



## Urban space ecology as modern direction of urban environment research

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### Abstract

The relevance of this article is to understand the problem of studying the visual images of graffiti in the socio-cultural space of the city. The article substantiates the relevance of the appeal to the ecology of urban space as one of the modern directions of urban environment research. Nowadays graffiti has become an integral part of modern culture and way of life, a special kind of art, which can be both an art object and an act of vandalism, violating the ecology of the city space. The aim of the study is to analyze the features in the use of different styles of graffiti in the urban environment in the aspect of the ecology of urban space. The leading method for the study of this problem is the method of analysis of photographs, which contributes to the effective identification of types of graffiti and their impact on the ecology of urban space. The article analyzes the ecology of urban space and the impact of graffiti on it. The basic styles of graffiti are allocated; the dominating and less used graffiti in social and cultural space of the city are defined. The features of the location of graffiti on the streets of the metropolis are considered. The most commonly used size of graffiti in the city is shown. Graffiti in different areas of the urban environment are analyzed. The novelty and originality of the study lies in the fact that for the first time the eco-psychological problems of space organization associated with the use of graffiti are analyzed (visual images in the urban environment, deforming or decorating the visual space of the city). The importance of graffiti for the city as one of the factors influencing the ecology of urban space is revealed. It is revealed that using graffiti in the urban space contributes to social interaction between man and the ecology of the city. It is shown that the introduction of harmonious colors details on the flat ends of buildings, their implementing into the subject forms and lines, in most cases, makes a positive contribution to the ecological space of the metropolis and helps people to distract from their internal worries. The styles of graffiti, which are most famous and popular in the course of graffiti, affecting the ecology of urban space (Writing, Bombing, Tagging, Scratching, Street art, and 3D graffiti) are considered. It is shown that the most popular in use are three styles: Tagging, Writing and Street Art. The styles of Tagging and Writing negatively affect the ecology of the socio-cultural space of the city, the style of Street Art influences positively and is often perceived as an art object. It is revealed that the least popular styles in the city are Bombing, Scratching and 3D graffiti. It is shown that the styles of bombing and Scratching have a negative impact on the ecology of the socio-cultural space of the city, the style of 3D graffiti has a positive impact and is considered an art object. It is shown that according to the size of drawings graffiti artists prefer works in small and medium sizes. It is revealed that graffiti works in a large format are much fewer. It is determined that on the outskirts of the districts graffiti is found much more than in the center of the metropolis. The data obtained in this work can be used in environmental psychology, visual ecology, labor psychology, social psychology, pedagogy, sociology, as well as for further theoretical development of this issue.

**Keywords:** ecology of space, urban environment, perception, graffiti

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### INTRODUCTION

The modern city is a kind of system where its different parts interact with each other not only economically and politically, but also above all, socially and spiritually. In the urban environment, there is always an interaction of people, nature, economy and society (Alisov et al. 2018, Baibarin et al. 2016, Cherdymova et

al. 2018, Cornilov et al. 2019, Máhrik et al. 2018, Mutavchi et al. 2018, Sorokoumova et al. 2019). Spaces is the primary basis of the environment and at the same time is a phenomenon and a global category, in the

