Dubrovnik by Wheelchair

Hađija, Pavo

Undergraduate thesis / Završni rad

2020

Degree Grantor / Ustanova koja je dodijelila akademski / stručni stupanj: **RIT Croatia / RIT Croatia**

Permanent link / Trajna poveznica: https://urn.nsk.hr/urn:nbn:hr:229:891503

Rights / Prava: In copyright / Zaštićeno autorskim pravom.

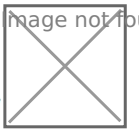
Download date / Datum preuzimanja: **2024-03-29**



Repository / Repozitorij:

RIT Croatia Digital repository - Rochester Institute of Technology





Dubrovnik by Wheelchair

Pavo Hađija

RIT Croatia

Dubrovnik, 2020

Abstract

The paper followed the UN Implementation checklist that consisted of a 19-point scale divided into four groups to determine the accessibility of four public locations in Dubrovnik. The locations were assessed in the groups of obstruction, street furniture, pathways and curbs, and parking facilities. The locations were randomly picked in the area and all serve the general public, which means that all should be accessible by any individual. The highest compliance result was obtained at Lapad Bay Beach (89%) and the lowest score appeared at Elementary School Mokosica (42%). To test the architect's attitudes toward designing an accessible environment, a questionnaire was distributed to eight local architects in Dubrovnik regarding their previous knowledge and current practice in the professional field. Results show that accessible environments are built only when they are required, but also that all the needs of the disabled are not taken into account. Environments are designed to be accessible by wheelchair, but others disabilities are not concerned by law, education, or practice.

Key Words: Accessibility in the physical environment, Disability, Accessibility, Accessible tourism, Accessibility of wheelchair, Physical Impairments

Introduction

Disability

Disabilities are described as any physical or mental impairments that cause an obstruction in an individual's day to day activities ("Disability News and Information," n.d.). Disabilities include physical and mental limitations of an individual and according to the International Classification of Functioning, Disability and Health ("World Health Organisation," n.d.) there are three dimensions of disability: body structure and function, activity, and participation. Disabilities affect the individual's vision, hearing, thinking, learning, movement, mental health, and remembering, communicating and social relationships. They may occur at birth or at any point in an individual's lifetime caused by illness or injury. However, disabilities are not just a list of medical problems, but rather a blend of limitations that an individual experiences on a personal level as well as limitations that come from the society, such as judgment (Ivanda & Rocco, 2017). The Convention on the Rights of Persons with Disabilities was adopted in 2006 with the aim to change the approach of society towards people with disabilities by giving them equal rights to participate actively in society (The United Nations, 2006, art. 18).

Mobility

Mobility by definition is the ability to move freely. In regards to physical disability, mobility represents the individual's ability to walk, climb stairs, get in and out of transportation (Vries, et al. n, 2012). Loss of mobility is explained, as the decline is physical functioning which put an individual at risk of dependency with a negative impact to the quality of life.

Accessibility

Mobility is required for an individual to survive in an urban environment and it must be provided to everyone. Providing mobility that is a fundamental part of everyday life and being

able to reach any open, or closed build-up area creates an accessible physical environment with no physical barriers that keep an individual from day to day activities (Evcil, 2010). Building an accessible environment doesn't only benefit the disabled, but society, because every individual is physically disabled at some part of their life. Injuries such as a broken leg make an individual disabled and to use crutches he needs a wide enough space to move around freely, as does a disabled person in a wheelchair. This concludes that an environment is accessible depending on how easy it is to be reached by as many individual's (Shaw, Veitch, & Coles, 2005). This does not only reflect on disabled individuals in a society, but also disabled people in different societies, such as those that travel. Accessible tourism has been discussed and it is agreed that destinations and services should be available to everyone and disabilities should not be an issue (Darcy and Dickson, 2009). Simple tasks represent the most common limitations to disabled people when they travel. Getting their luggage checked-in at the airport, or finding accommodation that will be suitable to their needs (UN, Promoting accessible tourism for all). Another problem regarding traveling is the lack of knowledge of individual's that provide a tourism product or service that impacts the experience of the disabled person (Devile & Kastenholz, 2018).

