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Accessibility awareness among architecture students: Design thinking evaluations in Yildiz Technical University

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Abstract

Social responsibility of an architect is what an architecture student has to internalize, as the profession is a powerful tool for inclusion 'of all' people. This paper aims to discuss how to integrate 'universal design' to the design thinking of architecture students. As the root of the problem is 'awareness', a method was set to integrate 'accessibility criteria' via raising awareness. A pre-evaluation of accessibility awareness was conducted. After a series of awareness activities, a post-evaluation was made. The findings and results bring many ideas about the ways of raising accessibility awareness among architecture students.

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Keywords: Universal design, accessibility, disability awareness, design education;

1. Introduction

Medicine, law and architecture are the principal professions for the well being of communities. However, equal inclusion to community does not exist for some people. Architecture can be considered as the fundamental element for inclusion as it creates and shapes the environment that the human beings live in. As architecture is about making everyday lives better 'for all' people, social responsibility of an architect is what an architecture student has to have a comprehensive idea of.

Professor Jeremy Till, Head of St Martins college of Arts and Design, offers a good summary of the situation: …one cannot cover all aspects of the design of the built environment, but one can set up an ethos in which issues such as inclusion, access, autism, the vernacular and safety are inculcated as values to be taken seriously. We explicitly refer to the user as a core part of our focus, and in this see the user as diverse (including issues of disability). Our 'mission' is specifically about the social and environmental responsibility of the architect (Boys J., 2010).

RIBA declares that; there are strong moral, legal, social, economic, sustainable and environmental reasons why inclusive design is important and it is evident that the expectation that architects will design inclusively is now high

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on the agenda. Architects and others whose work impacts on the design and quality of the built environment are expected to ensure that any design intervention is designed inclusively to meet the needs of the diverse population.

Milner and Urquhart argue that, whilst legislative measures serve as an important design tool, they are insufficient in themselves. Appropriate user-responsive design relies not only on compliance with the minimum design guidelines but also on the designer having fully absorbed the principles of universal design into his/her design vocabulary. Furthermore, it is suggested that given the formative role which the vocational educational process plays in shaping awareness of user needs, it is also the most promising means of communicating and fostering a more holistic philosophy which may inform the design process from the initial conceptual spark through to the final detailed design.

In a position paper for NAAB, Ostroff and Hunter declare that; there is a need to infuse universal design strategies into both the curricula and the teaching methods in schools of architecture and a need to shift accessibility issues from an add-on compliance issue to an integral part of the design process.

In The UNESCO/UIA Charter for Architectural Education, it is stated that; it is in the public interest to ensure that architects are able to understand regional characteristics and to give practical expression to the needs, expectations and improvement to the quality of life of individuals, social groups, communities and human settlements. As for the goals; a decent quality of life for all the inhabitants of human settlements and an architecture that is valued as the property and responsibility of everyone are also specified. Also, in the charter, it is indicated that among the objectives of architectural education; is the awareness of responsibilities toward human, social, cultural, urban, architectural, and environmental values, as well as architectural heritage. According to the charter; architectural education involves the acquisition of understanding of the social context in which built environments are procured, of ergonomic and space requirements and issues of equity and access. In the conclusion part of the charter, it is pointed out that; 'beyond all aesthetic, technical and financial aspects of the professional responsibilities, the major concerns, are the social commitment of the profession, i.e. the awareness of the role and responsibility of the architect in his or her respective society, as well as the improvement of the quality of life through sustainable human settlements.

Among the existing NAAB conditions and Student Performance Criteria; Student Performance Criteria states that; 'for the purpose of accreditation, graduating students must demonstrate understanding or ability in; human diversity, accessibility and legal responsibilities which include accessibility issues as well.

However, the infusion of inclusive design criteria to the design process, inclusive designs and research about universal design in the university remain to be very few when compared to the other fields of research and this points out to an awareness problem.

This paper aims to discuss the ways to raise awareness of architecture students. The author, who is also the lecturer of 'Universal Design' course in YTU, set a series of activities to integrate 'accessibility criteria' to other well-known design criteria among architecture students. In the paper, because of the need to limit the scope, the framework of the course as a whole and the activities other than the awareness activities within the course are left unmentioned.

