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## Architectural Education In Egypt In The Light of Universal Design Approach

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### Abstract:

Universal Design (UD) is a philosophy of design aimed at creating an inclusive, sustainable community in which every individual can participate to the greatest possible extent. UD's purpose is to facilitate the everyday life of all people without paying more attention to their age and abilities; by making the surrounding environment more readable, accessible, and usable without extra cost. **The study problem** is apparent in which the Architectural Education in Egypt has need of the existence of the UD approach and its applications. The purpose of universal/inclusive design education is to increase consciousness, to improve a sense of responsibility, and to grasp the current regulations and conditions.

**This paper is targeted** to highlight the significance of the UD concept in architectural education and for design process improvement. Additionally, the main purpose of the study is to imply UD in the architectural education in Egyptian departments, institutes, and faculties. The study goal also is to display a framework "theoretical model" for teaching UD in architecture departments in Egypt as the first step towards universally designed societies and environments. Thus, there is a necessity for integrating UD in Architectural education in Egyptian departments, institutes, and faculties. Consequently, teaching universal design is regarded as an urgent need.

Design professions have a crucial role in creating accessible environments and products for all. Good design has the capability to adapt to all users and enable them to live comfortably and work successfully. Hence, people who design, or implement legislation have a major responsibility to guarantee that people who have disabilities can fully participate in societies. **The significance of this research** is to create awareness among designers to find better solutions for a particular design. Accordingly, architectural education and its teaching methods have to be developed in the light of UD. The study addressed **the descriptive-analytical method** to achieve the study goals. Finally, there can be some **recommendations** that assist in implying the UD approach in Architectural education in Egypt.

### Keywords:

Universal Design (UD), Architectural Education in Egypt, UD Education, Teaching UD. UD principles

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### Introduction:

In response to a growing demographic and social reality, a global movement encouraging design as a backing for independence and involvement has evolved: more people living with a wide spectrum of disabilities and chronic health conditions than ever before and the longest lifespans in history (IHCD, 1990).

Disability is a common and more prevalent condition than many people know. In most situations, everybody, even temporarily, will be disabled in their lives. Disability rises with age for natural and social causes. Many people, especially older adults, refuse to have a disability due to the social stigma that is disabled. However, disability is a natural part of life (Story, et al., 1998).

Universal Design (UD) is a design process that enables different individuals to establish human roles, lifestyles that encourage well-being, and social participation. Resilience, simplicity, and qualification are its principal values. The philosophy of UD aims at creating a universal,

prosperous society in which everybody can participate as much as possible. Universal design, "inclusive design", and "design for all" are all different designations of practices that focus on the accessibility of environments, user skills, ages, reading levels, learning strategies, languages, and cultures to a wide variety of settings, goods, services, programs (Ahmed, 2020).

A physical environment has an effective role in people's life. When designing for all, persons' participation would be apparent in all aspects of life. The existing designs necessitate some modifications to accomplish inclusiveness. Education and legislation "legal procedures" are considered as the most operative tools to achieve the designs' modifications. In case of the deficiency of inclusivity in both areas "education and legislation" all of the other sectors and services would suffer from Incompatibility. In this sense, there is a need to explore the universal design approach in architectural education in Egypt.

### 1. Statement of the problem

The architectural designer concentrates on healthy users and disregards individuals with disabilities, elders, and other persons of the community. Because of the shortage of precise regulations, proper preparation and training, architects and construction engineers in the Arab world especially do not pay sufficient attention to universal design. In addition, the non-inclusion of universal design standards and applications in architectural education. Thus, Architectural Education in Egypt lacks the existence of a universal design approach despite its significance. So, there is a necessity for integrating UD in Architectural education in Egyptian departments, institutes, and faculties. Consequently, teaching universal design is regarded as an urgent need.

### 2. Objectives of the study

This paper is designed to highlight the significance of the UD concept in architectural education and for design process improvement. Furthermore, the study is targeted to increase the consciousness of the universal design. UD education aims to boost awareness and to develop a sense of responsibility to the current legislation and regulations. Moreover, the chief goal of the paper is to imply UD in Architectural Education in Egypt.

### 3. Methodology of the study

The study is based on the descriptive-analytical approach through examining and recognizing the deficiencies in the design process and the architectural education which lead to creating new generations of architects with no adequate motif about UD concept and inclusiveness for the built environments and products. This research displays a framework "theoretical model" for teaching UD in Architecture departments and faculties in Egypt. The paper presents the proposed modules "courses" which achieve the embodiment of UD in Architectural Education as the first step towards inclusiveness in environments. Courses considering UD are significant tools that reflect convenient designs for all in the community. Accordingly, the society acquires new generations of competent architects who are able to accomplish universal designed environments for all users. Hence, achieving universally designed societies.

