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NEED FOR THE IMPLEMENTATION OF UNIVERSAL DESIGN PRINCIPLES IN INTERIOR DESIGN

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Abstract: Universal Design (UD) in the simplest term means a design that is accessible to all. Universal Design's focus is on all types of users of different ages, forms and sizes, and physical abilities including children, the elderly, sick or injured people differently abled. The main aim of the universal design is to make a space usable by all rather than making user modify their behaviour to use the space. The move toward universal design has developed due to the expanding population of people with varying degrees of abilities and advancing years, their demands for recognition and their desire for independent living (Dr Inas Hosny Ibrahim Anous; 2015). This concept does not take into account everyone's ability but tries to increase the spectrum of users during the design process and it can be applied to all design professions. This paper reviews the need for applications of universal design in interior design through literature study and structured survey/Interviews of industry experts and design students. The aim is to generate awareness regarding the importance and need for Universal Design application in the Interior Design profession.

Index Terms - Universal Design, Interior Design, Design for all, Inclusive design

I. INTRODUCTION

Universal Design by its definition means designing something that can be universally used. Universal design is a process of designing physical spaces, products and services, to address a diverse range of users. It tries to incorporate flexibility in use, and accommodate their needs irrespective of the difference in their ability to use. To make a design universal, 7 principles have been created that the designer can follow while designing to make the end products/spaces accessible to all. Universal principles can be implemented in a wide range of spaces, products and services. Universal design advocates design for the differently-abled persons, children, and the elderly, without treating them as distinct user groups. It assumes that people have a range of needs and capacities. When well implemented, universal design can be invisible, marketable, profitable, safe, and both physically and emotionally accessible to most users (Trachtman et al, 2016). The universal design intends to simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost. (The centre for Universal Design, 1998). In the conventional design process when we design something specific to a user having a certain kind of functional constraint, we inadvertently move towards exclusive design, telling society that the user is different from the other users. When we implement universal design principles into our design process, we work more toward inclusion. It blurs the line between those with impairments and the rest of the population. Architecture, Interior Design, Product Design, and UX/UI design are a few of the design professions that need to emphasize the Universal Design Principles in their design process and should create places and products that are accessible to all user groups. Architecture and Interior Design are two such professions that majorly deal with a varied spectrum of users and the unavailability of all-inclusive design features makes the design inaccessible. When a particular space is designed such, that it cannot be used by all kinds of users, it automatically generates a feeling of inequality amongst the users. If Interior designers and architects follow the Universal Design Principles, it will not only improve the overall usability and built environment of the interior space but will also create a strong feeling of unity amongst the users. Throughout history, community attitudes and physical barriers in the built environment have prevented people with disabilities from fully participating in society and access to education, employment, housing, recreation, cultural events, and transportation has been denied to many people (Molly Follette Story, Ronald L. Mace, 1998).

II. AIM

This study aims to assess and validate the need for the implementation of Universal Design Principles in Interior Design.

III. OBJECTIVE

This study will focus on the study of Universal Design and its application. Through a literature study and a structured survey and interview, this study will identify and validate the need to implement UD in the interior design profession and education.

IV. LIMITATIONS

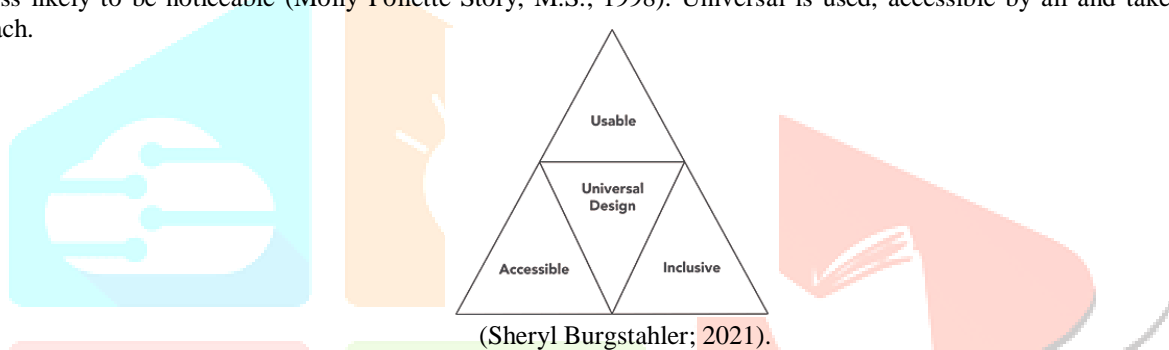
Universal Design, as the name suggests is a very broad concept that can be applied in all disciplines of Design ranging from Product Design to User Experience Design. This study in particular will focus only on the need for the implementation of Universal Design Principles in Interior Design Projects.

