

# AN INTEGRATED APPROACH TO THE ORGANIZATION OF KINDERGARTENS TERRITORY

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## ABSTRACT

The necessity of considering various factors in the process of improvement of the territory of preschool institutions (PI) is considered. There is an urgent need for an integrated approach, associated with the great importance of healthy and proper education of the growing generation. By authors it is established that the landscape organization of the territory of preschool institutions with a set of planning elements, subordinates to the general plan, despite the obvious appeal, can meet serious obstacles in the form of need of zoning of the site for groups of children of different age. Laying of the “an ecological track” playing an important role in the system of accumulation by each child of personal experience of the correct interaction with the nature can be the decision. By authors it is also shown that the correct planning of the territory of preschool institutions is impossible without competent solution of questions of gardening. It is one of the major moments in all a complex of actions for creation of the comfortable environment.

## KEYWORDS

Preschool, Defensible Space, CPTED, Landscape Gardening, Ecological Pathway.

## 1. INTRODUCTION

The territory of preschool institutions (PI) - a huge component in the lives of most children. According to NAEYC, more than 5 million people under the age of five attend nurseries in the United States (Herrington & Studtmann, 1998), and staying in kindergarten is mandatory. In Russia, according to estimates by Forbes Russia (Rogacheva, 2012), there are more than 58 000 PI (data 2012); according to (The Ministry of labour of the Russian Federation, 2017), the number of pupils in organizations engaged in programs of preschool education, supervision and care of children rose increased from 2014 to 2016 by 7.8% (table), over the last 2 years (2016-2017) 788 thousand additional seats were created.

**Table 1.** Number of pupils in the organizations performing educational activity on educational programs of preschool education, supervision and care of children.

	2014	2015	2016
The number of pupils in organizations engaged in educational activities on educational programs	6 813,6	7151,6	7342,9
among them: in cities and towns	5 415,6	5693,8	5856,3
in rural areas	1 398,0	1 457,7	1486,6

**Source:** (Rogacheva, 2012).

We analyzed similar indicators in the Republic of Tatarstan; noted that only for the period from 2015 to 2016 the growth of the number of pupils was 2.7% (211 757 and 217 384 people respectively), and in a large city, which is Kazan, the increase is even greater (the number of children attending preschool increased by 12.34% (Cities and districts of the Republic of Tatarstan, statistical collection, 2016).

Such large-scale figures indicate the special relevance of the task of improvement of the territories of the DDU, creating a healthy and comfortable environment necessary for the competent and full education of the younger generation, taking into account the social, emotional, cognitive and physical development of children.

Numerous attempts to introduce modern international approaches to the design of kindergartens in the Russian regions are faced with various obstacles that can be objective, for example, a more severe climate and associated severe restrictions in the plant range during landscaping. Implementation barriers (Shmis *et al.*, 2014), which arise as a result of the discrepancy between domestic and Western regulations, have a huge impact.

It is proved (Li *et al.*, 2012; Dong *et al.*, 2017) that there is an undeniable relationship between the characteristics of the place and the behavior of the child in landscape spaces, and this applies to children attending different types of institutions – public, private DDU, centers or families for child care (Ansari & Winsler, 2016).

At the same time, at present a large number of Russian DDU does not have an environmental space that fully meets modern artistic and aesthetic, ergonomic, functional and other requirements.

The undoubted importance of creating “open, flexible and child-oriented space” (in the terminology of (Shmis *et al.*, 2014)) requires consideration of many different factors – climatic, ecological, economic, social, behavioral, *et al.* We will consider each of them in detail on the example of an average kindergarten in a large city (Kazan, MADOU “the combined kindergarten N.º 316”, “bedroom” area in the city, the size of the occupied land area of 0.99 ha, 245 pupils (Unified state register of legal entities, 2017).

## 2. RESULTS AND DISCUSSION

1. Security issues in difficult conditions of social, natural and environmental disadvantage. At once we will make a reservation that we do not concern various risks, such as possibility of receiving small injuries, stings of insects, food poisoning, sudden emergency situations, undesirable contacts with stray animals, etc., and we focus on other serious problem, namely – possibility of criminal manifestations in relation to children.

The emergence of in 1972 defensible space theory O. Newman (Newman, 1972) marked the creation a new criminological subdiscipline, which has become called by many «Crime Prevention Through Environmental Design» or CPTED (Steventon, 2012; Warwick, 2009). It has evolved from a theoretical explanation of the relationship between the characteristics of physical space and the criminogenic level, and today it is a global strategy to combat crime and fear of it by developing elements of the environment that prevent the criminal events. It assumes that, in order to ensure an adequate level of security, the facility must be “actively protected, controlled and owned”. The last word the authors of (Zen *et al.*, 2014), obviously, interpreted as “having the owner, someone else, not abandoned.”