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comprehension and development of which humanity is constantly engaged at the level of both humanitarian and natural science knowledge (Iovlev 1996). Interaction between people is the filling of social space. This interaction is represented as different kinds of the same thing. Under social space P. Sorokin (1992) understood not three-dimensional geometric space, but multidimensional. Social space is structured objectively (existing social relations) and subjectively (people's ideas about the world). People, understood as agents of the social process, produce practices and through them influence the change of the social structure. P. Bourdieu (1993) also divides the physical and social space. Thus, we can assume that social space is not only the territorial location of a certain group of people, but also a certain field of interaction in society, which can change based on the ideas that arise in a social group. Most modern researchers derive the concept of cultural space from the concept of social space, thus stating that the cultural space is subspace in relation to the social part (Alisov 1997, Firsova et al. 2018, Gorbunov et al. 2019, Kazakova 2007, Mukhametshin et al. 2019, Murzina 2006, Pyatkova 1997, Tsalolova et al. 2019). Cultural space is a complex territorial-historical and demographically determined, natural-scientific, philosophical, socio-psychological, cultural and ethnological conglomerate of things, objects, ideas, values, moods, traditions, ethical norms, aesthetic, political and social views in a certain cultural situation, manifested within the boundaries of a particular area and time (Bubnova et al. 2018, Cornilov et al. 2019, Kurguzov 2002). Another important aspect in the formation of cultural space will be the national culture. Peculiarities of the national culture gives a strong imprint on the cultural space of not only countries but also regions and mega-polices. Each national culture has its own vision of the world, its own spiritual values, its own contradictions, and its own identity (Kuznetsova et al. 2018, Podymov et al. 2019). National culture is a set of symbols, beliefs, values, norms and behaviors that characterize the spiritual life of the human community in a particular country, state (Alisov 1997, Kazakova 2007, Murzina 2006). The information space of the city, as part of the socio-cultural space, sets new opportunities for personal development and new forms of spatial organization of culture. The information space unites the population of the city, directs its activities, and creates urban unity and a common mentality.

Using graffiti in urban space is not only a struggle with everyday dullness by means of street art. It is a social interaction that occurs between humans and the ecology of the city (Cherdymova et al. 2019). Among the factors constantly, changing around the human visual environment is the work of modern graffiti culture. Even such a technique as the introduction of color details on the flat ends of buildings, should be accompanied by the harmonization into the object forms and lines, because

color without contours and landmarks brings the environment to a homogeneous, the more aesthetic texture, the more often a person's gaze runs from detail to detail and thus rests, moving away from their internal concerns (Cherdymova et al. 2019, Kuznetsova 2019, Mikulina 2013, Saurbaeva 2013). Thus, it can be argued that the most important is the decor, that is, the presence of visual elements that contribute to improving the appearance of buildings and making it more beautiful and visually environmentally friendly (Atabekova et al. 2017, Filin 2006, Runge and Manusevich 2005, Ryabchenko et al. 2018, Vityuk 2017, Vorontsova 2019, Yanushkina 2014). If we talk about graffiti in this way, we can see that modern graffiti originated as a counterculture. Graffiti artists expressed their political protests on the walls of houses (Voloboev, 2009).

Ecology of space perception is associated with the study of internal (biotic, social, psychological) patterns of interaction between humans and the environment. One of the components of this environment is the graffiti in the space of the city. Inscriptions and drawings are considered as a means of constructing socio-cultural reality, the so-called psycho-semiotic system that forms the consciousness of individuals falling into the sphere of its influence. Making changes in the world, a person changes himself. Thus, a person changes himself, carrying out creative activities (Rubinstein 2005). Creativity is the process of objectification of the inner world of man. Creative expression is an expression of the integral work of all forms of human life, a manifestation of his individuality (Ananyev 2001). The city is a center of cultural artifacts. If we talk about regional cultures, it is worth noting that each of them exists in a certain geographical area. Regional cultures are many different cultures created by several peoples inhabiting the region. Regional culture is understood as a specific form of existence of society and man, which has a pronounced spatial and geographical delineation, based on its own historical tradition and system of values (Murzina 2006).

The features of the provincial culture include: *natural*, which is understood as harmonizing the relation of man with nature, the proximity of cultural processes to man; the territorial communities of the population and the development of local identity disclosed as at the level of local ideology and mass psychology in the form of traditions, relics, legends, tales, characters, peculiar only to this area; the specific value orientations of the population; the particular household way; *impenetrability* /and non-repetition, which lead to the fact that only people who grew up and brought up in this environment can fully understand the essence, the core of provincial culture (Kazakova 2007).

