THE SOCIAL DIMENSIONS OF SPACE
IN SCHOOL ENVIRONMENT

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Abstract. *Children's patterns of behavior in the school environment, conditioned by various levels of individual or group needs, represent the basic modalities of their relationship towards the immediate, both social and physical, environment. This paper studies the connection between the behavior of school children, whose relationships with their given social environment can take various forms, and certain spatial characteristics of elementary schools. The results indicate that there is a need to achieve a balanced relationship between a strictly defined and an open form of the physical environment in order to create conditions in which school children will express their current orientation and attitude toward their immediate social environment through their behavior in that particular physical environment. This includes the organization of a dynamic and shifting environment, spatial planning which needs to enable a greater degree of privacy in certain zones and the organization of spatial flow which enables adequate visual communication between the school children and the flexible structure of the space meant for education.*

Key words: *school children, social behavior, interaction, physical environment, space*

1. INTRODUCTION

Conceptualization of suitable school environments creates the conditions for the development of varied pedagogical methods, as well as the development of the school children which are supposed to result in their significant cognitive and psycho-social achievements. (Tanic et al., 2015)

School physical environments can support positive development. Or, on the opposite side of the spectrum, they can contribute to increased disruptive behaviour, less positive social interaction, and increased stress levels among preschool and elementary school children.

(Ahrentzen, Jue, Skorpanich, & Evans, 1982, Moore, 1986, Maxwell & Chmielewski, 2008, Stankovic, 2008). A special contribution to the criticism of the existing forms of the spatial organization of the environments in which children spend their time was made by Itoh (2001), who studied how children's interactions with the physical environment take place and what they mean in the everyday life at school. He viewed the school as a setting for children's socio-cultural development, and studied how space works in this context. (Tanic et al., 2015)

The significance and role of the environment in the process of elementary education is connected not only to the formal organization of the curriculum, but also to a great extent to the role of the participants in that process during their informal, leisure activities. Some researchers have examined the effects of the benefits of small and private spaces to which children can retreat from action when they feel tired, overwhelmed or unhappy (Lowry, 1993; Moore, Sugiyama & O'Donnell, 2003). Although privacy is related to environmental control, it is also an environmental attribute believed to be related to the competence of young children. There are specific environmental characteristics that directly affect children's abilities to achieve privacy (Maxwell, 2007). The concept of privacy is central to understanding the relationships between the environment and behavior; it provides a key link among the concepts of crowding, territorial behavior, and personal space (Altman, 1975).

2. A STUDY FRAMEWORK

The conditions of the physical environment, within which the determined patterns of behavior form various relationships with the social environment, represent one of the basic frameworks within which we can study the qualitative features of a school's environment.

On the basis of the determined levels of spatial behavior of school children and the various forms of their attitudes to the social environment, connections were established between their psycho-social activities and the school's environment.

Through a projection of the analyzed patterns of school children behavior, specific locations in space have been determined. The studied pair the *behavior of school children – a location in school space* mutually determine one another through their internal relationship. It is precisely the character of these relations that determines the functional range of certain parts of the school space in which they are actually realized.

3. SPECIFIC PATTERNS OF SCHOOL CHILDREN IN THE SCHOOL ENVIRONMENT

The ambient properties of the educational space, thus, could be viewed as a kind of mediating element not only in the different forms of pedagogical activity, but also during the leisure time activities of the school children. In that sense, the implications for the possible contextual changes, especially at the spatial level of the classroom, are also studied from the aspect of the leisure time activities of school children in relation to the architectural characteristics of the immediate environment.

We should certainly not neglect the significance of any of the dimensions of human activities, and should also point out that each activity has is spatial aspects, since every activity contains within itself movement and relations towards various types of space (physical, social and so on). Speaking of the totality of the existential space, K. Norberg-

Šulc (1999) points out that the "orientation of man towards various objects can be cognitive, but also affective. In both cases the aim is the establishment of a single dynamic balance between him and his environment. According to T. Parsons, action consists of construction and procedure, which human beings use to form preplanned intentions, and thus, apply them more or less successfully, to specific situations. Most human activities also contain a spatial aspect, in the sense that objects of orientation are divided based on internal and external relationships, whether they are proximal and distal, separate or united, continuous or intermittent" (Norberg-Šulc, 1999, Nešić et al., 1995, 1998).

