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"Universal Design" Approach for the Participation of the Disabled in Urban Life

Ayşe Sirel[1] and Osman Ümit Sirel[2]

1. Faculty of Architecture and Design, Istanbul Aydin University, Istanbul 34295, Turkey;

2. Faculty of Architecture and Design, Bahçeşehir University, Istanbul 34353, Turkey

Abstract: Disability can occur to anyone and anyone can have difficulties in fulfilling daily activities in a certain part of their lives. Accessibility is a crucial matter and a basic human right for the disabled people in order to join the urban life. For this reason, the physical environment must be set, starting with the planning and design stage, in a form that can satisfy the utility and accessibility requirements of disabled people. One of the most important recent concepts to enable accessible and useful spaces for the disabled is the "universal design". Nowadays, even though there is an increase in the number of scientific publications, meetings and decisions taken, the regulatory process on our current living environment is developing slowly regarding the physical accessibility. At this point, the most important role regarding the handling of social and political paradigms of disability, addressing different users, application of the principals of universal design and creating knowledge in order to increase social awareness belongs to the departments of universities that offer design courses. The subject of the study in this context is to determine the contents and the proportion of the courses (compulsory and elective) related to "universal design and "disability design", which will ensure our living environment to be accessible and independently utilized for everyone, in the course plan of the architecture, interior architecture, urban planning and landscape architecture departments in Turkey.

Key words: Handicapped, disability, accessibility, universal design, design for disabled people.

1. Introduction

Disability is a part of being human and everyone may have difficulties in fulfilling the requirements of the daily life during a specific part of their lives. According to the World Disability Report published by the World Health Organization in 2011, more than one billion people are disabled and represent 15% of the total population according to the 2010 world population data [1]. The "2008-2009 Action Plan" prepared by the European Commission states that the number of people with disabilities and in need of care will double by 2050 and that the support given to this group should be increased [2].

Accessibility in terms of participation in urban life is an important issue in terms of basic human rights for the disabled. The United Nations Declaration on the Equalization of the Social Conditions of Disability [3] and the Declaration of Convention Rights of the Disabled [4] express the disability in the context of human rights and emphasize legislative sanctions. It is possible for disabled people to be involved in every aspect of life (social, cultural and professional), with the accessible and useful design of the physical environment they live in. Therefore, the physical environment should be regulated from the planning and design stage so that it meets the needs for use and accessibility of the disabled. One of the most important concepts that have recently stood out in terms of making spaces more accessible and usable for the disabled is "universal design". In essence, the universal design approach involving the philosophy that the physical environment as a whole can be used equally by all without the need for adaptation is regarded to be important for the profession interested in design in terms of introducing them with a perspective that

Corresponding author: Ayşe Sirel, Ph.D., associate professor, research fields: urban design and architectural design. E-mail: aysesirel@yahoo.com.tr.

considers not only the disabled people but also everyone.

Today, despite regulatory developments in legislation, the increase in the number of scientific publications, and the increasing number of meetings and decisions made, it is observed that the regulations in physical accessibility progress slowly in our current living environments. At this point, the most important role as information creator belongs to the departments of university providing design education in terms of embracing the social and political paradigms of disability, giving voice to various users, implementing universal design principles and promoting social awareness.

In this context, the subject matter of this study is to define the place, quality and the ratio of the courses regarding the "universal design" and "design for the disabled" in the curriculum of the departments of architecture, interior architecture, city planning and landscaping architecture providing design and planning education in Turkey.

2. Purpose and Importance of the Research

The universal design approach in the creation of physical environment is one of the important assets of the designer as well as an important component of the design education. Therefore, the existence of the courses oriented to "universal design" and "design for the disabled" in the curriculum of the departments of architecture, interior architecture, city planning and landscaping architecture providing design and planning education is important. The students (designers of the future) who graduate from the mentioned departments taking the universal design awareness will increase the quality by maximizing the usability of the living environment. The aim of this study is to examine the place and quality of the mandatory and elective courses oriented to the universal design and design for the disabled in the curriculum of the universities providing design education in Turkey and emphasize the importance of these courses in designing premises without handicaps.