### 4. Theoretical Framework

#### 4.1 Architecture and Architectural Education

Architecture is defined by (UNESCO/ UIA, 2017) as "A discipline which draws knowledge from the humanities, the social, and the physical sciences, technology, environmental sciences, and the

creative arts. Furthermore, it is one of the key professions involved in shaping the built environment, and urban space. Architectural education that prepares architects for a professional life should, therefore, be seen, at least in Social, cultural, political, Professional, ecological, local, International, and Academic contexts including science and knowledge in general (UIA, 2011). This education must maintain a balance between practice and theory (UNESCO/ UIA, 2017).

According to the UNESCO/ UIA Charter for architectural education (UNESCO/ UIA, 2017), it is mentioned that; architectural education purposes to grasp the relationship among people, buildings, and their environment, also the necessity to link buildings and the spaces between them to human needs and scale. Also, design skills necessary to meet the requirements of the building users. It is stated that, architects should be able to apprehend regional characteristics and to give practical expression to the requirements, improvement to the life quality of persons, groups, and societies. Moreover, the Charter (UNESCO/UIA, 2017) pointed out that architectural education aims to boost the awareness of responsibilities toward human, social, cultural, urban, architectural, environmental values, and architectural heritage.

Depending on the charter (UNESCO/UIA, 2017); architectural education encompasses the acquisition of an understanding of the social context, cultural & artistic, environmental, technical, design, and professional studies, as well as acquiring ergonomic and space requirements and issues of equity and access. The charter is also endeavoring to integrate knowledge and apply skills in the creation of a design solution. Awareness of the relevant codes, regulations, and standards for design, planning, construction, health, safety and use of built environments. Besides, It is indicated by the charter that, among the architectural education goals is comprehending the architects' potential roles in a conventional and international context. In addition to grasping professional ethics.

Eventually, the international union of architects (UIA. 2011) stated that architectural education purposes to produce competent, creative, and ethical professional designers. It also aims to create world citizens who are ecologically sensitive and socially responsible (UIA. 2011). Architectural education should be considered as the capability of conceptualizing, coordinating and executing the building's idea which rooted in human tradition (UNESCO/ UIA. 2017).

An inclusive environment eliminates physical

obstacles and guarantees that the greatest possibility of individuals, regardless of their personal conditions, can engage in all educational, social, and working facets of life. RIBA strives to deliver better buildings and places, powerful communities, inclusive, ethical, and sustainable environment. According to RIBA; it is significant to teach inclusive design, also there are strong moral, legal, social, economic, sustainable and environmental causes why inclusive design is important. It is also obvious that the expectation that architects will design inclusively is now high on the agenda. Architects whose work influences on the design and the built environment's quality are predicted to assure that designs could meet the diverse needs of a population (RIBA, 2020).

#### 4.2 Origin and Significance of Universal Design

Universal design term (UD) originated in the USA, and in the mid-1980's was first used by the American architect, "Ronald Mace" (Skavlid, et al., 2013). UD has arisen and developed during the twentieth century with the change in demographics. The average human life span was 47 years at the beginning of the 20th century, while today it has risen to 76 years (Story, et al., 1998). UD is not a trend, but an enduring design approach that assumes the range of human ability is ordinary, not special. (Ahmed, 2016).

Universal design is "a process that enables and empowers a diverse population by improving human performance, health and wellness, and social participation" as stated by Steinfeld, E., and Maisel, J., (2012). Moreover, the Centre for Excellence in Universal Design defined UD as "the design of environments that can be accessed, understood and used regardless of a person's age, size, ability or disability" (CEUD, 1997). Universal design respects human diversity and promotes inclusion of all people in all activities of life (Story, et al., 1998).