The study of semantic qualities of the architectural environment of the region allowed introducing the concept of *regional ecological Chrono-tope* as a unit reflecting the unity of local space-time and the social

**Table 1.** Types of graffiti

Regions	Graffiti Styles					
	Writing	Bombing	Tagging	Scratching	Street art	3D Graffiti
1.Promyshlennyi	30	0	21	0	9	0
2.Sovetsky	26	0	34	0	0	0
3.Leninsky	35	0	17	0	8	0
4.Oktyabrsky	17	0	36	0	7	0
5.Kirovsky	24	0	36	0	0	0
6.Kuybyshevsky	17	0	43	0	0	0
7.Zheleznodorozhnyi	5	3	45	0	7	0
8.Samarsky	32	0	18	1	9	0
9.Krasnogliinsky	14	0	46	0	0	0
in total	200	3	296	1	40	0
%	37.4	0.56	54.8	0.19	7.41	0

meaning of the architectural environment (Iovlev 2006). In urban space, it is possible to distinguish the level of values and symbols determined by their ontological, axiological and other philosophical and ideological qualities. This allows us to formulate the definition of the ecology of the socio-cultural space of the city as a system of information and communication bases of social activity, embodied in a variety of symbolic products of socio-cultural practice, localized in certain territorial boundaries.

## MATERIALS AND METHODS

In our study, the photo analysis method is the central research method. The object is a photo of graffiti in the space of the city. The study itself took place in four stages.

At the first stage, we analyzed the map of the city and worked out the routes of graffiti research. In each of the nine districts of the city, we identified the Central streets, which marked the extreme points in the district and the center of the district.

In the second stage, based on criteria identified, we recorded the types of graffiti, graffiti size and their location on city streets. At the same stage, we recorded all the graffiti on film.

In the third stage, we analyzed the types, sizes and location of graffiti from the photos taken.

The fourth and final stage of the study was the systematization and description of the data obtained. As a result, the data were structured and represent an analysis of graffiti, which have a special impact on the ecology of the city space.

In the course of our research, we recorded 540 graffiti in the city. Socio psychological analysis allowed identifying the types of graffiti:

By the type of graffiti, selected by us (6 main styles);

The size of the graffiti (large, medium, small);

By location on the streets of the city (on the outskirts of the district, in the geographical center of the district).

In the analysis of graffiti based on the studied material, we have identified six main styles that are most famous and popular in the course of graffiti now: Writing, Bombing, Tagging, Scratching, Street art, and 3D graffiti.

## RESULTS

To ease the analysis, a table was compiled that showed the number and percentage of graffiti by type. (See Table 1).

The dominant graffiti style in the metropolis is Tagging (54.8%). Given the number of tags we looked at in the city, it can be concluded that doing tags is much easier than doing the whole job. They are something like training the hand of a young graffiti artist, as they develop skills on this style. A tag is the name and signature of a graffiti artist or team of graffiti artists, which may indicate that the tag serves as a means of communication among graffiti authors. We have identified several tags of the same team. With Tags you can mark your territory in the city. Tags are rarely placed alone, mostly small Tags are observed. The size of tags varies from small (72.4%) to large (1%). Medium-sized tags (26.6%) are quite rare, less often, we can find large-sized tags. It is also worth noting that the small size tags either were mostly located on a large work of the artist, or surrounded by tags of the same small size, and less often of medium size. The study found that the preferred location was the Central parts of the district (42.5%). Slightly less tags were on the outskirts of the street (31.2% at the beginning of the route) and (26.3% at the end of the route).

In the course of our study, only one example of small-sized scratching was identified in the middle of our route in the Leninsky district of the city, since the route of the study took place next to a stop made of transparent material. It is worth noting that this was not the only stop on our route, but other stops were made of opaque material or remained clean. The third type of graffiti, which is less popular, is Bombing (0.56%). For Bombing it is not important to possess the quality in carrying out the drawing and its content, it is important to possess speed of its enforcement, so for moreover, to fulfill it authors choose the most simple in execution style - Writing. Because of the inaccessibility and specificity of places of execution the graffiti of this type are much smaller than the rest. Bombing is predominantly large (67%), less often it can be found of medium-sized (33%). We did not find any small-sized Bombings on the streets of the city (0%). This style is also associated with danger and injury, as it is most often found on the roofs of

houses, subway cars and trains, advertising banners, high-rises and other dangerous places for drawing. Scratching (0.19%) and Bombing (0.56%) are essentially unique styles precisely because of their specific locations. Both of these styles have no artistic value, as the main criterion for the performance of works in this style is time. The quality of work is not at the highest level. It turned out that the majority of writing style graffiti was of medium size (66%). While graffiti of this style in a large was 19.5%, and small 14.5%. Analyzing the style of writing it is safe to say that it is almost as popular (37.4%) as Tagging (54.8%). It is impossible to say for sure whether this style has any artistic value. Most likely, this style is an integral urban accessory of the city and in most cases violates the ecology of urban space. It turned out that the preferred size for graffiti in the style of Writing is medium (66%), while small (14.5%) and large (19.5%) size are significantly inferior to it. Most graffiti in the style of Street Art are large (47.5%) and medium (40%) size. Less often graffiti artists resort to small (12.5%) size.

