Identifying the pleasant sounds in the city's public parks environment Case study: Mellat riverside park, Urmia

Kamran Jafarpour Ghalehteimouri
1- Environmental Resilience and Sustainability, Malaysia-Japan International of Technology, Universiti Teknologi Malaysia Kuala Lumpur, Jalan Sultan Yahya Petra, Kuala Lumpur.
2- Department of Geographical Sciences, Faculty of Geography and Urban Planning, Kharazmi University, Human Sciences building 4th floor, Tehran, Iran postcode: 14911 – 15719
Email: space.kamran@gmail.com https://orcid.org/0000-0003-2699-4456

Ali Shamsoddini
Department of Architecture and Urban Planning, Shiraz Branch, Islamic Azad University, Shiraz, Iran
Email: ali.shamsoddini@iau.ac.ir https://orcid.org/0000-0001-9757-4331

Nima Bayramzadeh
Master candidate in Urban Planning, Young Researchers and Elite Club, Tabriz Branch, Islamic Azad University, Tabriz, Iran.
Email: nima.bayramzadeh@yahoo.com

Corresponding Author :
Mir Najaf Mousavi
Professor of geography and urban planning, Department of Geography and Urban Planning, Urmia University, Iran. Email: m.mousavi@urmia.ac.ir
https://orcid.org/0000-0002-4814-5351

Abstract
Noise pollution is a prevalent issue in contemporary public spaces, leading to discomfort and mental distress in individuals. This study aims to improve the quality of soundscape in urban public spaces and enhance the comfort and well-being of citizens. Using a mixed-methods approach, including literature review, field observations, questionnaires, and interviews, the research was conducted at Mellat Park in Urmia, Iran. The sample consisted of 170 randomly selected park visitors, who were surveyed to gather data. The findings indicate that the majority of visitors prefer the use of music in public spaces but emphasize the importance of a balanced audio environment. The results further reveal that natural sounds were found to be the most preferred type of sound, as they provide a sense of leisure, relaxation, and calmness. This study highlights the significance of creating a harmonious soundscape in public spaces to improve the overall experience and comfort of citizens. The low level of Sig, Water sound, Car sound, Speakers sounds, Types of treble sounds, and Types of bass sounds differs significantly from the average level due to the positive upper and lower 95% confidence in the water sound, this value is also higher than the average. Because of the negative upper and lower 95% confidence levels in the car sound, speakers sounds, types of treble sounds, and types of bass sounds, this value is lower than the average level.

Keywords: sound, public spaces, music, pleasant environment, Urmia.

Introduction

The senses and perception are inextricably linked to the various components of the landscape, including olfactory, tactile, taste, and auditory dimensions, in the urban landscape (Mohsen Haghighi et al, 2017). Sound has always played an important role in human life as an environmental feature. With the advancement and development of human life, as well as the advancement and evolution of people's sound perception and, as a result, people's musical understanding, this feature has become increasingly prominent in human life; to this day, music has become an integral part of people's lives, not only as an art but also as an integral part of life (Azhari et al, 2014). Every space, on the other hand, is expected to have a distinct auditory identity (Hedfors, 2003). Acoustic ecology is the study of sound, which refers to the natural environment of acoustics consisting of natural sounds such as animals and tree sounds, water and air sounds, and ambient sounds created by humans through the combination of music, sound design, and other human beings (Elmqvist, 2013).

Noise pollution is a major issue in modern public spaces, manifesting as noise in the space and causing disorders such as confusion and a lack of space comfort in the human mental system regarding space (Sokhandan et al, 2019). Improving the soundscape is critical for increasing the overall quality of the urban environment and reflecting a city's characteristics. De la Prida et al., 2019; Kang, 2010). However, the urban audio environment is deteriorating as a result of rapid urbanisation (Hong and Jeon, 2014, Iglesias et al., 2014, Quintero et al, 2018). Today, noise pollution in cities is a growing problem, posing a serious threat to human health and disrupting leisure and relaxation. In general, we are all unaware of the importance of sound in determining the quality of a place and a living space (Movahed and Jafarpour Ghalehteimouri, 2019). As a result, the sound landscape must be preserved in the sound environment (Yihong et al, 2019). Western philosophers have attempted to interpret the world in which we live for the past twenty-five centuries, but have never fully comprehended it, because interpretation of the world is not only possible through observation; hearing is also important (Belgiojoso, 2017).

