

## SPATIAL DISPOSITION OF SOCIAL FACILITIES IN THE PRIMARY SCHOOL ORGANIZATION

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**Abstract.** *As a consequence of expanding functions of primary schools, the manifestation of social facilities represent an indispensable part of the spatial framework of contemporary pedagogical process with a specially pronounced social component. Irrespective of the size of the school, high level of usability and connectedness of all areas which are often consequentially multifunctional in character, represents one of the basic ways for overcoming of rigid spatial-functional volumes characteristic for architectonic design of traditional schools.*

*In the paper, an analysis of three possible dispositions of social functions was done – of central, linear and dislocated. Conditioned by specific influential factors, for each of the spatial dispositions, functional characteristics have been systematized. On their basis, it was concluded that in optimal conditions of architectonic organization of primary school, application of central disposition can to the best measure contribute to achieving the spatial-functional quality of social functions.*

**Key words:** *primary school, social facilities, function, space, disposition.*

### 1. INTRODUCTION

In the earlier architectonic theory and practice, typology of school buildings in terms of the construction systems was based mostly on a possible ways of grouping of teaching premises (hall system, corridor system, pavilion system, mixed type system... [2]), where the modest role of social facilities was, as a rule, marginalized.

Expansion of facilities in qualitative terms in contemporary primary school significantly affects revision of existing and finding of new forms of spatial segregation and functional connecting of a variety of pedagogical facilities and processes.

Under the dynamic social changes, new pedagogical requirements, and the influence of new tendencies in development of architecture, the structural bulk of schools is separated according to the function and purpose of the school area, and enriched by the con-

tents for social activities of the students and the teaching process premises acquire a looser architectonic forms, optimally suited to various teaching activities and needs of the children of various age and development characteristics.

Apart from the architectonic designs of the primary school which facilitate a better interactive enrichment of the teaching and learning processes and elevation of students activity to a higher level, it is particularly important to satisfy the needs for social life of the students, unrelated to the teaching process. In this context, social facilities in the spatial structure of a contemporary primary school are the places:

- with a higher level of social engagement of the students,
- where there is a highly frequent student communication,
- where students gladly congregate in large numbers during breaks,
- which will be considered favorite places for stay by the students, because of their openness and visual connectedness.

## 2. SOCIAL FACILITIES/PROCESSES

One of the most important issues in efforts to increase the quality and efficiency of education is provision of contemporary spatial conditions, either through design of new or remodeling of existing primary schools.

Spatial-functional range of social contents may vary, primarily in dependence on the requirements regarding size and capacity of a primary school, structure and contents of the curriculum and implementation of pedagogical methods in the teaching and learning process. Based on several generally accepted program conditions and principles, under optimal conditions usually multipurpose space (in some cases it is the audience space), library and information center (mainly as a whole) is designed as well as the space for meals for students - a mess hall.

It is important to note that in respect to some particular value orientations in educational and architectural practice and the different requirements of the immediate environment where a primary school is constructed, often spatial arrangement of social facilities can be expanded or reduced. For example, in schools with smaller capacity of students the mess hall function is taken over by a multi-purpose area or the developed hall area of assumes the function of multi-purpose area [1]

## 3. SPECIFIC INFLUENTIAL FACTORS OF SOCIAL FACILITIES DISPOSITION FORMING

Imajući u vidu funkciju i namenu društvenih sadržaja, iz opsega specifičnih uticajnih faktora izdvajaju se pedagoški i socijalni faktori.

As in terms of the disposition of social facilities in the spatial structure of the primary school the possibilities have not been sufficiently explored, the objective of the paper is to establish a basic framework of functional characteristics and form a starting base for their further research and evaluation.

The choice of one of the possible forms of spatial organization of social facilities will depend on many factors arising from the relationship between internal requirements and external influences in the process of architectural design of primary schools. In the process, the relevant group of influential factors can be systematized according to the general and specific criteria.

Because of the methodological approach to this problem, in order to establish the most elementary functional values of individual dispositions, it is assumed that in terms of general influential factors (eg., site conditions - natural influences and created conditions, general functional requirements, school size...) the prevailing conditions are at the optimum level.

Considering the function and purpose of social facilities, the pedagogical and social factors stand out from the range of specific influential factors.