According to N. Rot, the spatial characteristics which are manifested in the interaction are often referred to as spatial behavior, or as the anthropologist Hall first referred to them, proxemic communication (Rot, 1978). "As the main forms of spatial behavior, we can distinguish between proximity and distance during interaction with other individuals, one's position in relation to others in contact with them and territoriality or the parts of the space which we consider our own or important for us" (Nešić, 1996).

The levels of spatial behavior of school children can differ, but also, depending on the context in which they occur, they can be specific. Especially in the case of a school's environment, they can be manifested in various ways both in the individual and collective sphere. Thus, the following can be in a certain relationship within/in relation to space:

- an individual,
- an individual vs an individual,
- a group,
- an individual vs a group,
- a group vs a group.

Territoriality is usually defined as behavior, that is, "as one individual in his own way laying claim to a certain space and defending it from other members of his own kind. Territoriality makes up the spatial frame in which things take place – these are the places where one learns, the places where one plays, where he finds safe places to hide and so on. The basis for territoriality is the sharp, acute sense of the limits which mark the distance which has to be maintained between individuals" (Norberg-Šulc, 1999).

Territoriality is the pattern of behavior which stems from the basic human need to control the degree to which one is open/closed towards others (Altman, Chemers, 1980). In the case of a school's physical environment, certain situations in which we recognize territoriality range from the individual to various group forms of the spatial behavior of school children.

The formation of one's own territory in the individual sphere is conditioned by the need for security and the need for identity, and is most often manifested among younger school children. School children take up or build up their personal micro space in the complex of the social environment by using not only fixed (pillars, the space between the pillar and the wall, the parapet, stairs, the railings of the stairwell, the space between two tables, corners, niches, built-in benches, and so on), but also mobile (chairs, benches, shelves, bulletin boards, and so on) elements in their immediate physical environment. This level of the spatial behavior of school children is manifested in particular activities which take place in different places. These can be places to study, safe places to hide, but also places for playing games and the gathering of a smaller number of close school friends. Frost and Holden (2008) found that schoolchildren value adequately resourced spaces at school. In that sense, the mobility of school equipment is of special importance since it allows, if necessary, a greater freedom to use space.

Taking up various parts of the space which they consider their own or important, in certain situations school children, in their own way, establish a suitable distance in relation to other school children or groups of school children. The specific nature of this pattern is that the school children, distancing themselves from their classrooms as the center of all their activities, most often choose a place which enables visual contact with the classroom. At a certain distance from the class, school children establish a certain level of privacy, at the same time maintaining a visual connection with it, and a sense of belonging to that group. The patterns of behavior in which the maintenance of distance-contact is dominant represent the balance between privacy and the sense of belonging to a group (Itoh, 2001).

The question of physical proximity among individuals is a somewhat complementary question of their distribution in space. Especially in the case of group work, immediate interaction occurs among those individuals who sit one across from the other and one next to the other. For example, among younger school children, "sitting one next to the other or at the same table makes a greater contribution to the occurrence of an emotional and interactional connection than many other features, whether personal or situational" (Havelka, 1980).

Spatial proximity represents a significant precondition for a more comprehensive and intense interaction among individuals. "People who during their independent movement through a common space find themselves in the vicinity of others, have a greater chance of participating in various forms of conventional interpersonal interaction" (Havelka, 1980).

Influencing the relations between individuals (individual – individual, individual – group and group – group), the distribution of certain physical elements in space can in a variety of ways contribute to the manifestation and maintenance of interaction. The physically differentiated parts of space, either horizontally and/or vertically, can especially be a significant factor which, contributing to a more active relationship of school children towards the environment, inspires the occurrence of interaction between school children, leading them into a certain spatial structure.
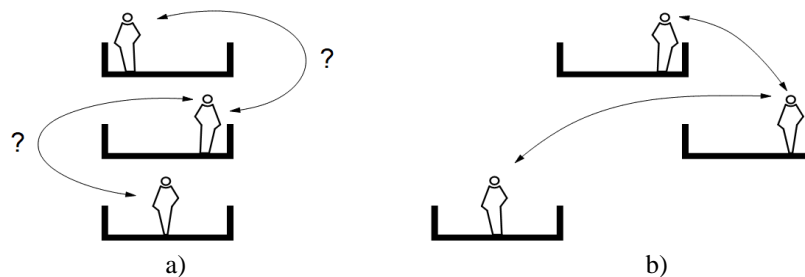