Disabled people in the world

The issues of accessibility for disabled people are discussed around the world because 15% of the population lives with disabilities and the number continues to increase (Factsheet on Persons with Disabilities, UN). Accessibility enables disabled persons to participate in everyday activities, so public institutions and facilities should not have physical or other barriers that represent a limitation to this part of the population. The United Nations work towards urban designs that give an equal opportunity and freedom to all parts of the society. Another aspect of

the accessibility issue is presented in the fact that 79% of disabled people face difficulties in evacuation situations. In this case, accessibility in design helps save lives in unexpected circumstances.

UN Design Manual

The UN Design Manual aims to provide guidance in creating barrier free environments for disabled people and set a standard that should be followed to make the environment accessible to everyone equally (“Accessibility for the Disabled” n.d.). With the premise that every individual is disabled at some part of their lives and should be able to continue day to day activities, the UN Design Manual focuses on providing independence, convenience and safety for all disabled people through urban planning and architectural design. Urban planning takes into account barriers in the outdoor environment and architectural design focuses on requirements regarding access such as ramps, elevators, doors, restrooms, and other features of a build-up environment. In order for a city to be accessible it should have barrier-free paths that are safe for disabled people and obstructions such as street furniture, traffic signs, plants, trees, street signs, and advertisement should be places outside of the path. Physical barriers should be removed, but assisting devices should be implemented in concern of all disabilities.

Accessibility in Build-up Environments

The accessibility of a build up environment is assessed with the UN Design Manual checklist on a 19-point scale with 19 being the highest score enabling a 100% accessibility. The same scale was used in the case of “Istanbul“ (Evcil, 2010) where accessibility was assessed at four main city squares where the main four aspects of the physical environment were considered: 1. Obstructions and signage, 2. Street furniture, 3. Pathways, curbs, ramps and pedestrian crossing, and 4. Parking. The results show that all four squares are not accessible enough to

provide an adequate environment for the disabled. The most compliant square had a score of 39% suggesting that there is a need to improve accessibility in the areas. The lowest compliance score resulted from objects that were placed in public areas with no consideration and improperly designed elements such as uneven pavements. The highest score from the group of street furniture was 33.3%, which shows an improvement in regards to the other squares that scored just under 17%. However, the score is still to low for the environment to be considered accessible for the disabled and that there is a need to implement changes. The research also shows that there is a lack of knowledge between disability types as architects and contractors only consider physical impairments when undergoing a project. Aside from knowledge, the loopholes in the legislation obstruct the development of accessible environments.

Legislation in Croatia for Disabled People's Accessibility in Built Environment

The Legislation in Croatia consists of concerns that regard mobility, accessibility, social care, rehabilitation, employment and many other areas of life. In the aspect of accessibility, the requirements of the built environment the Ministry of Construction and Physical Building passed a law that all public and business buildings have to be accessible to the disabled and allow them to move freely (Pravilnik o osiguranju pristupačnosti građevina osobama s invaliditetom i smanjene pokretljivosti, NN 78/13). The legislation includes criteria regarding the size of a public structure that must be compliant to the Legislation of Accessibility, which aims to remove physical barriers in the environment. This may be a problem when taking into consideration that many structures in Dubrovnik area were build before the Law of Design and Building was established by the Croatian Parlament in 2007 (Zakon o prostornom uređenju i gradnji, NN 76/07). Many spaces of the Old Town of Dubrovnik have physical barriers that are not easy to remove without disturbing the exterior of the UNESCO protected heritage site. Other public

areas, and residential buildings become easily inaccessible for individuals with physical impairments as there are no obligations for obtaining location permits when constructing structures that allow easy access to a facility, building or public space, or ensures mobility within the built environment (Pravilnik o jednostavnim građevinama i radovima, NN 112/17).