V. METHODOLOGY

The research starts with data collection and a literature review on the topic of Universal Design and Interior Design. Based on the Literature study and case studies, a structured survey questionnaire and interview questionnaire have been developed and responses from the stakeholders of Interior Design Projects have been taken. Through the analysis of questionnaire responses, the need for implementation of UD principles is validated.

VI. UNIVERSAL DESIGN

The term "universal design" was coined by the architect Ronald L. Mace to describe the concept of designing all products and the built environment to be aesthetically pleasing and usable to the greatest extent possible by everyone, regardless of their age, ability, or status in life (The centre for Universal Design, 1998). Ronald L. Mace who was an architect, product designer and educator interpreted the term UD and founded The Center for Universal Design in 1989 (Elif Helvacioğlu, Nazli Nazende Karamanoglu, 2012). According to the Center for Universal Design, UD is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Sheryl Burgstahler; 2021). The universal design strives to integrate people with disabilities into the mainstream and assistive technology attempts to meet the specific needs of individuals, but the two fields meet in the middle (Molly Follette Story, James L. Mueller, Ronald L. Mace; 1998; The Universal Design File). Universal design is always accessible, but because it integrates accessibility from the beginning of the design process, it is less likely to be noticeable (Molly Follette Story, M.S.; 1998). Universal is used, accessible by all and takes an inclusive approach.



VII. UNIVERSAL DESIGN PRINCIPLES

The following principles have been taken from The Center for Universal Design which provides detailed guidelines for each principle. The principles have been described here concerning Interior Design. In 1997 architects, designers, and engineers formulated the seven Principles of Universal Design under the guidance of the late Ronald Mace (The Center for Universal Design, 1998). These seven principles may be applied to evaluate existing designs, guide the design process and educate both designers and consumers about the characteristics of more usable products and environments (The Center for Universal Design, 1998).

Principle 1: Equitable Use

The principle signifies that the design should be equitable in use. All the users shall be able to use that product or space in an equal way irrespective of their different levels of abilities. The design shall be beneficial and marketable to people of diverse capacities. Example: An entrance door to a room that can accommodate a person in a wheelchair, a user with vision inability.

Principle 2: Flexibility in Use

The design shall be accessible to a large range of users. It is obtained by providing choice in methods of use, facilitating the user's accuracy and precision and providing adaptability to the user's pace (Elif Helvacioğlu, Nazli Nazende Karamanoglu, 2012). Example: A modular furniture that can be adjusted to different heights and positions based on the user's need.

Principle 3: Simple and Intuitive Use

Simple and Intuitive Use means the use of design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level (Elif Helvacioğlu, Nazli Nazende Karamanoglu, 2012). For example, the use of colours in any space of any product to convey movement and wayfinding.

Principle 4: Perceptible Information

Use different forms such as pictures, Verbal signages, tactile, and brail colors to convey information easily and effectively. The aim is to convey the essential information to a larger span of users with sensory limitations. For Example, the signages at Metro Station.

Principle 5: Tolerance for Error

The design minimizes the possibility of hazards and errors as the result of accidental actions and functionality failure. The design prominently provides information regarding what should not be done to avoid error and what to be done in case of hazard. For example, hazardous elements in an interior shall be placed in an isolated area or provided with proper safety features.

Principle 6: Low Physical Effort

The design can be used efficiently and comfortably and with minimum fatigue (Elif Helvacioğlu, Nazli Nazende Karamanoğlu, 2012). The design can be used easily by a wide variety of users with minimum physical effort. For example, the shelf of wardrobes and storage is not accessible by a short height person or a person in a wheelchair. In this case, we can incorporate a modular feature to the storage to make the entire space usable.