As a method, this study examines the curricula and contents of 87 architecture departments, 55 interior architecture departments, 21 city and region planning departments and 28 landscape architecture departments in state and foundation universities in Turkey and Turkish Republic of Northern Cyprus providing design education through their websites. The course data in the examined four departments regarding "universal design" and "design for the disabled" has been exported to a table and the evaluations have been made through this table (Tables 2 and 3). The general contents, objectives and competence of the current courses regarding the universal design and disabled have been exhibited. In the selected architectural departments, direct contact has been made with the lecturers with respect to the delivery of these courses, and attention has been drawn to the shortcomings of this subject in design education.

3. Disability and Urban Life

Today, it is a reality accepted all around the world that physical barriers must be eliminated, and the environment be shaped in conformity with the access for the disabled in order for physically-disabled so that they can sustain their daily lives in self-sustained way without being dependent on other people [5]. In this context, rights and freedoms of the disabled individuals in developed countries are constantly kept on the agenda and efforts are made on the development of related regulations. This issue is defined in the European Urban Charter as the cities allowing usage opportunities as equal as possible for everyone [6].

It has been acknowledged that the disabled are a part of society by making a number of regulations on disability legislation in the world regarding accessibility. Positive developments have been achieved with some acts such as "the Americans with Disabilities Act" (ADA) in 1990 in the U.S., "Disability Discrimination Act" in 1992 in Australia, "The Act Concerning Support and Service for Person

with Certain Functional Impairments" (LSS) in 1993 in Sweden, "The Act on Buildings Accessible and Usable for the Elderly and Physically Disabled" in 1994 in Japan and "Disability Discrimination Act (DDA)" in 1995 in England [7]. Meanwhile, the Council of Europe prepared a report in 2001 on the development of curricula for the concept of "design for everyone" to all educational institutions related to the built environment together with the Bologna process [8, 9]. The report emphasized on the concepts such as inclusive design, universal design, design for everyone and design for all phases of life and it stated that the design towards disadvantaged persons (physically-disabled, elders, children, pregnant, etc.) should be developed. The necessity of a rightful and egalitarian usage being reflected on the spaces and elimination of the concept of "others" different than us has been specified [10].

According to the Turkish Statistical Institute, 12.29% of the population composes of the disabled in Turkey [11]. As in the world, important regulations have been made on the legislation on the disabled in Turkey as well and standards have been developed [12, 13]. However, although the said standards and legal regulations have stipulated solutions that evoke the philosophy of "universal design", there is a lack of sanctions and supervision in practice. The comments of the disabled and the organizations, associations and federation representatives also support this opinion [14-16]. In this context, urban habitats and structures continue to be inaccessible for the disabled. One reason for this is that the awareness and mentality change that has to be made in every part of the society has not yet been realized [17-19].

4. Concepts of Universal Design-Design for Everyone

An understanding that aims to redesign the living environments of the disabled has been realized following the increase in the number of the disabled across the world within the years following the two world wars. First, "barrier-free design" has been developed in the regulations that started to emerge in 1950s with respect to the participation of the disabled to the urban life. As this understanding created a discrimination between the disabled and normal people in the society during the subsequent years, efforts began to pursue the prevention of this inequality created in the society. In 1970s, applications directed by the laws and relevant standards have been implemented. This approach that is carried out with applications in the literature is defined as "accessible design" [20, 21]. In the 1980s, the concept of "universal design" began to be used as a concept of design that embraces everyone's usage in all aspects of design (in the arrangement of the built environment) without allowing any discrimination.

Today, "universal design" in the United States, "inclusive design" in the UK, "design for everyone" is preferred in Europe, while different terms are used in different countries. Discussing the theoretical differences of these concept, the literature points out several inter-conceptual differences. Inclusive design is regarded as special arrangements made for the disabled individuals to be able to use the established environment. Meanwhile, the idea of universal design emphasizes the idea of everyone using the environment rather than discriminative adaptations for the individuals with disabilities. Although the universal design inherently emerged as a criticism for the current access problems of the individuals with disabilities, it in fact adopts the idea of equal and egalitarian design for "everyone" [22].

