

## THE USE OF NATURAL MATERIALS IN THE DESIGN OF URBAN PLAYGROUNDS: A SUSTAINABLE APPROACH IMPORTANT FOR THE COMMUNITY

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### Abstract

*Play is essential for the harmonious development of children. Playing outdoors brings with it a multitude of well-known benefits. The presence of playgrounds in the urban environment becomes all the more important as children's connection with the natural environment becomes increasingly precarious. The appearance of standardized play equipment unfortunately omitted the primary need of children to discover the surrounding environment through challenges. The stereotyped design practiced in the arrangement of play spaces reduces the possibilities of developing a child's personality and expressing his creativity. The present study aims to address the importance of designing play spaces with a natural concept that will contribute positively to the cognitive development, creative thinking, flexibility, and adaptability of children to various situations. The paper proposes solutions for their correct utilization by providing them with equipment made of carefully selected natural materials and integrated in an appropriate compositional environment. The final goal is to develop some good practice models that can later be implemented in the network of urban spaces intended for children in the city of Iași.*

**Key words:** community, natural materials, urban playgrounds.

### INTRODUCTION

In the field of humanities, such comprehensive and deeply explored themes as life, death, love, war, freedom, or human identity often pose challenges in synthesizing the essence of the researched subject. The same holds true for the concept of "play." The multivalence of the phenomenon arises from the subtlety of how play unfolds, seemingly emerging abruptly at any given moment and dissipating just as swiftly (Henricks, 2008).

Within the play action, a constant interplay of varied behaviors and human connections is observed, making it challenging to establish behavioral patterns with fundamental roles in defining the phenomenon of play.

Throughout historical development, psychologists and educational theorists have tended to determine the nature and value of play, thus giving it a clearly defined role in the structure of human existence (Huizinga, 1955). Swiss psychologist and philosopher Jean Piaget (1962) proposed a distinct concept for the act of play, explaining it as a natural absorption phenomenon characterized by children's effort

to infuse with their surrounding environment their own concepts and behavioral values.

Thus, during the game, children conceive their own plans, apply them in various situations, and experience a feeling of fulfillment at the moment of discovering the effectiveness of these structures.

Through play, the child discovers control and self-direction and builds the necessary skills and confidence to use those skills in various situations (Henricks, 2008).

One of the most significant places with a major impact on the physical and mental development of children is the outdoor playground.

At an overall examination, at an early stage, this aspect can be inadvertently omitted, but following a thorough research, it is noted that urban playgrounds represent a complex element, an essential component of the community (Shackell et al., 2008).

In the specialized literature, the importance of playgrounds and their contribution to the physical and cognitive development of children has been highlighted countless times (Piaget, 1962; Huizinga 1955).

The starting point for the presented study derives from the analysis of the trends of recent years regarding the accelerated evolution of virtual games, which attract the attention of children from an early age, so that they devote a considerable part of their time to the virtual world at the expense of exploring outdoor activities.

In parallel, the analysis of children's playgrounds as a component of the urban territory is particularly relevant due to the accelerated urbanization process. Although, on a daily basis, we witness innovative approaches to the planning and design of urban spaces, looking from an opposite perspective, it can be said that the evolution process of the urban environment sometimes shows such an accelerated speed that the aspect of the need to create a space for development, socialization, and fun for children is omitted. The children's natural play environment thus progressively acquires a segmented aspect, inadequate to the demands of the adjoining spaces.

From the perspective of good practices, it can be seen that most of the playgrounds in the city of Iași do not meet necessary standards, and the lack of clear legislative regulations regarding their arrangement accentuates this situation. (design requirements). The existing equipment is presented as repetitive modules that are constructively similar but lacking in character and uniqueness. The standardization of playgrounds facilitates the emergence of an unproductive environment for the development of children's intellectual abilities.

It is substantial that the spaces where children spend their time are associated with remarkable images and experiences that will facilitate familiarization with various life situations. At the same time, they contribute to the formation of social skills by being a space where groups of children of various ages can meet and communicate. Through play, children assimilate new social and cultural standards, discovering a vast spectrum of inner experiences (Huizinga, 1955).

The value of this study is all the more notable, as it focuses, in a significant proportion, on the importance of natural elements incorporated in the design of play spaces.

Playing in nature is characterized as a process of assimilation in which children make a joint

effort to improve their physical skills and imagination, a fact that leads to a deeper knowledge of the surrounding environment.