Principle 7: Size and Space for Approach and Use

Regardless of the user's body size, posture, or mobility, adequate size and space are provided for approach, reach, manipulation, and use. It is obtained by providing a clear line of sight to important elements and making the reach of all components comfortable for any seated or standing user, accommodating variations in hand and grip size (Elif Helvacioğlu, Nazli Nazende Karamanoğlu, 2012).

VIII. NEED FOR IMPLEMENTATION OF UNIVERSAL DESIGN PRINCIPLES IN INTERIOR DESIGN

Lack of implementation of Universal Design principles leads to the need for modification over the life span of a project. It is suggested that you look around the building that you are sitting in, and imagine could you navigate around the building without anyone's help if you were in a wheelchair? Just asking this simple question will make the designers realize how much we are lacking in the field of all-inclusive design. For example, it is seen that colleges provide admission seats for the physically handicapped but their infrastructure is not equipped to cater to a person with a disability. It is very important to empathize with people of various ages and abilities to avoid overlooking them as a potential user group for the design. There has long been an assumption that differently-abled persons require assistance with even the most fundamental tasks in life. This arises because we do not create the space while keeping their requirement in mind. The interior design of space is capable of bringing emotional, and social change, it provides physical comfort. When Interior designers apply UD, they can reach a larger audience and can make the space sustainable for future needs as well. The awareness of the concept of Universal Design still seems to seek due recognition and consideration in the realms of the design ethos of architectural and product creation (Mohamad Izani, Abdulsamad Alkhalidi and Aishah Razak, 2019)

IX. QUESTIONNAIRE & INTERVIEW

The questionnaire consists of objective and subjective type questions. The design of the questionnaire was done to first identify their level of understanding of UD and to identify whether they incorporate the same in their design process. For this process, the questionnaire was floated to different stakeholders of the Interior Design Profession including, Interior designers, students, and project managers. After the questionnaire 15 participants holding different stakes in the interior design profession were interviewed to understand the root cause with the help of illustrations and examples.

X. RESULT AND ANALYSIS

The responses of the 45 participants were analyzed against the Definition and Principles of UD. Questions were framed to check the awareness of the concepts. According to the analyses, 75% failed to provide the exact definition of UD and gave a vague idea of the concept. 85% of the users did not identify all the principles of the UD and their explanation. The participants were asked whether they have applied any of the Universal Design principles in their design Process and 80% responded with no. 20% of participants who said yes were students who applied it as a part of an assignment. 56% of the users were able to give an example of UD but only in the context of public spaces. The participants lacked an understanding of UD. 60% responded yes to the question on the importance of the need for UD in Interior design. During the interview, it was identified that although they were vaguely aware of the concept, there is a huge gap in the understanding of its application. When made aware of the concept, they strongly agreed that this concept should be applied in our profession.

XI. CONCLUSION

After the result analysis, it is evident that there is a major lack of incorporation of UD in design both at the education level and professional level. The first step of the design process of any product/space is "Empathize" and the designer should try to empathize with all types of users. It was found that the designer does not consider diversity in the type of users who are going to use the space instead they pay more focus on the design brief and ultimately the inclusive approach is not applied. Those who acknowledge the need for UD in interior design found it difficult to incorporate the same in their projects. They acknowledged that the design process involves different stakeholders and they are unable to apply the UD principles unless anything is made mandatory. They agreed that to some extent the all-inclusive design takes more effort than the conventional design process. This problem can be solved if the educational institutions put more focus on Universal Design in the curriculum, rather than giving it as an elective subject. Students need to become aware of the universal design values, concepts, and philosophy at every level of their education programme, from the early stages of design education through graduate and post-graduate levels (Elif Helvacioğlu, Nazli Nazende Karamanoğlu, 2012). The all-inclusive approach should be part of the design methodology and can be applied best if inculcated in the students from the education level. 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 (Mohamad Izani, Abdulsamad Alkhalidi, Aishah Razak, 2019). There is scope to research further on the social impact on the user by the implementation of the all-inclusive design.

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