Without a doubt, the global soundscape has changed. Modern man lives in a world with a vastly different sound environment than was previously known. New sounds/space audio, on the other hand, are very different from previous ones in terms of intensity and quality, and many researchers have been concerned about the complete, uniform, and imperialist dissemination of sounds in every corner of human life. Today, the importance of sound/audio in influencing people's feelings about different places (sense of place) is vastly underused (Sheberinejad, 2009). The sound landscape can now be defined as the ambient sound of a space that contains a variety of distinct sounds (Mastura et al., 2014). As a result, "places evoke different emotions in different people, and people's mental backgrounds and past experiences also play a role in receiving this feeling." (Lang, 2016) "Let us look closer at our sense of sight," Belgiojoso quotes Luigi Russolo, "and then the pleasure of our perception of the environment changes." will give us a new perspective on the city and urban spaces, resulting in a distinct soundscape for each urban space. This study takes into account the sound space that dominates the space of coastal parks, and the findings may not apply to other spaces.

Research Background and Theoretical Foundations

Schaefer is a forerunner in audiovisual research. Sound studies is concerned with sound and sound practises in society, and it covers a wide range of topics including sound art, urban sounds, media, musicology, listening culture, the history of sounds, the history of sound studies, and policies (Gandy and Nilsen, 2014, Sterne, 2012, Back and Bull, 2003). In this context, sound studies could be considered a mother word. It also interacts with other subjects like music and sound interaction (Papenburg and Schulze, 2016). Voice studies are important not only for improving our understanding of sound in society, but also for providing a new approach to community management (Cerwen, 2017). One strategy for designing an auditory landscape to address auditory pollution in cities is to introduce and identify pleasant natural sounds (Young et al, 2019). Greenspace, for example, can both reduce and start generating annoying noises (Mueller et al., 2020). Vegetation can also produce natural sounds and block artificial sounds via the acoustic mechanism (Alvarsson et al, 2010;Van Renterghem et al, 2015). Water, on the other hand, produces sounds, so its properties are used not only as a valuable element in landscape design, but also in the design of public listening spaces (Nasar and Lin, 2003;Tviet et al, 2006; Jooyoung et

al,2020). Water features in landscape design are used as a valuable element in improving the auditory landscape of noisy environments, in addition to their visual aesthetics (Brown et al, 2016; Kang and Schulte, 2015).

The sound of a place can reflect the identity of a community and can be used in conjunction with indigenous architecture, customs, and clothing to expand the habitat that can be identified by their hearing perspective (Howard et al, 2013). The hearing perspective reflects the social, technical, and natural conditions of the related area (Kallmann et al, 2011). The way to address sustainable goals is governed by national and regional public policies that govern how to deal with noise from various sources such as aircrafts, trains, traffic, and industry (Jafarpour et al., 2021). Environmental noise management is generally divided into two stages: diagnostic and executive (Bild et al, 2016). To fully comprehend the situation, the detection phase entails measuring, calculating, and mapping noise. The gathered data serves as the starting point for the implementation phase. Environmental noise management can easily demonstrate that noise is always present in this regard as an unwanted sound. The authorities of the Greek province of Sybaris, for example, ordered crocheting, pottery, and other noisy traders to live outside the city walls in 700 BC (Goldsmith, 2015). National policies for environmental noise were developed in the Western world as part of the Environmental Protection Movement in the 1970s. Since then, urban planners have recognised noise as a major issue that must be addressed (Raimbault and Dubois, 2005). The majority of previous sound research has been done to free people from aggravating noises, particularly in cities (Rebecca et al, 2013). Of course, auditory pollution has long been the focus of this study (Kang, 2007).

The auditory landscape ecology of an environment includes all sounds such as geology, biology, and anthropology. Auditory landscapes typically include all sounds in a single location, with a focus on the relationship between an individual's or society's perception of understanding and interaction with the auditory environment (Rebecca et al, 2013). Music has always been a part of life's pleasant sounds as a pleasant sound, and studies show that natural sounds have a positive effect on human health (Aletta et al, 2018). Music therapy is used in medicine, psychiatry, and psychology, according to (Dehnad et al., 2015). Other benefits of music can be found in urban environments or in people's daily lives. The Mazak project, which is based on the idea that music has an impact on human behaviour, records soft music that is played in shopping malls, restaurants, hotels, and offices to entertain and increase sales or production (Belgiojoso, 2017). According to Hosseini et al. (2016), the use of calm and nonverbal music is effective in improving adolescent girls' spiritual health (Hosseini et al, 2016).