### 3.1. Pedagogical factors

Value aspects of modern pedagogical strategies form a complex of the factors on whose basis the course of the teaching process is determined. The range of pedagogical factors in the function of the concept of the modern elementary school is based on essentially the active position of students, on the application of various pedagogical methods, teaching aids and sources of learning, through various forms of social work and sizes of the students groups. As highlighted by pedagogue B. Vlahovic: "... some of the boldest predictions suggest that the development tends towards a society without formal schools, or at least without a traditional type of schools, to a learning society in which many things will be radically different than those of the existing school system: place of learning, and sources of learning, and modes of operation, and duration of education, etc." [6]. Flexibility in terms of time and location of attendance today is very real, because pedagogically shaped knowledge sources can be accessed from several places in various times.

Modern framework of pedagogical implications indicates the universality of a dedicated school space, that is the need for variable use of space for teaching and social activities for students.

In addition, the functional transparency of social facilities in primary schools is needed and when it comes to accepting new pedagogical innovation [7], and their projection into the existing architectural volumes.

The issue of spatial disposition of social facilities includes a functional organization that will provide a series of transitional forms to meet various needs in the sphere of individual and collective activities of students.

Thus, the multifunctional character of social facilities is fully determined by adequately defined spatial disposition of related spatial units around which the grouping of individual teaching rooms is done

### 3.2. Social factors

Social factors can be considered in two influential domains, internal and external.

The physiognomy of the social facilities to a great extent may arise from internal requirements relating to the possibility of establishing different levels of interaction among students during their stay in this part of the school premises. The fact that "*with its architectural properties a certain in which the child resides, is not only a response to its physical needs, but also has the qualities essential in the first place for the child's psychosocial development*" [3]. Therefore, mutual visual links, and spatial continuity of social facilities are important prerequisites in the development of prosocial behavior of students.

Contrary to traditional models of school architecture, high utility value of social facilities in contemporary primary schools is prominent in the exterior. In the context of potential community needs and opportunities of planning and organizing various social events and continuing education, the tendency of primary schools becoming a kind of a

center for education in terms of contents with a very developed network of social functions is very pronounced. The broader functional connectivity of primary schools with the local community certainly requires proper dispositional layout, a design that would enable the appropriate use of social facilities regardless of the school activities regime.

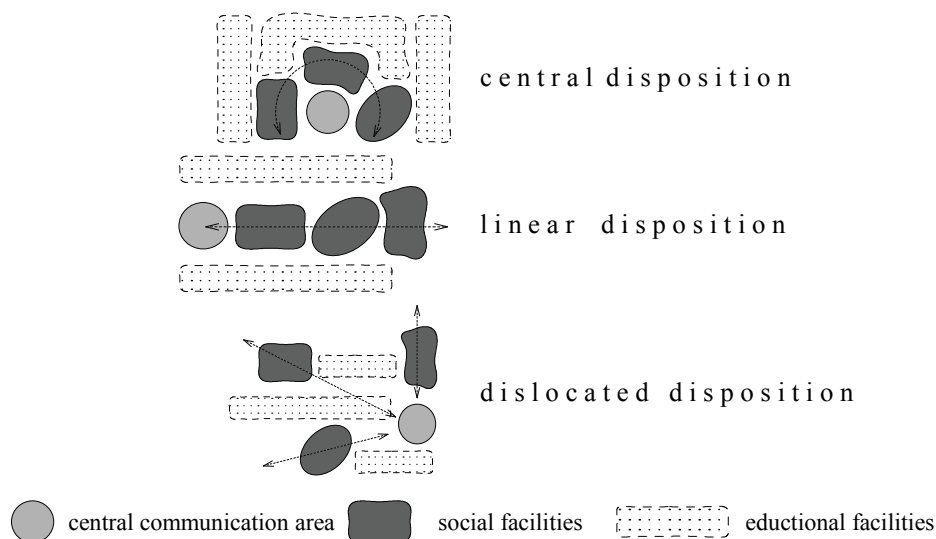
#### 4. SPATIAL DISPOSITION OF SOCIAL FACILITIES

Functional characteristics of social facilities determine each other in different ways in terms of the internal layout, thereby building a complex architectural subunit of elementary school. In conjunction with the organization of lessons, as the basic architectural module, layout, dispositional characteristics of the social facilities are spatially and formally qualitatively defined and directly projected on the overall composition and functionality of the architectural design of primary school.

The analysis of individual functional characteristics, depending on the position of the associated spatial units and the way of their layout, dispositions of social facilities in the overall structure of the elementary school space can be:

- Central,
- Linear,
- Dislocated.

