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An Awareness Experience by Empathic Design Method in Architectural Design Education

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Abstract

Purpose

In architectural education, the most important outcome aimed for architect candidates to acquire is the ability to show empathy. This study focuses on designing for users who have special physical needs while addressing the concept of establishing empathy together with universal designing principles in architectural education.

Design/Methodology/Approach

The empathic design method has been selected as the method of this study. As part of the study, it is aimed for students to offer a design solution in which they would fictionalize a universal design concept together with the empathic design which grounds on universal design principles.

Findings

As a result of the study, it was observed that when given a key method during the design process, students could approach the design with different points of view and interpret the datum with different approaches.

Research Limitations/Implications

This study, as part of the Çukurova University Department of Architecture Interior Design class, students were asked to implement interior design projects using the empathic design method with user groups of their choice in terms of characteristic and age range following the empathic design process.

Social/Practical Implications

It is to develop the awareness of architecture students in the creation process and such studies with different approaches and models to develop their perspectives.

Originality/Value

To increase the prevalence of accessibility and the participation of the disabled in society, the empathic design method can be foreseen to be a key method in other studies in architectural education.

Keywords: *Accessibility, design education, empathic design, universal design.*

INTRODUCTION

In architecture, all users and problems are unique and a special design solution for each problem should be found. Trying to perceive users with an average standard requirements list does not go well together with the perception of a design that produces correct/utilitarian solutions. All users are different from each other and have different requirements. In this context, designs developed/created empathizing with user groups that have different anthropometric and/or cognitive characteristics from the majority of its group become more necessary and important at this point. In design approaches, it is necessary to adopt a subject-oriented apprehension that involves users in the design and accordingly to reflect solution suggestions to the design while empathizing with the users.

Sometimes, empathy is defined as trying to walk in somebody else's shoes or seeing the world through someone else's eyes. Showing empathy, which is the main skill that a designer needs to have, is the ability to define and understand someone else's condition, emotions and point of view (Curadale, 2012, p.384). In terms of meeting the spatial needs, it is rather important to actualize universal design principles which are necessary to be carried out in all design fields from product design to urban design, and from architectural design to landscape design empathizing with real users. Hence in this study, in architectural education, it is aimed for students to apply universal accessible design principles using empathic design methods in the design process.

Basis of the Study

Equipping the architecture candidate with awareness and sensitivity for subjects of universality in design and design for everyone is a concept that starts in the process of architectural design and goes on throughout the whole career. Awareness is also one of the fundamental acquisitions of architectural education and the most important factor in its acquisition is being able to empathize. In architectural education, improving the skills of identifying user groups, empathizing with these groups, and producing designs as a result of acquired analyses are some of the most important aims.

Accordingly, with this experimental study carried out with the students of the department of architecture, it was aimed for students to;

- Collect data about users who have different spatial needs physically or mentally
- Research accessibility in design, universal design principles, and spatial needs of special users
- Acquire user experiences through empathy
- Produce designs that create awareness combining accessibility principles with the acquired knowledge. Thus, it was aimed to create an experimental design using an empathic design approach for accessibility in space.

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LITERATURE REVIEW

Users Who have Different Spatial Needs Physically or Mentally

World Health Organization (WHO) makes the definition of disability as deficiency or limitedness in the development expected from the body functions of individuals or as a whole and in fulfilling the functions of the body (WHO, 2001, p.12). Another definition is made by the International Labor Organization as " an individual whose prospects of securing, returning to, retaining and advancing in suitable employment are substantially reduced as a result of a duly recognized physical, sensory, intellectual or mental impairment" (ILO, 2011 p.6). In the first article of the "Declaration on the Rights of Disabled Persons" dated 9 December 1975 and annexed to the Universal Declaration of Human Rights adopted by the United Nations General Assembly, *"any person unable to ensure by himself or herself, wholly or partly, the necessities of a normal individual and/or social life, as a result of deficiency, either congenital or not, in his or her physical or mental capabilities"* is stated as disabled (UN, 1975). Finally, considering the concept of disability in the architectural literature, the disabled person defined as *"people suffering from obstacles due to the lack of suitable facilities for using buildings designed for general needs due to physical deficiencies"* (Goldsmith, 1997, p.174-179).

On the other hand, every person may have a permanent or temporary disability in a certain period of their life. For example; elders, pregnant women, parents who use prams or carry children in their arms, boxes, suitcases etc. People carrying goods can be considered as a temporary disability. Due to the different types of disability owned, classifications on disability are made. Republic of Turkey Ministry of Family and Social Policy defines disability with a reference to legal arrangements under seven headings plus with Psychologically and/or Emotionally ill;

- Orthopedically impaired,
- Vision impaired,
- Language and speech impaired,
- Hearing impaired,
- Mentally disabled,
- Chronic disease.