Fig. 1 The levels of interaction by H. Hertzberger (2009) – Montessori College Oost in Amsterdam, NL, 1999.
   a) The physical environment that prevents the occurrence of interaction among individuals.
   b) The physical environment that encourages the occurrence of interaction among individuals

High interaction values of the physical environment can be achieved through the preplanned organization of mobile elements such as furniture and equipment, in a suitable relationship to the fixed framework of the environment. The deliberate change in a certain part of the structure of the physical environment is characteristic of a pedagogical-

psychological situation in which, through the mediation of the physical environment, we transfer a message to the school children regarding future activities and social forms of work. This indicates the importance of the organizational role of the teacher from the viewpoint of the formation of encouraging physical conditions which might contribute to the interactional enrichment of the educational situation.

Higher levels of territorial behavior are based on group identity. On such occasions, the patterns of behavior usually represent a social organization into groups based on class-membership at a certain spatial level. Certain specific patterns of behavior which are especially pronounced in the educational environments are established in the so-called inter-class interactions. Certain areas in the common space of the school are mostly used by school children from the same class. Especially during leisure time activities, school children usually remain within their own classrooms or in their shared space, which is usually the territory in front of their classrooms. According to Itoh (2001), the boundaries of these territories are determined by the space where the interaction between school children belonging to various classes takes place (inter-class interaction). Some of the parts of the school space which are used by school children as their territory include the doorways of their classrooms, the railings of the stairwell, the gallery or leveled units in space. The inter-class interaction includes verbal and visual communication, and the events that occur between members of various classes are at a certain distance from or on the border/threshold between them.

a)   b)
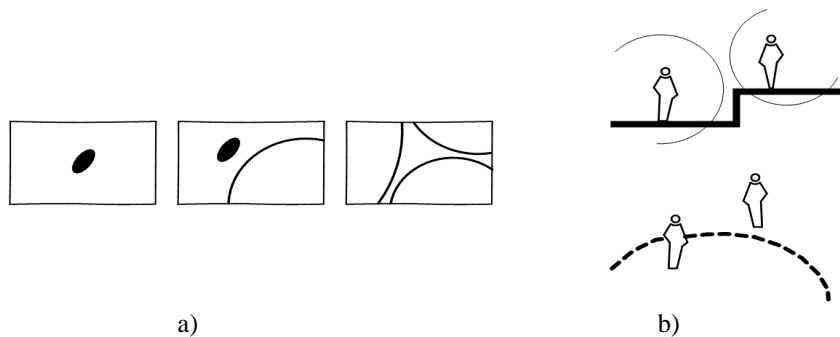
Fig. 2 The structure of behavior in space by S. Itoh (2001)
    a) An individual, an individual vs. a group, a group vs. a group structure
    b) The physical distinction between space and space differentiation of the behavior

Certain studies on group interaction indicate the fact that inter-class interaction occurs at the borders of what the school children might consider their semi-private space, and that this pattern of behavior is applicable only in the case when the school children have recognized this territoriality. Territorial behavior is not realized in the physically differentiated parts of the space, but on the basis of the mutual identification of school children from different classes and their behavior (Itoh, 2001; Minami & Yoshida, 1993). We could say that the differences in the space based on behavior could represent the result of the daily actions of the school children which are aimed at creating a dynamic balance between them and the environment.

4. The effects of the Spatial Characteristics of Schools and the Behavior of School Children

On the basis of the established connections between the psycho-social processes and school space, as the designed and constructed physical environment in which the school children spend their time, the possible ways in which the school children could use the school space was evaluated, and within these situations, the influences of individual spatial characteristics of the school on the behavior of school children and some of their activities. By analyzing the psychological needs of a child, in terms of the space it spends time in, certain groups of needs have been differentiated, which include the child's safety and its being superior to the space, then a group which refers to the child's needs for various devices within this space, the possibility of encouraging a child, and reconstructing the space, as well as the group of needs for a child's identity and privacy in the space (Stanković & Stojić, 2007).

The school children's choice on how to use the available school space can be different, and is conditioned primarily through the individual or group affinities of the school children. On the one hand, there is the possible situation in which, among certain school children, there exists a need for separation and self-isolation, while on the other, we can recognize the need for belonging and a more pronounced participation within smaller or larger groups of school children.

