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New quality of creative and public spaces.  
Connection between the arts and architecture

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## **Abstract**

Theoretical basis for finding main principles of creating and redesigning (activating, rethinking) public spaces based on the comprehensive analysis of the existing study in psychogeography, emerging arts and faced-paced developing technologies.

Study of an existing connection between research subjects and public spaces, their mutual influence, the usage of arts as a tool in public spaces to evoke various emotional states. A definition of Art and the Arts; a brief history of arts.

Music, colour, street art, contemporary technologies and movement as a creativity force for space shaping. Life experience in connection between architecture and music. Its historical background and repetition today. Analysis of similar-based notions and thinking processes in music and architecture. Mutual reshaping of space belonging to arts and architecture fields.

Information age influence on the performative arts; categorization of the contemporary arts with examples of it.

Review of successful examples of existing activated public spaces by application of the arts.

*Keywords: public space, psychogeography, technology, performative arts, the Arts*

## List of figures

Figure 2.1. Guggenheim Museum in Bilbao, Frank Gehry; [1]	3
Figure 2.2. Underground in Bilbao, Norman Foster; [1]	4
Figure 2.3. The Place Diagram; [2]	5
Figure 3.1. Nature, [4]	7
Figure 3.2. African Savanna, [5]	8
Figure 3.3. English park in Virginia, USA; [6]	8
Figure 3.4. Fractal structure; [7]	9
Figure 3.5. Jacobs' house, Frank Lloyd Wright [8]	10
Figure 3.6. The house, Sarah Susanka; [9]	10
Figure 3.7. Standard house of the North American suburbs, [10]	10
Figure 3.8. The Pruitt-Igoe housing project in St Louis, Missouri, being demolished with explosives.	11
Figure 3.9. What do you find thrilling? [11]	13
Figure 3.10. Coney Island; [12]	14
Figure 3.11. Disneyland's Main Street, U.S.A. with July 4th decorations; [13]	14
Figure 3.12. Destroyed Princess's Palace, Dismaland; [14]	15
Figure 3.13. Das Praehistorium, Schiffweiler, Germany; [15]	16
Figure 3.14. Science Museum, London; [15]	16
Figure 3.15. The Powerhouse Museum, Sydney; [15]	17
Figure 3.16. The Powerhouse Museum, Sydney; [16]	17
Figure 3.17. Superkilen Square, Copenhagen; [17]	18
Figure 3.18. Monastiraki Square, Athens; [18]	18
Figure 3.19. Escalators in the Selfridge's store, Birmingham, UK; [19]	20
Figure 3.20. Whole Foods Market building, New York; [20]	21
Figure 3.21. Villa Savoye; [21]	23
Figure 3.22. The busiest intersection in the world, Tokyo; [22]	24
Figure 3.23. English park, Castle of Chantilly, France; [23]	24
Figure 3.24. The Royal Ontario Museum; [24]	24
Figure 3.25. Guggenheim Museum, Bilbao; [25]	25
Figure 3.26. St. Peter's Basilica, Rome; [27]	26
Figure 3.27. Glasgow - Kelvin Park; [28]	27
Figure 3.28. Canterbury - Dane John; [28]	27
Figure 4.1. Musicians are preparing for performance of composer's piece- 5 min comprehensive composition totally adjusting and enhancing the ideas of architect's visual performance	30
Figure 4.2. Collaborative artwork of architects	30
Figure 4.3 Architects: Topic of « excavation into unknown in order to find new experience and knowledge». Composer uses minor (dark colour) pitches, gradually following to light and major sounds as a symbol of «insights »	30
Figure 4.4. Architects: project emphasising going to unknown eternity, representing « life with its ups-and-downs, successes and fails ». Composers vision: Using cello instrument for deeper and more mysterious sounding; main melody is plain and calm as eternity with various small fails and climaxes during performance.	30

Figure 4.5. Architects: concept of boundaries and limits/ opened and closed space. Composers idea: use of contrast sounds – major (light, bright sounds) and minor (dark, tough) pitches.	30
Figure 4.6. Architects: dynamic composition with contrasts. Composer uses developing with time musical topic, where main melody is «jumping and varying » with developing rhythm to culmination.	30
Figure 4.7. Ecology of Listening; [30]	31
Figure 4.8. Point - 1 sound source.	33
Figure 4.9. Line - 2 sound sources.	33
Figure 4.10. Triangle - 3 sources.	33
Figure 4.11. 3D cube - 8 vertices - 8 sound sources.	33
Figure 4.12. Features of temperament; [32]	36
Figure 4.13. Emotions evoking through colours; [33]	36
Figure 4.14. MUPA, Budapest; [34]	37
Figure 4.15. Singing fountain, Margaret Island, Budapest	37
Figure 4.16. The Superkilen park in Nørrebro, Denmark, BIG	38
Figure 4.17. Interest in people, Banksy, Toronto.	38
Figure 4.18. Art piece by Pixelpancho; [35]	39
Figure 4.19. Caktus e Maria (Italy); [35]	39
Figure 4.20. LST (Russia); [35]	39
Figure 4.21. "Totaltheater (Total Theatre)" by Walter Gropius; [36]	40
Figure 5.1. Ludwig Museum, Budapest	42
Figure 5.2. Max Neuhaus, Times Square, 1977-1992, 2002; [38]	45
Figure 5.3. Daan Roosegaarde, WATERLICHT, 2016; [39]	45
Figure 5.4. Marcos Zotes, Creative control, 2011; [40]	46
Figure 5.5. John Craig Freeman, Border Memorial: Frontera de Los Muertos, 2012; [41]	46
Figure 5.6. John Craig Freeman, Metro-NeXt, 2014; [42]	47
Figure 5.7. Guilia Amborgi, Activating Public Spaces with Temporary Art Experiences, 2017; [45]	47
Figure 5.8. Marcos Zotes, University Library, [40]	48
Figure 5.9. Future Cities Lab, Murmur Wall, 2017; [44]	48
Figure 5.10. Aram Bartholl, Dead Drops, 2010, [43]	48
Figure 6.1. Platonov festival, [46]	49
Figure 6.2. Art Centre "Commune", [46]	50
Figure 6.3. Transformations, [50, 51, 52]	52
Figure 6.4. Giant Interactive Loops and Domino That Play Fairy Tales, Montreal; [55]	52
Figure 6.5. Gardens by the bay, Singapore; [53]	53
Figure 6.6. Coca-Cola Beatbox Pavilion; [54]	53
Figure 6.7. Interactive Musical Seesaws; [56]	53
Figure 6.8. Interactive Musical Seesaws; [57]	54
Figure 6.9. Van Gogh Path; [58]	54

## Contents

1.	Introduction .....	2
2.	What is the quality public spaces? .....	3
2.1.	Importance of public spaces for cities .....	3
2.2.	Categorization of public spaces .....	4
2.3.	What is the quality public spaces? .....	5
3.	How architecture and environment affect our emotions, behaviour and well-being .....	7
3.1.	Nature .....	7
3.2.	Places of love .....	9
3.3.	Public spaces as private spaces. Places of peace. ....	11
3.4.	Places of passion .....	12
3.5.	Places of boredom and anxiety .....	21
3.6.	Places of awe.....	25
3.7.	Places of expression.....	26
4.	Connection between the arts and architecture.....	28
4.1.	Music and architecture.....	28
4.2.	Colours and its influence. Connection of colour and music.....	33
4.3.	Street Art.....	38
4.4.	Dance and connection with space.....	39
5.	New types of arts and technologies.....	42
5.1.	Space and technologies .....	42
5.2.	The Arts .....	44
5.3.	The performative arts .....	44
5.4.	The Information Age.....	44
5.5.	Categorization .....	45
6.	Successful examples of creative and public spaces .....	49
6.1.	Platonov festival.....	49
6.2.	Shoreditch .....	51
6.3.	The domino effect and interactive loops installation.....	52
6.4.	Gardens by the bay, Singapore .....	52
6.5.	Coca-Cola Beatbox Pavilion.....	53
6.6.	Interactive Musical Seesaws .....	53
6.7.	The practice of freedom II .....	54
6.8.	Van Gogh Path.....	54
7.	Conclusions. Possible directions for a further research. ....	55
8.	References .....	57

## 1. Introduction

Architecture does not exist by itself, but is connected with contemporary philosophy and science, new technologies and culture as a whole, global and local, exposing in its development the processes currently occurring in the society. In connection with the emergence of new processes, technologies and arts, the needs of people are changing.

It is very important to learn about contemporary arts and modern technologies to understand their principles due to the fact that it always reflects the processes occurring at the society and modern world as a whole. Architecture and spatial design should be also close to them. There always should be a concept which is not about forms or form finding, but the latter is used as an instrument.

At the same time, in order to create a comfortable environment for people, it is necessary to have an idea about the human reactions to various spaces and how architecture and environment affect their emotions, behaviour and well-being.

Public spaces were chosen as an object of the study because urban development starts from creating of quality public spaces. Public spaces are not about usual daily activities, people come there in order to get certain emotion. Therefore, it is essential to study the areas closely connected with emotions since the emotions are the prime factor influencing our state and feeling in public spaces.

Two main areas of the study were chosen:

- Analysing existing modern research in the field of psychogeography, the first part of the study is aimed to identify the principles of urban environment design, that can help architects to create their projects making them most comfortable and enjoyable for their future users, basing on knowledge of what emotions a person experiences in different spaces.
- The second part of the research illustrates the connection between the arts and architecture.

Arts is an emotional expression of the material world. One of the purposes of the research is to explore these arts and their potential to activate public spaces. Arts are closely connected with contemporary technologies; therefore, they also cannot be ignored in the study.

### Methodology

It is presumed that it is easier to achieve a new quality of public spaces which would meet the needs of people in the modern world.

- Research method

Qualitative method is chosen in order to satisfy the objectives of the research.

Qualitative method is considered as “soft” method. Qualitative research approaches are employed across many academic disciplines, focusing particularly on the human elements of the social and natural sciences.

However, the method leads to the theories and conclusions based on a small number of observations, thereby the research result can be under doubts.

- Data collection method and tools

As the main tools for collecting data, scientific, non-fiction literature, the Internet and authors’ experience are used. Information is found processing books, local and international webpages.

## 2. What is the quality public spaces?

### 2.1. Importance of public spaces for cities

Urban life quality is very important for cities, and if they improve it, then their citizens' levels of prosperity increases. Extending availability of public goods, stopping private appropriation and extending the area of enhanced life quality for everyone are the ways such cities struggle for social justice. They improve quality of life for their citizens by guaranteeing sufficient street space, parks, green zones and other kinds of public spaces. Public spaces help to form a sense of community and culture. They also contribute to social capital, economic growth and community revival. Public spaces access, besides life quality improvement, is also an initial stage of civic empowerment and extended availability of political and institutional spaces. Regular public space use as a public good creates well-managed and safe urban environments, what makes the city an inviting place to live and work.

One of the most famous examples of urban development is the “Bilbao effect”, associated with the branch of the Guggenheim Museum designed by Frank Gehry and the city of Bilbao in the Basque Country (Spain). It is usually characterized by the transformation of the whole city due to one iconic construction. But this is not a very accurate definition. Successful transformations of the urban environment occur not only with the appearance of one building, but also as a result of an integrated system of measures. This happened in Bilbao, which has evolved from a dull industrial port into a cultural attraction for several years.



Figure 2.1. Guggenheim Museum in Bilbao, Frank Gehry; [1]

It is generally accepted that the “Bilbao effect” arose primarily due to the sweeping and sparkling building of Frank Gehry, opened in 1997, but it is worth remembering about the beautifully modelled metro system designed by the Norman Foster architectural bureau, the development of embankments and the modern reconstruction of the old Bilbao docks. Of course, the museum played a fundamental role in the formation of the cultural and tourist image of the city. More than 1 million people visited the branch of the New York Museum of Modern Art in northern Spain, which turned out to be three times more than it was predicted. Other cities in the world, such as Valencia, Hull and Doha, inspired by the success

of Bilbao, began to invite architects, including the eminent ones, for example, Santiago Calatrava (in Valencia), so that they created influential objects for the sake of an influx of tourists and investors.

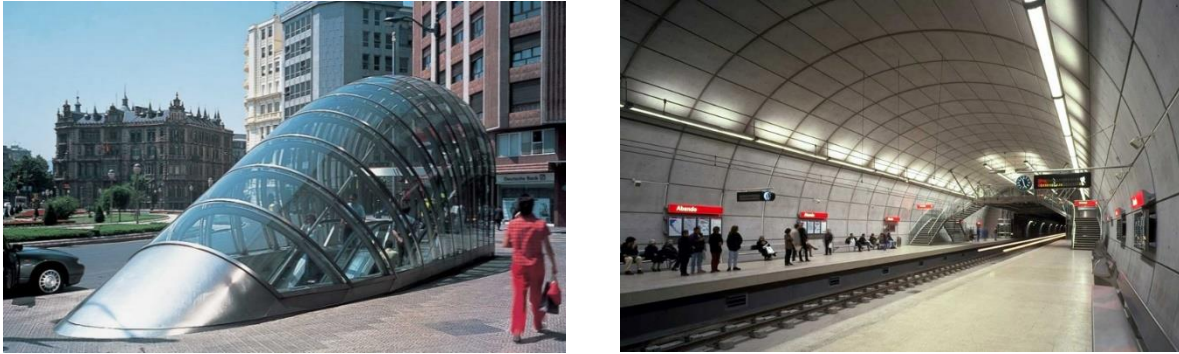


Figure 2.2. Underground in Bilbao, Norman Foster; [1]

Bilbao's example confirms the conclusion that urban development starts from creating of high-quality public spaces and demonstrates their importance in the urban fabric.

## 2.2. Categorization of public spaces

Public space can be divided into six categories, starting from the one that provide the most access and versatility. This categorization is open to scrutiny, and, for instance, attributions of public space may be different depending on regions and cultures.

- Streets as Public Spaces.

The first category involves the public spaces that are used most frequently in our daily lives.

They include streets, avenues and boulevards, squares and plazas, pavements, passages and galleries and bicycle paths.

This category contains public spaces in the fullest understanding of the word as they are publicly owned and accessible by everyone without charge and at any time of the day.

- Public spaces

These public spaces are the most flexible when it comes to public enjoyment and can host performances, events, demonstrations, etc. They also carry mobility as an essential urban function. So, they can be called multi-use public spaces. One important feature of such spaces is that they are vulnerable to one use prevailing over others. For example, cars dominating pedestrian use and setting non-motorized mobility at danger.

- Public Open Spaces.

This category contains open public spaces – this is what first comes to mind when thinking of public spaces. They involve parks, gardens, playgrounds, public beaches, riverbanks and waterfronts. Such spaces are available to everyone as well. But in most cases, they are accessible during daytime only.

- Public Urban Facilities.

The next category includes well-maintained public facilities that are publicly owned and are without any charge. They are public libraries, community centres, municipal markets and



public sports facilities. These facilities are mostly accessible during daytime like in the previous category or operating hours.

- The City itself.

The city as public space is the last category. This comprehensive view is crucial as it supports a holistic approach to public space, as well as to the city as a public good. City is considered globally as a stage for everyone.

