

Niksic in the Context of Visual Urban Culture

Svetlana Perović

Abstract—Out of all visual arts including: painting, sculpture, graphics, photography, architecture, and others, architecture is by far the most complex one, because the art category is only one of its determinants. Architecture, to some extent includes other arts which can significantly influence the shaping of an urban space (artistic interventions). These arts largely shape the visual culture in combination with other categories: film, TV, Internet, information technologies that are "changing the world" etc. In the area of architecture and urbanism, visual culture is achieved through the aspects of visual spatial effects. In this context, a complex visual deliberation about designing urban areas in order to contribute to the urban visual culture, and with it restore the cultural identity of the city, is becoming almost the primary concept of contemporary urban and architectural practice. Research in this paper relate to the city of Niksic and its place in the visual urban culture. We are looking at the city's existing visual effects and determining the directions of transformability of its physical structure in order to achieve the visual realization of an urban area and the renewal of cultural identity of a modern city.

Keywords—Nikšić, transformability, visual culture, visual realization.

I. INTRODUCTION

RELATIONS between man and the city (its elements and structure) are immediate, concrete, material and existential, and these relations are inseparable and reciprocal, complex and variable. Man creates a space where he lives, then modifies it, adapts and develops it according to his needs, so that it can then act as an interpreter of complex life processes and their values. It intertwines different aspects of cultural interpretation, the creators and bearers of cultural identity of a specific environment, expressed in the highest degree through the shaping. In addition, the bearers of culture are not exclusively developed physical structures (cinemas, theatres, historic monuments ...), but rather especially public spaces, open, free, available to anyone at any time. Besides, public spaces are key indicators of the integrity and vividness of the city's space. On the other hand, each intervention and activity in a space is preceded by a perceptual and experiential aspect, because man's relationship towards the city is primarily perceptual. If we look at the psychological fact that nothing exists outside the mind and the mind is composed of many diverse perceptions that are imported through the senses, selected in the brain, arranged combined, connected, forming a continuous string which as such creates an attitude on a particular case or occurrence that is being investigated, and on the basis of which a reaction is realized, than the role of visual

perception in this perfectly functional and unique process is clear. The value and significance of the built space are predominantly manifested through subjective view of that space. Image, as a result of a bilateral process between the observer and the environment [1] is particularly sensitive issue in the process of architectural and urban design. Various theorists who have been dealing with the visual perception of architecture and urbanism of cities throughout history [1]-[9] indicate the importance of interaction between man and the environment and the importance of the images creation in the users' memory.

Visual realization of a city is expressed through the continuity of elements of a whole complex that is absorbed by the eye, creating a perceptual image of a spatial notion, rife with the richness of meanings and associations, which in conjunction with memory form the overall sense of space. The paper visually examines the Niksic urban culture seen through a direct association to the cultural identity of the city, facilitating it, transforming, renewing and developing it. The phenomenon of urban visual culture is explored in terms of visual effects that are confirmed by visual perception and sensation, and they are enabled through: complexity, continuity and integrity of the area. Thereat the goal is to define the directions of the city's development in terms of its visual realization. As the experience of the city is a more subjective category, the aim is to find the criteria and guidelines for transformability of Niksic that will result in the formation of desirable visual elements of objective reality, but which will also represent a number of subjective elements of urban space experience. Through the analysis of examined aspects of urban areas, which are important to the strategy of improvement and reconstruction of city's visual culture, this will be based on a survey conducted in Niksic.