As for the general architectural shaping of primary school, in every concept of spatial organization of social facilities, it is necessary to pay special attention to the definition of relations with the associated functions, primarily to educational facilities, regarding the functional requirements for the combined designs of space, overlapping and integral linking of certain facilities.



**Fig. 1.** Theoretical models of spatial disposition of social facilities

The importance of spatial analysis and evaluation of social facilities disposition is especially prominent when one takes into account their direct impact on certain parts of the pedagogical

process and the formation of a qualitatively adequate psycho-social conditions. So, influencing to a great extent the solutions of the pedagogical practice, how to develop complex spatial composition of social facilities, affects the concrete manifestations which in terms of functional predispositions may be differentially characteristic.

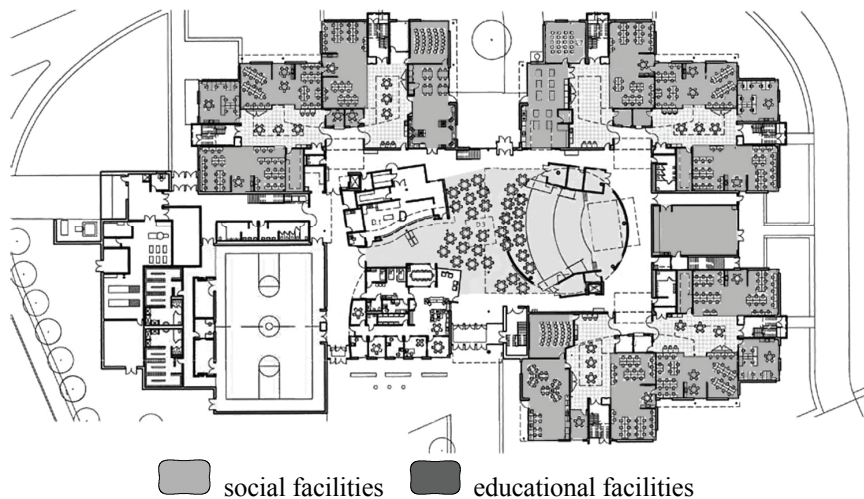
#### 4.1. Central disposition

Central disposition includes prominent consistent grouping of social facilities in the central part of the spatial structure of primary school, and their relative development around a central communication area. This largely provides the visual availability of the associated areas observability of movement flow.

Central disposition of the social facilities forms the spatial-functional core of primary schools, which provides various educational and psycho-social conditions for small, medium and large groups of students. The physical diversity and functions of the disposition are mutually complement, providing the students support in establishing different levels of interaction.

Basic functional characteristics of central disposition:

- Emphasized volumetry of social facilities themes in the functional structure of primary school,
- possibility of linking the adjacent functions and combining them with teaching units,
- Optimum opportunity to create a single space multi-functional of character,
- Overall connectedness of space, with the potential of specific zoning according to the model of educational activities,
- Ability to customize the space to potential changes in education,
- *"High level of physical diversity, gives students a kind of support in establishing different levels of social interaction"* [5],
- Partial potential for a broader, independent linking of primary schools facilities with local communities, conditioned primarily by the form of the architectural plan.



**Fig. 2.** Central disposition of social facilities

Middle School, Woodbury, Minnesota, USA, 2001. Designers: Cunningham Group Architecture [4]

#### 4.2. Linear disposition

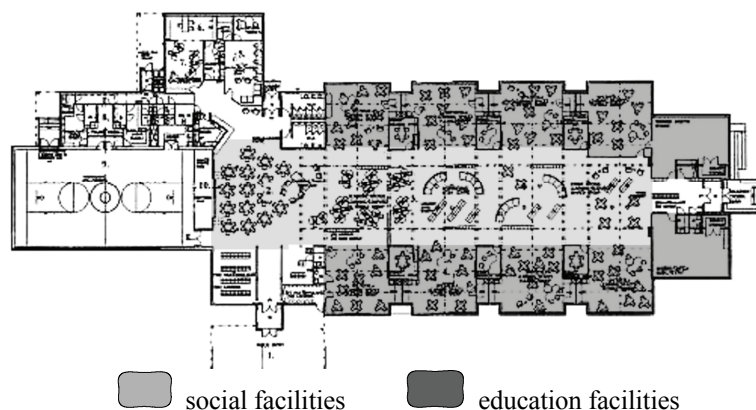
Linearnom dispozicijom društvenih sadržaja formira se prostorno jezgro koje učenicima pruža različite mogućnosti izbora u delu nastavnih i tokom vannastavnih aktivnosti. U kontekstu sveukupne fleksibilnosti školskog prostora, linijsko pozicioniranje zajedničkih prostora učenika može obezbediti uspešno uspostavljanje neposrednih funkcionalnih veza sa nastavnim sadržajima, ukoliko je njihovo pružanje paralelno.