Universal design is also known as inclusive design, design for all, or life span design (Steinfeld, et al., 2012). The Centre for Universal Design states that "universal design is the best way to integrate access for everyone into any effort to serve people well in any field" (Story, et al., 1998). UD requires consideration of all characteristics of potential users, including abilities and disabilities, when developing a course or service (Burgstahler, 2015). The most prominent challenge is raising the awareness of the universal design approach among professionals, designers, architects, manufacturers, and consumers (Story, et al., 1998). UD puts high value on both diversity and inclusiveness (Burgstahler, 2015). Briefly, universal design makes life easier, friendlier, and healthier for all people (Steinfeld, et al., 2012). (See Fig. 1)

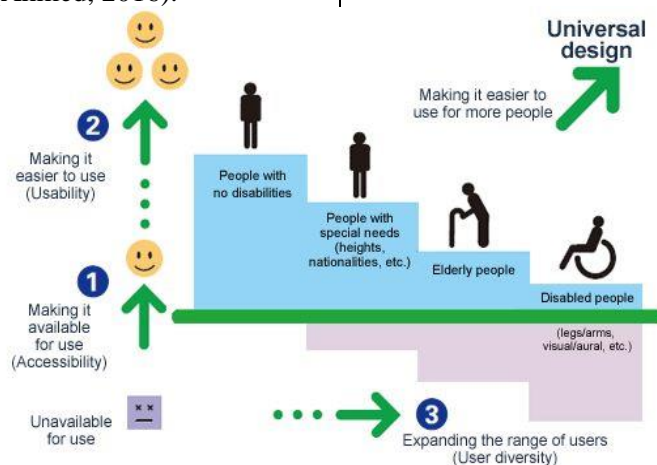


Fig. 1. UD expanding the range of users which makes life easier for all (ECS Accessibility Team)

#### 5. The Education Model Of Universal Design

The education of universal design appeared obviously in the US and in some European countries including the UK. This education targets to promote new curricula materials integrating UD values into the design courses of several disciplines; architecture, industrial design, interior design, landscape architecture, and urban design (Afacan, 2011). On the education aspect, universal design is a principle-based approach to designing

university teaching and learning to meet the learning needs of all students (Padden, et al., 2017). One of the best ways to influence the future of our designed world is to educate the next generation of practitioners. (Story, et al., 1998). At the core of the universal design is a focus on variety, choice, and feedback for students (Padden, et al., 2017).

When UD principles are applied in a postsecondary institution, educational products and environments meet the needs of potential

students with a wide variety of characteristics. Disability is just one of many characteristics that a student might possess (Burgstahler, 2015). In this regard, universal design should not only be taught as a separate course in the graduate program but also should be part of all relevant courses and

assignments. In this regard, the study suggests a model for teaching universal design in architecture departments and faculties in Egyptian universities. The study’s proposed model is designed to contain three main parts (See Fig. 2).

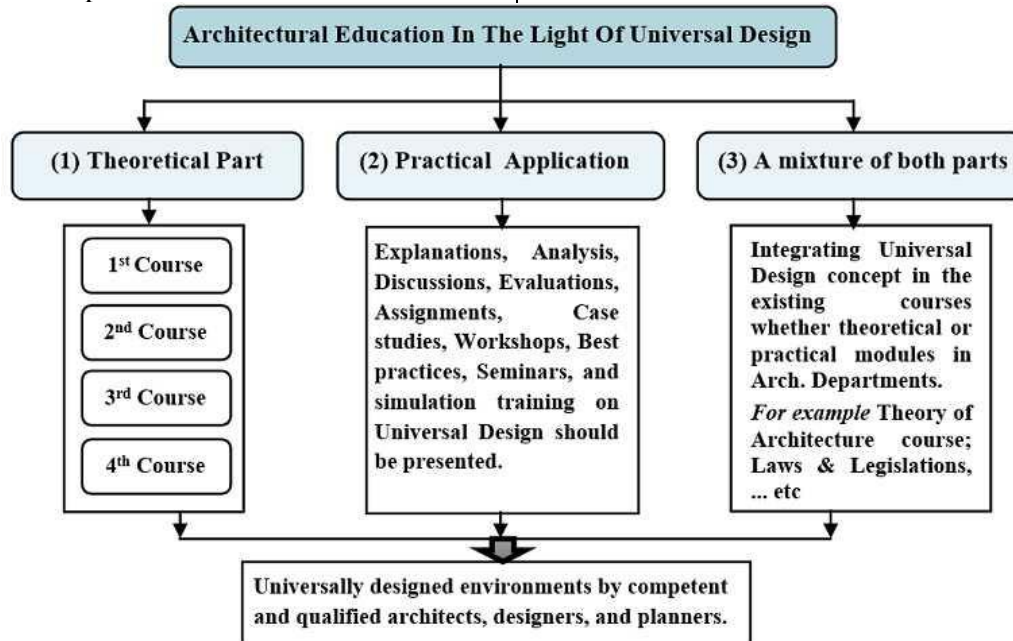


Fig. 2. A proposed model of teaching universal design in architectural education in Egypt. (Researcher)

*In the first part* which is known as “theoretical part”, the suggested educational model of teaching universal design endeavors to attach 4 new courses throughout the four educational years of architecture. Three courses of them are supposed to be in the undergraduate stage, and the fourth one is assumed to be in the graduate year.