## DISCUSSIONS

Unfortunately, graffiti in the city is still an act of vandalism rather than an object of art. We distinguish six main styles of graffiti: Writing, Bombing, Tagging, Scratching, Street art, and 3D graffiti. By size, we divide graffiti into large, medium, small. According to the location on the streets of the city, we consider graffiti: on the outskirts of the district, in the geographical center of the district.

According to the data obtained because of quantitative analysis, graffiti has a negative rather than positive effect on the ecology of the socio-cultural space of the city. This trend was revealed because of the fact that the city lacks not only specialists in the field of 3D and Street art graffiti, but also places that could provide artists to legally reproduce their ideas and goals. Because of the lack of such places, we can clearly see that Street art is predominantly located on the outskirts of neighborhoods, while we have not observed at all 3D graffiti on the streets of the studied metropolis. We can conclude that by drawing simpler styles, the graffiti artist simply saves time and trains the skill, without thinking at all about how this drawing will look in the General space of the city and how it will affect the ecology of the urban space. This is particularly evident in the drawing of medium and small size of the graffiti (the most convenient size of the depiction of the figure). Of course, the abundance of bad works in the style of Tagging, Writing, Bombing and Scratching does not mean that all works in these styles are such. We found examples of quite decent, bright and fascinating works in the style of Writing; sometimes these works were even mixed with Street Art, which put this style above the rest. Still, no

matter how colorful are the works in this style, the society is clearly not ready to perceive them as an object of art.

Western graffiti artists have long begun to gentrify their neighborhoods with graffiti. In Russia, graffiti is entering a new era of its development. Practice shows that the ecology of the city space is ready to take in all the beauty, calling it an art object, but is not yet ready to abandon the term vandalism. This contradiction shakes the fragile balance among the urban population, which is also part of the socio-cultural space. The ecology of the socio-cultural space of the city will only benefit from the abundance of beautiful drawings and will create a special creative and free atmosphere in the city, removing the psychological stress from the citizens.

## CONCLUSION

Problems of space ecology include both material and cultural levels. The latter is associated with the natural basis of values based on cultural and historical experience and genetic memory of humanity. Feelings are a deeper form of reflection, manifested in the presence of stable connections between man and environment space.

In the modern world, there are global changes in the social and cultural environment. The city as a special organization of space, as a special society uniting various communities and subcultures, as well as as the center of political, administrative and economic life becomes the place of concentration of socio-cultural transformations and the exponent of this process. The city has always been and remains one of the strongest and most complete embodiments of culture.

The modern world is filled with visual images. This is especially true of life in an urban environment. Constant stress and a fast lifestyle leads to the fact that a person cannot find time for Hobbies. For residents of the city in our time it is very important to develop not only their professional abilities, but also to express themselves in creativity. Creativity is an activity that generates new values, ideas, the person him/herself as a Creator. Creativity can be considered not only as a process of creating something new, but also as a process that occurs in the interaction of personality (or the inner world of a person) and reality. In this case, changes occur not only in reality, but also in the personality. Graffiti refers to artistic creativity. The main purpose of graffiti, as in other and any other artistic process, is to create new emotions. These emotions are encapsulated in the visual images produced by Writer. Emotions also create their own world, their own space, which flows into the General socio-cultural space of the city. Violation of the ecology of perception, spatial pollution can be manifested in the chaotic filling of graffiti of facades, buildings, and the presence of temporary unauthorized objects that form the scrap space.

History of graffiti development shows evidently, how from unsightly Doodle the bright drawings emerge. Graffiti in the socio-cultural space of the city is in constant development. Moreover, the future of graffiti in it remains unclear. Therefore, the study of this problem does not lose its relevance.