### 2.3. What is the quality public spaces?

The answer was found in the website of the “Project for Public Spaces” (PPS), a non-profit organization dedicated to helping people create and sustain public spaces that build strong communities. [2]

Great public spaces are the ones where celebrations are held, economic and social exchanges occur, friends meet with each other, and cultures get mixed. These are the places where we interact with each other, for example, libraries or schools. If such spaces function well, then they become a stage for public lives of the population.

Why do some places succeed when others fail?

In assessing numerous public spaces in different parts of the Earth, PPS has concluded that they share these four qualities to be successful: these places are accessible; people there are involved in activities; the spaces are comfortable and have a good image; and they are sociable places. PPS created The Place Diagram to help people in judging any place.

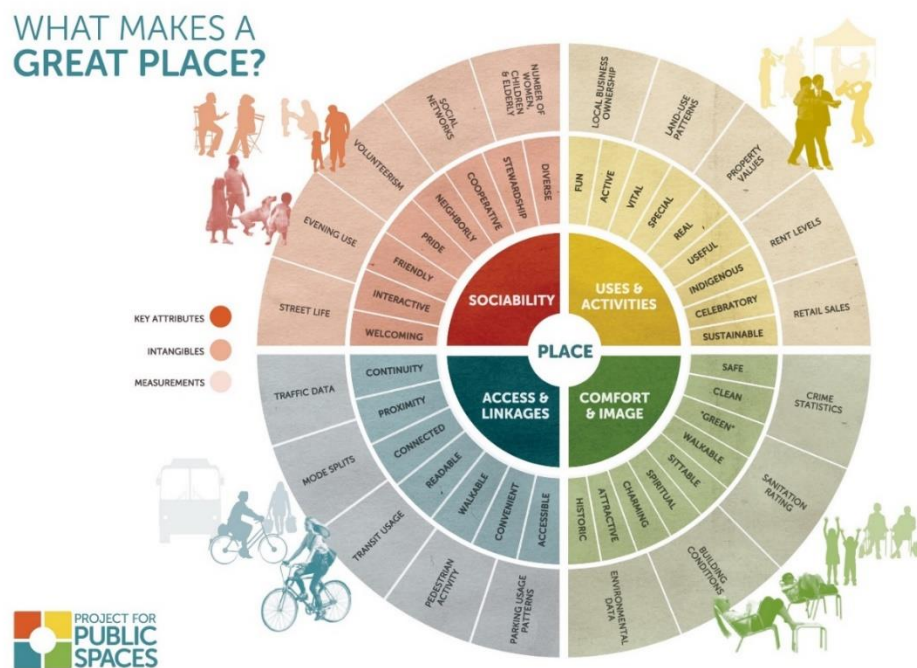


Figure 2.3. The Place Diagram; [2]

- Access & Linkages

The accessibility of a place can be judged by its visual and physical connections to its surroundings. A successful public space can be easily reached and got through and it is visible

from a distance and up close as well. The edges of a space also play a big role: for example, a line of shops along a street is much more interesting and less dangerous to walk by than a blank wall or empty area. Accessible public spaces have a high parking turnover. In the perfect case, they are also comfortable for public transit.

- Comfort & Image

If a space is comfortable and has a good image, then it should be successful. Comfort involves feeling of safety, cleanliness, and a big choice of places to sit.

- Uses & Activities

Activities are the basis of great places. Because of them people visit a place first of all and come back. They also make a place unique. When a place has nothing to do in it, it will stay empty and unused.

- Sociability

This is a hard quality to achieve, but once it is reached it becomes a faultless feature. When people see friends and their neighbours, and feel comfortable talking strangers, they usually feel a stronger sense of attachment to their community and to the place itself.

All these factors are combined into the enjoyment of public space, which, in turn, is closely related to its civil, respectful and responsible use. The quality of enjoyment of a public space is bounded not only to the availability, quality and maintenance of public spaces, but also to the behaviour of citizens. That is why it is important to study psychogeography which researches the influence of environment on a human.

Temporary events and interventions, like urban public art, are a form of public space enjoyment. It can give urban quality to so-called “waiting spaces” fast cheaply and with a high community involvement. Giving more space public art makes them into great public destinations for multiple use. Good public spaces are not only inviting but also creates space for the community around an artwork by attracting activities that make it a multi-use destination. Such spaces are created from collaboration with the users of the place who say what they appreciate the most about it and help the artist in understanding its complexity. Thus, arts can be used as a “cheap, affordable, effective way” to activate public spaces.

### **3. How architecture and environment affect our emotions, behaviour and well-being**

The environment has a very serious impact on people. It can contribute to our development, inspire and calm down (if there are beautiful houses, cosy apartments, live nature), or, conversely, cause negativity, depression and even provoke crimes (faceless skyscrapers, quarters of dull typical buildings, industrial areas and abandoned wastelands). Therefore, it is necessary to study this influence in order to subsequently take it into account in the design of the human environment.

Existing studies in psychogeography [3] answer the questions like: How the environment, natural or man-made, affects the psyche and human behaviour. Why does the picturesque natural landscape make us relax? Why do office buildings make people feel depressed? How does love for a place arise? How does the urban environment contribute to the development of mental disorders? Why is the sight of unremarkable boring buildings harmful to health, and simple small houses attract us? Can technology change our relationship with space?

#### **3.1. Nature**

Most researches in psychogeography begin with studying nature in space. If we identify patterns of the influence of nature on man, a lot in the organization of the urban environment and public spaces becomes clear as well. Roger Ulrich of Texas A&M University noted that hospital patients having the opportunity to see grass and trees outside the window recover faster and need less pain medication than those who only see concrete and asphalt. Subsequent researches have only confirmed that nature heals, encourages, restores strength.



Figure 3.1. Nature, [4]

Speaking about the study of choosing a comfortable natural environment for animals, we should mention the thesis of the Dutch ethologist Nico Tinbergen that the key motivation when choosing a habitat for animals is “to see, but not be in sight”. If we look at it from the point of view of the hunter or the victim, the advantages of the environment, which makes it possible to know what is happening around and to go unnoticed, are obvious. Jay Appleton in his book “The Experience of Landscape” suggested that the same principle may partly explain our aesthetic preferences when choosing a particular natural landscape.

For example, in the old squares of Europe, walkers mostly gather around the edges, rather than in the centre. In restaurants, tables around the perimeter of the room fill up faster than places in the middle. Even in spaces modelled using virtual reality technologies and filled only with white partitions, such as those that can be seen in art galleries, people stand where it is most convenient to observe, while remaining unseen.

Speaking about humans, the interest for some types of landscapes is quite easy to understand on an intuitive level, but there are preferences that indicate the influence of ancient adaptive mechanisms on the behaviour of a modern man, and it is much more difficult to explain them. For example, several laboratory studies dedicated to the motivation for choosing the natural environment, found an unexpected human passion for landscapes resembling the savannah of East Africa, where the trees grow in small groves scattered across the area and when they have thick trunks and wide low crowns, just like African acacias. Perhaps, intuitively, the traditional English park is organized by the same principle.



Figure 3.2. African Savanna, [5]

Figure 3.3. English park in Virginia, USA; [6]

- Studies on the reason's nature attracts human.

In modern conditions, people need a constant focus on a variety of everyday tasks from doing routine office work to following traffic rules. All these things require a lot of effort and deplete our cognitive resources over time. But coming into contact with nature, we get free from the need to be concentrated, and our attention becomes involuntary and easily switchable. This state serves as a kind of reset, after which we can get back with an improved mood, a rested nervous system and an increased ability to concentrate.

Our basic reactions to the nature view still significantly influence our psychology, and this affects everything, down to the level of crime, the well-being of urban areas and citizens.

One of the ideas on this subject says that in landscapes we are attracted by a deep mathematical structure. Some scholars suggest that our craving for landscape is related to its fractal properties (self-similarity). Self-similarity is also inherent in human creations, such as works of art and architectural objects.





Figure 3.4. Fractal structure; [7]

In addition, a relationship between the set of the types of contour in the Figure 3.4. — the power spectrum of the image — and the degree of its attractiveness to humans was found.

In one study, wall screens featuring natural landscapes were installed in offices without windows. Office staff reported that they enjoy watching landscapes and feel that monitors make their stay in the office more comfortable and positively affect productivity. In an office with windows, the effect was very low. It follows, that when we have no choice, we can find psychological support in images of nature; but when a real window is available to us, its electronic substitute has very little influence on us.

Display technologies of all kinds, from gigantic electronic billboards, like in Times Square, to workstations, laptops, tablets and mobile phones, are a natural chain of developments designed to attract and retain what has become the most precious cognitive resource for humanity - our attention. But even before any screens appeared, such elementary architectural technologies as walls served exactly the same goals. By hiding or revealing certain elements of the world around us, the walls focus and direct our attention in the same way. Previously, the walls performed this function.

The introduction of technologies that create the effect of contact with nature has great prospects. The ability to depict nature and reproduce its effect on the psyche can improve the lives of those who do not have access to real nature due to any physical limitations. Old people, shut-ins, people on a wheelchair - in short, everyone who cannot afford to easily leave home and go for a walk in the forest - will have the opportunity to enjoy nature and its beneficial effects using technology. In various medical institutions, the illusion of contact with nature can give the patient a surge of moral strength during a painful or stressful procedure.

### **3.2. Places of love**

Most of us have ever experienced a special drive for certain places, objects, shapes, colour and so on, as if we animate them.

There are many studies explaining the attractiveness of certain objects, for example, why many falls in love with sports cars.

It is proved that we prefer bends to sharp corners, and the connection of this preference with the properties of neurons in the areas of our visual cortex responsible for recognizing objects is revealed. Among our cortical cells there are many more that are adapted to analyse the nuances of a curved surface than those that analyse an acute-angled surface. These cells are a part of a neural data processing system that is responsible for generating first impressions and assessing hazards. Even our first impressions of strangers are partly based on an analysis of simple facial parameters associated with the form. Without realizing it, we form sympathy or antipathy for certain types of persons instantly.

In addition, people give signs of living creature to any moving objects and form an attitude towards them. In 1944, an American psychologist Fritz Heider published a study that showed that people tend to attribute the properties of human consciousness to simple geometric figures. The participants in these experiments were shown a short-animated film in which a pair of triangles and a circle moved around the screen. When they were asked to describe what was happening on the screen, they endowed the objects with intelligence and emotions. So, some described one of the triangles as an “aggressive bully”; many admitted the possibility of a love triangle between the figures. Thus, we tend to explain the behaviour of any objects with purely human motives.

The idea that our homes are capable of feeling has been reflected a lot in world literature and cinematography. But if it is true that the appearance and layout of the dwellings affect our emotions and that a suitable house can cause a feeling of love, then there should be an opportunity to evaluate these processes from a scientific point of view. About this, experiments based on virtual reality technologies were described in Colin Ellard's book “Places of the Heart: The Psychogeography of Everyday Life”.

Computer models of three houses were made, embodying various design decisions. The first one - Jacobs' house - was built by Frank Lloyd Wright in 1937 [Figure 3.5]. Its modest size, simple layout in the form of the letter L, the interior trimmed with warm natural materials and as free as possible from unnecessary jewellery and trinkets - all this reflects Wright's conviction that the house should emphasize personal freedom and independence of the people living in it. The second model was a house designed by Sarah Susanka [Figure 3.6], an outstanding American architect and author of the well-known series of books “Not So Big”, popularizing the idea that the design of a house is not about dimensions but about comfort and functionality. The third was a completely standard house [Figure 3.7], typical of the modern mass development of the North American suburbs. Participants in the experiment, equipped with virtual reality helmets, were invited to imagine that they want to buy a house and choose between these three models. They could move freely around the rooms; all their movements were carefully monitored, and the interviewer asked them a number of questions during the inspection of each of the houses.



Figure 3.5. Jacobs' house, Frank Lloyd Wright [8]

Figure 3.6. The house, Sarah Susanka; [9]

Figure 3.7. Standard house of the North American suburbs, [10]

What was especially surprising: by interviewing the participants and finding out which of the three houses they would most likely have purchased, there was noted a strong tendency to choose a typical house - and despite the fact that most did not think of it as of the most attractive. Some admired the work of Susanka - the architect's creative approach to the use of space, the practicality of the building and the opportunities available in it for privacy and socialization. Others liked the abundance of natural materials in the decoration of Jacobs'

house, as well as his unique, informal, and friendly living space centered around a large brick fireplace. However, few said they would buy any of these houses.

The most possible reason for the discrepancy between what a person pays attention to and how he feels in a building, and what house he would like to have in real life, lies in his past experience. As the participants in the experiment admitted, although they found designer houses interesting and attractive, they were still attracted to the type of housing most common on the market. Here we conclude that our history of living in various houses and rooms, the events that took place there and the related memories affect our perception of living quarters

Therefore, it is necessary to study the experience of potential users of an architectural object or public space, the history of the locality before starting to design. In the context of a residential building, for example, the designer should be aware of the history of the potential tenant: what houses he knows and remembers and what memories he has associated with these places.

Oscar Newman emphasizes in his work “Defensible Space” that for residents of densely populated communal areas, such as the notorious residential complex Pruitt-Igoe in St. Louis, Missouri, it is extremely important to feel that they own and control their home. Newman claims that one of the main reasons of the failure is mistakes in designing a common space that is always empty, deserted and abandoned. Newman describes the basic principles of design that can increase the safety and viability of such neighbourhoods, he states that ignoring these principles in Pruitt-Igoe caused the experiment to fail. The main goal of the tool developed by Newman was to stimulate a sense of belonging to the residence for people living in an environment in which economic conditions can kill any potential desire to individualize and “appropriate” their home, as residents of Dharavi slum successfully do. Although researchers are now inclined to explain the reasons for the decline of Pruitt-Igoe by chronic underfunding rather than by the project’s shortcomings, nevertheless, Newman’s principles are still used to reduce crime in poor densely populated areas.



Figure 3.8. The Pruitt-Igoe housing project in St Louis, Missouri, being demolished with explosives. Photograph: Lee Balterman/The Life Images Collection/Getty.

### **3.3. Public spaces as private spaces. Places of peace.**

The fact that tiny buildings full of residents exits gives a completely new look at the definition of the concept of a “home”. People are used to perceiving their homes as places of privacy. Colin Ellard discovered a curious paradox while carrying out a psychogeography

study in Mumbai as part of the mobile laboratory BMW-Guggenheim LAB specializing in urban issues of the largest cities in the world. When he brought the experiment participants to crowded public places, such as a museum car park or churchyard, they showed clear signs of relaxation usually seen in a private, secluded setting, like a personal house or a picturesque green park. Sensors measuring physiological tone showed how the bodies of the subjects calmed down under the influence of quiet and deserted places. In the Western context empty public space is more likely associated with failure: all efforts to design such places are usually focused on giving life to them. One of the subjects explained that when he wants to take a break from the hustle, to be just with a friend or alone, it is natural for him to look for peace and solitude outside the house, somewhere in a quiet corner of the city. There was also a BMW-Guggenheim LAB survey in collaboration with PUKAR, a local team of scientists studying Mumbai's urban issues. 54% of respondents defined the house as their main personal space, but mostly people were inclined to seek solitude in public places, even though they complained about the lack and inaccessibility of safe spaces of this kind, especially for women.