Focusing on 'awareness', the paper briefs the 'awareness raising' activities within the course and discusses the results of a student awareness evaluation. The findings and results bring many ideas to the educators, about the ways of raising awareness towards an inclusive environment achieved by design and also the social responsibility of the architect.

2. Description of 'awareness rising' activities within the 'universal design' course

A multi-dimensional approach with the aim of constituting universal design awareness in architecture students was held in the course.

In the scope of the awareness activities within the course;

- Basic disability and diversity information and terminology,
- Effective communication, language and social approach towards diverse groups,
- Barriers,

- Historical and legal perspectives,
- Physical environment-inclusivity relationships are focused on.

The learning outcomes are achieved by means of different learning methods adapted to the course. Teaching methods included lectures, seminars (by the lecturer and also people with disabilities sharing their own experiences), site visits, and simulation exercises as on-site use of wheelchairs (Fig.1) and video presentations.

Basic disability and diversity information and terminology, awareness regarding the different conditions of humanity, was organized as a series of seminars where lecturer made presentations about the concepts and topics in the literature. Guest lectures with the contribution of persons with disabilities were also held. The presentations are discussed with the students Videos, regarding to different conditions of humanity and life-span were shown. There had been visits to local governments, non-governmental organizations (NGOs) and rehabilitation centers.

Social approach and effective communication involved many interrelated subjects such as; clarifying the common communication problems, using the right approach and language, discussing why and how the people with disabilities are left out of community lives (introduction to personal, social and environmental barriers).

Barriers were discussed under the headings of; attitudinal, social, legal, financial and physical barriers. The activities included; discussing and explaining the concept of quality of life and how the barriers affect the quality of life of individuals. Discussions were supported by a series of short 'movie watching' sessions and simulation exercises.

Historical and Legal Perspectives was discussed and examined within the scope of fundamental human rights and current international and national legal arrangements with regard to integration to social life and quality of life.

Awareness regarding the physical environment included (but not limited to); the relationship between different conditions of humanity and design, accessible, inclusive and universal design concepts and their relations to architectural design, anthropometrical dimensions that appear in various conditions, space and reach requirements, posture positions, data about the use of force. These activities were supported by simulation exercises and video presentations produced by US Access Board and RIBA.

There also was an ongoing discussion from the early stages of the course, about the ways to raise public awareness. As a result, besides other case studies that involve architectural design, which is not described in the paper, a poster design project was conducted. The aim for the poster design was to generate the idea, that; being aware of and capable in inclusive design, the students now were trying to raise public awareness themselves.

Figure 1. Simulation exercise in the campus

The expected outcomes of the activities can be summarized as the awareness of;

- The students' previous awareness and knowledge level,
- Disability and accessibility,
- User diversity,
- Demography and age structure of society,
- Sensory, physical and cognitive disabilities,
- Disabling barriers,
- History, laws, policies and standards,
- Accessibility, inclusivity and universal design concepts with their relations to design process.

The students' awareness levels are evaluated, before and after joining the described activities above, as a two-phase case study.

3. Method of the case study

The participants chosen for the case study were undergraduate architecture students submitted to the selective 'Universal Design' course in 2012-2013 Fall term in Yildiz Technical University, Faculty of Architecture. The case study consisted of a pre-test that is applied to the students on the initial meeting and a post-evaluation after the awareness activities are completed.

50 students were tested prior to the implementation of the educational program. The students were not informed about the purpose of the pre-test, in order to prevent from any probable misleading answers.

The pre-evaluation about accessibility, disability and the ranking of design criteria according to the students, was applied. Before starting the course, each student has filled out a questionnaire form that is prepared by the lecturer. In the form, students were asked to give themselves a score from 1 to 10, for their knowledge level about disability related issues. Then, a questionnaire consisting of 15 questions were answered as true/false. After the questionnaire was completed, the students were given the right answers and some explanation, then requested to re-evaluate their awareness scores on a 10-point scale.

At the end of the term, a post-evaluation was made. However, evaluation after the activities, had to differ from the pre-test, as the students had basic disability and diversity knowledge. Thus, the post evaluation mostly consisted of observations, submitted works and anonymous student comments written on request of the lecturer. The design criteria ranking question was again asked to the students as a part of the post-evaluation as well. The design criteria list, consisting of 7 criteria (functionality, context, aesthetics, sustainability, concept, innovation, relevance to site and topography), given to the students for ranking, are compiled from 'design quality criteria' of 'Skills Funding Agency' in UK and 'Design Project 3 Evaluation Criteria' in YTU Faculty of Architecture.