Other benefits of music can be found in urban environments or in people's daily lives. The Mazak project, which is based on the idea that music has an impact on human behaviour, records soft music that is played in shopping malls, restaurants, hotels, and offices to entertain and increase sales or production (Belgiojoso, 2017). According to Hosseini et al. (2016), the use of calm and nonverbal music is effective in improving adolescent girls' spiritual health. We recognise that the perceptible environment is what surrounds us and has the ability to communicate with people (Lang, 2016). The studies and research of people like Lynch, Rapaport, Lang, Schultz, White, Edward Ralph, Appleyard, and others lead to the conclusion that the perceptual and associative aspects of meaning are interrelated. When perceptual qualities are distinguished, they elicit meaning when they are combined (Tahmasebi et al, 2019). "On the other hand, our relationship with our surroundings is the result of a complex cognitive process that is shaped by our interpretation of sounds at various stages; the conversion of sound waves into neural signals, the identification of images produced in the brain, the detection of sound sources and acoustic properties of space, and the effect of these parameters on our behavior, the exchange of information between these stages in our brain are constantly taking place." Belgiojoso (2017) it also influences our perception of our surroundings and the space around us.

The auditory landscape has a significant impact on other key elements of environmental quality such as role-playing, readability, identity, and sense of place, which are all comprised of numerous parameters (belonging and dependence). In contrast to the visual perspective, the auditory perspective is heard regardless of one's will. In urban areas, noise pollution from various sources such as sirens, car noise, noise, and unpleasant sounds can now be heard. Being uncomfortable in this noisy environment can cause annoyance, abandonment, and, to a lesser extent, harm to

people's health (Ghaffari et al, 2017; Mousavi et al., 2023). Physiological studies, on the other hand, show that including natural sounds in the soundscape can reduce stress (Alvarsson et al, 2010). Noise pollution, according to Schafer, manifests itself when people do not listen carefully. The sound that we have learned to ignore is known as noise. This is a bad strategy. We must develop strategies for making environmental acoustics a successful programme. Which sounds should be kept, amplified, and multiplied? (Schafer, 1993). This will have a significant impact on improving the environmental sound quality as well as the quality of space for citizens and users. Three factors influence people's mental images of city sounds, according to research: the information in the sound, the ground on which the sound is perceived, and the sound level. According to Kang and Young's research, people have similar interests in hearing natural and cultural sounds as they do in hearing artificial sounds. Vehicle and construction sounds are among the least popular, while natural sounds such as birds and water are among the most popular (Kang et al., 2002).

Researchers such as Belgiojoso (2017), Lang (2007), on the other hand, emphasise the relationship between the quality of the environment and the sound space. Indeed, "the sound and space characteristics of the environment in which we live affect our behaviour, our reaction to a cosy room in an apartment is very different from a crowded train station.". Every location is significant to the community and has its own private or public characteristics, which each individual interprets differently depending on their personality and culture. Nonetheless, everyone needs public spaces where they can get away from the hustle and bustle of the day and spend their free time doing whatever they want without being bothered by annoying noises (Sheberinejad, 2009).

In the surrounding space, sounds of various frequencies, both pleasant and unpleasant, are constantly produced, particularly in urban public spaces. Considering that sounds not only have different types, but also different applications, such as in therapeutic fields, peace and happiness, or sensory-environmental motivation; however, according to research findings by various researchers in environmental and psychological sciences, and audio landscape, they can also cause noise pollution, escape from space, or reduce spatial quality (Ghalehteimouri and Ros, 2020). Interestingly, while the intensity and quality of sound space are always variable, modern man takes this into account when deciding where to live and work, and strives to create environments that are somewhat conducive to noise pollution.

We know that hearing, as one of the most important senses received and perceived by humans from the environment, is undervalued in urban space design discussions and environmental quality understandings; thus, it is necessary to place a greater emphasis on it not only in urban space design discussions, but also in discussions of environmental evaluation and quality. It will contribute to the vitality of the space and the continuity of people's presence. Despite the fact that no urban space can be considered soundless, these sounds can be rebuilt or designed for the environment and people. As a result, when designing the body of work, we must consider its sound/audio perspective to determine whether or not the sounds produced in the environment are pleasant.

According to this assumption, the goal of this research is to address the issue of sound landscape only at the micro-level and on the scale of public urban parks, thereby increasing citizens' comfort, tranquillity, and sense of well-being in them. As a result, this study aims to provide answers to questions such as: What sounds are pleasant for people? Also, how satisfied are people with the soundscape in public spaces, particularly parks? In this regard, research hypotheses are classified into two types: 1. It appears that natural sounds are the most popular. 2) It appears that people enjoy listening to pleasant noises and music in public places.

Study Area

Urmia Mellat Riverside Park, which has been extended from the beginning of Shahrchachi Bridge to the lands of IRIB along Valfajr Boulevard and measures approximately 325 and 115 metres in length and width, respectively (figure 1). Mellat Riverside Park is one of the most well-known and historically significant gardens in Urmia, the capital of West Azarbaijan in North-West Iran. This is the garden where people gather throughout the day, for example, in the morning for sports and in the afternoon for walking and entertainment. In the afternoon, for children to play and the elderly to enjoy the space, it is mostly used for families in mild weather and summers, and in other words, it is very livable most of the time.