According to the statistical data prepared by the General Directorate of Disabled and Elderly Services of the Labour, Social Services and Family Ministry, the number of individuals with orthopedic disabilities is higher in our country. For this reason, it is seen that there are regulations for users with physical disabilities inaccessibility in the built environment (buildings, open areas, etc.) (URL1).

Accessibility in Design, Universal Design Principals

Accessibility is the characteristic of having some predetermined accessibility necessities. The concept of accessibility can be described as being able to reach or access all places for every individual who can move on his own or by using a vehicle (Olguntürk, 2007, p. 10-17). While accessible design only covers the design of products for the use of only disabled individuals; the universal design is the design of the place, product and outfit for all people including disabled individuals (Hacıhasanoğlu, 2003, pp. 93-101). The concept of "accessibility", which has a very recent past and *"making the design for everyone, that is,*

without excluding any part of the society" are closely related. Accessibility is defined most commonly: *"everyone can reach and use everywhere / place they want"* (Gümüş, 2009, p. 36).

The concept of accessibility aims to be able to enter, navigate and use the places where people with disabilities live. In other words, with the arrangements adapted to the disabled in the spaces, it is aimed that they can feel their environment. Therefore, accessibility is a user-centered approach that recognizes that all spaces must be available.

The concept of accessibility emerged for the first time through experimental rehabilitation training, mostly war veteran students at the University of Illinois, Champaign and Urbana twin towns' campus. The majority of disabled students enrolled in the faculty at the end of the 1940s are people who have become disabled due to the war. As a result of the studies that can be continued with the support of the American Veteran's Federation and similar institutions, the *"rehabilitation education"* study conducted by Timothy Nugent has resulted in an echo. The basis of this study of Tim Nugent is the belief that people who have a wheelchair should have the educational opportunities other people have and that no matter how badly disabled, people with disabilities will be able to see their jobs with education and motivation (Güngör, 2007, p.74).

As a result of his work from 1959 to 1961, Tim Nugent created the product that the American government and other countries will adapt to them. American standard no: 117.1 are standards for making buildings and interiors accessible and usable by physically disabled people. This first study will be the beginning of the developments that will lead to the establishment of the social rights law and the American Disability Law for the disabled in America. In the process that resulted in the emergence of legal regulations on the rights of the disabled and finally the adoption of the American Disability Law (1990), the laws for the protection of disabled citizens from injustice constitute an important turning point. Thanks to these laws, legal barriers have begun to emerge even though disabled people are falling apart or reduced from the general structure of the society (Goldsmith, 1997, p.174-179).

The universal design offers a solution without distinguishing between people. Accordingly, designs that would meet the needs of men, women, old, young, left-handed, right-handed and people with or without a disability should be created. To realize the universal design, its principles should be specified and no concessions should be made. It is presumed that universal design will enable people with disabilities to use the same objects and spaces as those used by people without disabilities, both increasing the prevalence of accessibility and enhancing opportunities for the integration and participation of people with disabilities in society (Steinfeld and Danford, 1999, p. 35-57).

Universal design has the power to lift the human spirit, especially when environments are designed to truly meet the needs of people who use them (Preiser, 2007, p.11). Although many people with reduced functionality will special aids and solutions tailored to their specific needs, the principle of universal design provides a constructive basis for integrating (Bringa, 2007, p.98). Therefore, the basic concepts determined as universal design principles are; equitable use abilities, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, size and space for approach and use, providing

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suitable space and dimensions for approach and use (Iwarsson and Stahl, 2003, p.57-66).

Teaching Universal Design

Universal design has become a worldwide movement since the 1990s and has taken its place in design education as the social responsibility of architecture. The basics of the universal design taking place in architectural practice are revealed by its presence in the educational process. At this point, since the universal design lessons can be found at universities all over the world, architectural educators have developed various methods and conducted academic studies for this. (Christophersen, 2002, p.7-17).

The existence of universal design in design education should not be limited to teaching students a set of technical standards, but also should include a sense of social dimension, approach and attitudes. The goal of inclusive and universal design education should be a holistic perspective that focuses not only on the scale of design but also on the dimensions of user relationships. And ways to convey this holistic approach should be sought in the architecture departments of universities through courses (Sungur, 2015, p. 1397-1403).

In this context, besides the technical dimension of the universal design, the concept of empathy was emphasized in transferring the emotional and social dimensions to the designer candidate. Within the scope of the study, universal design education was integrated with the concept of empathy in design, the empathic design method was applied.