The physical facilities of the playground are recommended to be designed in such a way as to allow direct contact with nature in the child's daily routine. Those children who have no contact with the natural environment will fall into the category of individuals who will never perceive human dependence on the world around them (Moore, 2014).

The authenticity of the study consists in the examination of design principles and the design of urban play complexes in the city of Iași, with the ultimate goal of creating outdoor urban spaces where children of any age can socialize through play and develop new skills by interacting with a wide range of natural elements and materials.

## MATERIALS AND METHOD

Three playgrounds were identified and inventoried as the method of study. The respective spaces were selected due to their location in some of the busiest neighbourhoods of the city: Nicolina (Figure 1), Alexandru cel Bun (Figure 2), and Copou (Figure 3).



Figure 1. The playground located in the Nicolina neighborhood, Iași



Figure 2. The playground located in the Alexandru cel Bun neighborhood, Iași



Figure 3. The playground located in the Copou neighborhood, Iași

A considerable difficulty in the design of current spaces for children in Iași is the fact that most of them are intended for children, aged between 2 and 6. Although the rules officially established for the use of these spaces states their use by children between the ages of 2 and 14, in reality, they are aimed at those children who are at an early stage of life and are just beginning to explore their environment. Following the analysis of these spaces, namely the field inventory of the equipment, the dominance of a central static structure made of materials such as metal and plastic, characteristic of most children's playgrounds, was observed. This type of structure fragments the surface intended for the game, thus there is only one area of interest; the adjoining space is not used, resulting in a compositional disagreement.

To propose suitable design solutions, the next step involved examining specialized literature regarding best practices for using natural materials in playground arrangements.

One of the basic roles of the design of these types of spaces is to actively contribute to shaping the child's personality, encouraging him to express his individuality in the social environment. In order to achieve the given goal, it is necessary that the space, through its design and composition, incite action.

To exemplify this concept, a new design is proposed for the playground located in the Alexandru cel Bun neighborhood, one of the busiest areas in Iași. It has a relatively large space but is improperly maintained, practically unusable.

## RESULTS AND DISCUSSIONS

Through the given proposal, the study seeks to support the idea that the use of design tools, which are meant to solve the users' problems, in an educational space, instead of applying standard methods, will contribute to the formation of children's consciousness and their ability to think and solve various problems in the community.

Sculptor Simon Nicholson, in his work in 1971, proposed the idea that materials that can be manipulated and reconstructed create more possibilities for creative involvement than static pieces (Nicholson, 1971).

Handling things, managing possibilities, and taking the risks that come with them teaches children how to act in various situations. This is a core component of the growing process, and play is one of the most significant ways in which they sharpen this essential skill. (Frost & Klein, 1979).

In his theory, Jean Piaget (1962) formulated the idea that, in order to discern the sense and importance of anything, the child must realize it independently, assigning it a new meaning, so that during the process he evolves into a personality capable of creativity, not just repetition (Piaget, 1962).

The inclusion of natural elements in the evolution of children's personalities is a fundamental part of the relationship of future generations with nature. (Wellls & Lekies, 2006)

In order to ensure the success of the given link, it is a priority to find new ways to reintegrate vast natural experiences into the lives of the little ones. Such actions will contribute to strengthening the framework for the development of a generation of energetic and physically healthy children, as well as increasing the affection for nature and the perception of the interdependence between humans and a healthy ecosystem (Chawla, 1998).

Thus, the proposed design wants to encourage spontaneous research activities inside a play space by using natural materials such as stones of various sizes, tree trunks, logs, wood slices, branches, bark, sand, and furniture made of wood.

Sand is one of the most versatile materials because, due to its structure, it can be shaped in



countless ways, providing opportunities for creative and sensory play (Moore, 2014). The sand area can be delimited within the compositional space by logs, to form a spatial boundary and for more suitable maintenance (Figure 4).



Figure 4. Exemplifying the use of sand

Sand areas are spaces where several children of different ages can interact simultaneously. Although sand is one of the main elements that contribute to the development of preschoolers' fine motor skills (Jarret et al., 2010), it also easily attracts children aged 6-12, as it offers a wide range of play opportunities in various social settings. (Frost and Woods, 1998). Other items with high play value are stones (Figure 5) and tree trunks (Figure 6).



Figure 5. Exemplifying the use of stones and boulders



Figure 6. Exemplifying the use of stones and tree trunks

These elements contribute to the development of the sense of touch, offering the chance to analyze the different textures of natural materials and the possibility of acquiring such skills as climbing small obstacles (Figure 7) or swinging on rows of logs (Figure 8).