The various types of organization of space defined as a “home” are so diverse that they cannot be easily classified. However, it is possible to identify the psychological foundations of our attitude towards our homes. Some of our preferences are almost universal. So, a person is attracted to certain shapes and colours and to what contains elements of a real nature. We favour organization of space that provides a certain degree of privacy and a sense of security. The choice is also affected by our personal history. Early impressions and places associated with them form our preferences in adulthood and either draw us to specific types of housing arrangements or turn us away from them, depending on the valency of these experiences. Finally, our attitude to our home depends on how much we feel that we control it, on the degree to which we are able to adapt our own home to our individual psychology using a variety of means - from family heirlooms to such simple elements of decor like paints, wallpapers or posters. If we lose in the struggle for this kind of control, then we risk nipping the incipient love in the bud.

### **3.4. Places of passion**

Often people that visit one place or another (this can be compared with the relationships between people) are not driven by a desire to feel deep attachment to this place, they want to "have fun", experience the thrill, emotional shake.

Brendan Walker calls himself a “thrill engineer” and tries to find out what excites us in a built environment and how to make this excitement even stronger, in particular for those who crave a short-term passionate affair with a place they like.

He created a website called Chromo11, inviting users to share the most powerful experiences. A selection of interviews there shows a wide range of sensations that can be considered thrilling. Erotically charged episodes associated with exhibitionism, sadomasochism and group sex were quite predictable. There were also many situations that included an element of danger (reckless driving, extreme sports), and several slightly more non-standard cases (for example, one of the respondents said that he experienced the strongest sensations, breaking an egg on his mother's head during an argument).





Figure 3.9. What do you find thrilling? [11]

Walker reduces this experience to a set of smart equations demonstrating that the main elements of an exciting experience are not only high physiological tone and feelings with positive valency, but also the frequency with which such feelings change over time. Thrills are what quickly knocks us out of the usual balance, plunging into a kind of unusual, disorienting and euphoric state.

In search of inspiration, Walker turned to the amusement parks and, in particular, to the roller coaster. In his “thrill lab,” he supplies volunteers with recorders that measure heart rate and skin electrical conductivity. Thus, he gets the opportunity to monitor the internal processes occurring in the body of the subjects while they are on the ride. However, although the acceleration of the heart rhythm and the moistening of the palms are unconditional signs of excitement, they can equally indicate both a euphoric uplift and opposite, depressive feelings of anxiety and mortal danger. To distinguish between these two types of conditions, Walker uses small cameras that record lightning-fast changes in the subjects' facial expressions at the moments when they are thrown into the air on steep slides of a roller coaster.

Walker was able to demonstrate that using his equations, derived from phenomenological reports of emotions caused by extreme adventures such as jogging naked at midnight on a suburban street or flogging during a fun backstage impromptu at a theatre performance, a quantitative analysis of the attraction’s ability to thrill. His work helped the entertainment industry to develop a standard indicator - “thrill factor”, with the help of which it is possible to predict what emotions customers should experience on average on a particular attraction.

Theme parks, where most of the attractions that interest Walker are concentrated, can tell us something about passion and its psychogeography expressions. In any other built-up environment, the main task of the author of the project is to ensure that the building fulfils its main purpose and can satisfy the basic human needs. In amusement parks, business success depends entirely on satisfying the human need for entertainment and pleasure, they function primarily as a thrill stage and a laboratory of human emotions.

In the USA, the very first theme parks were built on Coney Island after the famous urban planner Robert Moses introduced the zoning rules, according to which the island was declared primarily as a territory for recreation and entertainment, the exhaust valve of crowded business Manhattan. The Dutch architect Rem Koolhaas, in his book “Delirious

New York”, says that Coney Island theme parks, due to their popularity and crowdedness, have turned from recreational facilities into a platform for experimenting with designing a densely populated urban environment. They helped to develop many of the design principles that were then applied to the Manhattan layout, where building infrastructure that is able to serve a densely populated city also required fantastic inventions like skyscrapers and elevators.



Figure 3.10. Coney Island; [12]

Something similar can be said about the most famous theme parks in the world, which have become a model for modern entertainment and fantasy spaces - the Walt Disney Empire. Every Disneyland have one thing in common. The Disney project can be seen as a successful laboratory or clinic exploring the issue, which makes us love this or that place. Each of these parks greets visitors with a view of the Main Street, presumably embodying the collective image of the central street of a provincial American town of the beginning of the 20th century, which is actually very far from reality. Nevertheless, one cannot but admit that they cause uniquely bright and pleasant feelings in the majority of visitors. It is not only a matter of historical associations, presumably caused by the view of Main Street, its structure, scale and geometry have a certain appeal.



Figure 3.11. Disneyland's Main Street, U.S.A. with July 4th decorations; [13]

The architecture of Disney Main Street influenced the design of American cities. This influence can be seen in the example of Celebration in Florida, designed by Disney based on the principles worked out during the creation of the Main Street in the neighbouring Disney World park. But unlike the theme park, designed to provide an opportunity to disconnect from reality, Celebration was conceived as a real town, even though a very small one. From

the very beginning, it was designed to evoke the same feeling of good old comfort among its inhabitants as in case of the main streets of theme parks. Therefore, there are wide sidewalks, small driveways for communication between the road and houses, and cars are hidden in garages, which can be accessed only from the backyards. The streets are always neat, cleanly swept and polished. When Celebration was just built, the demand for housing in it was so high that the city had to draw the right to at least discuss the purchase with a sales agent in the lottery. Celebration can be considered a successful project.

However, when the emotions come to the foreground, not only pure happiness must be considered. Thus, "bemusement park" Dismaland was organized by Banksy with the participation of many other artists. Dismaland was opened in Weston-Super-Mare, Somerset, England as an ironic post-industrial, post-postmodern dark Disneyland. Even though it has been operating only from 21 August till 27 September 2015, approximately 150,000 visitors entered the park, boosting the local economy of Weston-Super-Mare by £20m.

The "family theme park unsuitable for children" is aimed to raise the problems of contemporary society. Banksy created ten new works and funded the construction of the exhibition himself. Special atmosphere was created thanks to the employees who acted rude to visitors.



Figure 3.12. Destroyed Princess's Palace, Dismaland; [14]

Another example is museums, which are perceived as repositories of the "objects" of history, attendance of which has dropped sharply in recent years. In these circumstances and, most importantly, before the onslaught of Internet opportunities, more and more allowing you to enjoy museum benefits without getting up off the couch, the curators are puzzled how to return visitors to museums. They are increasingly thinking in the same way as theme park designers: people will start visiting museums again if they can get a thrill there. According to the observations of scientists, the authenticity of «bones of a dinosaur» is no longer attractive to people, while it is much more interesting to watch it running and jumping. Now, what matters more is that things look real than what they are. And this important change in perception has a serious impact not only on our ability to evaluate dinosaur bones, but also, in a more general sense, on how we respond to places and events. Smart museum curators understand that you can't move the clock back and that it's impossible to live and work in the old way in the era of 3D reconstructions of frolicking velociraptors or virtual trips through the primeval jungle with the effect of full movement. If the purpose of museums is to give us a thrill, then it follows that it is necessary to apply the same methods of generating thrills as in theme parks.



The example of such museum is Das Praehistorium, Schiffweiler, Germany [Figure 3.13].



Figure 3.13. Das Praehistorium, Schiffweiler, Germany; [15]

This prehistoric museum is illustrative for several reasons. It is not the realistic dynamic models of dinosaurs or 4D cinema that are surprising here. It is surprising that this museum is located in a settlement in southwest Germany with population of 16 thousand people. This, on the one hand, demonstrates the trend towards the widespread dissemination of high technology in museums, on the other hand, the demand for such museums.

An example of an adapted museum: Science Museum, London [Figure 3.14].



Figure 3.14. Science Museum, London; [15]

Uniqueness of the London Science Museum is that for all the ultramodern exposition it is a very old museum. Its opening was initiated in 1857 by Benedict Woodcroft, the manager of the Patent Office, also known for his invention of the submarine screw. 53 permanent expositions of the museum are able to give an exhaustive picture of the development of science and technology in chronological order: from the first industrial revolution to modern nanotechnology. There is a minority of static exhibits: everything moves here, makes unimaginable sounds and in every way declares the liveliness of technical thought. Temporary exhibitions are diverse and relevant: from an interactive installation that simulates the Large Hadron Collider to a large-scale exhibition dedicated to the history of electronic music from the 50s to the present day, developed in conjunction with vanguard

electronic musicians of the 60s. Sometimes extravagant events are organized: for example, visitors are invited to study the expositions, dressed up in the costumes of huge cockroaches.

One more interesting example: The Powerhouse Museum, Sydney [Figure 3.15].



Figure 3.15. The Powerhouse Museum, Sydney; [15]

The concept of the Australian Powerhouse Museum is in two words: Science + Design. The museum is trying to realize science and design as a whole, namely as a process of creating meanings that turn into applied things. Ultimately, man and his needs are put at the forefront. That is why the museum pays so much attention to the interactive component. A huge number of workshops are held here, as well as design and photography competitions, an educational program for children is working during the school holidays, and instead of lectures, there are conversations with scientists. As for the expositions, the museum can simultaneously exhibit George Nelson's classic interior design and hold an interactive exhibition with scientific experiments explaining where lightning comes from and how the battery works.

Also, places of passion definitely include casinos, generating thousands of people with gambling addiction. Of course, the organization of gambling houses is based on numerous studies of the architectural design of casinos. There are several principles that help to lure the player to the machine.

The Cosmopolitan Casino, Las Vegas [Figure 3.16].



Figure 3.16. The Powerhouse Museum, Sydney; [16]

Bill Friedman is the great guru of design in the field of gambling. Suffering from gambling addiction and recovering from it, he devoted decades of careful non-experimental research, the result of which was the book called “Designing Casinos to Dominate the Competition” in which Friedman also describes the effect of a tortuous entrance. The man

by his nature has a weakness for smooth bends. Images containing soft wavy lines attract us, and those with a lot of sharp corners repel us. Such addictions also extend to the way we perceive our own movements in space. We tend to enter a building or room in a smooth, winding route, and not in a straight line, especially if the direct path requires us to turn around and make a sharp change in direction.



Figure 3.17. Superkilen Square, Copenhagen; [17]

An example of such method, applicable to public spaces, we observe in one of the most vivid points of the Danish capital - Superkilen Square in the most multinational district of Copenhagen Nørrebro. The main feature of the space is the white lines stretching from north to south. They smoothly bend around benches, picnic tables, barbecue facilities, playgrounds and bike paths. And for peace of mind, the part of the area bordering the carriageway was slightly raised.

And the same technique in Monastiraki Square, Athens [Figure 3.18].



Figure 3.18. Monastiraki Square, Athens; [18]

But above all, he writes, “**mystery**” plays into the hands of the casino, which increases the visual appeal of a view or place. Mystery suggests that further research will reveal new information. A classic example of mystery is the view of a winding forest path that takes us farther and farther, promising that new views will open up after the next turn. Of course, going to the casino has little to do with an idyllic walk in the woods, and yet the space of the



gaming hall, organized by the same principle - a series of views that open one after another and inviting you to take a deeper look - also affects the visitor in attractive way.

Also, the principle of shelter and view plays an important role. Friedman says that a lover of slot machines is likely to prefer to take a position in a secluded corner of the playing hall, not to be in sight, but at the same time not to be completely isolated from what is happening in the casino. Rows of slot machines are much more likely to be located in small fenced corners around the perimeter of the space than in the centre of a large, spacious room.

Another Friedman's main recommendation is to design a casino in such a way as to increase the amount of time during which the player will focus on the machines themselves, and not on the environment. According to the researcher, attention spent on the walls, floors or ceilings of the gaming room represents a lost potential benefit.

In general, when designing a casino, the most powerful effect is achieved by the combination of large-scale objects that promote relaxation and the development of positive emotions, with micro design elements (flashing lights, crowding in one place of various kinds of machines) that increase the availability of information at a specific point. At the same time, interestingly, there are significant gender differences in the way these different types of design elements interact, forming a game addiction.

Another example of spaces, the design of which has a scientific approach, and also aimed at "pumping out" money, are **shopping centres**. Shopping exists as long as we have a need for material things, coupled with the ability to exchange for them what we already have. Both in ancient times and today in many parts of the world, the market is considered the most important public space of a city or settlement, its social capital. Therefore, urban studies often focus on the importance of urban markets. But the idea of shopping for pleasure is a much more recent invention. This idea became widespread in the 18th century along with structural economic changes that gave rise to a society in which many turned out to have more money than was required to satisfy basic needs for food and shelter. In turn, people who had something to sell, very soon began to think about how to make consumer money move into their pocket. An essential and constant component of this global battle for the consumer's wallet is the competition for our emotions, habits and passion for everything new and brilliant.

An important stage in the development of retail marketing began with the invention of a department store. Opened on Oxford Street in London and named after its founder, Harry Gordon Selfridge, Selfridge & Co., although it was not the first department store in the world but was the first with design emphasizing the primary importance of creating a sense of pleasure among customers. Selfridge insisted on close contact of the buyer with the goods, scrupulousness in customer service, as well as design elements such as comfortable decoration, shop equipment with a lot of glass - so that the goods were better visible - and breath-taking expositions. All these elements, in some ways similar to the design of modern casinos, were designed to keep the buyer in the store for as long as possible.



Figure 3.19. Escalators in the Selfridge's store, Birmingham, UK; [19]

Most shopping centres have the same set of basic characteristics. Along the edges there are large tenants like department stores or discount stores, and they are interconnected by rows of small specialized stores, which generally has a rod-shaped plan. For hungry customers food courts are provided, design of which is thought out in such a way as to encourage the client to have a quick snack, and not to have long, measured gatherings that take away precious shopping time. The first shopping centres were specially built small and simple in layout, so that the average buyer could cover their entire territory in one visit; however, more modern malls are characterized by vast areas and an ingenious layout in which a new customer can easily get lost. Indoor shopping malls from the outside look, as a rule, faceless and impenetrable, so that the miracles lurking in them are hidden from the outside world. Once inside the mall, the visitor is immersed in a completely isolated, carefully built environment with its own microclimate. There are many mirrors and other reflective surfaces that encourage us to involuntarily slow down, studying our own reflections. Corridors often have a twisty shape, and the rows of stores often connect at an indirect angle. Both of these features prevent us from mentally tracking our route on the vast territory of the shopping centre, and the caressing bends cause a pleasant feeling of anticipation, creating the same effect that is used in a casino. All these tricks are designed to cause the buyer a special mental state, which marketers call programmed disorientation. Even if we went into the mall for a specific purpose, such tricks quickly make us walk aimlessly around the shops, staring at everything and buying tons of things that we did not need.

The goal of marketers is impulse buying. A significant part of the money spent in malls is laid out for goods that visitors did not intend to purchase when they entered the building. The design of the retail space has a powerful effect on them, and this happens due to the manipulation of the emotional state of the customer. Psychologists believe that people are much more likely to make an impulse purchase if they are in a positive mood. Buyers who are comfortable in the store and who have direct access to the product are easier to seduce; but those who are simultaneously experiencing strong positive emotions will shell out sooner. To enhance these emotions, retailers use a variety of tactics. Some stores are designed so that under the influence of advertising, visitors begin to imagine that they are in some kind of fairy-tale world where they can wear expensive outfits and jewellery. In Russia, for example, the concept of “shopping centre” is already dying out, while shopping and entertainment centres are appearing more and more, combining the functions of a movie theatre, ice rink, amusement parks, even mini-zoos and oceanariums, etc.