Empathy

The word 'empathy' comes from the root of the Greek word 'empathia' and when it is examined etymologically, it is seen that 'em' means 'inside of, within'; and 'pathia' means 'to feel' (Ersoy and Köşger, 2016, p.9-16). Empathy, which means 'to feel inside' when the two roots come together, is a matter that is discussed in many fields such as philosophy, education, psychology and design, it has more than one definitions that belong to different disciplines. The educational dictionary meaning of the means 'understanding and feeling from the point of view of the other person' (Shukla, 2005, p. 75). In Cambridge Philosophy Dictionary, 'empathy' takes place with three basic definitions (Audi, 1999, p. 261);

•Firstly, imaginative projection into another person's situation, especially for vicarious capture of its emotional and motivational qualities,

•Secondly, it may mean mimicry of gaze (i.e., transfer of attention from the other's response to its cause).

•Thirdly, it denotes role-taking, which reconstructs in the imagination aspects of the other's situation as the other "perceive" it. When we talk about empathy, we refer to the third of these meanings: "empathy" is an imaginative projection into another person's situation (Mattelmäki, Vaajakallio and at al., 2014, p. 67-77).

Empathy, which was originally a sub-term of sympathy, has been discussed by Hume, Adam Smith and other Scottish philosophers. The term came into existence with the translation of the German word 'einfühlung' (which was used by Theodore Lipps who is identified with esthetic thinking, widely) into English by English psychologist E. G. Titchener (Wang & Hwang, 2010).

Ickes (1997, p. 352) points out that empathy is a complicated psychological deduction from that observation, memory, information and reasoning bring together to acquire insights about others' thoughts and emotions. The term empathy, which is discussed in different scientific fields such as philosophy, esthetics and psychology, was studied comprehensively by phenomenologists such as Husserl, Sartre, Brunswik and Heider who were interested in the matter at the beginning of the 20th century (Wang & Hwang, 2010).

What is Empathic Design?

Empathy is a fact that is involved in work and study life and human relations in life. Empathy, as a subject area in the field of design, came into existence with the term 'emphatic design' that contains concepts such as empathy in design, universality, and involving the user. Empathy transforms into a design tool with an emphatic design method. The concept of 'emphatic design' is a concept that includes not only architecture but also all other design fields (E. Mediastika, 2016, p.1).

The empathic design which emphasizes listening to the voice that comes from the heart of the user and turns it into the design is an innovative design strategy to understand the relationships between the user and the designer (Wang & Hwang, 2014). Empathy in the field of design existed before being called emphatic design. Design exists with empathy by nature. In emphatic design strategy, even though user experiences are handled in a more technically regarding their transfer into the project; in the past as well, architects, planners and designers constructed for a more general user by predicting the needs, wishes and skills of the users who would use their designs. However, today, advanced research is required to determine functional and ergonomic necessities in design correctly (Postma, Zwartkruis-Pelgrim and at al., 2012, p. 59-70).

Empathy in the field of design includes these researches that will make it possible to understand user experiences and use them as design data and means a positive relationship between the users and built environment, in other words, the harmony between them (Banerji, 2016, p. 8-17). The most distinct character of the emphatic design is that the designer reaches the experiences of a known user. While design methods in traditional design processes rely on the personal experiences of the designer, emphatic design understands how the user sees, experiences and feels the object, environment or service in the circumstance he uses the design product (Koskinen & Mattelmäki, 2003, p.168), (Figure 1).

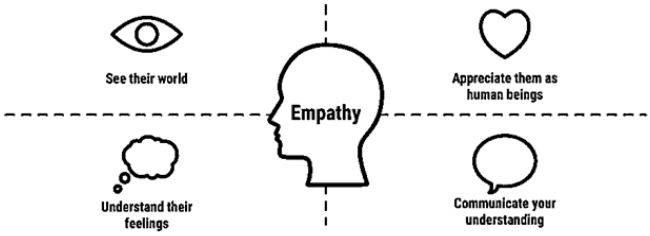

Figure 1. Empathize with the users in the design process (URL 2).

Under the name of the emphatic design, a design method that tries to explain how users define their potential requirements first brought forward by Leonard and Rayport (1997, p.102-113). The empathic design was presented as a process that involved observation, data

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collection and analysis, and iterative prototyping. Most significantly, the discipline was identified as a way to uncover people's unspoken latent needs and then address them through design. The key to the emphatic design is to understand how the user looks at, experiences and feels some of the objects, the environment or the service when he is using the object (Koskinen, Mattelmäki and at al., 2003, p.168). Thereby, empathic design involves a series of methods that are put forward for designers to transfer user experiences to the design systematically.