Protection of kindergartens from criminal attacks is a set of measures, the list of which depends not only on the preferences and wishes of the kindergarten management and parents, but is dictated, first, by objective necessity. CPTED defines them as:

- Natural observation, which involves good lighting and visibility of the territory at any time of the day and eliminates the existence of physical environment deficiencies in the form of abandoned areas, “blind” zones, including video equipment. Such closed locations primarily attract possible criminal elements; here we can also include visual control of the street from the windows (the concept of “eyes upon the street” (Jacobs, 1961))
- Proper maintenance and care of the territory. Well-maintained, well-groomed, comfortable spaces not only attract regular, “authorized” (Zen *et al.*, 2014) users, but also repel others, in full accordance with the “theory of broken windows” Wilson-Kelling (Wilson & Kelling, 1982) and the policy of zero tolerance for any manifestations of deviant behavior (Krayushkina & Shagabutdinov, 2011)
- Strengthening of the territory and organization of access control, i.e. implementation the principle of “locked gates”. Reliable fencing will prevent, on the one hand, unauthorized entry into the territory of

unauthorized persons through uncontrolled entrances, breaks, manholes, looseness in the fences, and on the other - the escape of children or, alternatively, just running out to the next roadway. Let's refer here the creation of passive access control points with the help of spatial design, which directs people along certain paths, thereby limiting their movement through the territory (Zen *et al.*, 2014). Easily perceived boundaries create a sense of security, "territoriality" (Newman, 1972; Lynch, 2013), i.e. form mechanisms that make space safe in the minds of its inhabitants (Warwick, 2009).

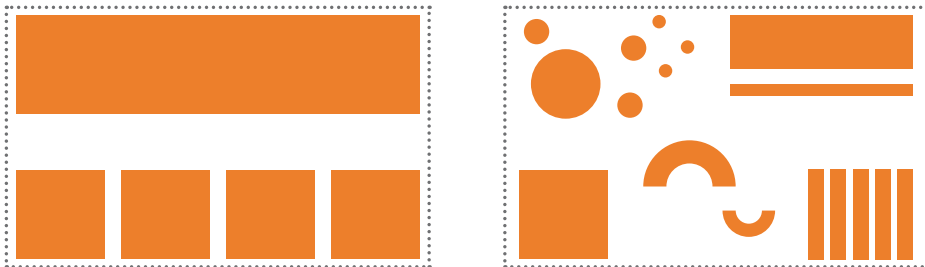
D. Jacobs (Jacobs, 1961) considers the clear demarcation of public and private spaces (in our case, this is the territory of the remote control and the adjacent zone), as well as the increase in pedestrian activity in the adjacent territory to be indispensable conditions for creating a safe environment. In this respect, the situation in this kindergarten is very favorable, as the kindergarten has a secure fence with access control system, is surrounded by high-rise residential buildings, and porches, and the pedestrian traffic is very significant.

Of course, such organization of the protected space system, which implements the concept of situational crime prevention (Krayushkina & Shagabutdinov, 2011), does not in any way exclude traditional methods of emergency prevention and response (physical protection, panic buttons, emergency call channels a.o.).

2. A huge amount of work is devoted to the organization of the territory, site planning, creating a comfortable gaming and learning environment. Thus, the review (Dong *et al.*, 2017) presents a synthesis of 30 studies from 1985 to 2010 on the interaction of children with the "open environment". The findings suggest that the landscape features affect the physical activity of children. Providing children with the opportunity to learn natural and anthropogenic elements in their environment, despite the possibility of accidental injuries, contributes to the development of cognitive, physical and social skills.

The debate on the need for outdoor play has been largely driven by a range of phenomena that impede children's play experience in the external environment: rapid urbanization, increased traffic, poorly planned urban environments and pollution, and many other factors, as well as the pressure of educational and play technologies in the indoor environment and lack of awareness of the importance of outdoor play for the development and well-being of children, the formation of motor and cognitive skills, interpersonal attitudes and emotions.

Issues related to the activities of PI in the Russian Federation are regulated by the state educational standard of preschool education (Aziz & Said, 2012), the content of which affects, including the layout of the site. Design and comfortable conditions of stay of preschool children in kindergarten are closely connected with the correct organization of its territory. The authors (Shmis *et al.*, 2014) note the current trend, the meaning of which is to replace the traditional (institutional) planning scheme on a fundamentally different, the location of the elements of which is subordinated to the idea of the educational landscape (Herrington & Studtmann, 1998; Shmis *et al.*, 2014).



**Figure 1.** The transition from institutional typology (left) to the typology of educational landscape (right). **Source:** (Shmis *et al.*, 2014).