Thus, examples of casinos and shopping centres are very important, since they can be used as an analogy to identify the principles of designing other spaces, replacing their goals and criteria with the ones we need.

### 3.5. Places of boredom and anxiety

In the book “Places of the Heart” Colin Ellard describes the experiment of the famous urban planner Ian Gehl, who, through simple observation of pedestrians, found out that people walk past inexpressive facades faster than along lively friendly ones. They stop or at least turn their heads towards faceless buildings less willingly, they simply rush forward, trying to break through the unpleasant monotony of the street, until they find themselves at its other end in the hope of finding something more interesting. Thus, the appearance and layout of city streets greatly affect people's behaviour.

Colin Ellard himself went further and looked after the body and thoughts of pedestrians when they face the street facades of various styles. On walks, carefully planned so that you can see how the old neighbours in the city with the new, he guided small groups of volunteers from one place to another and at each stop asked them to answer questions that they received through the application on smartphones. Basically, his companions had to evaluate their emotional state and level of excitement, and in addition he asked questions that could help people formulate their opinions about a particular place. At the same time, some participants in the study wore bracelets that measured the electrical conductivity of the skin — their tension, their willingness to act and to draw attention to something or respond to a threat.

For one of the stages of his research, he chose a place where there is nothing but a sidewalk under the feet, a sheer wall made of frosted glass on one side and a stream of honking taxis on the other. Then he took the subjects a little further and stopped in front of a small but lively square filled with restaurants and shops with a large number of open doors and windows, with the confusion of a fun feast and a crowd of pedestrians.



Figure 3.20. Whole Foods Market building, New York; [20]

In the first place, people were embarrassed, they looked out for something to cling to and discuss. They rated their emotional state as the opposite to “happy,” and their level of excitement almost reached the bottom limit. The instrument readings on their hands showed to the same. People were bored and unhappy.

Conversely, in the second-place people looked lively and interested. Their own assessment of their emotional state was high and positive. The level of their physiological excitement has increased. By the bodies of people who worked for the sake of this study, it

was possible to judge their experiences. In front of the faceless facade, the subjects stooped, behaved quietly and passively. In a livelier place, they seemed more energetic and talkative.

For architects concerned about making streets more convenient for pedestrians, this discovery says a lot. It shows that by simply changing the appearance and physical structure of the lower part of the facades, a completely different approach to the use of the city by its inhabitants can be achieved. People not only like to walk along friendly and lively facades, even their behaviour changes. They stop, look around and absorb the atmosphere of the environment. Being in a good mood, they behave more energetically and become more attentive. Not without reason, in many cities carefully verified building codes and certain rules apply, according to which the facades should look fun and full of life. For example, in Stockholm, Melbourne and Amsterdam, according to the standards, you cannot just build a new building, its appearance should correspond to other buildings in the neighbourhood. In addition, the permissible number of doorways per linear meter of the sidewalk is severely limited and there is a special requirement due to which the transparency of the facades is achieved through transparent windows with two-way visibility. According to Ian Gehl, a good city should be designed in such a way that the average pedestrian, moving at a speed of about 5 km/h, meets a new interesting place about every five seconds.

We don't like such buildings, because we are biologically predisposed to strive to be in places where there is some kind of complexity, fascination, where we receive messages of one kind or another. And this desire is rooted much deeper than the craving for diversity associated with aesthetic addictions.

Recently, several other researchers have suggested that boredom can sometimes be accompanied by a state of increased irritability or even stress. The assumption that even a short stay in a state of boredom can increase the level of stress debilitating health is consistent with the recent hypothesis that there is a relationship between boredom and mortality. Participants in a large-scale survey conducted in the UK since the early 1970s were asked to rate how boring they were to live and work. Subsequent studies completed in 2010 found that respondents who had previously reported their high level of boredom were more likely to die before the second survey began.

Boredom not only causes discomfort and increased levels of stress hormones. It can adversely affect our behaviour. Surveys of people with addictions of various kinds, including drugs and games, showed that the level of boredom among this group is usually higher and that boredom is one of the most common harbingers of worsening condition or risky behaviour, such as repeated use of disposable needles or erratic sex life.

Modern scientists have found out that even a short stay in a state of boredom is enough for changes the chemical composition of the brain and the whole organism to begin and stress to begin. It is probably too much to assume that the appearance of a boring building can be harmful, but what about the cumulative effect of daily immersion in a depressing and boring environment?

In the work named "S, M, L, XL", Rem Koolhaas and Bruce Mau praise the "empty box design" and uphold the idea of what they call "the generic city". They state that any distinctive feature of an architectural object, whether it is a beautiful facade or a unique street layout, is destined in some sense to cause estrangement. In a world where we are all members of various groups that have formed over old cultural boundaries, every history related element of architecture will turn people away from themselves, because they have already forgotten the history of a certain style. In an interview in *Der Spiegel*, Koolhaas explains it this way:

"The traditional city is occupied by rules and codes of behaviour. But the generic city is free of established patterns and expectations. Some 80 percent of the population of a city like Dubai consists of immigrants. I believe that it's easier for these demographic groups to walk through Dubai, Singapore or HafenCity than through beautiful medieval city centres. For these people, (the latter) exude nothing but exclusion and rejection. In an age of mass immigration, a mass similarity of cities might just be inevitable. These cities function like airports in which the same shops are always in the same places."

There is a theory described in Alain de Botton's book "The Architecture of Happiness", which states that all architectural styles of the past, in particular modernism, where the aesthetic side relies on "science" and practicality, most often lack this practicality. An example is the famous Villa Savoye, designed exclusively out of concern for technological reasons, but its owners admitted that "it is impossible to live there" due to constant problems with its functioning (the main complaints of the residents were related to leaking ceilings in all rooms) Here it is said that although architects explained the images of buildings from a technological point of view, the real reason was the search for new expressiveness. We can see the parallel between the ideologies of modernism and Koolhaas.



Figure 3.21. Villa Savoye; [21]

Streets and buildings designed in accordance with universal and functional requirements and ignoring the inherent human need for sensory diversity are a tempting and economical solution, since most of the mental stimulation we receive thanks to virtual reality and electronic equipment does not correspond to the ancient attraction to everything new formed during evolution. Most likely, such architecture will not be able to give future generations neither comfort, nor happiness, nor optimal functionality.

#### Places of anxiety

Mental disorders associated with anxiety most often develop in an urban environment. Among people suffering from such conditions, there are more urban residents than rural ones. Some experts explain this fact by differences in socio-economic status, the possibility of poisoning with toxins or infection with pathogens and many other types of threats characteristic of the urban environment, but none of these reasons seems compelling. A number of researchers talk about social factors, in particular, good-neighbourly relations, and there is already serious evidence for this. For example, a thorough study of the cohesion of neighbouring communities, including an assessment of their mobility, the percentage of single fathers and mothers and the number of people in families, showed that people who have good and strong relationships with their neighbours are less prone to anxiety and depression. These data are very important because they mean that factors that partially determine the level of mental illness can be influenced through the urban environment.

Another extremely interesting discovery suggests that the presence of green areas in a city can reduce the risk of mental disorders in the population and suggests that architects and urban planners have the tools able to help mitigate the costs of urban life.

Here is another example of Colin Ellard's experiment. He asked a group of pedestrians to stand in the centre of a busy intersection, and while they were there, he measured their physiological indicators. The findings showed that people felt less happy than in the nearest park. Activity indicators of their sweat glands were off scale, their body's reactions were stressful.

Scientific studies suggest that in our architectural environment there may be elements that cause anxiety and repeated exposure of which can change the functioning of our brain so that our reactions to stress become more pronounced. Some people - most likely those who are genetically predisposed to pathologically violent reactions to stressful events - may even develop serious mental disorders as a result.



Figure 3.22. The busiest intersection in the world, Tokyo; [22]

Figure 3.23. English park, Castle of Chantilly, France; [23]

“Places of the Heart” also analyses people's reactions to the new wing of the Royal Ontario Museum, designed by Daniel Libeskind. Despite its well-organized interior spaces and artistic value, the sharp corners of the exterior were perceived strongly negatively by both casual passers-by and many architectural critics. It even got on the list of the ugliest buildings on Earth. [24]



Figure 3.24. The Royal Ontario Museum; [24]

Scientists researching the issues of psychology and aesthetics have long concluded that we all prefer curved lines. This addiction manifests itself in a variety of areas, from typography to architecture. We perceive the bends as something soft, alluring, and beautiful, while the sharp edges seem hard, repulsive, and can signal risk.



The work of Oshin Vartanian, a neuroscientist at the University of Toronto, showed that the appearance of curved and jagged lines in the interiors of buildings can affect the activity of our brain.



Figure 3.25. Guggenheim Museum, Bilbao; [25]

Curves cause strong activity in parts of the brain that are responsible for a sense of reward and pleasure. Sharp edges increase the activity of the amygdala, a part of the system that allows us to recognize and respond to feelings of fear. In the language of architecture, it was the refined lines of the Guggenheim Museum in Bilbao designed by Frank Gehry that could have made Philip Johnson cry when the architect first looked up at it. Conversely, a violent reaction to the work of Libeskind in Toronto (very similar to the one that followed the construction of Bei Yuming glass pyramid in front of the Louvre) can stem from brain reactions associated with our inherent need to recognize a potentially dangerous environment.

The results of numerous experiments suggest that the shape of the surrounding objects can make us feel happy and relaxed or restless and scared and can also affect our way of dealing with each other. And this is a very strong influence. Three-year-olds also prefer bends over corners, so there is reason to conclude that our reactions to the geometric shape appear at the very beginning of life and may not depend on personal experience and taste.

In addition, disorder and order, respectively, affect people's sense of anxiety and safety. And for good reason, scientists have proved that the mess - broken or boarded up windows, garbage or graffiti - clearly signals that no one cares about the environment, and this apparent indifference provokes crimes. Thus, any attempts to restore order in the urban fabric would lead to a decrease in the number of crimes and an improvement in the psychological state of people.

### **3.6. Places of awe**

There are some definitions of «awe» [26]:

*«1) an overwhelming feeling of reverence, admiration, fear, etc., produced by that which is grand, sublime, extremely powerful, or the like: “in awe of God; in awe of great political figures”.*

*2) Archaic. power to inspire fear or reverence.*

*3) Obsolete. fear or dread. »*

In terms of urban environment, we feel awe towards the buildings of huge size.

The construction of large buildings and impressions of awe-inspiring architecture are closely related to such elements of human nature as the desire to maintain a social order in society and certain relations between authorities and subordinates. A huge bank building, symbolizing the power of our monetary or judicial system, helps us to feel confident. When we stand at big columns of a courthouse or a temple, we feel how we are tickled by the fear of the thought of the existence of something larger than us, we feel the same confidence as a small child standing near the strong legs of a parent. The more friendly the building seems to us, the greater our sense of security.



Figure 3.26. St. Peter's Basilica, Rome; [27]

According to the observations of scientists, when we think about distant places and long-gone events, our view rises upward. When we are asked to solve a complex mathematical problem in the mind, we look up. We look up when we think about a large space and distant periods of time. Raised eyes are also often associated with deep religious experience, a meditative trance, and a state of hallucination. And finally, it is natural that when we enter the interior of a large building, we fix our eyes on the ceiling. In fact, some religious buildings are deliberately designed to make us look at their upper part, which seems to be lost in the clouds. For example, in the Gothic style, elements repeated at different levels are used to create the illusion that the top of the structure reaches heaven.

When we come in contact with a large space, whether it be a magnificent landscape, a huge cathedral, an impressive town hall or a courthouse, one of our almost universal reactions is to look up. Just as a person immersed in prayer turns his eyes to heaven, there is a focus on something that is high above us, and we begin to think about something far in time and space, about the infinite. It helps us think about something higher than daily activities and basic needs. It also allows us to feel positive emotions, to feel the comfort arising from the feeling of connection with something great or even divine. The brain systems that make us feel connected with something sublime and glorify the miracle of self-consciousness are highly unique, and only humans possess them.

### **3.7. Places of expression**

. . . several patterns have laid the groundwork for evening activity in public—magic of the city, promenade, NIGHT LIFE, CARNIVAL, SMALL PUBLIC SQUARES. There is nothing better than music and dancing to make these places alive during the night-time.

Dancing in the street is considered as display of higher joy throughout the history and cultures.

But such tradition has died in technically complex parts of the world. Communities are divided; people feel shy in the streets and embarrassed, not many musicians play the appropriate music.

There is a change in mood, alienation and embarrassment have developed recently, and they block a more basic need. And if we come in contact with these needs, the changes will be discarded. As the result, people will dance again and form little bands to play music. Nowadays bands spontaneously begin playing in streets and square when the weather is good, but where should they play, do they cause problems to traffic and shall people dance?

When the need of the activity reappears, the proper setting can help to actualize it. All that is needed is a platform for the musicians, a surface for dancing around the bandstand, places to sit for the spectators and a place to buy a drink or some snack (some Mexican bandstands have a beautiful way of building tiny stalls into the base of the bandstand, so that people are drawn through the dancers and up to the music, for a fruit drink or a beer). All the setup should be but, in a place, where people gather.

Therefore: Make a bandstand in squares and promenades, where street musicians can play. Setup a cover on it and build nearby a stand for refreshment. Create surface for dancing around the bandstand. The entrance should be free of charge.



Figure 3.27. Glasgow - Kelvin Park; [28]  
Figure 3.28. Canterbury - Dane John; [28]

## 4. Connection between the arts and architecture

In following chapter the most relevant types of arts are analysed for usage and application of them in public spaces, as well as which are the most influential for our visual and hearing senses, hence, influential for activating the spaces, such as: dance, music, street art.

### 4.1. Music and architecture.

- Music and architecture, connection through structure

It is noticeable, that music and architecture share similar experiential aspirations. Architectural historian Sir John Summerson notes in his essay 'The vision of J.M.Gandy' that music and architecture even use a similar vocabulary. This, as well as mentality between architects and musicians have similarities, it was proved in a real life-time experience of one of research participants. Alena has passed through summer school called "Fontainebleau school" in France, which is dedicated to selecting and uniting talented students in architecture and music. After mutual lectures between students about the "insights" of each other's professions, the common artistic tasks were performed. As the result, the art gallery accompanied with composed orchestra music were presented in Fontainebleau palace during the 1,5 month school session. This 'insight' experience has formed the deeper acquiring of research direction.

Notions used in music, and perfectly applicable in architecture:

- Musical Form: techniques that create musical form: repetition, variation, contrast
- Rhythm: the ordered flow of music through time; the particular arrangement of note lengths in a piece of music
- Meter: the organization of beats into measures.
- Colour: each instrument families has its own identify colour, for example, timber is a descriptive in nature: bright/ mellow/ dark/ rich.
- Pattern: through all orchestra composition you can create a time changing 'picture' with its own tonality. Tonality can be major (light colours) or minor (dark colour). As artist create picture through combination of colours, composer write the orchestra melody from colourful lines, notes through certain instruments.
- Space: Composing the orchestra work for each melody, musician has an empty space which he needs to fill with each instrument and each note. The emptiness of reality per time unit – is the musician space. Therefore, music is a space itself. Colourful music needs a dimension for composer's expression.