Method: Empathic Design

Empathy, which is a concept that exists in the essence of architecture, offers a different point of view to user-oriented approaches with the empathic design method. In this study, the empathic design method is conceptualized with the empathic design process. Leonard and Rayport (1997, p.102-113) identify five key steps in the empathic design process as: observation, capturing data, reflection and analysis, brainstorming for solutions, and developing a design model or mockup of possible solutions. Designers keep the user in mind in all steps of the design process and take place in every step of the empathic design. However, reaching the user perspective becomes even more important for the designer in concept search and concept development steps which are the pre-design steps in the design process. To make conscious predictions about which alternatives to explore and where to go in developing the design product, it is vital to understand how the user sees his world (Koskinen, Mattelmäki and at al., 2003, p.168), (Figure 2).

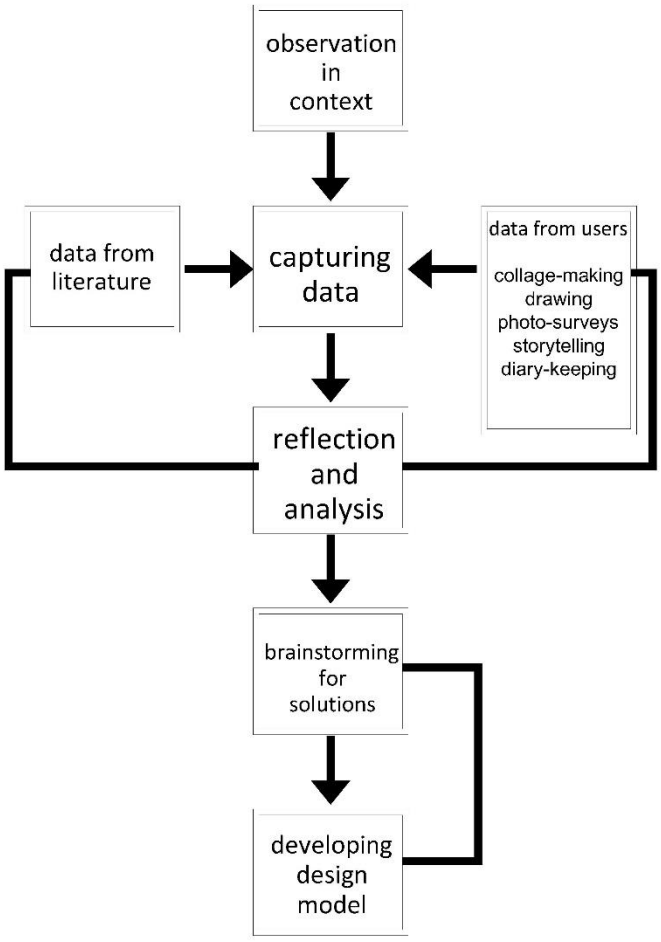

Figure 2. Conceptual model of the empathic design process (prepared by authors)

At this point, different methods can be applied to examine user experiences. To determine the experiences in traditional design methods, what people say is taken into consideration by using questionnaire and interview technique that is practiced on a determined group, besides applying observational research methods. As for participant design methods, tools for involving user experiences in the design are produced. In this method that focuses on producing tools to enable people to express their dreams, thoughts and emotions for a design, it is argued that empathy that is shown towards users' influences on reaching the correct result (Frascara, 2002).

In user centered design methods, cognitive and emotional tools, maps, 3D models, function diagrams, and the datum in which users express their dreams are used for users to reveal their experiences. Activities such as collage-making, drawing, photo-surveys, storytelling or diary-keeping are especially valuable in situations in which people may find it difficult to articulate or reveal attitudes and thought-processes verbally. The user design process which is taken form by making use of created tools consists of pre-examination interview, field analysis meeting, forming a study book, home-research sessions, user analysis workshop and design finalization workshop session (Sanders, Elizabeth and at al., 2013, p.72-86).

In this study, the user participation practices mentioned took place as a research technique based on the empathic design process. The empathic design process scheme shown in figure 2 in the empathic design application carried out with students has been a guide throughout the studio process as a road map.