Figure 1. Location of Mellat Riverside Park
Source: author's modification

Figure 2 shows the various potentials of this park. The current listening environment at Mellat Beach Park includes a jumble of car sounds, birds, the Shahrchayi River, people's voices, and the sound of Azan, all of which should be organised. Because of its proximity to the Shahrchayi River and Urmia's main belt, Mellat Riverside Park has both positive and negative potential. The following are the positive possibilities: The Shahrchayi River, a large chessboard, a small indoor space, a large outdoor space, trees and birds, fountains, a children's playground, designed space, and so on are all included. Some of the negative potentials include proximity to Urmia's main belt, a lack of proper parking, hearing pollution due to proximity to the belt, limited light at midnight and at night, and a lack of special bicycle routes.

Figure 2. The current state of the park
Source: author's modification

Research Methodology

In essence, the current study is descriptive-analytical in nature and applied in nature. This study's materials were gathered in two formats: documentary and field. Observation, questionnaires, and interviews are data collection tools that express and critique the characteristics of the auditory landscape in urban spaces while reviewing the theoretical framework. Field data is then collected from the desired area in order to identify the produced sounds as well as the study area's positive potentials. The research will take place at Mellat Riverside Park in Urmia. A questionnaire has been developed to evaluate the sounds produced in the area, which includes individual characteristics, assessing the current spatial quality and auditory space of the park, assessing the pleasantness and unpleasantness of the sounds identified in the area, and discussing the use of pleasant soundscape in urban spaces in the final section. The data collected is analysed quantitatively (using statistical methods) and qualitatively (results of statistical studies). The statistical population for this study is made up of visitors to Urmia's Mellat Park. Because there is no specific statistical population, the community's size is unknown, and information about the variance in the community is unavailable, the following formula was used:

$$\sigma = \frac{\max(x_i) - \min(x_i)}{6}$$

$$n = \left(\frac{\frac{z_a}{2} \times \sigma}{\varepsilon} \right)^2$$

The standard deviation is 0.66 according to the formula and the use of a 5-point Likert scale in the questionnaires, and since the confidence level is 95% and the accuracy of the estimate is considered to be 0.01, the sample size is 170 according to the formulas. We use non-probabilistic and available sampling methods. The valid OneSample Kolmogorov-Smirnov Test was used in this study to test the hypothesis of research data normality. The regression test was used to improve the research evaluation.

Finally, the Appleyard model was used to localise the produced sounds (reduce the number of unpleasant sounds and strengthen the pleasant sounds) to Mellat Riverside's potentials and elements. As a result, this model distinguishes reactions to three perceptual states: "environmental," "human," and "mixed." 1- operational status, 2- reactive-emotional state, 3- inferential state (Appleyard, 1979); in this study, its reactive-emotional state was taken into account. Based on field observations from Mellat Riverside Park, the identified sounds were categorised, measured, and evaluated, and solutions to strengthen them were provided using the Appleyard model. This study's operational method is based on Crohn's (2017) research method and is divided into four sections: identifying produced sounds, evaluating and measuring produced sounds, localising produced sounds, and presenting proposed solutions. Experts examined and confirmed the questionnaire's validity. The Cronbach's alpha test in SPSS software was used to determine the questionnaire's reliability. Cronbach's alpha was 0.832, indicating that the questionnaire is highly reliable.

Analysis

This study employed two modes of field perception and questionnaire analysis. The field perception section investigates the sounds produced in Mellat Riverside Park. The sounds produced within and beyond the limits have been collected for evaluation and measurement in this regard. Table 1 shows the identification sounds:

Water sound (raining, water flow, waterfall, hitting the water to the rock, fountain sound)	Wind sound (the wind hitting the trees, the wind hitting the bell, the wind passing through the pipes)
The car sound (sound of initial start, passing of the car, initial movements, sound of car horn)	Street music (singing, all kinds of instruments, singing with instruments)
The bird's sounds	The rustling of the leaves of the trees
Azan sound	Speakers sounds
Types of treble sounds (The sound of children screaming, the sound of car brakes, the sound of rubber or metal on the ground)	Types of bass sounds (The sound of cars like trucks, the roar of thunder)

Table 1. Recognized sounds within and outside the area

According to Table 1, all sounds in the area have been detected. The bass and treble sounds used in this study were confirmed by a music expert. Following the identification of the sounds produced in the range, questionnaires using a 5-point Likert scale were created to evaluate and measure the sounds.

Descriptive Findings

The first section of the questionnaire is about descriptive research findings. According to Figure 3, the highest number of women in this questionnaire is 98, with 74 between the ages of 20, 40, and 56 holding a bachelor's degree. Furthermore, as illustrated in Figure 4, people visit this location for leisure, relaxation, and rest.