The phrase of "design for everyone" was used by American architect Ronald L. Mace in 1985. In his book "Accessible Environments: Toward Universal Design", co-written with Hardie and Place in 1991, Mace, the creator of the idea of "design for everyone", defined the universal design as "designing all products, buildings and open areas to ensure the usage of as many persons as possible" [23]. The center, whose foundations were laid by Ronald L. Mace in 1989 and

named as The Center for Universal Design in North Carolina State University in 1997, developed seven fundamental principles to make the "universal design" concept more understandable and to ensure that it guided everyone to create designs [7, 24]. The principles direct the design process, help the utilization of existing or new designs and allow the students and designers to recognize the concept of universal design [14, 25]. These principles are provided in Table 1.

With the universal design approach whose general principles are provided above, a perspective of different scales is presented for the design and it is emphasized that the spaces designed with this point of view are used on equal conditions regardless of the skills and obstacles of the society as a whole. Despite in fact not being new a design method, this is a concept that emerged due to the increase of elderly population in the world and further integration of the disabled in the society.

5. "Universal Design" and "Design for the Disabled" Courses in the Design and Planning Education in Turkey

Universal design is taught to students in the architecture, interior architecture and city planning departments of many universities and several course and design studious in the world (in graduate and undergraduate degrees) [7, 21, 26]. The involvement of the universal design approach to design studios and courses causes an increase in the awareness of the students towards the design process [27].

Even if not in all the architecture, interior architecture, city planning and landscape planning departments in Turkey, courses on universal design and design for the disabled are provided in different names based on the studies and interests of the lecturers (example: Table 2). However, not many studies that emphasize the extent of reflecting the curricula of the disability and universal design topics have been accessed in the relevant departments.

One of the studies on this topic is the "Design for All Curriculum Development Workshop" made in Eskişehir Anadolu University with the coordination of the Council of Higher Education in 2011. The workshop has been organized following the decision of including the topic of accessibility for the disabled and those with movement limitations in the curriculum in the departments of the universities where designers are educated [28]. In the workshop, at the undergraduate and graduate level in Turkey, design and planning of training courses in the universities (curricula), "design for all" approach was evaluated. In the conclusion report of the workshop in which the academicians from different departments of 29 universities participated, it is stated that most of the courses related to the disabled groups are not mandatory courses but are left to the selection of the students [15, 22, 29, 30]. At the end of the workshop, a comprehensive perspective was presented about the "design for everyone" approach as one of the important equipment of designers and as an important component of design education as well as the integration of curriculum as a compulsory course [28].

Table 1 Universal design principles.

Principles	Definition
1. Equitable use	The designs should be usable and purchasable for everyone with different skills.
2. Flexibility in usage	Designs should provide flexibility in usage and be able to provide options for the user.
3. Simple and intuitive use	Design should respond to the different reading levels and language skills of the user and be easily understandable.
4. Perceptible information	The design should be perceivable independent from environmental conditions and the user's emotional abilities.
5. Tolerance for error	The design should minimize the possible bad consequences and dangers of accidents or involuntary actions.
6. Low physical effort	The design should minimize the possible bad consequences and dangers of accidents or involuntary actions.
7. Size and space for approach and use	The design should minimize the possible bad consequences and dangers of accidents or involuntary actions.

Source: The Center for Universal Design, NC State University, 1997.

An important output of this workshop held in Turkey in 2011 was the requirement of building an environment that revealed what position "design for everyone" approach had in the design and planning curricula. This study-article in a way fulfills this requirement of the workshop. This study has studied the ratio of the courses regarding the "universal design" and "design for the disabled" in the curriculum of 87 architecture departments, 55 interior architecture departments, 51 city and region planning departments and 28 landscaping architecture departments providing design and planning education. The course data regarding the examined four departments have been exported to a table and analyses have been made through these tables (example: Tables 2 and 3).

All of the lecturers interviewed face to face in the selected architectural departments stated that they lectured in theoretically and practically courses and noted that the students were aware that "experimenting by learning" was much more permanent. Most importantly, the students noted that they wanted to implement this on their area of work upon graduation. Dujardin, who taught universal design at the "Sint-Lucas School of Architecture" in Belgium-Brussels, also states that each research center (user-centered design) develops research and design

Table 2 The courses in different names regarding the universal design and design for the disabled in the selected example universities-departments providing design education (websites of the relevant universities).