Figure 7. The use of small obstacles for climbing



Figure 8. The use of rows of logs

A set of stones is a simple technique for creating a natural play structure. The use of locally sourced stones will add an authentic element to the landscape, being not only a cost-efficient source of equipment but also a basic piece for implementing free play and remodeling the ensemble into infinite patterns, depending on the children's imagination.

An interesting play space will have places that encourage exploration and that offer certain surprises without having full visibility from the moment of entering the respective setting. Grass mounds and slopes bring that element of surprise to the landscape while producing the illusion of a more expansive space. These elements with varied slopes are fun for children of a wide age range and can be used in plain form or integrated with fixed structures, which will increase the value of play and social interactions (Figure 9) (Moore, 2014).

They add complexity to the space, allowing the execution of actions such as rolling, dragging,

and sliding, which stimulate the perception of the sensations of movement offered by the human body.



Figure 9. Exemplifying the use of grass mounds and slopes

In terms of vegetation, the use of elements such as trees, shrubs, perennials, and grass accentuates the natural character of the space and facilitates its integration into the natural setting.

Vegetation elements must be perceived as play elements (Table 1), not just decoration, so the design must be dictated by the methods through which the vegetation elements can be integrated into the play and not the other way around (Shackell et al., 2008).

Table 1. Vegetation elements proposed for use in playgrounds

Element name	Play feature
<i>Salix matsudana</i> f. <i>tortuosa</i> (Vilm.) Rehder	Unusual, twisted stems
<i>Salix alba</i> L.	Stems can be used to make different play structures, like huts or tunnels.
<i>Pinus sylvestris</i> L.	Needles and pine cones
<i>Betula pendula</i> Roth	Bark and catkins
<i>Cercidiphyllum japonicum</i> Siebold & Zucc.	Leaves and fragrance
Ornamental grasses	Can be used for sensory play, and the seed heads are play elements.
Perennial plants, examples: <i>Stachys byzantina</i> K.Koch <i>Zinnia elegans</i> L. <i>Tagetes</i> L. <i>Bergenia cordifolia</i> (Haw.) Sternb.	Natural play materials

Plantings can constitute screening, protection, and comfort systems, adding interest to the space through seasonal visual diversity. Vegetation enriches the child's daily life through varied experiences of smell, color, and texture,

and the element of grass is the most versatile material that can be used in a play space.

One of the main aspects of the study is the integration of activities intended for various age groups in playgrounds, an aspect that is lacking in the current urban conditions. One of the reasons that leads to the presence in current playgrounds of only static equipment well anchored in solid surfaces is the fear of playground destruction. This fear may unintentionally represent the starting point for the orientation of playground equipment only towards young users due to not attracting the adolescent age group, which is considered more problematic in society. Consequently, in the city of Iași, there is no urban space intended for teenagers. In such circumstances, it cannot be unexpected that the feeling of not belonging within the community and the manifestation of violent outbursts can lead to vandalism. Taking into account the above, a zone for teenagers was also introduced in the proposed design, characterized by a space for playing basketball and adjacent places for meeting and socializing (Figure 10).



Figure 10. Exemplifying the space intended for teenagers

The proposed design is an attempt to combine several age groups. Although being systematized according to these, the aim of the project was to create a permissive concept regarding which activities and which age categories are or are not allowed in a certain area of the space, allowing users a high degree of flexibility regarding the use of the play space.

## CONCLUSIONS

In a child's development process, play is essential. This research was initiated out of a desire to encourage the creative use of

playground equipment and to emphasize that they are interconnected components in a design proposal and not its main features.

Much of the equipment present in play spaces is designed to be easy to reproduce, but the play opportunities that challenge the child to explore are missing.

The study does not recommend eliminating prefabricated playground equipment but emphasizes the need to change the community's perception of the importance of the materials used in their design.

Thus, the proposed natural elements - wood, sand, logs, and vegetation elements - contribute to increasing the degree of creativity and guiding children towards autonomous behavior, which is carried out without an external goal or reward and is a fundamental tool for sustainable development.

The implementation of this idea at the level of the communities will increase their awareness as well as that of the governing bodies regarding the importance of developing playgrounds for children and equipping them with installations to stimulate curiosity and knowledge of the environment in a healthy way.

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# MISCELLANEOUS