II. COMPLEXITY OF URBAN SPACE

The complexity of urban space will be analyzed through three aspects:

- Planning matrix of the city
- Physical structure of the city
- Correlation between planned and created

A. Planning Matrix of the City

The nature and level of visual complexity of Niksic at the end of the first decade of the 21st Century are based on the principles of its planning matrix from 1883. Proposed plan solutions were given by Josip Slade, after a historic moment - the liberation of Niksic from the Turks in 1977 (Fig. 1). The solution is characterized by a radial planning concept in the spirit of Baroque and Renaissance ideal city, which resulted in the formation of city's structures of diverse but also reduced

Svetlana Perović is with the Faculty of Architecture, University of Montenegro, Džordža Vashiingtona bb, 20 000 Podgorica, Montenegro (phone: 0038269-385-190; e-mail: ceca.perovic1@gmail.com).

morphological features. The plan is characterized by precisely defined transport system, which is dominant, but also by the not so marked dimensions of traffic profile, which reduces the visual dominance of vehicular traffic. The natural framework in which the plan is created, is characterized by flat terrain, four rivers, two lakes at the edge of the plains, two hills in the interior with high greenery complexes and lines of alleys within the urban centers. Their presence contributes to a more comprehensive visual perception of the space. However, although this typology falls within the preferable city visual effects category, the relation of natural and constructed features is without interaction, which reduces the intensity of visual sensation of the space. The plan logically designs this relationship and realizes it in the first stage of formation of the urban structure, but parallel with the development of the city, it has declined, despite the development of highways and connections to neighbouring urban areas. On the other hand, the internal traffic conception has predetermined the future structure of the city, which resulted in the development of closed urban blocks and with a tendency to create town squares at the meeting point of several streets, where streets act as interruption points of the visual continuity, but also as the places of interaction in a primary urban system. Architecture revolved around typologically uniform structures, predominantly residential, with one floor, without providing specific visual features. A specific characteristic of Niksic is the complexity of social changes that shook its territory throughout history, rotation of a number of different cultures in the same area, and the dramatic time-sections have directed the path of the city's development and determined the dynamics of its development. During the time of making planning solutions the city had a population of several thousand. Options were limited to the essential aspects of existence. Public spaces have been the centres of activities and the key places for social processes. They had an advantage over other elements of urban design. Vehicular traffic was reduced. Everything was pedestrian appropriate. Central Square represented the focus of the atmosphere, a key centre of events, more representative in size and position than the visual indentation, but arguably the most dominant public space of the city. With the increasing population, the structure of the city was developing horizontally. This has not deviated from the basic concept until the Second World War, after which the city has lost its visual identity to a large extent, and had to be remade. From 1952 a new era in the development of the city begins on the basis of a new plan of Sajsel and Boltar (Fig. 2), which then resulted in the which relied on the previous concept, but deviated from the radial strictness when it comes to taking up new areas. In this time period the number of residents has reached 15 000. This required expansion of the existing developed matrix. It is characteristic that not to this day has there been drastic changes in the planning strategy, but the period of industrial development has resulted in the conversion of Niksic into the highest Montenegro's industrial centre, reduction of other city's functions and increasing visual differentiation. The number of inhabitants largely increased in the period between seventies

and eighties. Thus, in 1971, it amounted to about 28 000 and in 1981 it already increased to 50 000. Today Niksic has about 70 000 inhabitants [10]. With the development of Niksic into the industrial and economic centre, the city's visual complexity was emerging but expressed through visual partiality. Visual complexity was manifested more by individual characteristics of the physical structure rather than through the integrity of the area. The results were visual discontinuities between the spatial units that are created in different time periods. To date, these gaps remain distinct. Planning matrix of Niksic today is essentially characterized by a radial conception, partly disturbed through certain city's spatial units by the elements of orthogonality and spontaneity (Figs. 3 and 4). "Disorder" refers to urban units created by more intensive development of the city occurred in the period of industrial domination. However, we can conclude that the characteristics of the proposed plans of the city's development strategies have laid solid foundations for the development of urban visual culture of Niksic. Due to the variability and complexity of users' demands and needs, especially visual ones, at the beginning of a new century, a question arises: Have the expectations been met?