Disability and Design Education

On the main website of the Faculty of Civil Engineering in Rijeka under the section of "Studies" the university offers undergraduate and graduate programs as well as doctoral studies (Gradevinski fakultet, n.d.). Within the curriculum of the graduate and undergraduate programs there are no classes that directly concern the accessibility of built environment. Studies such as Urban Engineering include a project management course focused on creating engineering projects. There is no direct mention of accessibility within the description course. The same applies to other studies and courses within the same institution. The issues of accessibility are included within the legal frame, but not presented as a major factor in creating a public environment. This finding suggests that there is a lack of education among architects regarding the importance of providing access to the disabled, aside from the regulations they need to follow when conducting a project.

Method

Because there is no history of research regarding the attitudes of architects and their awareness of disabled people's needs in Dubrovnik, this paper intends to question to which extent architects are familiar with the needs of disabled people in the physical environment and their knowledge when it comes to creating an accessible environment. A questionnaire was created based on the study conducted in Istanbul (Evcil, 2010) and administered to local architects in Dubrovnik with the purpose of discovering the attitudes and knowledge of architects

when it comes to the needs and requirements of disabled people in the physical environment. This paper also aims to research if architects take into account the needs of disabled people in practice. To research the compliance of the physical areas, four different public locations in Dubrovnik were inspected. Two of the locations, Lapad Bay Beach and the Government Archive are newly built areas, while Pile Square and Mokosica Elementary School are older built environments. To research the physical compliance through observation of the locations the Design Manual for Barrier Free Environment created by the UN for data collection was used. After the questionnaire was administered the results were compared to see if the attitudes comply with the physical features of public spaces in the area.

Results

Architects' and Contractors Attitude Towards Disabled People's Needs in Physical Environments

The questionnaire was administered to eight local architects in Dubrovnik through an online survey provider for the purpose of investigating attitudes towards building assessable environments for disabled people (Table 6). The respondents answered nine questions relating to their education and professional experience. The age range of the respondents is from twenty-nine to thirty-six years old (Table 7) with professional experience from three years to eleven years of practice (Table 9)

The respondents were asked if their previous education included a course regarding the needs of disabled people in the physical environment and the majority (62.5%) did not have a course on the subject, while only one respondent (12.5%) claimed it was one of the aims of the design studio (Table 10). In practice most of the architects design an accessible environment

only when it is needed (87.5%), none of them tend to design accessible environment in general, while one of the respondents (12.5%) does not care on the subject (Table 11). This finding was interesting as seven out of eight respondents provide accessibility to properties in public ownership (Table 13) and eight of them do not include accessible design for those with hearing impairment and learning difficulties (Table 14).

Location Accessibility Observation Results

Dubrovnik was chosen for this research as it is one of the most visited tourist destinations in Croatia, but it is also a densely populated area with 297 residents per square kilometer according to the last residence list created in 2011.

Four locations in Dubrovnik area were observed and assessed according to the UN Design Manual for a barrier free environment and the Implementation Checklist that was used in the study of Istanbul (Evcil, 2010) was reused to create an observation table (Table 10). Two newer build locations are the Government Archive and Lapad Bay Beach, while the Elementary School in Mokosica and Pile Square are the older built up environments. The results from the observation table conclude that three of the four locations are impacted by issues regarding street furniture and uneven curbs (Elementary School Mokosica, Pile Square and Government archive). The functions surrounding the four areas include services that need to be accessible for anyone at any time, such as shops, cafes, and public facilities.