University	Course	Architecture	Interior architecture	City planning	Landscape architecture
Akdeniz University	Uni. Des.	-	-	--	-
	Des. Dis.	-	Design for everyone	-	-
Anadolu University	Uni. Des.	Accessibility for everyone	New opening in design	-	-
	Des. Dis.	-	-		Landscape design for the disabled
Eskişehir Osmangazi University	Uni. Des.	Design for all: user in architect design	-	-	-
	Des. Dis.	-	-	-	-
Fatih Sultan Mehmet University	Uni. Des.	-	-	-	-
	Des. Dis.	Disabled factor in design	Barrier factor in design	-	-
Gazi University	Uni. Des.	-	-	-	-
İstanbul Kültür University	Uni. Des.	Design for everyone	-	-	-
	Des. Dis.	-	Design for the disabled	-	-
İstanbul Sabahattin Zaim University	Uni. Des.	-	-	-	-
	Uni. Des.	Design principles for the elderly and disabled	Design principles for the elderly and disabled	-	-
İstanbul Technical University	Uni Des.	Accessibility-Z-2 MTs	-	Universal design for urban environment	Universal design for urban environment
	Uni. Des.	Design principles for the disabled and elderly	Design principles for the disabled and elderly	Design principles for the disabled and elderly	Design principles for the disabled and elderly

Note: Abbreviations: Universal Design = Uni. Des., Design for the Disabled = Des. Dis.

Table 3 The ratio of the courses regarding universal design and design for the disabled in the departments providing design education (generated from the websites of the relevant universities).

	Departments							
Courses	Architecture	87	Interior Arch.	55	City Planning	21	Landscape Arch.	28
Universal design	17	19%	14	25%	3	14%	2	7%
Design for the disabled	24	28%	21	38%	6	29%	8	29%
No courses	46	53%	20	36%	12	57%	18	64%

skills for students (Figs. 1-4) [26].

6. Findings

• Upon explaining Table 2, although the contents of the courses involving the “universal design” and “design for the disabled” are similar, they are available in the curriculum with different names and ordering. The courses have been observed to be available in the department programs in different names such as “Design for Everyone, Universal Design, Disabled Factor in Design, Barrier-Free Design in Architecture, Urban-Scale Accessibility, Human Factor and Design for Everyone, Design Principles for the Elderly and Disabled, Current Topics in the Architecture: Design for the Elderly and Disabled, Legal Approach to Disability and Architecture, Urban Planning and Universal Design, Environmental Design for the Disabled and Elderly, Accessibility in Design, Design for Special Persons, Landscaping Design for the Disabled, Landscaping Design without Barriers, Standards of the Places without Barriers”;

• Upon explaining Tables 3 and 4, it has been observed that 53% of the architecture departments, 36% of the interior architecture departments, 57% of the urbanism departments and 64% of the landscaping architecture departments do not have courses regarding