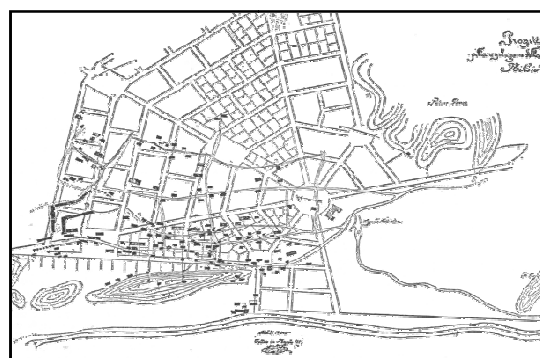


Fig. 1 Planning basis of Niksic from 1883

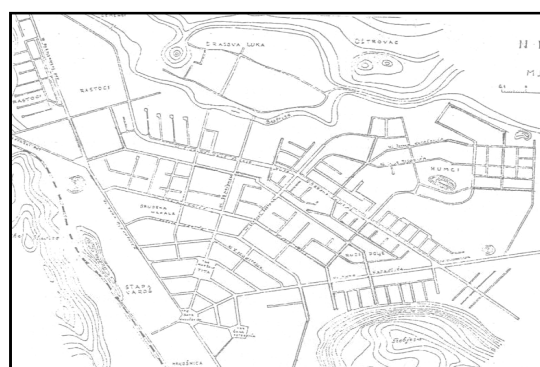


Fig. 2 Planning basis of Niksic from 1958



Fig. 3 Planning Matrix of Nikšić the relation between natural and created



Fig. 4 Planning Matrix of Nikšić the relation between the radial and "free" structure

B. The Physical Structure of a City

Under the city's physical structure we imply (Fig. 5) "a set of developed elements, spaces and environments, units and assemblies, which are connected together and integrated in an urban system create an ambient and an environment for the conduct of complex processes of urban life" [11]. In a complex composition of research aspects, we will keep a focus on researching of the physical structures of the city from the aspect of visual complexity of space as the primary determinant of city's visual culture. Visual complexity of a space is based on the abundance and consistency of visual effects and the availability of their perception. A significant contribution to the study of visual forms and images of the city, is the Kevin Lynch's book, "The image of the city" [1] in which the author defines the elements of the visual image of each city, which includes roads, edges, districts, nodes and reference points. These elements interact to produce a compact physical structure, with a simplistic use but complex possibilities. As bearers of visual spatial effects their thoughtful design in the planning of urban space is entailed (Fig. 6). Crawford emphasizes spatial "diversity and complexity as important factors in the determination of visual aesthetic quality" [12]. In the 21 century, an era of great

technological capabilities and advanced means of visual communication, visual perception criteria are very demanding.



Fig. 5 The physical structure of Nikšić



Fig. 6 Visual dominance of the natural- a natural landmark

Natural visual effects dominate the outskirts of the city, but without the best visual relationship between the natural and the created. We can conclude that Nikšić is one of the cities which is yet to complete its depiction, because it has a good basis for forming more complex and permanent visual effects and remodelling of the existing ones, as well as for the establishment of a stronger interaction of a stronger interaction between them. The advantage of Nikšić is that it has a space that is not "too busy", horizontally or vertically, as well as the physical structures that were built on a planned basis, which has, to this day, remained largely preserved.

Achievement of city's physical structures in terms of visual complexity today implies: complexity, diversity, quantity, effectiveness, recognition, and also logic, clarity, continuity, coherence, unity, order. It is necessary to use such elements that are capable to excite our senses, fulfil our visual desires, presenting them in such a way that we are excited by the sight, moved by its delicacy or brutality, noise or humility, indifference or interest [6]. These effects are pleasant for some and less pleasant for others, but in any case they should be rife with multiple meanings and values. According to Kristin Boyer [13] the city should be read, like a text, of course, a