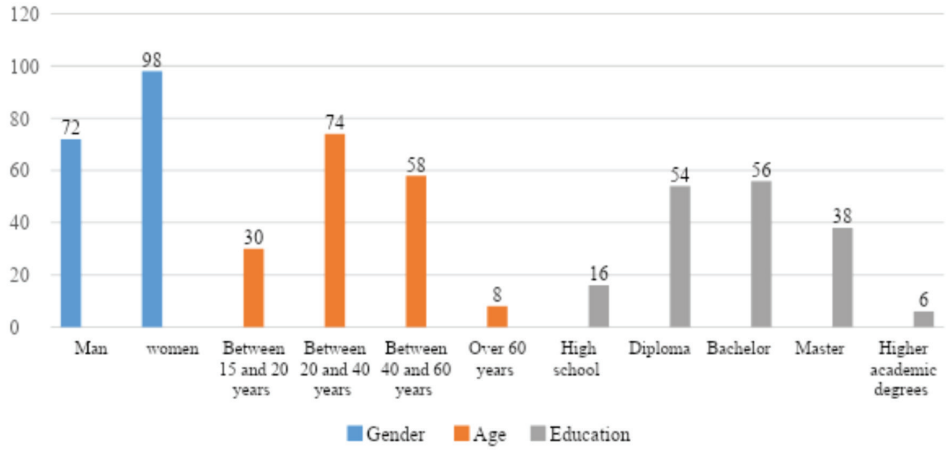

Figure 3. Individual profile. Source: author's modification

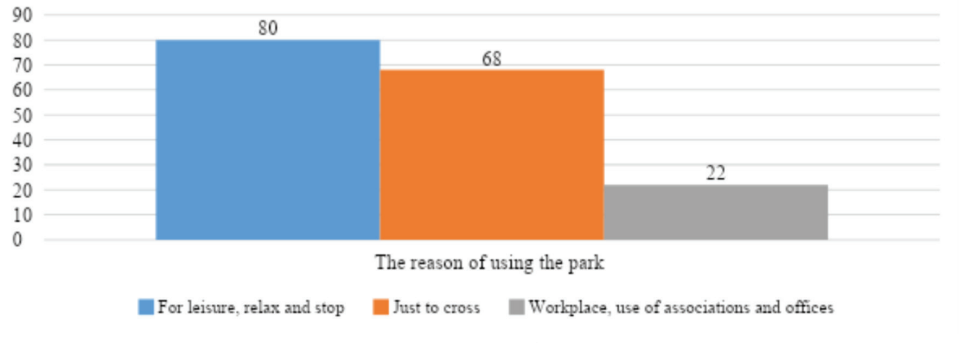

Figure 4. The reason for using the park. Source: author's modification

Analytical Findings

Each section of the questionnaire completed in the Mellat Riverside Park area has been examined. The first section of the questionnaire addresses the overall Mellat Riverside Pa space and soundscape quality. The results are shown in Table 2.

Indicators	N		Std.Deviation	t	df	Sig. (2-Tailed)	Mean Difference	95% Confidence	
								Lower	Upper
The quality of the space	170	3.15	0.877	2.273	169	0.024	0.153	0.02	0.29
The quality of the Soundscape	170	2.90	0.767		169	0.091	-0.100	-0.22	0.02

Table 2. One sample t-test results

The current space of Mellat Riverside Park, according to Table 2, is significantly different from the average level due to the low level of Sig. Because of the positive upper and lower 95% confidence levels, this value is also higher than the average. Furthermore, due to the high level of Sig, Mellat Riverside Park's current audio space is not noticeably different from the average level. This value is also lower than the average because of the negative upper and lower limits. The second part of the questionnaire assesses the pleasantness and unpleasantness of the identified sounds in Mellat Riverside Park. This section evaluates the sounds produced in general. The outcome is shown in Table 3.

Indicators	N	Mean	Std.Deviation	t	df	Sig.	Mean Difference	95% Confidence	
								Lower	Upper
Water sound		3.55	0.970	7.522		0.000	0.559	0.412	0.706
Wind sound		2.88	0.866	-1.703		0.090	-0.113	-0.244	0.018
The bird's sounds		3.01	1.296	0.118		0.906	0.011	-0.184	0.208
The car sound		1.80	0.921			0.000	-1.198	-1.338	-1.059
Speakers sounds		2.02	1.232			0.000	-0.970	-1.157	-0.783
Azan sound		3.02	1.388	0.221		0.825	0.023	-0.186	0.233
Street music		3.05	1.028	0.634		0.527	0.050	-0.105	0.205
The rustling of the leaves of the trees		3.02	1.382	0.277		0.782	0.029	-0.179	0.238
Types of treble sounds		1.64	0.812			0.000	-1.354	-1.477	-1.231
Types of bass sounds		1.77	0.903			0.000	-1.223	-1.360	-1.086