Compliance of the Physical Environment Towards Disabled People's Needs

Lapad Bay Beach had the highest compliance score (89%) from all the locations observed, while Elementary School Mokosica had the lowest compliance score (42%) to a barrier free environment (Table 13.). Pile Square (63.2%) as part of the old town structure was more compliant than the Government Archive (49.9%), which is of newer construction. The

results from each group show that Pile Square has the lowest compliance in obstruction and signage (50%) and Elementary School Mokosica (62.5%) is the second lowest score in the group, while Lapad Bay Beach is fully compliant (Table 11). In the group considering street furniture Elementary School Mokosica (50%) and the Government Archive (50%) were least compliant and Lapad Bay Beach was again fully compliant. In Table 12 the lowest score of the third group was 11.1% (Elementary School Mokosica) and the highest score was 77.7% (Lapad Bay Beach). The highest scores were obtained by three locations in group four which regard parking facilities (Table 13). The lowest score of 83,25% indicates that Pile Square does not fully comply regarding parking facilities.

Discussion

The results of the questionnaire indicate that there is need for improvement in the educational system regarding the needs of disabled people. Institutions focus mainly on teaching legislation regarding accessibility and architects use that approach when creating an environment instead of thinking about all individuals that will be using the space. Most of the architects provide accessibility when working on publicly owned properties, but only when it is required from them and they focus on physical impairment with no regard to other disabilities such as hearing impairment or learning disabilities. Further research is needed to investigate if the approach of learning institutions has changed as this research has shown a lack of interest from architects to design accessible environment outside the building legislation regulations. Architects should be more informed on disabilities that affect individual's day to day activities, so they could provide innovative solutions, not just solutions that are required by law. More research is needed to investigate if there is a change occurring in the approach of architects towards the needs of disabled people while creating public built up environments.

Results of observation in four Dubrovnik locations show that there are accessibility issues of displaced street furniture and uneven curbs in three locations in the city. Pile Square should be more accessible as it is the center of bus lines that connect the city. Many amenities surrounding the square are not easily accessible to disabled people, such as bus stops, grocery shop and public toilette, where a disabled person confronts uneven curbs, stairs, insufficient pathway width and obstructions. These issues seek an innovative solution as the square is a heritage site and protected by UNESCO. Elementary School Mokosica had the lowest compliance score as it was built before the laws regarding accessibility were established in Croatia. The issues of accessibility and free movement within the environment were quite obvious as there were dangerous curbs, holes and uneven pathways presenting a problem of access to children with physical disabilities. The Government Archive also had the lowest score and was facing the same issues although it is a newer built environment.

The newest built up environment (Lapad Bay Beach) had the highest compliance scores in all four groups. This result might indicate that there is a change in attitude towards building a public environment, but only in resolving issues that concern physical disability. To be fully in compliance there were two aspects missing. There was no guiding sound machine at the crosswalk and no guiding strip.

All public spaces should be accessible to all individuals in society. This paper discovered that there is a need for transforming public spaces in Dubrovnik into accessible environments for everyone. Specifically, there is a need for innovative solutions when it comes to transforming public spaces that carry heritage value, as well as spaces that face accessibility problems due to the infrastructure of the city.

References

Accessibility for the Disabled - Introduction. (n.d.). Retrieved from https://www.un.org/esa/socdev/enable/designm/intro.htm

Darcy, S., & Dickson, T. (2009). A Whole-of-Life Approach to Tourism: The Case for Accessible Tourism Experiences. *Journal of Hospitality and Tourism Management, 16* (1), 32-44. doi:10.1375/jhtm.16.1.32

Devile, E., & Kastenholz, E. (2018). Accessible tourism experiences: the voice of people with visual disabilities. *Journal of Policy Research in Tourism, Leisure and Events*, *10*(3), 265–285. doi: 10.1080/19407963.2018.1470183

Disability News and Information. (n.d.). Retrieved from https://www.disabled-world.com/

Evcil, N. (2010). Designers Attitudes Towards Disabled People and the Compliance of Public Open Places: The Case of Istanbul. *European Planning Studies*, *18*(11), 1863–1880. doi: 10.1080/09654313.2010.512178

Factsheet on Persons with Disabilities | United Nations Enable. (n.d.). Retrieved from https://www.un.org/development/desa/disabilities/resources/factsheet-on-persons-with-disabilities.html

Gradevinski fakultet.