The list can be continued more and more, but it is highly visible how the thinking process of musicians is similar. For composing they consider equally the concept, emotional part and techniques which they are acknowledged about through long-term studying. Even receiving skills of this field is taken with continues practical and theoretical excrescencies, which takes all the same years as architecture studies.

Dramatic feature, development force, culmination, counting in time – this is musician architecture. And all can be symbolically seen in architecture around us.



Architecture does not exist by its' own path; development is going in a one tendency/ direction together with the all similar-discipline majors. Throughout the history, artistic world is in a constant dialogue, inspiring and even influencing unconsciously. Bright example is 20th century – when feeling of rebellion against all traditions has captivated all-field creators. Both architects have neglected the previous building 'rules' of composition and symmetry, and musicians who became against of “pleasing the visitors' ears”, on purpose creating sounds, provoking to have senses of terrifying, uncertainty, ugliness. – all the same deconstructivism style as in architecture. The style was followed by poetry writers, painters as well. And the influence on each other has always been repeating with each new global idea, spreading through the society.

The second example is turning to gothic period. Gothic architecture appeared in 11 cent., while Grigorian chants (religious singing in choirs) has already existed since 9th century. However, they became more influential and crucial for creating the certain religious and petrifying mood only when gothic cathedrals appeared since the space, acoustic and atmosphere inside them were supposed to tend to God and terrify visitors by atmosphere's power. Such public/cultural space revolution had definitely appeared in regards of demand in musical influence such as Grigorian choirs as one of main reasons.

- Life experience between architects and musicians.

For one of the participants, Alena, it was given an opportunity to study in a school which is specialised on collaboration between architects and musicians – The Fontainebleau school of arts, France.

5-week program introduces participants into mutual learning about each other's professions through lectures about music/visual arts, through discussing common concepts on projects given each week. Through collaboration the common projects were a complex and coherent artistic result which amused both students, and teachers/ jury.

The most unexpected result was to see the correlation of musician's and architect's minds, how the way of thinking and approach to creation process is similar : both use the same notions, for both are essential inspiration and concept, both in search of better expression of ideas through technics and beauty. It is just tool and object of creation differs, while sense and creative mindsets are all the same!

Further It is introduced the example of performances made by musicians and architects, and the tight provident of their intersection:



Figure 4.1. Musicians are preparing for performance of composer's piece- 5 min comprehensive composition totally adjusting and enhancing the ideas of architect's visual performance; Photo made by Author

Figure 4.2. Collaborative artwork of architects; Photo made by Author

Figure 4.3. Architects: Topic of « excavation into unknown in order to find new experience and knowledge». Composer uses minor (dark colour) pitches, gradually following to light and major sounds as a symbol of «insights »; Photo made by Author

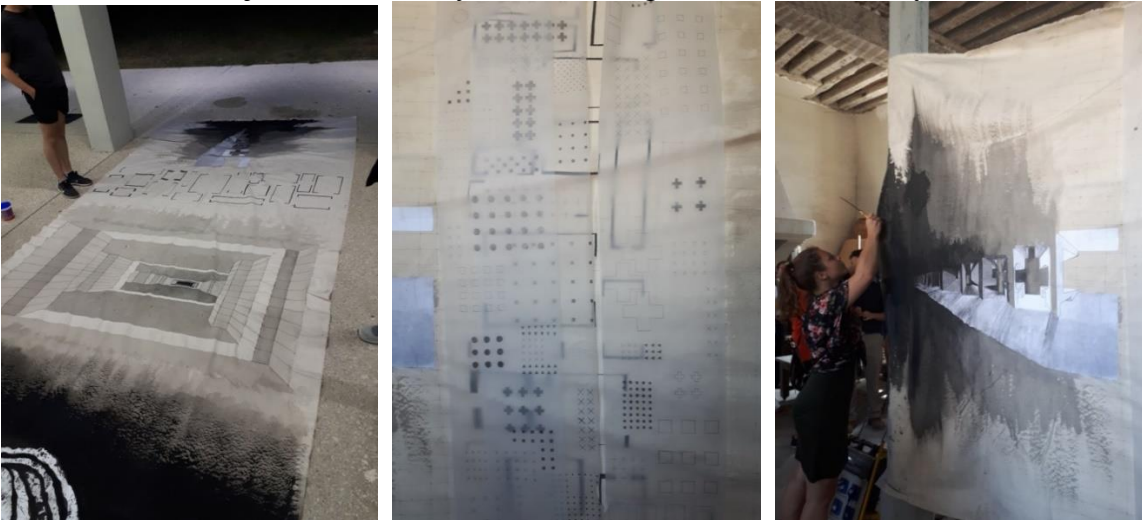


Figure 4.4. Architects: project emphasising going to unknown eternity, representing « life with its ups-and-downs, successes and fails ». Composers vision: Using cello instrument for deeper and more mysterious sounding; main melody is plain and calm as eternity with various small fails and climaxes during performance; Photo made by Author

Figure 4.5. Architects: concept of boundaries and limits/ opened and closed space. Composers idea: use of contrast sounds – major (light, bright sounds) and minor (dark, tough) pitches; Photo made by Author

Figure 4.6. Architects: dynamic composition with contrasts. Composer uses developing with time musical topic, where main melody is «jumping and varying » with developing rhythm to culmination; Photo made by Author

Result: Performance of architects with explanatory speech about canvas as one organism, composers: performance by musicians corresponding to visual project in front of visitors and jury. Overall, combination of two arts with one conceptual message enhanced it

common sense, left experience and recorded memory for Fontainebleau methodological foundation.

More videos and photos of projects you can see in the following link, as well as full musical composition, and its emotional influence on visual project, and visitors: [29]

Music forms space, today's studies

- Psychology of listening

Physiology and psychology of listening was always noticeable, it can have such influence on humans: memory recall, associative pictures and creative problem solving. Specific vibes of sound could thus encourage personal growth, such as through meditation or cultivating awareness; able to provide reduction of stress, pain and anxiety; and even medical applications with audible sound can be envisioned - such as trauma reversal, treatment of depression, cheering up the mood.

***Listening evolve environment***

The way we develop our listening, it will be the way we create our environment. And the way the environment evolves, will be the way we evolve as human beings. This implies that we can positively influence the public, society, city changes. In Figure 4.7 you can see how the sound can be analysed for creating new spaces forming it through sound.

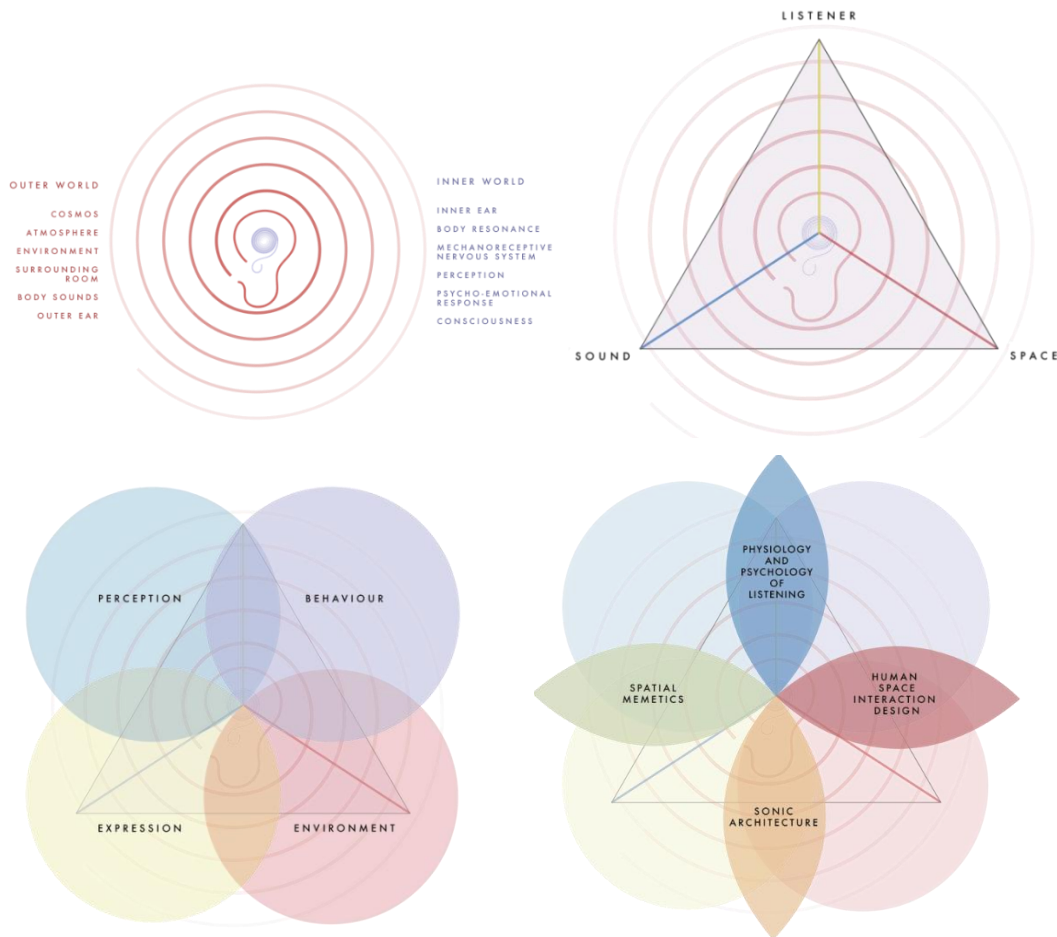


Figure 4.7. Ecology of Listening; [30]

Source: <https://spatialsoundinstitute.com/Imagining-the-Hyperspace-2017>

Listening means to bring acuity to our experience from moment to moment. Listening spatially thus provides us with an interface between the deepest levels of our inner perception and the physical phenomena as they are manifesting in the outer world. [Figure 4.7. Upper left]

The overall of space sound is the relationship between sound, the space and the listener. [Figure 4.7. Upper right]

For understanding new types of special sounds, we perceive, then consider our desiring behaviour, our future expression in it, and what environment we will receive as result. [Figure 4.7. Bottom left]

New practices about creating imaginary space through the music are already performing. For example, the practices at the Spatial Sound Institute focus on particular areas of study that emerges within this cycle of interaction: Sonic Architecture, Human Space Interaction Design, Physiology and Psychology of Listening and Spatial Memetics. [Figure 4.7. Bottom right]

*"The world around us certainly seems to be three-dimensional: the space and objects within it have length, height and depth. We perceive this through our human senses: we have two eyes and two ears that produce two-dimensional nerve signals allowing the brain to interpret the perceived information and build a three-dimensional picture of the world. But how come we are so sure that there are only three spatial dimensions? Who said that what we perceive is the real world, rather than a shadow theatre, the projection of something more complex that surpasses our ordinary renditions of perception? From a mathematical point of view, there seems no problem to add any required number of dimensions. How could we then recognise four-dimensional objects, if they would exist? And how can we project them into our three-dimensional reality? And if there is a fourth dimension, what prevents the existence of a fifth? Is there a limit?" [31]*

The exhibition "4DSOUND: Imagining Hyperspace" about the SSI studies was presented by compositions of Ivan Sapozhnikov in Budapest 2019. These are the first examples of forming architecture (primitively, dot, line, "wall" in the mind of visitors – authors also came there), which in practical way indeed forms the shapes in visitor's minds. The intention of the work is to enable the listener an intuitive, physically embodied experience of complex multidimensional structures and geometrical concepts.

*Imagining the Hyperspace invites to explore space beyond our ordinary perception, to discover what else is inherent to human nature and how we are able to evolve consciousness, using sound to attain a deeper awareness of space and its multidimensional character. Become a part of this experiment.*

Examples using 4D shapesynth: how a point, a segment, a triangle, a three-dimensional figure of 4 points sounds. as the vertices in the shape increase, the sound becomes more complex.

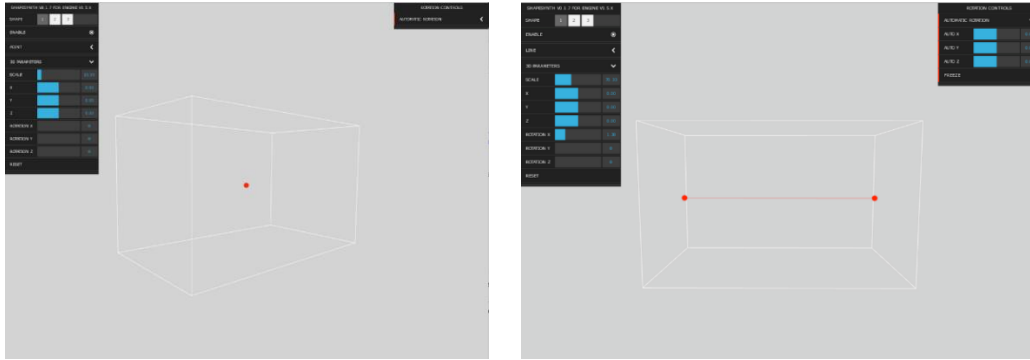


Figure 4.8. Point - 1 sound source.

Figure 4.9. Line - 2 sound sources.



Figure 4.10. Triangle - 3 sources.

Figure 4.11. 3D cube - 8 vertices - 8 sound sources.

4D shapesynth develops the principle of “sound mapping”, where single sound is split to components and sent to create the whole figure. And each figure corresponds to a specific set of sounds.

4D structures are represented as 3D projections, that are changing and morphing in accordance with rotations in 4-dimensional pseudo-Euclidean space.  
- Ivan Sapozhkov

#### 4.2. Colours and its influence. Connection of colour and music.

Throughout the epochs and different cultures, the arts were noticed to be influential on human’s health and life, a human constantly referred to arts in a search of help. And it always returned the energy, strain and inspiration to its full, tending mind to balance. the power of art represents in ability to generate a special psychoenergetic aura that broadcasts the positive resonant energy of its creators to listeners and spectators. This energy has a multiplicity of effects: depending on creation, it is able to heal a person and bring him back to life, stimulate his intellect, provide psychological help, inspire hope and strengthen self-confidence. Each nation has developed special art forms of language, dancing, specially designed to protect people from negative influences.

Both direct connection with colours, and certain music tonality has resonant response in our body. Among musical and visual expression transmits our deep soul state, it also can influence on biological level, relax and bring positive emotions, activate our subconscious, motivate and even heal with afflictions and serious diseases through art therapy.

Temperament, pace, colour choice, type of emotions - are closely associated with vegetative manifestations. They reflect and include a biological program of existence, a

system of physiological reactions up to neuroendocrine changes at the deepest level. An external manifestation of such reactions is a change in the heart rate. For example, Energetic music and emotions of passions, red colour contributes to its increase, and blue colour and sad slow music - to slow down.

The comprehensive studies were done about our perception and preferences of colours, music and how it is connected with our body, and the most important, temperament.

By the studies of M. Lusher (Макс Люшер): all the richness of human emotions, desires, problems could fit into the eight-colour test. These colours are red, yellow, green, blue, purple, brown, grey, black. Each colour characterizes certain traits of a person's character.