In the situations where several school children take up certain parts of the space, it is possible to note that the social relationships between these school children are transferred into the category of clearly determined spatial relations. Spatial relations, thus, determine the social relations and the behavior of individuals, including their status and position in a group.

The spatial models indicate the possibility of a concentration of a large number of different activities of school children in individual functional domains. However, the internal organization of each functional domain in the school's environment should offer an entire range of intermediary forms for the realization of the studied relationships in the individual and collective sphere.

By systematizing the potential places within which certain activities of school children are realized, it can be concluded that the patterns of behavior of the school children are closely related to the factors of the architectural solutions, such as the function of certain parts of the school's environment, structure, form and space volumetry, then to the distribution of certain mobile elements in space, as well as to the symbolic meanings which are attributed to the space during its use.

5. Concluding Remarks

The possible patterns of social behavior of children at various levels of their interrelationships clearly determine the domain of the physical environment. In the educational process, the social behavior of the school children and their relationship towards the physical environment are conditioned primarily through the organizational role of the teacher and thus the applied pedagogical methods. However, during leisure, extracurricular activities, which also represent an important part of the pedagogical process, there is the possibility of expressing considerably more flexible patterns of the behavior of school children.

Indication of the need for security and the need for identity, territorial behavior in the individual sphere of the school children is the way in which one asserts his place in the complex of the physical environment, as well as his position in regard to others who are in contact with him. Most of the manifestations of the forms of interaction take place in the boundary areas, between partially physically separate spatial wholes or between spaces separated by the various behavior of school children. Special importance, in this context, is ascribed to the physical differentiation of space, horizontally or vertically, since it greatly contributes to the occurrence of social interaction. All this is important for a more complete articulation of the awareness of oneself as an individual who is socially involved and acts so as to establish a relationship with other individuals.

Even in the case of school space, the opinion of the renowned Dutch architect Aldo van Eyck can be corroborated, in that "every space is multi-suggestive" (Norberg-Šulc, 1999). By conditioning the way in which school space is used, the factors of the architectural solution influence the relationships between the individual and the group, at the optimal levels of verbal and visual communication. And while, on the one hand, there is a need for space which enables a greater degree of privacy in certain zones, on the other hand, priority is assigned to the organization of space which can provide adequate visual communication. Thus, the structure, shape and volumetry of the classroom and its immediate physical environment must create the conditions for the school children to use their spatial behavior to indicate their current orientation and attitudes towards their immediate social environment.

The different levels of school children's perception of the school space, which in part depend on the habits they formed in their family life, indicate the achievement of a sort of balanced relationship between a strictly defined and open form of the physical environment, the relationship which would be in the function of various formal and informal social relations, the satisfaction of various needs, specific patterns of behavior and the activities of the school children. Unlike traditional architectural models of elementary schools, the goal now is towards the establishment of a single dynamic and variable environment, with harmoniously defined, non restricted boundaries and relations in space, which would offer the school children a choice, whether in terms of pedagogical activities or some other forms of their engagement.

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UTICAJ PEDAGOŠKIH KONCEPCIJA SOCIJALNE SREDINE NA ORGANIZACIJU FIZIČKE SREDINE

Obrasci ponašanja dece u školskoj sredni, uslovljeni različitim nivoima individualnih ili grupnih potreba, predstavljaju osnovne modalitete njihovog odnosa prema neposrednom, kako socijalnom tako i fizičkom okruženju. U radu je istražena povezanost ponašanja učenika, u različito formiranim odnosima sa datom socijalnom sredinom, i pojedinih prostornih karakteristika osnovne škole. U funkciji stvaranja uslova u kojima će učenici svojim prostornim ponašanjem iskazati svoju trenutnu orijentaciju i opredeljenje prema neposrednom socijalnom okruženju, rezultati ukazuju na neophodnost postizanja uravnoteženog odnosa između strogo definisane i otvorene forme fizičke sredine. To podrazumeva organizaciju dinamične i promenljive sredine, planiranje prostora koji treba da omogući veći stepen privatnosti u pojedinim zonama i organizaciju prostornog toka koji obezbeđuje adekvatnu vizuelnu komunikaciju između učenika i fleksibilnu strukturu prostora za nastavu.

Ključne reči: *učenici, socijalno ponašanje, interakcija, fizička sredina, prostor*