Discussion: Empathic Design Experience in Architectural Education Design Studios

With the aim of raising awareness in the design process of the empathic design method, empathic design practice was conducted with students as part of the Çukurova University Department of Architecture Interior Design class. In the study that continued for ten weeks, primarily studies done using participant design methods were analyzed; cognitive and emotional tools necessary for empathic design were introduced throughout 4-hour lessons each week. By creating student study groups consisting of three or four people, students were first asked to choose a specific user group and secondly to state the age-range of the said group. They were expected to create an interior design whose function they establish themselves in accordance with the determined user group. The aim for leaving the choice of function and user description to the students was to ensure that the student constructs the tools of empathy himself while creating his design for the group he chooses. Accordingly, user groups chosen by students were determined as children with autism, hearing-impaired adults, adolescents with down syndrome, and children with cerebral palsy; and a model that involves the steps of the empathic design process and process actors (Tabel 1) (Figure 3).

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Table 1. User groups of the study

Group	Project Type	Special User Group
1	Playground	Autistic Children
2	Dance School	The Hearing Impaired
3	Cafeteria	Young People With Down Syndrome
4	Rehabilitation Center	Children With Cerebral Palsy

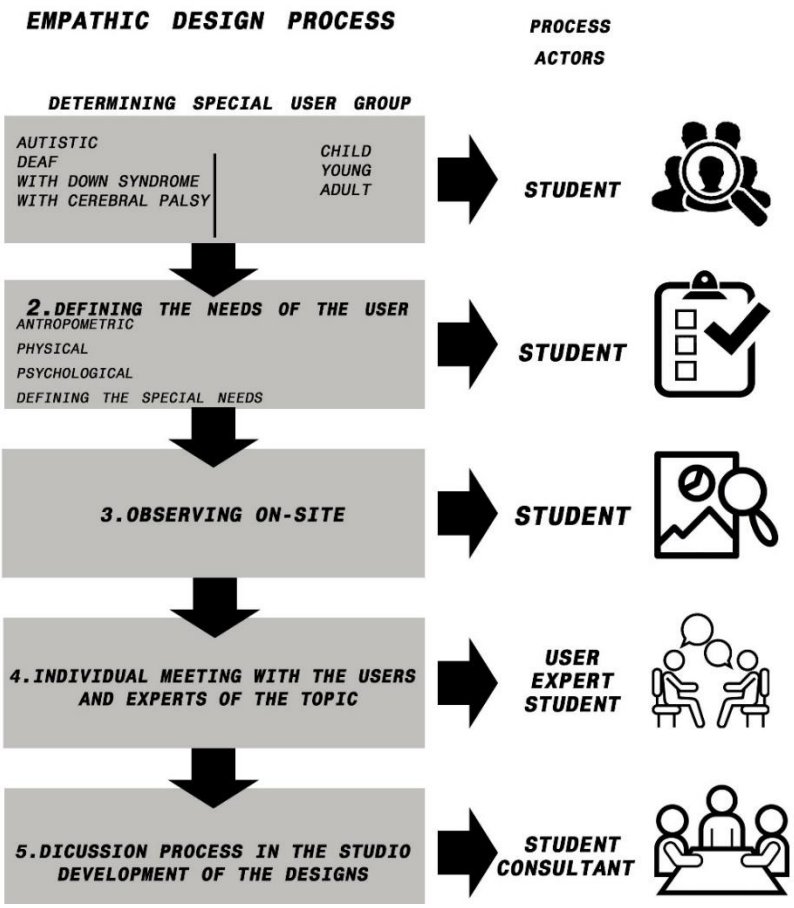

Figure 3. Conceptual model of applying empathic design (prepared by authors)

1nd Group: Design of Outdoor Playground for Autistic Children

In the design, firstly research on children with autism was made and spatial needs of autistic individuals were determined. The term was first used by Kanner and Asperger to describe a group of children, seemingly living in their private worlds and combining a great ingenuousness with a fundamental lack of knowledge about social interaction (Kinnaer, Baumers and at al, 2016, p.179–195)

Autism is a disorder that is defined by behavioral symptoms associated with high cortical brain functions that affect lifelong socialization, language, communication, and many other areas of interest and activity, making it difficult and preventing communication with other individuals. In addition to this autism is a common developmental disorder in which verbal and non-verbal communication, social relationships, imagination and problem-solving abilities are impaired. Autism disorder is referred to as autism spectrum disorder (ASD) in the literature (Şensoy, 2017, p. 115-128).

In the studies made, "Sensory Design Model" (Mostafa, 2014, p.143-158) which focuses on sensory reactions that autistic individuals give to the characteristics of the physical space was referenced. According to the model, it is aimed that the inclusion of space acoustics, ventilation, color, tissue, orientation and closedness, which are also defined as stimulant inputs that stem from the physical environment, into the design will create a positive effect on autistic individuals. Design principles of the model, spatial sequencing, escape space, compartmentalization, transition zones, sensory zoning played a significant role in the design process (Mostafa, 2014, p. 143-158). Besides the literature researches, the opportunity of a face-to-face interview with the user was provided and a mother who has an autistic child and a student group who will create the design had a series of interviews. It was obtained from the user experiences that autistic children who do systematic and rhythmic movements want to go to places always from the same route and need a certain rotation in the design. As a result of the interviews, a design of a playground to put into practice in the backyard of a private education establishment where autistic children go to school was agreed upon (Table 2).