Table 3. Assess the pleasantness of each of the sounds produced in the Mellat Riverside Park area

The low level of Sig, Water sound, Car sound, Speakers sounds, Types of treble sounds, and Types of bass sounds differs significantly from the average level, as shown in Table 3. Because of the positive upper and lower 95% confidence in the water sound, this value is also higher than the average. Because of the negative upper and lower 95% confidence levels in the car sound, Speakers sounds, Types of treble sounds, and Types of bass sounds, this value is lower than the average level. Furthermore, due to the high level of Sig, wind sounds, bird sounds, Azan sounds, street music, and tree leaf rustling do not differ significantly from the average level. Finally, the average sound produced by water is 3.55, indicating that this sound is pleasant for people. Table 4 summarises the assessment of sounds as a source of their production in Mellat Riverside Park. Nature's sounds had the highest average of 3.11 among the other identified sounds, indicating that these types of sounds are pleasant, according to the results of Table 4. The impact of natural sounds on human physical and mental health appears to be the reason for this, according to research.

Indicators	N		Std.Deviation	t	df	Sig.(2-Tailed)	Mean Difference	95% Confidence	
								Lower	Upper
Sounds produced by nature		3.12	0.724	2.195		0.030	0.121		0.231
The car sound		1.80	0.921			0.000	-1.198		-1.059
Speakers sounds		2.02	1.232			0.000	-0.970		-0.783
Azan sound		3.02	1.388	0.221		0.825	0.023		0.233
Street music		3.05	1.028	0.634		0.527	0.050		0.205
Types of treble sounds		1.64	0.812			0.000	-1.354		-1.231
Types of bass sounds		1.77	0.903			0.000	-1.223		-1.086

Table 4. Average identified sounds

Sounds produced by nature	Test Statistic	Asymp. Sig. (2-tailed)
Water sound	0.260	.000
Raining sound	0.203	.000
Water flow	0.192	.000
Waterfall	0.232	.000
Hitting water on the rock	0.177	.000
The sound of fountains	0.169	.000
Wind sound	0.177	.000
Hitting wind to trees	0.220	.000
Hitting wind to the bell	0.198	.000
Passing wind through the pipes	0.169	.000
Birds sounds	0.189	.000

Table 5. One-Sample Kolmogorov-Smirnov Test

In this study, the valid One-Sample Kolmogorov-Smirnov Test has been used to test the hypothesis of normality of research data. As can be seen from the data in Table 5, the significance level of the Kolmogorov-Smirnov test for all variables is greater than 0.05 so parametric tests can be used to test the research hypotheses.

The Pearson correlation test has been used to investigate more accurately the effect of sounds produced by nature on the quality of the auditory space of Mellat Riverside Park. The results of this test are shown in Table 6.

Table 6 results show that, except the sound of birds and the sound of the waterfall, the quality of Mellat Park's auditory space and the sounds produced by nature have a significant direct relationship. In addition, the degree of relationship between each of these sounds and the quality of Mellat Park's audible space was determined based on the amount of Pearson coefficient of each of them. According to the findings of Table 6, the first hypothesis of the study confirms the pleasantness of natural sounds.

The regression test was used to better evaluate the research, and the results are shown in Tables 7, 8, and 9.

Pearson correlation test			Quality of the current audio space of Mellat Riverside Park	Type and amount of relationship
Pearson correlation	Water sound	Correlation test	0.182	Direct (low)
		Sig. (2-tailed)	0.018	
	Raining sound	Correlation test	0.188	Direct (low)
		Sig. (2-tailed)	0.014	
	Water flow	Correlation test	0.237	Direct (low)
		Sig. (2-tailed)	0.002	
	Waterfall	Correlation test	0.105	-
		Sig. (2-tailed)	0.173	
	Hitting water on the rock	Correlation test	0.217	Direct (low)
		Sig. (2-tailed)	0.004	
	The sound of fountains	Correlation test	0.250	Direct (low)
		Sig. (2-tailed)	0.001	
	Wind sound	Correlation test	0.278	Direct (low)
		Sig. (2-tailed)	0.000	
	Hitting wind to trees	Correlation test	0.164	Direct (low)
		Sig. (2-tailed)	0.033	
	Hitting wind to the bell	Correlation test	0.356	Direct (medium)
		Sig. (2-tailed)	0.000	
	Passing wind through the pipes	Correlation test	0.255	Direct (low)
		Sig. (2-tailed)	0.001	
	Birds sounds	Correlation test	0.043	-
		Sig. (2-tailed)	0.579	

Table 6. Pearson test between the quality of the current auditory space and the sounds produced by nature

Table 7. Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.475[a]	.226	.172	.798

a. Water sound, raining sound, water flow, waterfall, (constant) Water hitting the rock, the sound of fountains, Wind noise, Hitting the wind to the trees, Hitting wind to the bell, Passing wind through the pipes, Birds sounds. b. Dependent Variable: Mellat Park's current space quality. According to the analysis of the variance table and the value of Sig in Table 8, the regression model was able to describe the variance of the dependent variable better than the random mode because the value of Sig was less than 0.05. As a result, the regression model appears to be significant. According to Table 9 and the value of Sig, water, rain, wind, and bird sounds are also significant.