poetic text. Exploring the visual complexity of urban area of Niksic, we can conclude that they are not developed in accordance with the development and possibilities of the society. In the first significant stage of development, in the late 19th century, we cannot talk about an emerging visual complexity of the space. Physical structures were reduced, with similar architectural structures typology and geometric regularity, spatial units were characterized by closed block systems, and focal points were represented by squares, with yet again, an incomplete visual achievement. However, as the city developed through a well-designed plan, order was restored and the transportation network was the key to integration. Other than that, the requirements at the time were receded and it can be concluded that the city met the requirements of users. The next characteristic phase in the development of Niksic is the period of industrial development, when "technological world" negatively reflected on the visual development of the city. New urban units were created, and those were not in a solid interaction with the preceding, and the architecture of the objects was breaking the city-culture relationship. This was in contradiction with the fact that city and culture are the "encounter of meaning." "Architecture must not sacrifice the basic feeling of comfort, welfare, health, it should raise awareness on the role and value of the environment that inspires and emulates" (Koch) [14]. Residential architectural structures of collective typology, as the most common ones, created in a period of industrial domination, have not achieved the necessary visual and other effectiveness, demands and services were not synergetic. The centre of visuality was moved from town squares to large industrial complexes located along the city's border lines, where the visual effects were increasingly losing quality and interaction.

Further development of the city, until now, has not drastically changed its image from that period. City has developed horizontally and new areas were mainly residential. Out of the facilities for public use (Fig. 7), visual benchmarks are represented by the building of "municipal assembly" and the hotel "Onogošt" because of their denoted verticality and position in the central city area, as well as several cultural, health and education facilities, and also the several decades old unfinished building "House of the revolution"(Fig. 8) that makes a negative visual notion to each observer. This building belongs to the aggressive visual effects, which can cause negative effects on the nervous system [15].



Fig. 7 Public buildings as the dominant visual effects of the city



Fig. 8 "Home of the Revolution"-a visual aggressiveness

C. Correlation between Planned and Created

The main function of a city is the conversion of power into form, energy into culture, dead matter into living symbols of art. The city should raise the diversity and individuality of regions, cultures and personalities, to the highest degree of development [16]. Two-dimensional and three-dimensional spaces must be in sync. Through a two-dimensional plan, bases of the city's architecture are set. The plan defines the quantity, content, programs, positions of architectural structures and so on, but the plan also determines its shape, its building blocks and public spaces and their relationships. Well thought-out conception of city planning does not always result with a desirable city image. Niksic is characterized by a lack of visual achievement and the lack of imagery, through all realization phases of two-dimensional plans into a three-dimensional reality.

III. CONTINUITY OF URBAN SPACE

Given the perceptual need of the observer for coherent visual space coverage, we are placing a special emphasis on continuity as an essential element for establishing the integrity of the city image. Continuity implies the interaction of all elements of the city's completeness. In Niksic, the continuity is more present in the old part of town, seen in the formation of the facade panels of street arrays in closed urban block

system. In terms of traffic, its presence is manifested through the clearly structured transport network and a direct connection between the central and peripheral parts of the city, where the visual effect is complemented by the alley components forming a pleasant direction articulation. Continuity is achieved in the natural environment of the city, but not in the interaction of natural and created in peripheral parts of the urban area. We can conclude that the visual continuity in Niksic is achieved in segments, but a general visual continuity of the city is not present, provided that there is a basis for its improvement and wholesome development.

IV. INTEGRITY OF THE URBAN SPACE

A preferred morphological image of a city includes unity, integrity, and homogeneity. "Throughout a set, the layout must be designed so that we can cover all the objects that form it at a glance" [17]. However, the integrity of the space perception is achieved in a small number of cities. "Images of geographical areas are rarely visualized as clear, connected unity. Mostly they are series of unconnected," truncated "images or image-collage taken from different location elements vaguely connected in a visual impression that is an image of a certain region, and which we can describe with the phrase "general landscape image" [18]. For the perception of the integrity of an area, the key word is relationship, dialogue between the elements of a whole, the harmony in terms of sizes, colours, materials, the relationship between indoor and outdoor, public and private, natural and created, developed and undeveloped. There should be no interruption, empty spaces, and partial cross-sections. Functionalistic approaches in design have resulted in a shaping that is undesirable to the observer. Niksic is one of the cities whose structure has developed more on the basis of functionalism, which resulted in the creation of an environment and structures with insufficient desirable visual effects and meanings. The advantage of Niksic in achieving unity epithet is the optimal size of occupied territories. However, it is necessary to achieve a range of interventions in the space, so that aspect of completeness is satisfied. In this context, a special emphasis is placed on public open spaces of the city.