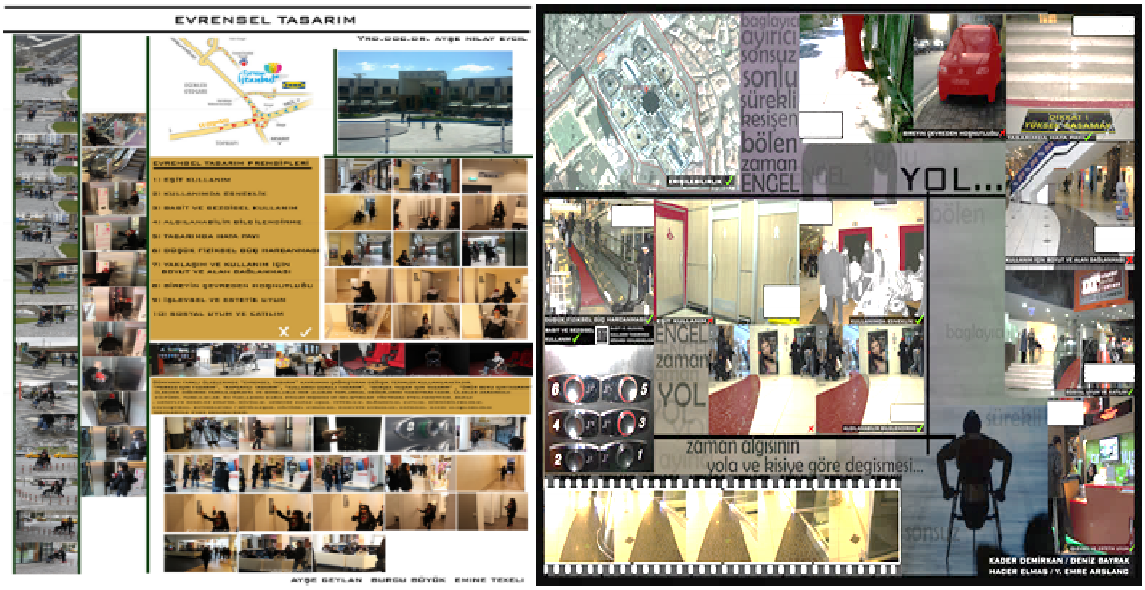


Fig. 1 Works of the students in the universal design course in Beykent University Architecture Department, Istanbul (Archive of Ayşe Nilay Evcil).

Fig. 2 Works of the students in the universal design course in Bahçeşehir University Architecture Department, Istanbul (Archive of Sezin Tanriöver).

Fig. 3 Sint-Lucas School of Architecture, Brussels, works of universal design students (Archive of Dilek Yaşar) [31].

Fig. 4 Sint-Lucas School of Architecture, Brussels, works of universal design students [26].

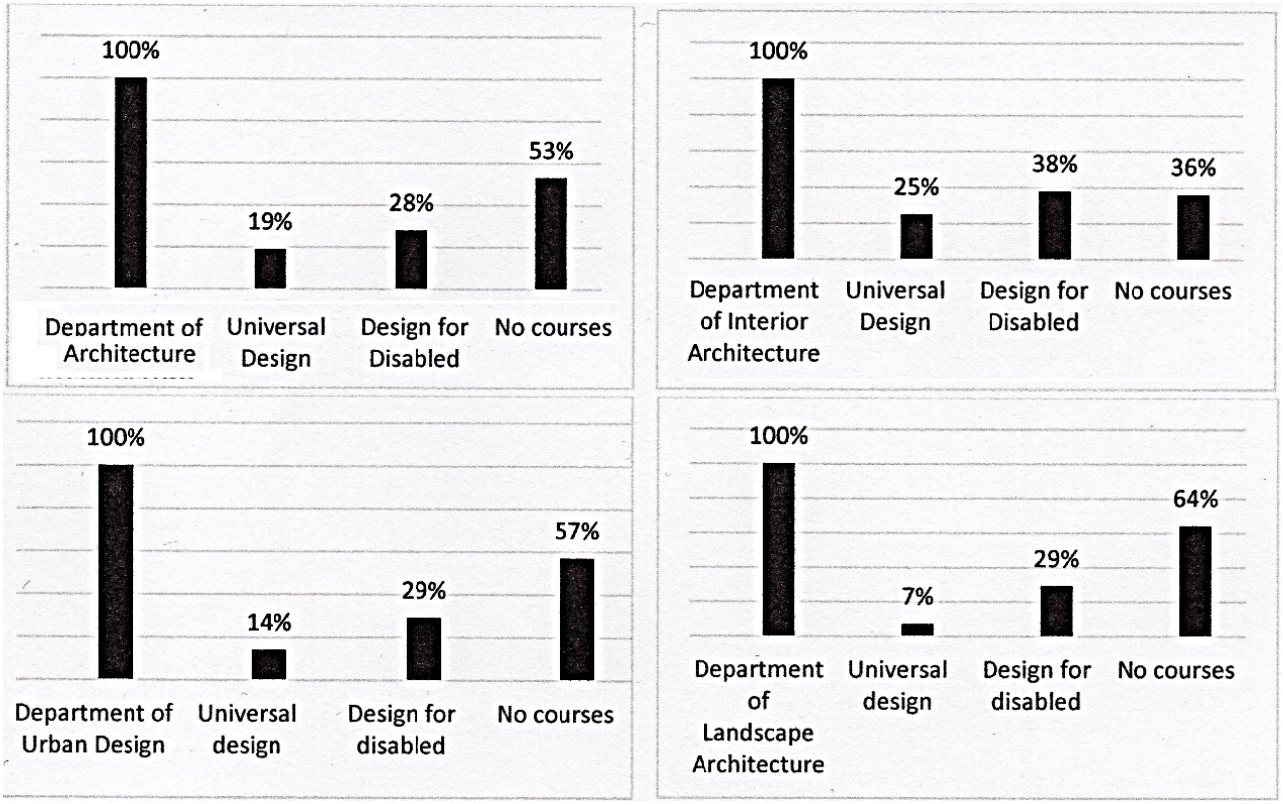
universal design and design for the disabled.