Table 2. Group 1-playground for autistic children

Keywords	**Design Decisions**
Acoustics Spatial Sequencing Escape Space Transition Zones Sensory Zoning	Characteristics of individuals with autism against activities or games: • They focus on the parts unusually. • They only deal with certain issues. • They want to go the same way to their destination (Mostafa, 2014). In the light of the design data, beginning from the exit of the playground, a play area in sections in a rhythmic layout was designed. In the design, a secret playground which was stated as an area that children with autism need was designed. Different materials and tissues that are intended for the tactual sense in a manner that would contribute to the sensorial development of the children with autism were used; and playgrounds that create different sounds intended for the sense of hearing were organized. To prevent the distraction that colors create, as neutral colors black and white were preferred.
Photos	
	

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2nd Group: Design of the Dance School for the Hearing Impaired

For the hearing impaired, which is a group in which an architectural design example is not commonly encountered among disabled individuals, a special research process was followed. To dance, it is necessary to hear the music and synchronize the movements. In this context, the most important problem of the design is the creation of an appropriate atmosphere for the hearing-impaired dancers to sense the music.

As a result of the research stage which was the first step of the design process, the 'Deaf Space' study was referenced. Architects of the Gallaudet University, which is the only university that offers social sciences education to hearing impaired students, defined the concept 'Deaf Space'. In 'Deaf Space' studies, known -but hadn't been coded until then- sensitivities of hearing-impaired people were determined and some sort of key principles list was created. At the beginning of the study, suggestions intended for completing the absence of hearing with sight were developed. However, afterward it was stated that the 'Deaf space' concept is a concept of defined spaces that are so open to feeling that it cannot be supported with sight and facilitate movement. In the study, five basic design principles for the spaces designed for hearing impaired people are determined as space and closeness, sensory accessibility, mobility and closeness, light and color, and acoustics (URL 3), (Figure 4).

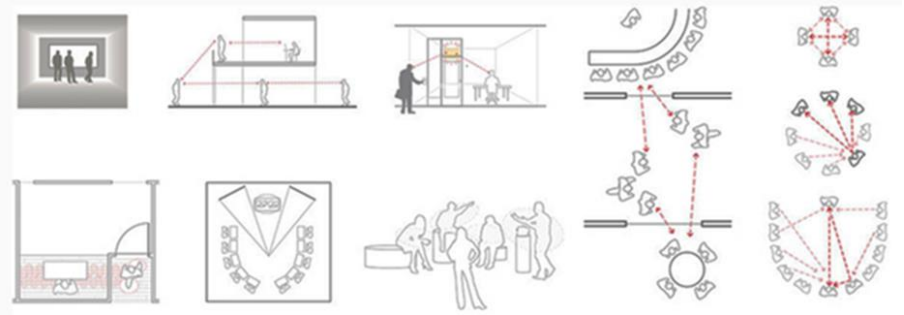


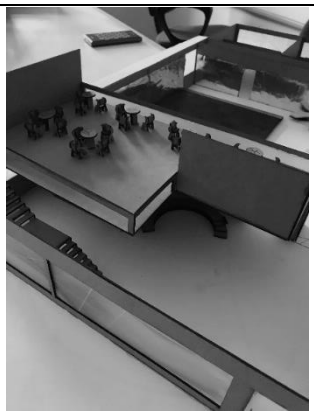
Figure 4. Deaf Space (URL 3)

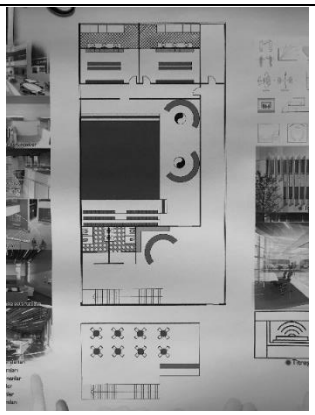
It was stated that spatial orientation for the environment and awareness are basic necessities for a person to feel good. Hearing-impaired people, too, can sense activities around via visual and tactile datum such as shadows, vibrations, small movements of the people around. In this concept, the 'Deaf Space' concept suggested that the built environment should be designed in a manner that allows for this spatial awareness utterly and facilitates spatial orientation. These principles were also taken into consideration in the design of dance school for the hearing impaired, sign language was made clearer and more understandable by choosing contrast colors in color choices.