- Blue - the desire for peace, satisfaction.
- Green - determination, independence, overcoming resistance, perseverance, rationality.
- Red - energy, liveliness.
- Yellow - joy, responsiveness, hope, desire for freedom.
- Black – life problems, deep concerns and anxiety.
- Grey – dismissal, lose, closed nature.
- Brown – reminisce to past memories.
- Purple – tendency to art and dreaminess

Through the colour-tone diagnostics of an individual, it is possible to learn more about the person's behaviour and mindset!

Colour selection determines the choice of tonality in which melodies have a positive effect on a person.

- Music, consonant with the psycho-emotional state of man, causes pleasure, sometimes happy tears.
- Colour selection according to Lusher becomes a program of the desired keys and corresponding melodies.
- Melodic colour-tonal diagnostics allows you to choose the music necessary for this particular patient, and to carry out individual music therapy.
- The subconscious choice of tonality will give an idea of the desired level of psychological musical impact.

This made it possible to better understand the different types of temperament. Temperament is the level of psychological states of each person. It is distinguished by the type of emotions, their tension, focus (towards oneself or the world), harmony. This is, first of all, the pace of human existence, its interaction with the world. If the major and minor keys in music are a single emotional system and are closely interconnected, then one can observe the same connection in colours. Each minor colour, like a shadow, accompanies a major. As a result, we see two faces of each type of temperament. Colour Symbols:

- choleric - red and black,
- sanguine - yellow and purple,
- phlegmatic - green and brown,
- melancholic - blue and grey.

Comparing the emotional pairs of colours prompted by the music, we see that the choleric lives by passions and perceives the world tragically, the sanguine laughs and dreams,



the phlegmatic erodes and recalls; the melancholic is contemplative or withdraws from the world into himself.

For musical sounds it will correspond to:

- Red – tonal base is E-flat, A-flat, B-flat major. As example (preferable for choleric mostly): “Heroic symphony” of Beethoven.
- Black – minor tonality of C, F, G. Example: Symphony G major of Mozart.
- Yellow – sense of joy is represented with D, A, E major. Successful example: “Ode to joy”, Beethoven.
- Grey – E-flat, A-flat, B-flat minor. “Intermezzo” from “Cavaleria Rusticano” by Shcumman.
- Brown – A-flat, D-flat, E-flat minor. Bright example: “To Elise” of Beethoven – what figuratively evokes nostalgia senses.
- Purple - B, C, F dies minor. “Moonlight sonata”, Beethoven.
- Blue – B, F, C dies major. ‘Fantasie-Impromptu”, Chopin.
- Green – sense of rationality, wisdom and independence. F, C, G major, like “Impromptu” Schubert.

The display of an alien level is manifested by the denial of the colour expressing this level; emotions close to this colour; figurative expression; musical embodiment, realization in the form of aphorism,

When listening to music or seeing the fine art of an alien psychological level for each temperament, the certain behaviour is noticed:

- boredom, feeling of "primitive", "naive" art,
- ironic-mocking perception - denial, negativity;
- emotional and vegetative anti-reaction (often coughing at concerts, restless movements, etc.).

It should be remembered that such an attitude is even possible to genius melodies: if they are at a psychological level alien to the listener, they can be perceived by them as an unpleasant melodic sound.

Mini - conclusion:

There are NO general colours and melodies we can use for pleasing all visitors of public spaces because the colours which influence congenially depend on temperate and character of the individual one. The pair of colours which can be harmonic for one, can be denied by another one. However, we can note though, that exists such pallet of colours which associate with most of their positive emotions for each type of character. Colour, as well as tonality in music – it is a strict connection, a system where each of the elements fit like puzzle. The appropriate usage of colour and melody tonality can be the same energetic vibration, just only in different system of perception.

Interesting to note, that through the international website for temperament assessment, turned out that only half of our society has pure temperaments, and therefore, only half needs for pure “requirements” for colour-sound pair. Mixed temperaments are open and able to perceive all pairs of colour-tonality rules. Therefore, using this knowledge in public spaces, we can enhance potential success and quality of the space! In places, where are used certain colours, we must use certain musical accompanying for more fulfilled positive influence on

human, since we can be ensured that at least more than half of visitors will have total enjoyment of colour-music usage in our public space!

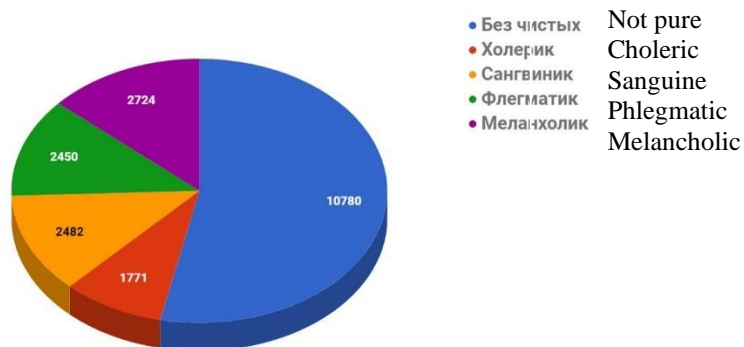


Figure 4.12. Features of temperament; [32]

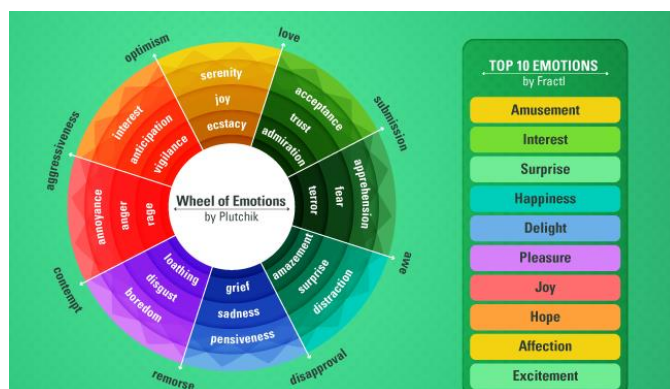


Figure 4.13. Emotions evoking through colours; [33]

Conclusion. combination of music and visual arts:

Connection of visual and acoustic has a strong influence in public spaces. Through psychology change, new insight in experience, its combination enhances each other in several times.

**Examples:**

- MUPA, Budapest. Béla Bartók National concert hall.

It was designed by Zoboky, Demeter and Partners Architectural Office.

Notably, that the one of the architects, having the artistic-creative skills, also is a professional musician, therefore he could consider on high quality both colour and acoustic influence on visitors!

Probably, architect new about this knowledge of connection between colours and music, it is not an accidental coincidence he harmonically uses all the range of colours – pair suitable for all types of temperaments. Architect as well works in collaboration with experienced acoustician Russell Johnson, which work brings an international recognition and success in acoustics. All the coming musicians claim it as «one of the hall with best acoustics » ; The conductor of the St. Petersburg Philharmonic Orchestra was equally effusive: “I can say that in the 25 years of my membership of the orchestra I have performed in all the famous concert halls with good acoustics in the world. This one ranks highly even among the best.” It actually



all works enhancing each other, and the highest comment are coming exactly through this harmonic enlarging of influence from performing sound on concert and visual pleasure.



Figure 4.14. MUPA, Budapest; [34]

- Singing fountain, Margaret Island, Budapest

Great example of an interactive public space, where both music and colour is used in a close contact to visitor. Each evening fountains run famous compositions with “enhancing” the show with colour.

However, this sightseeing is not in the top of visitor’s list, it obtains N28 in popular sightseeing of Budapest by TripAdvisor.com website! And even though this public amusement is free of charge, it serves free city concert, the idea for interaction in public space is great, but it is still not the place people go often in the evenings, even locals! Probably, the reason is in wrong usage of colour and music tonality! If so, change could bring more positive emotions and memories to visitors.



Figure 4.15. Singing fountain, Margaret Island, Budapest; Photo made by Zoltán Balogh / MTI

- Concerts

More prove that arts enhance each other in practice.

We can use as an example Rammstein band, which traditionally makes from their concert an enchanting show. This is not the only example. Artists “noticed” that this increases the effect of their music, creativity, performances, clips, etc., and this connection is used as a tool.

Another example is the Brian Adams concert in Budapest, where in addition to high-quality sound and musical performance, an amazing video was used. Despite the fact that the authors are not fans of the artist, the concert made a very strong impression on visitors.

### 4.3. Street Art

Street art is an accessible for citizen type of art serving to public. It is a great tool to make space more inviting visually and socially.

In society it serves several purposes:

- street art as a new landmark and even new easily recognised spot on satellite view maps



Figure 4.16. The Superkilen park in Nørrebro, Denmark, BIG; Photo made by BIG – Bjarke Ingels Group

This project turned unfriendly migrant area of city into well-known and usable public space for locals and tourists.

- street art for propaganda and expression of political views



Figure 4.17. Interest in people, Banksy, Toronto.

“Interest in people”, Banksy, Toronto. Street art can refer to social and political problems, what the most famous artist Banksy appeal to think of. His graffiti are also the international sightseeing, and a must place for visitors, knowing about him. An example high quality art transmitted to public with educational and inspirational purposes.

- street art as decorative solution for mass-housing buildings.



Figure 4.18. Art piece by Pixelpancho; [35]

In some Russian cities street art schools are organized from time to time because it seems like a fast but effective solution for decorating an ugly mass building. Moreover, street art festivals are happening throughout the post-Soviet countries for possibility to bring individuality to grey alike buildings. For example, “Like It. Art” is the largest festival of street art in Europe, took place in Kazan, Russia in 2012. Concentration of the best creative resources of street art world for doing unique city objects of modern art and for development of the youth creative subcultures in the country. Branding Kazan as a city focused on the creation and support of available art conditions.



Figure 4.19. Cactus e Maria (Italy); [35]

Figure 4.20. LST (Russia); [35]

#### 4.4. Dance and connection with space.

- Dance education develops architecture mind

Historically has started since the existing of settlements, then villages, and further cities. The uniting space for citizens was a mandatory part of the living territories. Agora, squares, streets – it was always the places of people’s concentrations. The “arts” people has constantly existed through history, as well as personal expression through movement and dancing. Aoides in Ancient Greece, skomorohi till 18 century in Russian lands, moveable caravans in Arab world, performers and dancers today in main streets of each city in the world. All of them were a tool/ a magnet for attracting. Many cultures still have some version of the dance



activity. For example, there is the bon odori festival in Japan or bandstands in European and American. Chinese tradition of dancing every early morning in the parks known as a typical habit for maintaining healthy.

Modern history has also represented the connection between architecture and dance/movement - through Bauhaus school.

The Bauhaus is known all over the world as an avant-garde experimental university of modern architecture and design. But it was also connection of practicing, creativity development, have the activity in the performing arts, especially, dance. Bauhaus people were involved into experimenting with forms, materials and spaces in dance projects.

One of the projects in Bauhaus, connected with architecture and dance:

In 1922 the performance of "Triadic Ballet" was prepared, the combination of experimental development of physical movements and material application was created in addition with spatial effects which could be experienced together. The stage encouraged Bauhaus student as a concentration for creating new spatial structures and modes. Modes, which were created through influence of dance education. Futurists, Dadaists and Russian Constructivists in the Bauhaus have developed the idea that the interaction set up a new type of architecture as spatial art, which has systematic approach to creative process. This gave a recognizable result to the stage experimental performances into theatre-space designs, as example, a "Totaltheater (Total Theatre)" by Walter Gropius, and others, as well as to creation of their own stage costume mask and dance projects.

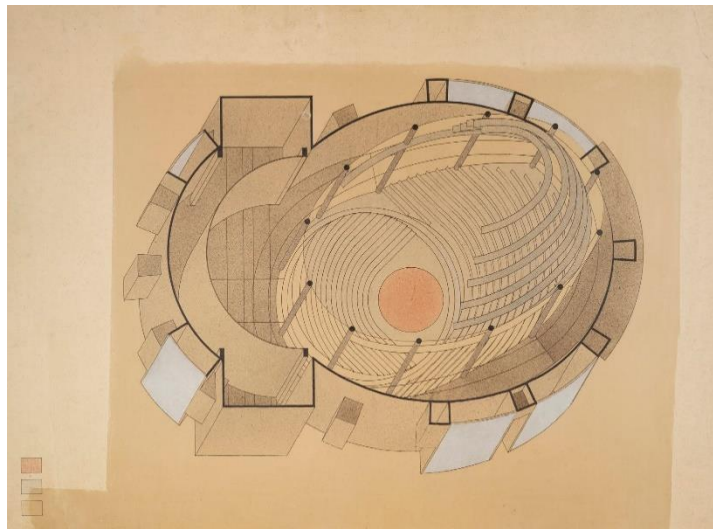


Figure 4.21. "Totaltheater (Total Theatre)" by Walter Gropius; [36]

Events for dance experiments and entertainment were suggested by the "Bauhaus Parties", where "Bauhaus Kapelle Band" was specializing in a mix of popular music and jazz, and people almost every Saturday were coming to "Dance in the Bauhaus".

In Bauhaus dance studies, costume creation; work with lights equipment – the ground where materials, items and objects are considered on the same level with performer. The goal was to study the conditions for harmonization and growing good relationship between man and space. The Bauhaus stage, with its theatrical dance and mime studies, stage sets, theatre architecture, performance festivals and light-space experiments were the center of these

experimental approaches to the conception of human. The man is no more the main actor, he is equal to space, or even underprivileged.

*As "the most active phenomenon of life" man in movement is "indisputably one of the most effective elements of a dynamic stage production". (Dance the Bauhaus. E.A.Seeman)*

#### Mini-Conclusion:

Through dance, Bauhaus students and listeners by the end of education could recognize that moving art integrates human beings spatially and atmospherically into the space. It also has changed the creative mind of Bauhaus students: the studies of dance movement connected with studies about change and flexibility of space – better quality stages for performers were created. The mindset of students has changed itself, as in following quote:

*"From the point of view of the subject, space is naturally to be experienced most directly by movement; on a higher level by the dance. The dance is at the same time an elemental means for realization of space - creative impulses. It can articulate space, order it: the space expands, sinks and hovers, fluctuating in all directions." Laszlo Moholy-Nagy, 1929*

Conclusion: dance is one of the main parts of society, its culture. Throughout the history and comprehensive studies of it, it has always been a tool for activating space, bringing joy and experience to citizens. Creating a purposeful area/stage for expressing themselves, citizens can enhance the potential and popularity of place themselves, since such possibility brings confidence and positive connection between citizens. Artists through learning movement arts can use these knowledges for the better connection with space feeling, therefore, probably, for any designer and architect it would be useful to learn the art of movement, to feel the action through the time and space. What we all can learn from Bauhaus ideology, that “dancer become a world-renowned leader of an experimental creative space”.

## 5. New types of arts and technologies

### 5.1. Space and technologies

Undoubtedly, of all the technologies that have come into our lives, a smartphone, not counting the Internet, has the greatest impact on us. In less than 20 years, a device that was once available only to wealthy lovers of technical innovations has turned into a basic accessory. In addition, the power of these devices far exceeds the performance of computers that existed several decades ago. Mobile phones have changed our relationship with various places. We now hold in our hands the whole world in miniature, which shows our location as a point on a flat stylized map and gives complete information about the surrounding space. Many of us pay much more attention to this copy of the world than to the original. Our phones have opened up countless possibilities for us, and some of them are good, while others are bothering.