The development of the ecological approach in science will contribute to a new understanding of the processes of mental reflection: the interpretation of visual perception as immediate, phenomenological and dynamic.

## REFERENCES

- Alisov DA (1997) Urbanization and culture. Urban culture of Siberia: history and modernity. Omsk.
- Alisov EA, Cherdymova EI, Trubina GF, Yakushev AN, Zhdanov SP, Popova OV, Kobzar-Frolova MN (2018) Study of Dominant Type of Student Ecological Focus. *Ekoloji*, 27(106): 357-362.
- Ananyev BG (2001) Man as an object of knowledge. St.Petersburg: Peter publishing house.
- Atabekova AA, Stepanova VV, Udina NN, Gorbatenko OG, Shoustikova TV (2017) Interpreting in the context of refugee migration: Emerging professional challenges and needs. *XLinguae* 10(4): 184-195
- Baibarin AA, Mashkin NA, Shelengovskiy PG (2016) The northwest Caucasus from ancient times to the 19th century: a historiographical review of the recent publications in the periodicals. *Rusin*, 46(4): 119-140.
- Bourdieu P (1993) Sociology of politics. Moscow: Socio-Logos publishing house.
- Bubnova IS, Khvatova MA, Chernik VE, Popova OV, Prokopyev AI, Naumov PYu, Babarykin OV (2018) Research of professional activity features of ecologist at carrying out public ecological examination. *Ekoloji*, 106: 999-1006, Article No: e106183.
- Cherdymova EI, Afanasjeva SA, Parkhomenko AG, Ponyavina MB, Yulova ES, Nesmeianova IA, Skutelnik OA (2018) Student ecological consciousness as determining component of ecological-oriented activity. *EurAsian Journal of BioSciences Eurasia J Biosci*, 12: 167-174
- Cherdymova EI, Prokopyev AI, Karpenkova NV, Pravkin SA, Ponomareva NS, Kanyaeva OM, Ryazapova LZ, Anufriev AF (2019) EcoArt Therapy as a Factor of Students' Environmental Consciousness Development. *Ekoloji*, 28(107): 687-693
- Cornilov GA, Ilkevich KB, Shalomova EV, Kartushina IG, Musharatsky ML, Mashkin NA, Altukhov SA (2019) Features of alcohol consumption motives and practices by full-time and part-time training students. *Journal of Environmental Treatment Techniques*, 7(3): 438-444.
- Cornilov GA, Ilkevich KB, Shalomova EV, Kartushina IG, Musharatsky ML, Mashkin NA, Altukhov SA (2019) Features of alcohol consumption motives and practices by full-time and part-time training students. *Journal of Environmental Treatment Techniques*, 7(3): 438-444.
- Filin VA (2006) Video Ecology. What is good for eye and what is bad. Moscow: Videoecology publishing house.
- Firsova I, Vasbieva D, Prokopyev AI, Zykin ES, Matvienko VV (2018) Development of consumers' behavior business model on energy market. *International Journal of Energy Economics and Policy*, 8(4): 227-233.
- Gorbunov MA, Fadeeva AV, Shirshikov VB, Matveev PA, Popova OV, Mitrofanova MYu, Bakaeva JYu, Mashkin NA (2019) Nature protection potential of wildlife sanctuary: Protection and preservation of its ecological biodiversity. *Ekoloji*, 107: 5033-5037, Article No: e107576.
- Iovlev VI (1996) Ecopsychology for architects: process and form student book. Ekaterinburg: Architecton publishing house.
- Iovlev VI (2006) Architectural space and ecology. Ekaterinburg: Architecton publishing house.
- Kazakova GM (2007) Regional and provincial cultures: on essential characteristics. *Bulletin of Moscow state University of culture and arts*, 3: 112.
- Kurguzov VL (2002) on the concept of cultural space and the problem of self-identification of its regional sample. Cultural space of Eastern Siberia and Mongolia. Proceedings of the international. Science-practical conference. Ulan-Ude, pp. 27.
- Kuznetsova AG (2019) Meet: visual ecology. URL: <http://www.archjournal.ru/rus/07%2048%202-008/znakomtes.htm>. Date of access: 10.12.2019
- Kuznetsova NV, Soloviev AA, Botasheva LKh, Lebedev IA, Sarkisyan KS, Kurdyumov VI, Chistyakov KA, Prokopyev AI (2018) Bachelors safety culture formation in the field of environmental protection. *EurAsian Journal of BioSciences*, 12(2): 157-166.