Table 8. Anova[a]

Model		Sum of Squares	df	Mean	F	Sig.
1	Regression	29.349	11	2.668	4.187	.000[b]
	Residual	100.675	158	.637		
	Total	130.024	169			

a. Predictors: (Constant), Water sound, raining sound, Water flow, Waterfall, Hitting water to the rock, the sound of fountains, Wind sound, Hitting wind to trees, Hitting wind to the bell, Passing wind through the pipes, Birds sounds. b. Dependent Variable: The quality of the current space of Mellat Park.

In the final part of the questionnaire was conducted on the use of a pleasant musical atmosphere in the auditory space of the city's public spaces, which have been graded to better examine the subject of the answers, in this way, the answer is yes and no, and each of them has a score of 1 to 5, and according to the results of the questionnaires, the results are shown in Figure 4.

Figure 4 shows that 94.1 % agreed to the use of pleasant musical space in public auditory spaces, while 5.9% disagreed. According to these statistics, the majority of people agree with this assumption. This significant case, while confirming the second assumption of the research from this perspective, is interesting in that any study and accuracy in the auditory and musical space of urban spaces will undoubtedly face a positive reaction from the users, who are the people.

Model B		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		Std. Error	Beta			
1	(Constant)	1.548	0.309	-	5.015	0.000
	Water sound	0.236	0.072	0.353	3.287	0.001
	Raining sound	-0.291	0.102	-0.380	-2.860	0.005
	Water flow	-0.025	0.074	-0.037	-0.333	0.740
	Waterfall	0.051	0.074	0.076	0.690	0.491
	Hitting water on the rock	0.003	0.075	0.004	0.038	0.970
	The sound of fountains	0.081	0.071	0.112	1.134	0.258
	Wind sound	0.192	0.074	0.241	2.596	0.010
	Hitting wind to trees	0.074	0.067	0.098	1.099	0.273
	Hitting wind to the bell	-0.002	0.058	-0.003	-0.036	0.971
	Passing wind through the pipes	0.105	0.064	0.145	1.640	0.103
	Birds sounds	0.130	0.052	0.193	2.489	0.014

Table 9. Coefficients

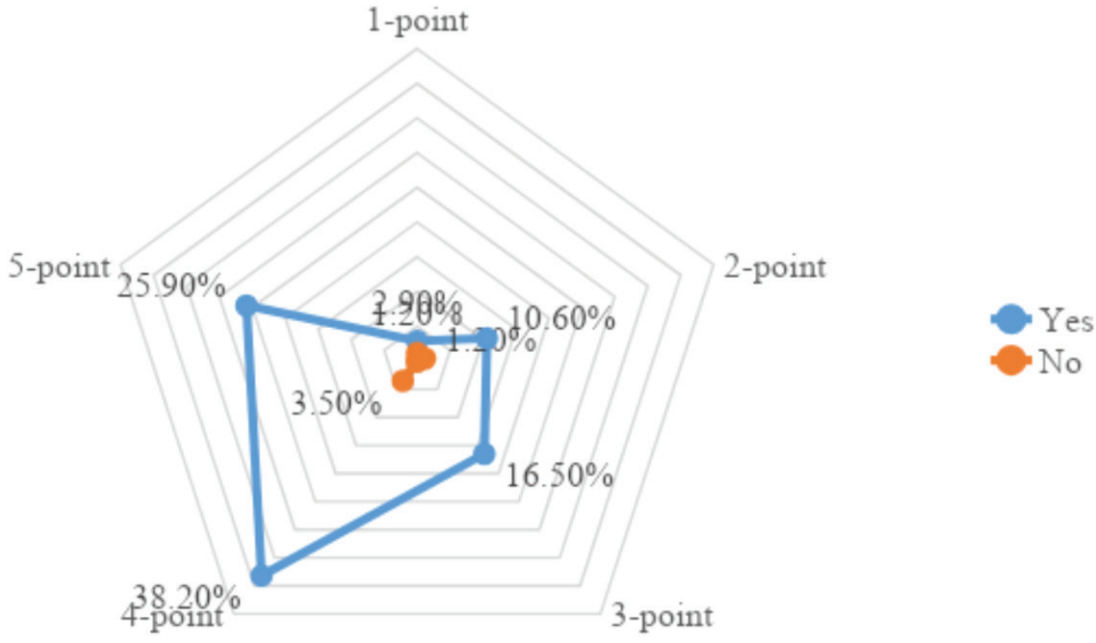

Figure 5. Assessing people's satisfaction by using a pleasant musical atmosphere in the auditory space