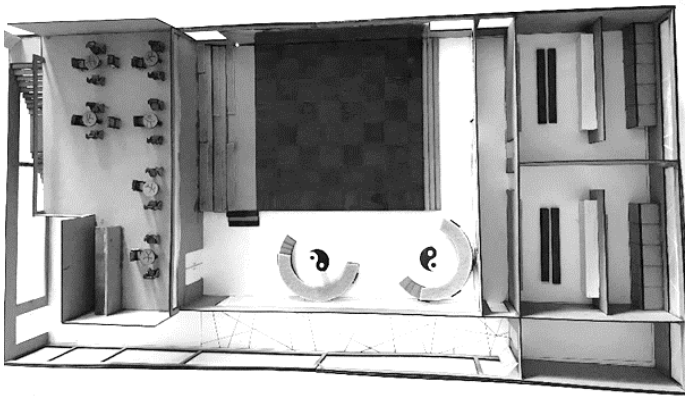
Additionally, mechanical characteristics as necessities that stem from function in design were involved in the design. It was ensured that they transmit music notes to the dancer on the dance floor, which is the main area of the dance school, as vibrations. By this means, to compensate for the absence of hearing, sight besides tactual sense is made use of. In the design process, to empathize with the users, students practiced being able to sense the space as if they lacked the ability to see.

Table 3. Group 2- The dancing school for hearing imparied

Keywords	Design Decisions
Space and closeness Sensorial accessibility Mobility and closeness Light, color and acoustics	Special attention was given to ensure that the visual perceptibility of the dance ground that takes place in the center of the design is high. Instead of closed walls, transparent surfaces were preferred in the design. Mirrors taking place in the corner solutions are placed in a way that enables people to see people coming in the opposite direction and to prevent any collision. A mechanical system that vibrates in sync with the music on the dance floor was created.
Photos	







3nd Group: Cafe for Young People with Down-Syndrome

Down-syndrome is the most commonly encountered chromosomal genetic abnormality among humans. Recently, a series of applications are becoming widespread to integrate people with downsyndrome into society (Patterson and D., Costa, 2005, p. 137–147). One of them is the cafeteria enterprises in which adolescents with Down-syndrome work. The main aim of the students from the 3rd group was to offer a suggestion for the design of these cafeterias. Firstly, research was made

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by examining the physical characteristics of individuals with down-syndrome to involve them in the design. Having small hands and feet, being shorter compared to other children, having weak and loose muscle structures can be counted as some of the physical characteristics of children with down-syndrome. For this reason, one of the most important characteristics of space design for individuals with down-syndrome is organizing the spatial factors to prevent tripping dangers and, also, safety should be ensured as an important parameter. Additionally, because a complicated layout can be difficult for a person who has down-syndrome, space should have a simple layout. For this reason, walls and wall colors were chosen as simple and undetailed as possible in order not to create a disorder for individuals with weak sight (Table 4).

Table 4. Group 3- Cafe for young people with downsyndrome

Keywords	Design Decisions
Safety Open space Simplicity and perceptibility Suitability for the anthropometric measurements	The design was created taking anthropometric measurements of the individuals with downsyndrome into consideration. In order not to experience any kind of accident for these individuals experiencing balance difficulties, cornered surfaces were avoided. An open space layout was implemented. Colors used in the space were chosen as simple and outfits were chosen as undetailed.
Photos	
	

4nd Group: Swimming Pool for Children with Cerebral Palsy

With the 4th group students, a rehabilitation center and a swimming pool project was designed for children with cerebral palsy. In cerebral palsy patients, muscle weakness, reactional irregularities in body and balance reactions, and muscle tone changes such as spasticity and distony prevent the control of movements and causes balance loss. Therefore, children with the sickness should be in the process of physiotherapy (El, Peker and at al., 2007, p.75 – 80). In this project, empathizing with the children who spent most of their lives in rehabilitation and physiotherapy centers, 'What can be done to make the process more fun?' was the first design question asked. A design, which not only is an appropriate space for children with cerebral palsy in terms of accessibility but also understands the users' psychology and