Let us return to the example of museums and look at the photo illustrating the perception of museum exhibits by people of different generations.



Figure 5.1. Ludwig Museum, Budapest; Photo made by the author

On the left we see an elderly man looking at a picture of Picasso who has not forgotten how to perceive works of art as intended by its author – face-to-face without the use of intermediaries in the form of a smartphone. To the right is a group of young people looking at smartphones. It is not enough for us to be alone with the exhibit, we need to take photos instantly reporting on social networks, or, for example, look for information about a work of art on the world wide web, deepening the knowledge and perception of the object.

Speaking about the design of urban fabric, smartphones and other modern devices allow you to get a huge amount of data on the movements of people, the amount of time spent in a particular place, etc. This data can be used both for the development of urban psychology, and for solving practical issues of urban design, which some modern laboratories, such as MIT Media Lab, do, which is very impressive.

We welcome innovation because it frees us up time and mental resources for other purposes. There is great potential for technology with which we can build new relationships, visit inaccessible places and create fantastic spaces for learning. But at the same time, a serious cause for concern is the ease with which we transfer important functions to technologies, which may be part of what is considered a human being. Just as, according to a common fear, the use of GPS will atrophy a person's natural ability to navigate the terrain,



we forget everything we see around while focusing on the phone, and effective Internet search engines wear the work of his memory, the “smart home” that protects us from natural stress, may dull our ability to adapt to various unforeseen circumstances.

Continuing the topic of pros and cons, we can highlight the new ‘non-physical category’ of public spaces, which competes with physical public spaces. Let’s call it **Cyberspace**. Public space has always been the meeting, interaction and communication point. Cyberspace, by means of the internet and social networks, gives new opportunities for virtual interaction that can cause multiplication of ‘real’ interactions in ‘real’ space. For instance, it is alleged that political engagement is highly improved by the use of web technology. Nevertheless, there may be a risk that cyber communication can replace, or at least reduce, physical one.

Distracting from the value judgment of the rapid development of technology and returning to the topic of urban spaces, the fact remains that the world has changed, its opportunities must be explored in order to design new objects in accordance with the new reality.

Arts have always been associated with technology, and today this connection is only growing. An obvious example demonstrating how art, urban design and technology are connected in the modern world is the use of Instagram and its influence. [37]

- Instagram + art objects

In this digital age, the places we choose to visit, eat and stay at must be Instagrammable. And it is not just about creating food that can be shot for social media. Now the question for businesses is how to make their places attractive to social media users with high number of subscribers to take a picture in front of their shop or cafe, attracting their followers to come here to make photo for their profiles.

Shoreditch puts big efforts into drawing attention of smartphone users. Its cafes and restaurants have lots of details specially designed to appear on the web. Due to the murals, pop-up shops and famous flower market there are a lot of tourists making photoshoots for their social medias.

The regeneration of King’s Cross in London has gone further lately. Every part of it now has something worth picturing - from steps covered in artificial grass where people have lunch to a huge neon swing. Also, at King’s Cross station, there is the platform 9¾ from the Harry Potter books, where people stand in a queue to “crash” through the barrier. Here you can also find a professional photographer to shoot this moment.

Not only venues and neighbourhoods make their spaces attractive for online users. Now museums also look to increase visitor numbers due to social networks. The Louvre is the most Instagrammable museum and not just because of Mona Lisa. Its popularity has increased dramatically after Jay-Z and Beyonce shot a music video there. After it organizers have created a 90-minute tour where visitors can view the art shown in the video and take selfies there, of course.

The more we rely on their smartphones weakening our ability to concentrate, the more efforts shops and places we visit need to put to attract us to feel life through our gadgets. So now art objects and microarchitecture are meant not only for looking at them, but for taking pictures for Instagram as well.

This part is a preliminary study which is aimed to gather information in order to achieve better understanding about how to work with vibrant and ever-changing environment of today looking at contemporary art, modern technologies and catching its tendencies.

## **5.2. The Arts**

Art is defined as a way of self-realization by expressing the author's feelings (using drawing, form, sound, body plastic, word, colour, light, natural material, etc.); it is a form of creativity of individuum. Art can be characterized by three classical branches such as painting, architecture and sculpture. The broader definition of the arts includes not only art itself but also performative arts which can be indicated as music, dance, theatre etc.

From the pre-historical period, the Arts indicates the stage of development of mankind, characterizes the thoughts and emotions of a human being. Appearing at the very early stages of the development of society, it gradually develops into a powerful tool for understanding the world and a means of spiritual development of people. The originality of Art is determined by its subject and content, its social function, and the way it reflects reality.

## **5.3. The performative arts**

As one of the crucial parts of the Arts, the performative arts can be emphasized. Starting from mimes (Ancient Greece), skomorokhs (Kievan Rus), minstrels (medieval Europe), the attention to the public spaces was firstly gotten for an ordinary man. The times when the Arts was accessible only for noble rich people got belonged to the past. This represents an important change of the world, when creative people, no matter of the social status, could transmit their ideas, thoughts and doubts to the society, raising the emotions of the viewers.

Whereas the static pieces of art are ready to be consumed, not necessarily generating the involving of audience to the thought process, the performative arts comes to the foreground frequently inviting people to be a part of the performance. As a result, ordinary people can actively participate and accomplish their freedom of self-expression, being a vital part of the play.

## **5.4. The Information Age**

The Information Age is an ongoing period in the history of mankind, characterized by a global shift from the traditional industry, established by the industrial revolution, to a digitalized, computerized industry, based on the transfer of information. The premises of the Information Age are the consequences of the information revolution in the field of information technology.

At the Information Age, there are tendencies to the mass character in culture, the mass culture is appearing and developing. A number of subcultures emerge with their unique characteristics: language, preferences, values. The continuous search for own personality becomes a problem, so, modern art is a means of expression. When the Information Age has come to the stage, the instruments which are using for the performances got changed accordingly.

In the process of humanization and activation of public spaces, emerging technologies are becoming a crucial instrument for giving meaning and changing emotions gotten at the endless streets framed with soulless architecture. The contemporary digital technologies significantly affect the way artists create the pieces of art. Based on the different technologies, the categorization of contemporary performative arts, which are activating the existing public spaces, is achieved.

## 5.5. Categorization

- Sound art

Sound art is a type of art in which sound is coming to the foreground, provoking emotions of the listeners. Being installed at some public spaces, sound installations might fully change the feelings which appear at this place.



Figure 5.2. Max Neuhaus, Times Square, 1977-1992, 2002; [38]

The piece called Times Square was installed between 1977 and 1992, and later restored in 2002. At the place, pedestrians would be *"enveloped by a deeply resonant and mildly undulating drone, its tone suggestive of low-pitched chimes of church bells."* [38]

Times Square is the public art piece that consists of its day-to-day elements such as subway, car-traffic, ventilation noises summed up together to create the sound of the city. This installation encourages people not only to hear but also to listen to the city. The feelings of Times Square could be changed crucially only because of the sound Installation, especially when people do not expect to encounter any sort of art. Moreover, it generates people's curiosity and inspires them to search for that sort of harmony even in other places all over the world.

- Lighting performances

The lighting is frequently used as a tool for improving and activating a public space. Heritage buildings and monuments are emphasized by regular lightening, temporary installations are gotten improved by the effect of the lightening. Special lighting performances are aimed to generate some emotions and thoughts of the visitors.



Figure 5.3. Daan Roosegaarde, WATERLICHT, 2016; [39]

Considering example for lighting performances, WATERLICHT that is created by Dutch artist and designer Daan Roosegaarde, has to be illuminated. The aim of the project is to raise awareness of the critical problem of rising the water level. Since its initiation in 2016 as a site-specific artwork for Amsterdam's Dutch District Water Board, the installation has been shown across the world in London, Toronto, Paris, Rotterdam, Dubai, and at the United Nations headquarters in New York City.

- Projection mapping

Projection mapping or video mapping is a technique which is used to show the static or dynamic material (photos, videos, abstract lightning) at the chosen objects and surfaces. With special techniques, the two-dimensional surface can become a three-dimensional piece of art.

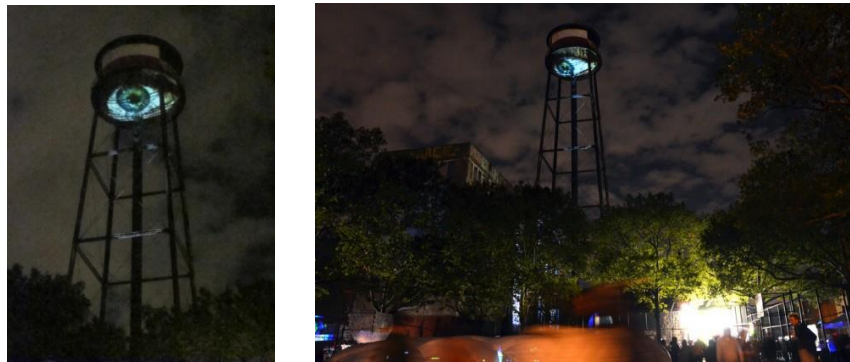


Figure 5.4. Marcos Zotes, Creative control, 2011; [40]

As an example of projection mapping art, Creative control projection on the water tower created by Marcos Zotes, can be reviewed. The projection of a huge eye that stares to people passing by is designed to remind the citizens of continuous control.

- Augmented reality

Augmented reality is a type of art which can be translated through electronic devices. It can generate people movements using curiosity as the main personality trait. This immersive technology is very efficient in allowing visitors to interact with public space. The spatial intervention in only virtual and activated with QR codes using screen displays as an interface.



Figure 5.5. John Craig Freeman, Border Memorial: Frontera de Los Muertos, 2012; [41]

The Border Memorial: Frontera de Los Muertos, created by John Craig Freeman, highlights the problem of illegal migrant workers who died at the US/Mexico border. "Based



on a traditional form of wood-carving from Oaxaca, the virtual augmentation objects consist of life sized, three dimensional geometric models of a skeleton effigy or calaca which begins to rotate and float off into the sky when viewed with a mobile device.”[41]

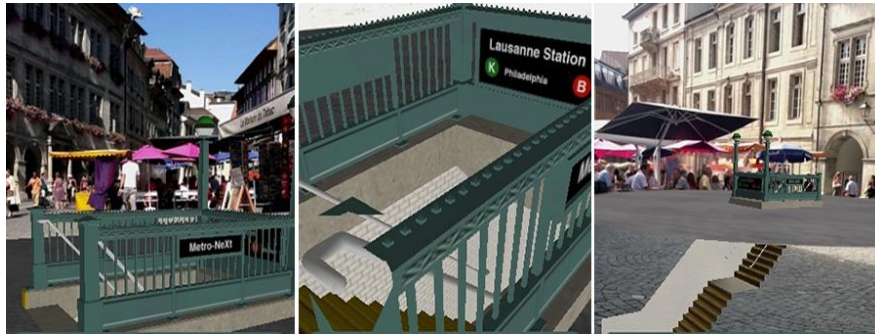


Figure 5.6. John Craig Freeman, Metro-NeXt, 2014; [42]

Metro-NeXt is a project inspired by Martin Kippenberger’s Metro-Net project. Martin Kippenberger imagined a conceptual global underground metro system and started to construct entrances to it in different cities around the world. These faux subway stations led nowhere physically, but conceptually linked the cities and people of the world. After Martin Kippenberger’s untimely death in 1997, John Craig Freeman re-thought the project as Metro-NeXt in 2014. *“Rather than subway stations leading to nowhere, Metro-NeXt leads to a virtual realm, a mixed reality portal, linking the Kensington neighborhood of Philadelphia, Victoria BC, and Los Angeles CA to Boston, Thonon and Lausanne. Using augmented reality technology, visitors can enter the Metro-NeXt Station and teleport to their city of choice.”* [42]

- Street art as a performative art which activates the space

Street art is a form of artwork that appears on the buildings, streets, trains, and other publicly viewed surfaces. Generally, street art can be defined as painting that is showing the opinion of an artist, frequently bringing up the social issues. Talking about the street art as a performative art it can appear as a play with audience involved as viewers or creators.



Figure 5.7. Guilia Amborgi, Activating Public Spaces with Temporary Art Experiences, 2017; [45]

The project that activates one of the busiest spots in Delhi - Delhi Inland Container Depot (ICD). Even though half of the containers was painted before the opening ceremony, the rest of them was happening to be created under everyone’s eyes. The point is to activate a crossover of people and spaces, reconnecting the cityscape with the citizens.

- Interactive installations

Interactive installations aimed to activate a physical space through technology, sound and light that responds to viewer. The viewer can affect the installation by participating in a proper way such as touching, sharing the thoughts, generating the music etc.



Figure 5.8. Marcos Zotes, University Library, [40]

Another piece of art, created by Marcos Zotes, can indicate not only interactive installations but also projection mapping. The idea is to share people’s thoughts through the projections on the walls of the University Library, censoring but keeping the point of what people say.



Figure 5.9. Future Cities Lab, Murmur Wall, 2017; [44]

Murmur Wall installation on which you may “whisper” your thoughts and they will be transferred to the object.

- Other activity generators
  - Easter Eggs / Hidden Gems - small contemporary interventions aimed to activate the space and generate people interaction and communication.



Figure 5.10. Aram Bartholl, Dead Drops, 2010, [43]

- Social network points – pieces of art that generate people’s activities by being famous in Social networks such as Instagram, Facebook, etc. Usually, the major part of contemporary performative art which is accessible for publicity creates social activity and self-advertisement. Nevertheless, some art installations specifically designed for this purpose.



## 6. Successful examples of creative and public spaces

Review of successful examples of existing activated public spaces by application of the performative arts are considered in this chapter.

### 6.1. Platonov festival

Platonov festival in Voronezh, Russia can also be a strong example of activating of public spaces. The Platonov festival is a large-scale international festival of arts takes place in the city once a year since 2011. The festival program traditionally consists of the directions “Theatre”, “Music”, “Exhibitions” and “Literature” and is a collection of the brightest phenomena and names of modern Russian and world culture. Since its founding, the Platonov Festival has been pursuing its main goal: to open Voronezh to the great world of art and open Voronezh to the world. Every year, world stars of theatre and music come to Voronezh. Also, at the festival there are a number of events for the wider public: numerous open airs on scenic venues, a theatre parade and street theatre performances, a book fair, contemporary art exhibitions, lectures and master classes.

For nine years, the forum has become one of the largest and most significant art festivals in Russia. In 2019 alone, more than 80,000 spectators from different cities attended its events. And the number of spectators for all the years of the Platonov festival has exceeded the mark of half a million.



Figure 6.1. Platonov festival, [46]

According to studies, 66% of Voronezh residents consider the Platonov Festival to be the pride of the Voronezh region. The festival has a leading position in tourist ratings. The media is more and more calling the Platonov Festival the most significant Russian cultural forum, and Voronezh in June - the cultural capital of Russia. According to critics, the Platonov Festival not only brings to the depths of Russia the best that was born in the capitals and outside the country - it forms a new audience and new residents.