The universal design courses in similar titles are available in 19% of the architecture departments, 25% of the interior architecture departments, 14% of the urbanism departments and 29% of the landscape architecture departments.

It has been observed that disability design courses in similar titles are found in 28% of the architecture departments, 38% of the interior architecture departments, 29% of the urbanism departments and 29% of the landscape architecture departments;

- A small number of departments have design courses both on the universal design and the disabled;
- A small number of departments have them on mandatory courses category;
- The courses are mostly given on 5th, 6th and 7th midterms;
- The courses are given theoretically and practically

Table 4 The distribution of the courses "Universal Design" and "Design for Disabled" based on the departments.



(on-site study and project);

- Upon the interviews with the lecturers, it has been noted that these courses are important in terms of raising awareness for the designers of the future and should be given as mandatory;
- The design lessons on universal design and design regarding the disabled generally cover each other, however, they have separate contents.

7. Conclusion

The ratio of the disabled and elderly in the world and in Turkey cannot be ignored. There is a long struggle for economic welfare, cultural acceptance, social and spatial inclusion that these large population groups deserve. In this struggle, it becomes more important that established environments "are created for everyone with an understanding of egalitarian design instead of a preferred approach", the understanding of "design for everyone" stands out.

Although there are many legal regulations concerning physical access of disabled people to urban life in Turkey, no adequate level of improvement has been achieved. With accessibility, an approach that reduces to a separate entry to be built for the disabled to access a building or place or to a vertical circulation has been realized. This approach both isolates and alienates disabled people in society from others and is regarded as a cost-enhancing factor.

When designing, however, it is necessary to adopt "accessibility" as a fundamental right for all people to influence the quality of life and to produce solutions for the access and usage of all users. Courses in different names regarding the participation of the disabled and the groups with movement difficulties to the urban life are included in the department curricula of the universities providing planning and design education in Turkey. However, the findings of this study show that "universal design", which gives information about the design of urban spaces without barriers, and the lessons for disabled people are not sufficient in the curriculum.

For the design education to educate competent designers that design places appropriate for every

requirement and user:

- Starting from the first years of design education, "design for everyone" courses should be compulsory or given as a subject in other compulsory courses;
- It should be ensured that the courses such as design projects and workshops are one of the compulsory learning outputs, this subject should be evaluated as a design component in design and project courses;
- At least one of the design studios should be able to transfer the theoretical sub-structure of the project to practice by producing projects focused on "design for everyone" and "places without barriers";
- In the development of design skills, evaluation criteria should be developed to support the "design for everyone" approach;
- The departments should cooperate more with local governments and non-governmental organizations in raising awareness, carry out projects without barriers regarding the issue, organize student competitions and events;
- The scientific meetings (conferences, congresses, seminars, symposiums, etc.) that the relevant disciplines will organize in communication with the profession chambers should be focused on design for everyone;
- It should be procured that the studies and researches on "design for everyone" approach should be shared through a platform;
- The awareness of the instructors should be increased in the design for all, and all instructors should be informed by the methods such as seminars, in-service training, etc.;
- A document can be created under the name "accessible building identity document", which specifies the degree of accessibility to public buildings. In this context, an "Accessibility Certification System" should be developed with the participation of an interdisciplinary team and target users;
- In addition to the implementation of legal regulations, education by means of awareness-raising and informing will make cities more livable for all, with the construction of an "accessibility culture" as stated in the World Report on Disability [1]. The free participation of the disabled in everyday life without assistance is dependent on a civilized collective and accessible physical environment and structures.

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