University Study Program:

Retrieved from: https://www.gradri.uniri.hr/en/studies.html

Academic Undergraduate Program:

Retrieved from:

https://www.gradri.uniri.hr/hr/studiji/sveucilisni-preddiplomski/6267-nastavni-plan-i-program-i-

ishodi-ucenja.html

Academic Undergraduate Program:

Retrieved from: https://www.gradri.uniri.hr/hr/studiji/sveucilisni-diplomski/6280-nastavni-plan-i-program-i-ishodi-ucenja.html

Study Program and curriculum:

Retrieved from: https://www.gradri.uniri.hr/files/studiji/Academic_Graduate_2017-July.pdf

Ivanda, L. i Rocco, S. (2019). DISABLE(D) – INCLUSION IN CULTURAL LIFE OF CROATIA. *International journal of multidisciplinarity in business and science, 5* (8), 13-20.

Pravilnik o jednostavnim građevinama i radovima NN 111/93 (NN 112/17). Retrieved from https://narodne-novine.nn.hr/clanci/sluzbeni/2017_11_112_2625.html

Pravilnik o osiguranju pristupačnosti građevina osobama s invaliditetom i smanjene pokretljivosti NN 78/13. Retrieved from: https://narodne-novine.nn.hr/clanci/sluzbeni/2013_06_78_1615.html

Shaw, Gareth & VEITCH, CHRIS & Coles, Tim. (2005). Access, disability, and tourism: Changing responses in the United Kingdom. *Tourism Review International. 8*. 167-176. 10.3727/154427205774791555.

UN General Assembly, *Convention on the Rights of Persons with Disabilities : resolution / adopted by the General Assembly*, 24 January 2007, A/RES/61/106, Retrieved frim: https://www.refworld.org/docid/45f973632.html

UN, Department of Economic and Social Affairs Disability (n.d.). Issues - Promoting accessible tourism for all. Retrived from: https://www.un.org/development/desa/disabilities/issues/promoting-accessible-tourism-for-

all.html

Vries, N. D., Ravensberg, C. V., Hobbelen, J., Rikkert, M. O., Staal, J., & Sanden, M. N.-V. D. (2012). Effects of physical exercise therapy on mobility, physical functioning, physical activity and quality of life in community-dwelling older adults with impaired mobility, physical disability and/or multi-morbidity: A meta-analysis. *Ageing Research Reviews*, *11*(1), 136–149. doi: 10.1016/j.arr.2011.11.002

World Health Organisation, The International Classification of Functioning, Disability and Health. Retrieved from: https://www.cdc.gov/nchs/data/icd/icfoverview_finalforwho10sept.pdf

Zakon o prostornom uredenju u gradnji NN 76/07. Retrieved from: https://narodne-novine.nn.hr/clanci/sluzbeni/2007_07_76_2395.html

Appendix

Introduction to survey

Dear Participants, please complete the following survey in order to contribute in a research regarding accessibility of the physical environment for the disabled. It will take a couple of minutes and the questions investigate the attitudes of architects in Dubrovnik regarding designing accessible physical environment for the disabled. The questions regard your previous education and personal experiences working in your professional field.

Table 1.

Survey Questions

Did you have a course on disabled people's need in physical environment during the professional education?
What is your personal experience of a practicing architect on designing for the disabled?
What are the design features that you commonly provide?
What are the property types in which you provide accessibility and universal design principles?
What are the disability types that you take into account when designing a project?
What gender are you?
How old are you?
What year did you graduate?
How long have you been working as an architect/designer?

Table 2.