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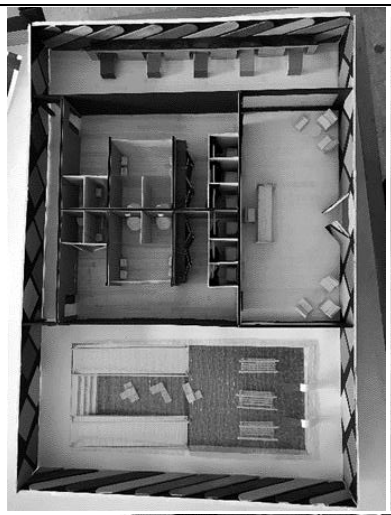
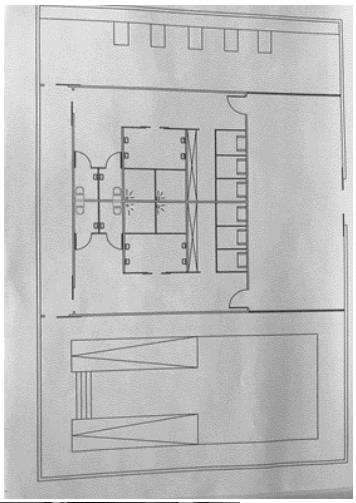
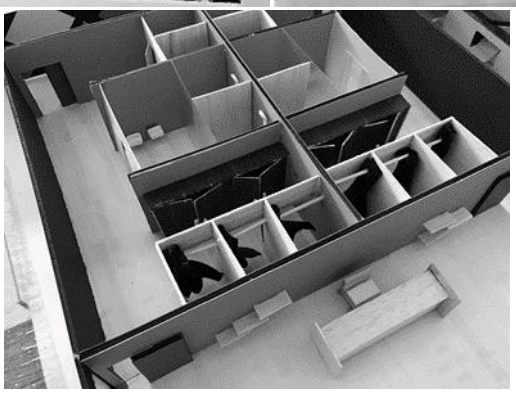
empathizes with it, was developed. Aquariums and swimming pools that children can watch throughout their long physiotherapy sessions constitute the core of the design. Additionally, space was dynamized by the color utilization in the space and different surfaces created with wall panels. The four studies are evaluated in the table below in terms of main design ideas and design approaches (Table 5).

Table 5. Group 4- Swimming pool for children with cerebral palsy

Keywords	Design Decisions
Walking disabled standards Accessibility Color and dynamism	The main starting point of the design is to make space more fun for children. It was designed not as a closed room where the physiotherapy would take place but as a common area that displays an aquarium where children would get treatment while communicating with others. On the other hand, a swimming pool was designed to ensure that children can not only have a fun time but also can do their muscle exercises.
Photos	
  	

CONCLUSIONS AND RECOMMENDATIONS

Methods such as observation on-site, one-on-one interviews with the users and experiencing user characteristics were used in the process of empathizing with the users of these four groups that study within the context of interior design lesson. Throughout the studio term, the importance of developing empathizing skills for students and the designer's ability to think together with the user was discussed. At the

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same time, the importance of the steps of students' research and data collection in the design process for the design scenario especially for a different user was highlighted.

In this regard, this study addresses the perception of empathic design in architecture together with the concepts of universal design. As part of the study, it is aimed for students to offer a design solution in which they would fictionalize a universal design concept together with the empathic design which grounds on universal design principles. On one hand, as empathic design fiction, they are expected to define specific users and create special solutions for them; on the other hand, they are anticipated to design physical space that takes universal design principles in mind.

As a result of student feedbacks and the products of the study that was created using an empathic design approach made with students of the department of architecture in studio term, it was observed that the following goals were reached:

- The student can easily evaluate the data that he collected via cognitive and sensorial tools,
- The student can develop his ability to interpret the data that he collected throughout the design process with different approaches,
- Awareness in terms of design was raised for everyone.,
- As a designer candidate, the student is aware of special user groups and gained research and solution development experience,
- The student learned the approaches in architectural literature such as 'deaf space' and 'the sensory design model' for private users and experienced the reflections of these approaches to practice in the studio,
- Universal design principles were made a holistic process using the empathic design method, and accordingly, designs that raise awareness were created.

These sorts of studies made with different approaches to develop the awareness, and hence the point of view, of the students of the department of architecture, show that students can evaluate the data that he collected in a formal and speculative order. Therefore, as a result of this study, it was observed that student can approach the design with different points of view and interpret the data with different approaches when provided with a key method during the design process. In consequence, as a result of the data collected, it was seen that efforts to create a design using the empathy design method raise awareness in education and strengthen the empathy in students. Finally, the study aimed to contribute to new academic studies on the application of empathic design method in design education by addressing architectural design education and universal design studies with the concept of empathy.

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CONFLICT OF INTEREST
No conflict of interest was declared by the authors.

ETHICS COMMITTEE APPROVAL
Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS
In this research, the necessary permissions were obtained from the relevant participants.

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