A. City's Public Open Spaces

Numerous references of the theorists who have studied public spaces of the city [19]-[23] indicate their importance in the structure of urban space, especially in the formation of socio-cultural and identity values of local built environment and its users.

City's public spaces are essential actors of the integrity perception of an area. In addition, the city's public spaces are key centres of shaping and interpretation of city culture and a key link in the perception and experience of the city's image. Therefore, in their organization, it is necessary to examine all the possibilities that these areas would be able to achieve and then implement that through specific contents and forms, characterized by intensive use of space. Besides the complexity in terms of content: urban equipment, ground floors, natural elements, architectural objects, elements of

visual communication, also important is the interaction between these elements as well as the dialogue between interior and exterior spaces. Additionally, it is important to achieve the "readability" and "availability". The key to availability is the barrier-free movement and the possibility of circulation by various forms of movement as well as the access to the majority of elements. The greater the availability, the experience of the city is richer and more complete. Man experiences the city by moving around through a defined and complex network of points in space and so getting a visual access to complex and rich composition of urban information [24]. In city's public spaces, bearers of meaning and messages are often elements of urban set-out: benches, flower boxes, candelabras, parterre, sculptures, specific art forms, sometimes completed with two-dimensional effects: graffiti, murals and projection of materials and colours, and not only for the purpose of aesthetic expression, or as mere emptiness wrapped in attractive covers, but for the purpose of interpreting the different dimensions of reality. They should function as public scenes, ambient, filled with content and complexity of their relations. Next to the dominant public spaces: streets, squares, parks, etc., for the experience of city's visual culture it is extremely important to properly treat residential open spaces, in particular collective ones. Niksic today features an undesirable relation towards public spaces, especially if we focus on the central city square which dominates solely because of its dimensions and physical occupation of the central position in the city. In addition, the inner block areas, especially in the central core of the city require immediate rehabilitation.

V. CHARACTERISTICS AND RESULTS OF RESEARCH THROUGH SURVEYS

The research of urban space from the aspect of visual perception is diverse and multidimensional. It is based on the disciplines that have been developed in this field. One of them is the Gestalt psychology [25]-[27], which emphasizes the importance of the perception of the totality. The research methods, designed and applied in studies of visual perception, such as mental map [1], experimental method, method of visualization [28], computer models [29], observational method, method of semantic differential, surveys and interviews method and others and the combination of multiple research methods, confirm the importance of this aspect of the study of urban space.

Survey conducted in Niksic includes 205 respondents, and it is based on determining the number and character of objective visual effects of urban space in terms of subjective experience. The goal is to form an image of the area viewed through the prism of perception of its users, which is important for determining guidelines for improvement of the visual and cultural identity of the city. The survey contained basic elements of the city's image and their implications, as established by Kevin Lynch [1] and those are:

- paths,
- districts,

- edges,
- nodes,
- landmarks

The survey was conducted on a random sample principle and it was necessary to obtain following information:

Profession, Gender, Age, Duration of residence in the city

Of the total 205 respondents, 110 were women, 95 were men. Profession and Duration of residence varied, with prevailing users who resided in the city for more than 5 years, which was significant for a more objective treatment of the problem. Here we present a general assessment of each of the above mentioned elements of space (Fig. 9).