Compliance scores and percentage of accessibility in four Dubrovnik Locationsons: Elementary School in Mokosica, Pile Square and Lapad Bay Beach (Group 1 and 2)

Elementary School Mokosica				**Pile Square**				**Government Archive**				**Lapad Bay Beach**			
Items	Compliance	Score	%	Items	Compliance	Score	%	Items	Compliance	Score	%	Items	Compliance	Score	%
Group 1. Obstructions and signage															
1.1	Partially	0,5	12,5	1.1	Non-compliant	0	0	1.1	Compliant	1	25	1.1	Compliant	1	25
1.2	Compliant	1	25	1.2	Compliant	1	25	1.2	Compliant	1	25	1.2	Compliant	1	25
1.3	Non-compliant	0	0	1.3	Non-compliant	0	0	1.3	Non-compliant	0	0	1.3	Compliant	1	25
1.4	Compliant	1	25	1.4	Compliant	1	25	1.4	Compliant	1	25	1.4	Compliant	1	25
Total:		2,5	62,5	Total:		2	50	Total:		3	75	Total:		4	100
Maximum Obtainable Score in Group 1: 4				Maximum Obtainable Score in Group 1: 4				Maximum Obtainable Score in Group 1: 4				Maximum Obtainable Score in Group 1: 4			
Items	Compliance	Score	%	Items	Compliance	Score	%								
Group 2. Street Furniture															
2.1	Non-compliant	0	0	2.1	Compliant	1	33,3	2.1	Partially	0,5	16,65	2.1	Compliant	1	33,3
2.2	Compliant	1	33,3	2.2	Compliant	1	33,3	2.2	Non-compliant	0	0	2.2	Compliant	1	33,3
2.3	Partially	0,5	16,65	2.3	Partially	0,5	16,65	2.3	Compliant	1	33,3	2.3	Compliant	1	33,3
Total:		1,5	49,95	Total:		2,5	83,25	Total:		1,5	49.95	Total:		3	100
Maximum Obtainable Score in Group 2: 3				Maximum Obtainable Score in Group 2: 3				Maximum Obtainable Score in Group 2: 3				Maximum Obtainable Score in Group 2: 3			

Table 3.
Compliance scores and percentage of accessibility in four Dubrovnik Locations: Elementary School in Mokosica, Pile Square and Lapad Bay Beach (Group 3)

Elementary School Mokosica				**Pile Square**				**Government Archive**				**Lapad Bay Beach**			
Items	Compliance	Score	%	Items	Compliance	Score	%	Items	Compliance	Score	%	Items	Compliance	Score	%
Group 3. Pathway, curb, ramp and pedestrian crossing															
3.1	Non-compliant	0	0	3.1	Non-compliant	0	0	3.1	Non-compliant	0	0	3.1	Compliant	1	11,1
3.2	Non-compliant	0	0	3.2	Compliant	1	11,1	3.2	Non-compliant	0	0	3.2	Compliant	1	11,1
3.3	Compliant	1	11,1	3.3.	Compliant	1	11,1	3.3.	Compliant	1	11,1	3.3.	Compliant	1	11,1
3.4	Non-compliant	0	0	3.4	Compliant	1	11,1	3.4	Non-compliant	0	0	3.4	Compliant	1	11,1
3.5	Non-compliant	0	0	3.5	Partially	0,5	5,5	3.5	Non-compliant	0	0	3.5	Compliant	1	11,1
3.6	Non-compliant	0	0	3.6	Compliant	1	11,1	3.6	Non-compliant	0	0	3.6	Compliant	1	11,1
3.7	Non-compliant	0	0	3.7	Non-compliant	0	0	3.7	Non-compliant	0	0	3.7	Non-compliant	0	0
3.8	Non-compliant	0	0	3.8	Compliant	1	11,1	3.8	Compliant	1	11,1	3.8	Compliant	1	11,1
3.9	Non-compliant	0	0	3.9	Non-compliant	0	0	3.9	Non-compliant	0	0	3.9	Non-compliant	0	0
Total:		1	11,1	Total:		5,5	61	Total:		2	22,2	Total:		7	77,7
Maximum Obtainable Score in Group 1: 9				Maximum Obtainable Score in Group 1: 9				Maximum Obtainable Score in Group 1: 9				Maximum Obtainable Score in Group 1: 9			