Conclusion

Sounds have always been present throughout history, but the number and variety of these sounds have increased as cities have grown in size and variety. In public debates today, words like auditory pollution, auditory perspectives, and so on are more commonly used to indicate people's sensitivity to sounds. The concept of auditory space and the types of sounds that are constantly being played and heard in the environment, as well as other fundamental concepts of urban planning such as sensory richness and the quality of public spaces, necessitate much more extensive research in the field of urban auditory space.

The presence and spread of pleasant noises and music in various spaces and areas of human life is so active and dynamic nowadays that it has practically become one of the most important pillars of personal daily living space. In other words, many urban and psychological scientists believe that these songs and everyday music have unintentionally established themselves as defining the environment, its quality, and urban spatial and environmental assessments (Ghalehteimouri and Eskandarian, 2012) Many urban planning researchers, on the other hand, believe that these cases have an impact on the general nature and different qualities of spatial and environmental perception of various types of human emotions in visual and auditory fields in attracting or repelling people's presence. In other words, various environmental perceptual aspects, particularly sensory richness, play an important role in redefining environmental qualities. Based on Crohn's (2017) research method, this study was divided into four sections: identifying the sounds produced, evaluating and measuring the sounds produced, locating the sounds produced, and providing suggested solutions.

Field perceptions and questionnaires were collected from a sample of urban parks with similar environmental characteristics, specifically other urban coastal orchards in the Mellat Urmia coastal park. According to the findings of field surveys and questionnaires conducted in Urmia's Mellat coastal park, the majority of users use this public space for leisure, relaxation, and stagnation, and they believe that the sounds produced by nature are the most average of the types of sounds produced, indicating that these types of

sounds are pleasant for people. This appears to be due to the impact of natural sounds on human physical and mental health, which is consistent with Kang and Yang's research (2002). Comparison of the results of the current study with the results of the researchers such as Alvarsson et al (2010), Van Renterghem et al (2015), Jooyoung et al (2015), Nasar and Lin (2003), Brown et al (2016) and Kang and Schulte (2015) showed the value of the sounds produced by nature, which were mostly studied in terms of the sounds of vegetation, trees, and water. The majority of people agreed to use the music space in public auditory spaces, according to the assessment, demonstrating the importance of auditory to public spaces from the users' perspective. Human needs met in public spaces, as confirmed by previous deeper studies, indicate that people's movement in these spaces, accompanied by an improvement in their quality, can increase the vitality, readability, and identity of urban spaces. According to Young Hong et al (2019), one strategy for designing auditory landscape design is to introduce and identify pleasant natural sounds to cover auditory pollution in cities.

Because public spaces and parks serve as a platform for creative visualisation of urban life and a space for the free expression of creativity and public curiosities of the city, as well as developing a deep peace for residents and beneficiaries of spaces, it is necessary to pay attention to public space components other than purely physical and visual issues, and particularly to the perspective of public spaces (Ghalehteimouri et al., 2020). This problem can be solved by utilising the range's elements and providing solutions to improve the auditory landscape. As a result, identified sounds provide solutions to improve the quality of Mellat Coastal Park's auditory space based on the potentials available in the park and the results obtained from evaluation and measurement. In the case of parks or other public open spaces in the city, examples of such solutions that adhere to the Appleyard model's reaction-emotional state can be accompanied by the following:

- Using wind capacity to produce natural sounds such as vibrating bells, as well as designing and manufacturing wind-sensitive structures to produce pleasant sounds similar to O + A projects.
- The installation of fountains in public spaces and the flow of water into public spaces to create the sound of water, the design and production of water-sensitive structures, and the use of these structures to create a sense of invitation.
- Creating natural rocks along rivers to create the sound of water hitting these rocks.
- Designing and production of rain-sensitive structures such as sensitive pipes to allow rainwater to pass through them and produce music.
- Developing tree-lined spaces to reduce space sound pollution and use tree leaves in the fall to make their leaves rustle.
- Designing and manufacturing large chessboards and speaker beads to make them more attractive while playing.
- Creating a special bicycle path with proper flooring to produce a sound while passing through them.
- Using the religious elements of the society, such as Azan, because Azan is a voice that is very attractive in the Islamic society, but for the best possible hearing, Aza should be played as if it were heard from the horizon.
- Designing and manufacturing sound production structures that can attract all segments of society, including children and the elderly.

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