- Máhrík T, Kralík R, Tavilla I (2018) Ethics in the light of subjectivity –Kierkegaard and Levinas. Astra Salvensis, Supplement 2: Proceedings of the - IV International Forum on Teacher EducationII, 22-24 May 2018, pp. 488-500.
- Mikulina EM (2013) Architectural ecology. Moscow: Academia.
- Mukhametshin RZ, Kryukova NI, Beloborodova AV, Grinenko AV & Popova OV (2019) Implementation of efficient energy policy in Russia: Energy consumption monitoring and problem analysis. *International Journal of Energy Economics and Policy*, 9(4): 224-232.
- Murzina IL (2006) Ural Culture: essays on the formation and development of regional culture. Student book for high schools. Ekaterinburg: Forum-kniga.
- Mutavchi EP, Prokopyev AI, Kostyleva GV, Blinov LV, Fedorov VV, Polichka AE (2018). Scientific - methodical resource of student training and vocational motivation development in university. *Espacios*, 39(20): 15.
- Podymov NA, Nikoghosyan MA, Stolyarova AN, Narutto SV, Mashkin NA, Martynenko SE, Paznikova ZI, Varenik PK (2019) University New Educational Reality in Disruptive Technologies Context. *Journal of Environmental Treatment Techniques*, 7(4): 664-668.
- Pyatkova NL (1997) Space in primitive culture: author's review: PhD Thesis. Chelyabinsk.
- Rubinstein SL (2005) Fundamentals of General psychology. St.Petersburg: Publishing house.
- Runge VF, Manusevich YuP (2005) Ergonomics in environment design. Moscow: Architecture-s publishing house.
- Ryabchenko ON, Prokopyev AI, Romanchenko LN, Korzhuev AV, Krokhina JA (2018) Social and philosophical understanding of national and civic identity in the context of interethnic and interreligious conflict risks. *XLinguae*, 11(2): 359-369.
- Saurbaeva AM (2013) Visual ecology as a factor in the development of harmonious architecture. VIII international scientific conference of students and young scientists "Science and education-2013". Moscow, pp. 152.
- Sorokin P (1992) Man, civilization, society. Moscow: Politizdat publishing house.
- Sorokoumova EA, Cherdymova EI, Rezvantseva MO, Kochneva LV, Latysheva VV, Perkova EP (2019) Environmental and Social Practices of Old Stuff Use and Disposal by Students. *Ekoloji*, 28(107): 5065-5069
- Tsabolova OR, Cherdymova EI, Ilyin AN, Zhukova MA, Tsopanova IG, Krasnova LN, Mashkin NA, Bugaeva TK (2019) Ecology of psycho-emotional climate in labor collectives: Factors, problems and prospects of development. *EurAsian Journal of BioSciences Eurasia J Biosci*, 13: 2027-2032.
- Vityuk EYu (2017) Ecological approach in urban futurology. *Architecton*, 2(2): 154-165. URL: [http://archvuz.ru/2017\\_2/2](http://archvuz.ru/2017_2/2). Date of access: 01.12.2019.
- Voloboev AN (2009) Theoretical approaches to the study of graphic images in the adolescent-youth environment. *Bulletin of University. (State University of management)*, 6: 25-27.
- Vorontsova ON (2019) Visual ecology. Psychology of perception of architecture, design and environment. Retrieved from [http://elib.osu.ru/bitstream/123456789/2461/1/elibrary\\_28976962\\_54-260842.pdf](http://elib.osu.ru/bitstream/123456789/2461/1/elibrary_28976962_54-260842.pdf)
- Yanushkina YuV (2014) Visual-kinesthetic ecology of public spaces of the modern city. *Bulletin of Volgograd state University*, 3(23): 71-76.