It should be noted that the landscape organization of the territory of the PI with a set of planning elements subordinated to the general idea, despite its obvious attractiveness, can meet serious obstacles in the form of the need for zoning the site for groups of children of different ages. The solution may be the laying of an “ecological pathway”, which plays an important role in the system of accumulation of each child's personal experience of correct interaction

with nature. The ecological trail is designed to use walks to communicate with children with their immediate environment, broaden their horizons and improve their health in the fresh air. It promotes environmental education of preschool children, causes a sense of closeness to nature, empathy for all living things, care and respect for the world. Walks along the ecological path develop children's observation and creative activity through games, research, observation, theatrical activities and other activities.

3. Proper planning of the PI territory is impossible without a competent solution of **gardening** issues. This is one of the most important moments in the whole complex of measures to create a comfortable environment.

The concept of preschool education in nature is not new. Since the first half of the 50-ies of XX century, when Ella Flatau founded the first forest kindergarten in Denmark, the idea begins to spread very quickly and today such institutions are quite common in England, Scotland, USA, Japan, Switzerland, Finland, Norway, Latvia *et al.* (Hafner, 2002; Robertson, 2008; Miklitz, 2011; Knight, 2013).

However, in the cities we have to be content with trivial landscaping of the territory of the DDU in compliance with certain standards, and if in the 70s of the twentieth century the share of the landscaped area of the PI had to be "as a rule, not less than 50% of the area of the site", the current decree allows "in the cities in the conditions of the current dense urban development ... reduction of landscaping to 20% of the area free from development". Thus, we observe a clear and very alarming trend towards a reduction in the area of green areas in the territories of the PI, when the green zone is reduced to 5-10%, and in this regard, it becomes clear concern about the general condition of landings, their quantitative and qualitative characteristics.

On the example of the selected PI, the taxation of plantations was carried out, which showed the good condition of most plants (healthy specimens predominate, having no external signs of damage to the crown and trunk, dead and dying branches). At the same time, it was noted that the trees on the territory grow



randomly, there is no continuous system of landscaping, and a significant age of the object (more than 30 years) will require soon rejuvenating and recreational activities.

The biodiversity of landings in modern Russian PI is small, and in fact it is the main factor in improving natural habitats, serves to achieve environmental goals: improving the quality of the urban landscape and ensuring a more sustainable and comfortable environment. Plants should be varied in height, leaf color, flowering time, fruit and seed ripening. This selection of trees and shrubs ensures the formation of children's ideas about the diversity of the floral world, develops aesthetic perception. Poor landing sheet leads to the fact that in the game space is not fully implemented subject development environment for children, suffers from the aesthetic side of the created landscape compositions, the child does not receive information about all the richness of the surrounding nature. The meager range of plants not only steals the child emotionally, but also serves as a prerequisite for the possible simultaneous attack of green spaces by age, as well as the spread of diseases throughout the territory.

When selecting plants for landscaping, it is necessary to consider not only their appearance, which determines the artistic value of the created compositions, but also those numerous inherent qualities that have a direct effect on the physiological processes of the human body and constitute the therapeutic value of the natural landscape. Sanitizing properties of plants are determined in the first place, phytoncidity, i.e. the ability to produce and secrete antimicrobial volatile substances, possessing bactericidal action. The plant environment creates a favorable microclimate, reduces dust, gas pollution and noise. The specific nature of the object imposes serious limitations the composition of the used plants, namely, a strict ban on the use of poisonous, prickly and fruiting plants, species that can cause allergy symptoms in the flowering period, plants and foliage which can be cut etc. Not to forget about the orientation of the windows of the group rooms and verandahs and to prevent excessive shading.

The concept of landscaping was based on two main principles.

The first is the creation of compositions of Continuous decorative” using a bright palette of plants - from the early flowering forsythia europaea to the late autumn maples of the Tatar *Acer tataricum* and the riverine *Acer ginnala*.

The second, usually used in the creation of rock gardens and generally rocky gardens-the principle of minimum care, in which, if possible, reduced all agricultural activities: weeding, feeding, pruning, etc.

Considering the above – mentioned restrictions, the plant range was selected for the maximum implementation of all functions of properly organized landscaping-environmental, protective, decorative, and, finally, educational.

### 3. SUMMARY

1. There is an indisputable interrelation between characteristics of the place and behavior of the child in landscape spaces.
2. The tendency to reduction of the area of the planted trees and shrubs sites in territories of preschool institutions when the green zone is reduced to 5-10% is revealed.
3. It is defined that the landscape organization of territories of preschool institutions can meet serious obstacles in the form of need of zoning of the site for groups of children of different age.
4. It is established that the biodiversity of landings in modern Russian preschool institutions is small, and it serves achievement of the ecological purposes.

### 4. CONCLUSIONS

The problems concerning the improvement of preschool institutions in the conditions of modern Russia are considered. The emphasis is placed on the need for an integrated approach, including the safety of kindergartens, their planning, landscape gardening, biodiversity conservation of green areas.

## 5. ACKNOWLEDGMENTS

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