4. Findings

The lecturer observed that the students seemed more eager for the activities to take place, as taking the pre-test served as a trigger for the enthusiasm in the students. After taking the pre-test, students, have declared, in their anonymous comment texts, that they were surprised about the disability facts they made assumptions about. They also pointed out that, making assumptions did not work for several issues regarding disability and accessibility. The students stated that; their actual awareness levels were much lower then they thought it would be in the first place.

Pre-test was evaluated by calculating the arithmetic mean values of the answers. One of the interesting results was about the students' 'self evaluation scores' before and after taking the test. The arithmetic mean of the scores was higher (7.3) before taking the awareness test compared to the self-scoring at the end of the test (5.6). Decrease

in self-evaluation scores (from 7.3 to 5.6), points out to a false assumption of students' awareness levels about themselves. Furthermore, the students' had another false assumption of 'being more aware about disability' once they come to senior years in the faculty. The difference between the arithmetical mean values of self-evaluation scores of 1st- 2nd year and 3rd- 4th year architecture students was calculated to be 2.5. Although the answers to the awareness questions did not show any meaningful difference for the favor of 3rd- 4th year students, the senior students failed to assume that they were more aware.

Design criteria ranking question showed that there is a clear shift of students' rankings, from 'aesthetics' to 'accessibility' once they are involved in awareness activities. However, one cannot be sure if the results are reliable until another evaluation is made with to the same group after a couple of years have passed. Yet, the students' accessible design submissions and efforts (designing awareness posters, visits to NGO'S, etc.) indicate a significant raise in awareness.

As for the post-evaluation, the simulation exercise was of importance to be mentioned. The reactions were surprising because after all the practical background, students were still hesitant about sitting on a wheelchair both for social and psychological reasons. After they get used to it, the lecturer observed a certain amount of frustration in their behavior towards the campuses' physical and social environment that is namely, campus climate. It was a very strong and impressive experience for the students and also for the others who saw the impossibility of a wheelchair in the campus.

After visiting NGO's and local governments, the students stated that; there were many organizations existing in their surroundings, which they were not aware of. They found it difficult to make an interview with the local governments, as they could not find a responsible person about the issue. They also mentioned recognizing some of the problems when visiting the NGO's. They met new people who were not architects, but real users from diverse groups.

Hosting the guest lecturer in the university campus, who is also a wheelchair user had served as an unforgettable experience as they had to push the wheelchair, while constantly apologizing for the inconvenience caused by physical barriers. Communicating with the guest lecturer was very informative both by means of communication skills and building empathy.

As learning by doing was integrated to most parts of the activities, some students also stated that, they may forget about the technical or legal information, but the memories of searching for NGO's and visiting them, time spent in the wheelchair or the process of designing the awareness poster (Fig.2) will remain unforgotten.

Özürlüye değil, Özgürlüğe yol verelim

Figure 2. One of the awareness poster designs by Can Baldan (3rd year architecture student)

5. Conclusions and Recommendations

Although future research has to involve more students in order to get more accurate and reliable results, these results clearly demonstrate the effectiveness of the program in convincing students for a wider appreciation of user requirements and in building awareness.

Insufficiency of accessible design awareness as proved by the results of the pre-test may be a reflection of deficiencies in the department syllabus. The insufficiency of integrating inclusive design concept to the design process will remain, until the syllabus content is provided to integrate inclusive design as a compulsory matter. A relatively short and minimal (2 hours/week- 1 term) training about accessibility did significantly increase the students' awareness levels. This result clearly shows that an infusion of the subject to the curriculum overall will have a considerable impact on the awareness of the future architects, eventually on the accessibility of our environments.

Inclusive design courses have to provide an active learning environment for the student, as education should not passivize the student by lecturing, reading and teaching the code. Inclusive design education should be a mixture of both passive and active methods of learning.

The course framework should be constituted within the context of 'for all', rather than 'groups with special needs'. Inclusive design courses should not accept the medical model of disability, but emphasize the social model instead. Designers of the future, then, will have the opportunity to comprehend the issue not as medical (disability), but as environmental (accessibility).

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