It is no wonder that the appearance of the city and the life in it are significantly changing. As the festival includes both a paid and a huge high-quality free program, a large number of different city venues were used, many of which were not previously used as public spaces or were in terrible condition. The festival literally breathed life into them, they were noticed, and their improvement started. Thus, in the city new high-quality public spaces have appeared and their new projects, widely used by citizens and in non-festival times.

Also, thanks to the festival, it was possible to preserve the former industrial building of the Commune, located in the city centre and unexpectedly for citizens who previously did not know about its existence, which has become one of the most atmospheric art spaces in the city, where it is convenient to hold concerts and lectures, organize exhibitions and so on. The building was supposed to be demolished in 2017, but the contest-workshop for architects "Possibilities of using post-industrial spaces that have lost their functions; viable scenarios for the development of the territory on the example of the Art Centre "Commune" was previously organized, in which one of the authors participated, aimed at "saving the building" with the involvement of the government. The main purpose of the building was established - the art centre, which it is now, and options for its functioning were proposed from non-profit events taking place in it, its appearance to the way it would function economically.

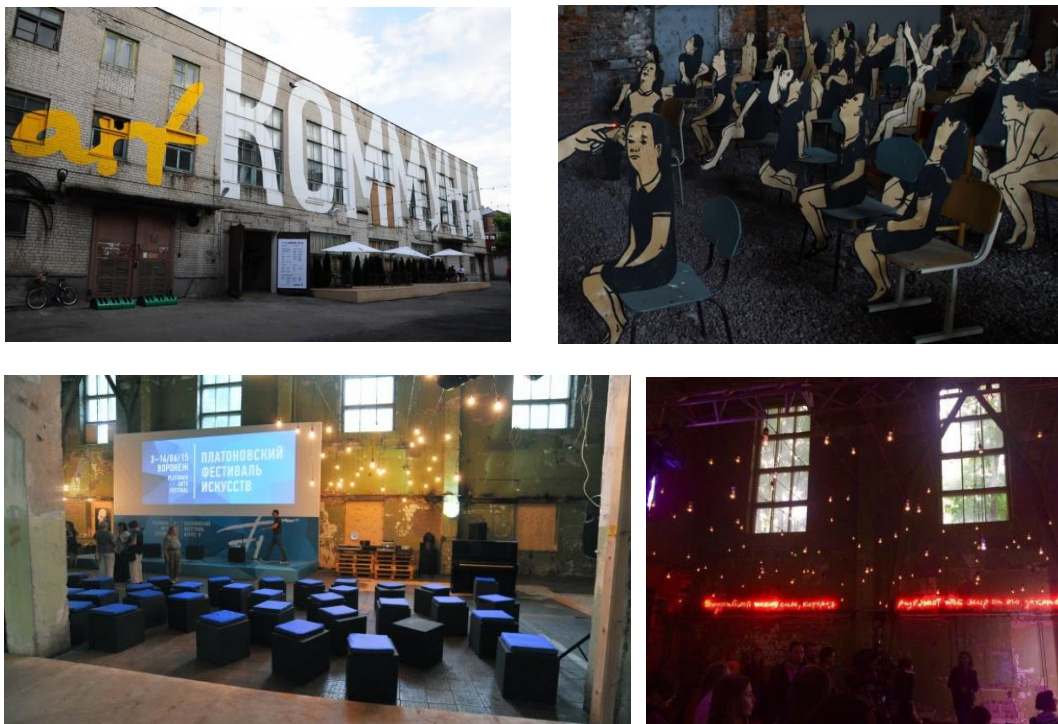


Figure 6.2. Art Centre "Commune", [46]

## 6.2. Shoreditch

Shoreditch district in London is the other great example of how street art affects the city. Shoreditch is used to be a criminal area since the end of 19th century and became a platform for street artists. «*Since around 1996 Shoreditch has become a popular and fashionable part of London, particularly associated with the creative industries*» [47]. This change relates to the emergence of street art, which, in turn, takes place thanks to new technologies (spray cans).

In the beginning of the 90s, Shoreditch wasn't a place where tourists would gather to see. But over the last two decades, the district has turned into a cultural hotspot that has brought some of the best alternative artists of London.

In the late 80s and early 90s, neighbourhoods like Hackney and Shoreditch were canvases for those who were deemed as vandals back then. It was alternative artists and rebellious youth who started tagging. This was basically signing a wall or surface with a 'tag'. As popularity of tagging grew, more artistic versions were appearing on Shoreditch's streets, adding more creative lettering and colouring and developing a new form of art.

Taggers and graffiti artists started to create more complex designs that required true artistic skill, making Shoreditch a place expressive urban art. During the late 90s cultural, architectural and commercial changes were brought into Shoreditch. These changes made the district the urban art epicentre. Also, around that time a street artist Banksy appeared.

During the 2000s, graffiti was taking on a completely new form. The creations applied to the streets of Shoreditch were attracting more attention with new design bearing social and political messages. After Banksy blew up with his street installations, more and more artists were appearing in the country. But London and Shoreditch stay the centre of the movement, with support from the local community for the new art form.

The last ten years have shown just how street art has evolved from being a crime. Now it is respected by art institutions and galleries of London as a true art form. Popular art houses like the Serpentine Gallery or the Tate Modern show work from famous urban artists over the last decade. Shoreditch has led to the rise of street art by preserving the work created and by providing space for new artists to show their work and develop their skills.

More artists and collectors are now talking about street art and thinking of how to take it even further. The development of projects around Shoreditch, for example, BSMT Space has helped new street artists gain recognition.

Such changes, of course, entailed an increase in the cost of housing, rent and the appearance of expensive hotels in the area. There are many excursion tours to this place that you can walk endlessly - art works in the open gallery are constantly changing, bringing with them a new context and new stories that guides tell. Guides who are familiar with street artists have a theory that, in connection with the advent of a new technology for applying paint to walls, a street art school in Amsterdam was specially organized, in which various modern street art techniques were taught. And the student in it was Banksy himself and other famous artists who are now painting the walls of world capitals.





Figure 6.3. Transformations, [50, 51, 52]

### 6.3. The domino effect and interactive loops installation

Temporary public art installation, in Montreal, Canada, that includes set of 10 giant coloured dominos, 13 Interactive Loops which all are creating a wide range of sound and lighting effects.

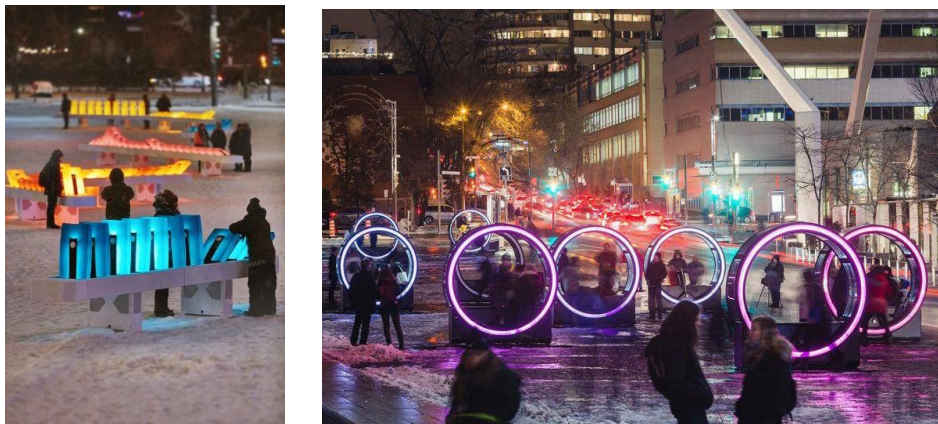


Figure 6.4. Giant Interactive Loops and Domino That Play Fairy Tales, Montreal; [55]

### 6.4. Gardens by the bay, Singapore

Famous sightseeing of Singapore, connected both modern technologies and utopian beauty, is well-known association with the city.



Figure 6.5. Gardens by the bay, Singapore; [53]

### 6.5. Coca-Cola Beatbox Pavilion

“The Coca-Cola Beatbox, designed by Asif Khan and Pernilla Ohrstedt is an experimental fusion of architecture, sport, music and technology that creates a stunning sensory experience.” [54]

The aim of the Pavilion is to shine a spotlight on Britain’s brightest stars and inspire other young people to pursue their passions. The connection between music and sport, two beloved points of interest for youngsters, can be reached in the Coca-Cola Beatbox Pavilion.



Figure 6.6. Coca-Cola Beatbox Pavilion; [54]

### 6.6. Interactive Musical Seesaws

Created by CS Design & Lateral Office, Canada, this incredible public art installation comprised of 30 illuminated seesaws. When the installation is used, the seesaws begin to emit musical tones.

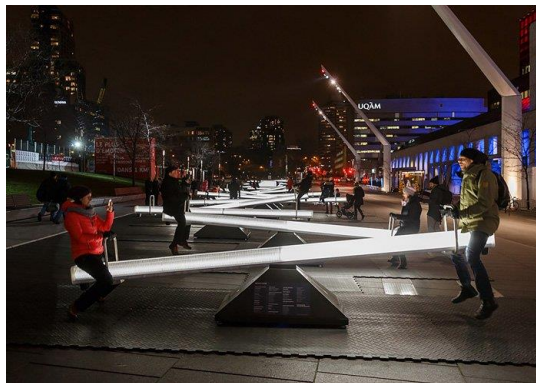


Figure 6.7. Interactive Musical Seesaws; [56]



### 6.7. The practice of freedom II

Created by the artist Adam Kalinowski for the H. Dabrowski Park in Poland, this is a great example of good taste, creativity and design combining into finding an extremely enjoyable urban public space. The Practice of Freedom II is an installation containing colourful sculptures and sections of sand with changeable texture and calling to the imagination of community members in order to show their creativity. The participants contact with a space covered in sand of various colours which evolves all the time (this is the process of entropy) and can lay on the sculptural elements looking like parts of a rock. It is a great opportunity to explore various weights, colours and patterns that may appear while walking without footwear on the space.



Figure 6.8. Interactive Musical Seesaws; [57]

### 6.8. Van Gogh Path

Studio Roosegaarde, famous for their environmental problem solutions, has developed the VAN GOGH PATH for the SMART HIGHWAY project, and won Best Future Concept, Dutch Design Award, Accenture Innovation Award, and INDEX Award Denmark for it. This is a bicycle road made up from numerous flickering stones. The inspiration for it was taken from Vincent Van Gogh's 'Starry Night'. VAN GOGH PATH is located in Nuenen in the Netherlands where the artist lived from 1883 till 1885. The path charges from the sunlight and shines in the night-time not only creating a place for inspiration, but also improving public safety.



Figure 6.9. Van Gogh Path; [58]



## 7. Conclusions. Possible directions for a further research.

This study is the authors' first attempt to collect what, in their opinion, is important to consider when designing public spaces, based on the emotions and psychology of people. Some existing studies on psychogeography are compiled. It also explores the potential for applying modern technology and art in public spaces and illustrates the importance of developing public spaces in urban fabric.

Categorization of public spaces has been proposed. Answer to the question of what is a quality public space has been found.

Obvious and surprising conclusions have been made, such as:

- even natural landscape images make us relax if there is no alternative;
- traditional European park is organized by the same principle as African Savanna and it is the most comfortable natural landscape for humans, some reasons why nature attracts humans have been identified;
- according to the principle “to see, but not be in sight”, walkers mostly gather around the edges of every open space, rather than in its centre;
- cases have been analyzed when public space is perceived as a private space and is associated with a home and what people expect from it, it has been revealed, what principles intuitively people use to choose their home, why do we love a certain place;
- it has become more clear how such «places of passion» as an amusement park, casino and shopping center are organized, and what principles of their design can be used in designing public spaces; how such places can affect urban development has also been analysed;
- it was analysed what we expect from museums today, what places we find boring and why and how they affect our well-being, where we feel anxiety;
- examples have been found that people prefer curved lines, while sharp edges appear stiff, repulsive and can signal risk;
- it has been found where we feel awe in terms of urban space and what it gives us;
- how arts and technology can change our relationship with space.

Conclusions, we came after analysis of the connection between the arts and architecture.

Tools and tips which can be used for enriching the quality of public space:

- impression on surrounding architecture and landscape can be enhanced with music which repeats the same compositional approach: rhythmic visual composition – various combination between major and minor sounds in music, static composition – plain and calm musical theme, and etc;
- sound can create invisible shapes and boundaries through application of 4Dsounds, what could essentially contribute into new experience and interaction with public space;
- for usage of colors and music in public place, certain tonality of music could be used, which is connected to its color pair - it provides the full enhancing of the perception of space, brings most positive influence and memories. Some of such color-tonality pairs are: Red –E-flat major. Yellow – E- major. Grey – E-flat minor. Brown –E-flat minor. Blue –C dies major. Green –C major;
- usage of street art influence positively. It can activate space and even change from unpleasant, unsafe place into a usable by locals' emotional space, can become a landmark and as an accessible and memorable art gallery for everyone;

- for activating public spaces, a physical area for dancing could be provided. This opportunity itself will find their users since people have intuition to the movement expression. It is a demand for society in dancing for receiving positive emotions;
- technologies are needed for use in public places. This enhances visual and auditory sensations to the maximum and causes a whole new experience. Augmented reality of art, projection, lighting performances and sensors, interactive installations are among them.

Successful examples of art-activated public spaces have been reviewed.

### **Urgency and actuality of the research:**

The modern world with all their components is vibrant and changing. Unique architecture is also changing and has a strong conceptual basis. But in most cases, the design process is massive, occurs mechanically, and is performed in very tight deadlines. The final result is devoid of any concept, does not adapt to new conditions and does not fulfil its main function properly.

Thanks to the rapid development of design (software tools) and construction technologies, the pace of these processes increases. Along with this, the time given for the concept phase is reduced and no attention is paid to the ideological basis. To avoid this, practical applications should be always in close relation to theoretical studies, which is impossible in the circumstances of limited time and budget.

### **Possible directions for a further research**

To make practical applications of the research possible, it is proposed to create **an instrument for generating ideas**, which is not about standardization but about principles of using space as an architect's tool and reference points, that can always be kept in mind, to create a comfortable environment for people.

So that the current study is an attempt to compose a theoretical basis for a set of tools that can be developed subsequently.

Speaking of this **architect's «toolbox»**, it can be represented as a number of **experimental models**, - small concept projects demonstrating various methods of organizing space applicable to various types of public spaces that will serve as a guide for an architect. Undoubtedly, the information basis for creating such experimental models should be supplemented and expanded with new parameters.

The **future project** will propose different suggestions about how to help people to organize their life according to their lifestyle, types of activities, etc. Groups of people will be accounted for depending on the level of income, type of settlement, place of residence, age category, family size, etc.

All the public spaces can be used differently by each group of people and functions can change during the time of the day. Different scenarios of using these spaces will be proposed. Various **classifications of public spaces** based on various factors will be proposed and investigated.

Here are the variants of classifications:

Types of spaces can vary in purpose, for example, entertaining, educational, etc. Experimental models can be created on the basis of existing spaces, new spaces, variants of the natural transformation of spaces (in places of congestion of people). Spaces can be closed (within communities) and open (accessible to all), temporary and for permanent use.

Various uses of spaces will be considered, depending on the groups of people, the time of the day, the year, how they can evolve and what benefits it can bring to different groups of people. The ways of **implementing the projects** also can be proposed.

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