Table 4.
Compliance scores and percentage of accessibility in four Dubrovnik Locations: Elementary School in Mokosica, Pile Square and Lapad Bay Beach (Group 4)

Elementary School Mokosica				Pile Square				Government Archive				Lapad Bay Beach			
Items	Compliance	Score	%	Items	Compliance	Score	%	Items	Compliance	Score	%	Items	Compliance	Score	%
Group 4. Parking															
4.1	Compliant	1	33,3	4.1	Compliant	1	33,3	4.1	Compliant	1	33,3	4.1	Compliant	1	33,3
4.2	Compliant	1	33,3	4.2	Partially	0,5	16,65	4.2	Compliant	1	33,3	4.2	Compliant	1	33,3
4.3	Compliant	1	33,3	4.3	Compliant	1	33,3	4.3	Compliant	1	33,3	4.3	Compliant	1	33,3
Total:		3	100	Total:		2,5	83,25	Total:		3	100	Total:		3	100
Maximum Obtainable Score in Group 1: 3				Maximum Obtainable Score in Group 1: 3				Maximum Obtainable Score in Group 1: 3				Maximum Obtainable Score in Group 1: 3			
General score gained:		8	42	General score gained		12.5	63,2	General score gained:		9.5	50	General score gained:		17	89,5
General obtainable score in Groups 1, 2, 3, and 4: 19 (100%)				General obtainable score in Groups 1, 2, 3, and 4: 19 (100%)				General obtainable score in Groups 1, 2, 3, and 4: 19 (100%)				General obtainable score in Groups 1, 2, 3, and 4: 19 (100%)			

Table 5. Observation Table (4 locations)

Name (Location in the City)	Problem for disabled people	Functions surrounding the location	Present Condition	Plan/Graph
Elementary School Mokosica	• Obstruction on the path • Street furniture • Uneven curb • Level change • Uneven road surface	a) Playground b) Shopping c) Pharmacy d) Residential area	• Green areas and resting stops in service of residents • Traffic congestion approaching the school	
Pile Square	• Obstruction on the path • Street furniture • Pathway width • Curb • Pedestrian crossing	a) Pedestrian crossing b) Shopping (kiosk, grocery store) c) Services (Cafes, hotels, restaurants, public toilette) d) Stops (Bus)	• Crowding • Traffic congestion • Tourist group meeting point	
Government Archive	• Street furniture • Uneven curb • Change in level • Insufficient pathway width	a) Shopping (stores) b) Services (Post office, cafes) c) Government state office	• Crowded area • Traffic congestion on approach • Inaccessible approach to structure	

Lapad Bay Beach	No guide strip	a) Shopping (kiosk) b) Services (Cafes, hotels) c) Public beach	• Crowded area • Center of residential activities	

Table 6.
Age of paricitpants

How old are you?		
Percentage (%)		**Responses**
12.5%	1	29
37.5	3	31
25.0%	2	35
25.0%	2	36
Total: 100%	8	

Table 7.
Gender of participants

What gender are you?		
Percentage (%)		**Responses**
62.5%	5	Female
37.5	3	Male
Total: 100%	8	

Table 8.
Year of graduations

What year did you graduate?		
Percentage (%)		**Responses**
25.0%	2	2008
12.5%	1	2009
12.5%	1	2010
12.5%	1	2012
25.0%	2	2013
12.5%	1	2015
Total: 100%	8	

Table 9.
Years of experience in professional field.

How long have you been working as an architect/designer?		
Percentage (%)		**Responses**
12.5%	1	3 years
12.5%	1	5.5 years
12.5%	1	6 years
12.5%	1	6.5 years
12.5%	1	9 years
12.5%	1	9.5 years
12.5%	1	10 years
12.5%	1	11 years
Total: 100%	8	

Table 10.
Course on disabled people's needs in the physical environment.

