UD within built spaces would help equality regarding the use of space and assist with social engagement. Eventually, it is hoped that it would help lessen the marginalization and stigmatization of those who are disabled.

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