- The first suggested course (1<sup>st</sup> Course) is considered as an introductory one.
- The second and third new modules (2<sup>nd</sup> & 3<sup>rd</sup> Course) are main courses and they introduce the basic topics and deal broader with the critical issues facing different kinds of persons.
- The fourth module (4<sup>th</sup> Course) is the most extensive course. It explores best practices, trends, and approaches relevant to UD. Besides, innovative ideas through the design process are explored. The social responsibility of designer and architect, also accessibility of education materials are examined. Being up-to-date is essential throughout teaching this course.

*The recommended four courses* should have a general introduction about the concept of “Design For All” and “Universal Design” as a specific chapter of the theoretical course. Moreover, having lectures about “Human Diversity” which is relevant to physical disabilities and their impact on the built environment. Courses strive to supply

students with a clear grasp of the concept of UD and to provide a comprehensive awareness of relevant social and environmental issues.

*The proposed modules* have to be online courses in order to be available for everyone regardless of distance, age, and ability. Courses introduce weekly lectures and assignments. The students are expected to include the principles and knowledge of UD in their designs, in addition to other aspects of a design process. Consequently, students become having a broad background about the universal design approach and its principles, also they are ready to introduce solutions in the light of UD in their everyday lives.

*Regarding the second part* which is recognized as “practical applications”, the proposed model intends to introduce more clarifications and models about the concept of universal design in architecture and design. Students need extensive discussions and further explanations in order to grasp the UD concept and its possibility of application. Best practices about the universal design approach and its applications should be practically demonstrated through the undergraduate and graduate stages. Workshops and seminars on UD have to be presented by departments of architecture for all students in various academic years.

Furthermore, explaining some case studies about “Barrier Free Design” as a relevant concept.

“Handicap Architecture and Design” ought to be covered. Besides, lectures about “Accessibility” and “Adaptable Design”. Finally “Simulation Training” should be widely used in the teaching process of universal design. Simulation technique has a significant effect on the students’ perception of the problem and helps them in finding suitable solutions.

*The third part of the model* aspires to imply universal design concept and its principles into the existing courses at architecture departments. Integration of the concept of universal design in the curriculum of faculties and departments of Architecture into the four-year Architectural Education programs would have a positive influence on the students’ perception of concepts of human diversity throughout their design processes.

For instance, during the four-year Architectural Education program, every semester discusses and covers one broad kind of design projects at design studios of architectural departments. These projects should be designed in the light of the universal design approach. Additionally, projects have to address the different needs of all people. All projects should include clear floor plans and students have to check these plans for accessibility of all users especially wheelchair and disabled users. Students should analysis the design and circulation inside and outside the project, then they should prepare a written report and summarize it carefully. Besides, students have to redesign the inaccessible projects to be more inclusive and accessible for all users with no barriers at all. Students and their educators have an effective role throughout the design process of their projects.

## 6. Conclusion

Designing the built environment inclusively that raise awareness about the significance of designing places that meet the needs of diverse people. Also, Inclusive environments lead to creating an equitable society and a sustainable future. A framework was provided by UD approach to ensure that all students have the chance to fulfill their educational potential. UD can save time and money for faculties and institutions during the semesters and vacations. The participation of the students could be improved. Additionally, students in all architecture schools should be aware of the universal design values, concepts, and philosophy at each level of education, starting from the early levels of design education to the graduate and post-graduate stages. Ultimately, it is necessary to state that, this study presents some recommendations to promote universal

design concept in Egyptian architectural design education, which can be abbreviated as follows:

- The existing curricula in our programs should be revised to support universal design in architectural education.
- Redesign present programs, i.e. seminars, conferences, training, courses, and etc. in order to raise awareness among students, educators, and academics on social and environmental issues relevant to universal design.
- The incorporation of the universal design approach has to occupy the first priority through the design process.
- On the regulatory aspect, accessibility can be seen in Egyptian laws and legislation, while there is a need for embedding inclusiveness requirements in those laws which rule more practicing architects, designers, and educators to instill a universal design approach in their projects and education.
- The government's part to encourage more universally designed projects is highlighted as a powerful move in order to enhance the public's awareness of the importance of a universal design concept for products and the built environment.
- Further researches are required under the inclusion concept in Egyptian architectural education. The types of researches have to address the issues of the universal design approach. Those researches also have to be given more emphasis and support by universities.

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