Did you have a course on disabled people's need in physical environment during the professional education?		
Percentage (%)	**Responses**	
62.5%	5	No, I didn't have any course on this subject
25%	2	Yes, it was one of the topics of the main and/or elective course
12.5%	1	Yes, it was one of the aims of design studio(s)
Total: 100%	8	

Table 11.
Personal experience in designing a physical environment for the disabled.

What is your personal experience of a practicing architect on designing for the disabled?		
Percentage (%)		**Responses**
0%	0	I generally tend to design accessible environment for disabled
87.50%	7	I generally design accessible environment fo disabled when it is needed
12.5%	1	I do not care on this subject
Total: 100%	8	

Table 12.
Features commonly provided for the needs of disabled people in the physical environment.

What are the design features that you commonly provide?		
Percentage (%)	**Responses**	
50.0%	4	Accessible ramps, level entry, adequate width in door openings, suitable WC, elevators
25.5%	2	Accessible ramps, level entry, adequate width in door openings, suitable WC
25.5%	2	Accessible ramps, level entry, adequate width in door openings
0.0%	0	Accessible ramps and level entry
0.0%	0	Accessible ramps and adequate width in door openings
0.0%	0	Accessible ramps only
0.0%	0	Level entry and elevators
0.0%	0	Level entry only
0.0%	0	Elevators only
0.0%	0	Accessible ramps, suitable WC and elevators
0.0%	0	Accessible ramps, elevators and induction loop
0.0%	0	Accessible ramps, elevators and induction loop
0.0%	0	Suitable WC only
Total: 100%	8	

Table 13.
Property types designed by participants.

What are the property types in which you provide accessibility and universal design principles?		
Percentage (%)	**Responses**	
87.5%	7	In public ownership
0.0%	0	In private ownership
12.5%	1	In both public and private ownership
0.0%	0	No experience
Total: 100%	8	

Table 14.
Disabilities taken into account when designing a physical environment.

What are the disability types that you take into account when designing a project?		
Percentage (%)	**Responses**	
75.0%	6	Physical impairment only
0.0%	0	Physical impairment and visual impairment
0.0%	0	Physical impairment, visual impairment and hearing impairment
25.0%	2	Visual impairment only
0.0%	0	Hearing impairment only
0.0%	0	Learning difficulties
0.0%	0	All types
Total: 100%	8	

Table 15. Implementation Check List

Implementation checklist and assessment criteria of urban design accessibility	
Group 1: Obstructions and signage	Group 2: Street Furnıture
1.1 Is there any obstacle and protruding element in the path of travel?	2.1 Is there any improper design of street furniture to disabled people’s ergonomy?
1.2 Is there any low overhanging sign?	2.2 Is there any obstructed pathway?
1.3 Is there any warning sign around obstruction?	2.3 Is there any inaccessible street facility (e.g. mailboxes, public toilets, kiosk, ticket vending machines, etc.)?
1.4 Is there any orientation difficulty (illegible direction of signs, street names and numbering)?	
Group 3: Pathway, curb, ramps and pedestrıan crossıng	Group 4: Parking
3.1 Is there any uneven curb with obstacle and hole?	4.1 Is there any parking facility?
3.2 Is there any inconvenient or dangerous interruption in the path of travel?	4.2 Is the width of parking aisle sufficient?
3.3 Is the pathway width sufficient?	4.3 Is there any allocation of parking space for disabled?
3.4 Is there any change in level?	
3.5 Is there any improperly designed transition between the curb and the street at pedestrian	
crossings and in the vicinity of building entrances?	

3.6 Is there any uneven road surface?
3.7 Is there any guide strip?
3.8 Is there any grating on the road surface?
3.9 Is there any guiding sound machine on crossing?