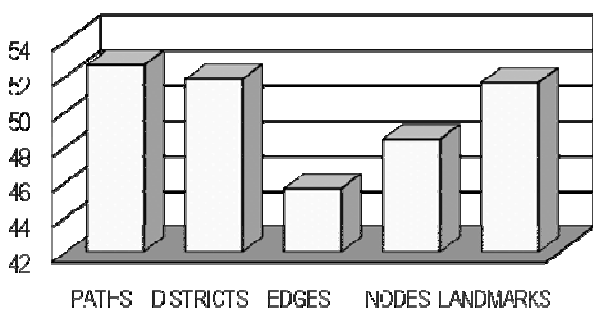


Fig. 9 Results of research through surveys (visual value %)

Paths are rated as acceptable when it comes to vehicular movement, availability and continuity are present, but there is a lack of visual effects, while the lines of pedestrians movement are less well rated, so the conclusion is that it is necessary to improve all aspects of pedestrian movement especially in the areas where it is separated from the vehicular ones.

Edges as boundaries between different spatial units, the majority of respondents were directed towards the outer parts of the city and the elements of nature: rivers, lakes, vegetation, and bulwark as a linear move and so on. These spaces provide the desired visual effects, but it was agreed that the desirable communication between the natural and the created was not established, as well as that it is necessary to activate these areas in full sense, since they can provide the city and its users far greater capabilities than the existing ones.

Districts and their identification were based on the observation of a few basic parts: the old town centre, then the unit formed in the industrial dominance period - the collective-housing units and a third, peripheral zone of individual family homes. The negative conclusion is derived for each of the units when it comes to outdoor spaces, where it is necessary to implement more radical intervention, and reconstruct the building facades in the first two units.

Nodes are rated as more physically present elements of the city rather than within the realization of their role, with special negative emphasis on the central city square and space of the object "Home of the revolution."

Landmarks are present according to the assessment of the respondents, but it is necessary to form new visual

benchmarks of the city, as well as replacing some of the existing ones.

The survey produced a conclusion that each of the examined aspects of the city achieves certain visual effects through certain elements, but their multiplication and activation as well as the establishment of intensive relations between them is necessary. General assessment on the character of space for respondents match significantly, based on what we can provide general guidelines for the development and improvement of the city, above all, objective visual effects of urban space.

VI. DIRECTIONS FOR THE DEVELOPMENT OF CITY'S VISUAL CULTURE

Based on the urban space examination from different angles, it was concluded that Niksic does not have sufficiently developed elements of visual culture, but also that there is a good base for its development. Visual culture viewed through the city plan was based on a good development strategy, but was not manifested through the shaping in a desirable extent. In the current image of the city, the plan still occupies a leading position. The picturesque of the space is not sufficiently realized, but there is a basis for its more complete interpretation. General directions for the development and shaping of city space in order to improve the visual urban culture, derived from research, are focused primarily on the rehabilitation of the existing physical structures expressed through:

- Complexity
- Functionality
- Shaping
- Wholeness
- Authenticity
- Humanity
- Readability
- Availability
- Balance
- Order
- Flexibility

and also the development of new physical structures with the same attributes.

VII. DIRECTIONS FOR THE DEVELOPMENT OF CITY'S VISUAL CULTURE

The complexity of the 21st century opportunities indicate the need for the development of cities with more complex visual culture that will enable recognizable visual identity of a city. This is possible to achieve through a thoughtful analysis of the demands and opportunities of a specific environment and on the basis of through implementation of successful and productive interventions in the space. The study concluded that the city's achievement in terms of visual urban culture can not be achieved without good planning concepts, without clear and strong relations of all parts of the space, with particular emphasis on the formation of spatial elements. It was concluded that Niksic has a good planning basis, but that it did

not resulted in the desired visual image of the city, as it could be expected from the predispositions the city had with the adoption of the plan and its consistent implementation throughout all stages of development. On the other hand, it was concluded that Niksic is not a too occupied city and could provide great opportunities for growth and transformation in the direction of restoration and improvement of visual cultural identity as a modern city implies.

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