The linear disposition of social facilities comprises a relatively linear development of related units in the spatial structure of an elementary school. The significance of this disposition is particularly pronounced in terms of position and equal position of teaching spaces with space for social functions. Very often, the units can be opened to the access communication and social facilities.

Linear disposition of social facilities forms the core of the space providing students with different choices in teaching and extracurricular activities. In the context of the overall flexibility of school space, linear positioning of common students areas can ensure successful establishing of direct functional links with the educational facilities, if they have parallel layouts.

Basic functional characteristics of linear dispositions:

- The possibility of single-space organization of social facilities, through formation of various pedagogical zones in a single space, flexibly connected and separated by equipment elements in the contact area,
- There is the possibility of expanding the basic functions with complementary facilities,
- The smooth adoption of new pedagogical innovations, and their projections into the existing architectural dimensions,
- Relative visual connectedness, and continuity of spatial layout affects the balanced relationship between strictly defined and open form of the physical environment, and the possibility of correct interacting enrichment of teaching and learning situations, as well as of leisure time of the students.
- If the ends of linear disposition don not have adjacent facilities or if one of the longitudinal sides, for the most part is free of facilities, the social facilities can be used independently of other segments of the school premises.



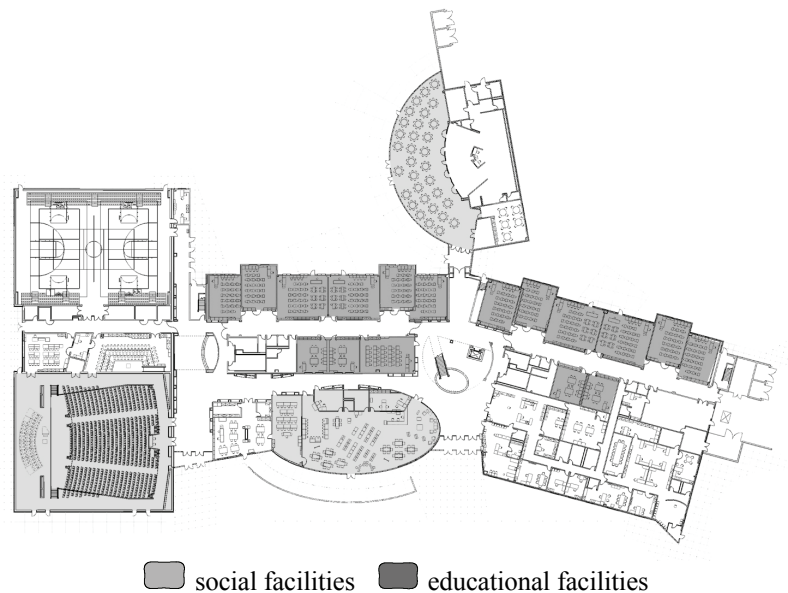
**Fig 3.** Linear disposition of social facilities  
Heinävaara Elementary School, Kiihtelysvaara, Finland, 1999  
Designers: Cunningham Group Architecture [4]

### 4.3. Dislocated disposition

Dislocated disposition implies mutual spatial differentiation of social facilities, where the position of the associated functions in the spatial structure of the elementary school is usually peripheral. The concept of architectural organization of primary school based on this type of disposition provides certain spatial autonomy of associated spatial units. The functional value of the proposed composition of social facilities reflects in the widely developed, heavily accented body of teaching facilities.

Basic functional characteristics of dislocated disposition:

- Reduced variability of school space, especially in terms of pedagogical requirements related to integral connecting of social facilities, as well as their potential permeating with teaching facilities,
- The possibility of adoption of pedagogical innovations is conditioned by the individual functional qualities of the social units, by the designed position and physical relation to other facilities,
- Clearly differentiated physical conditions to realize different levels of interaction between participants in the pedagogical process are reduced to a relatively independent spatial boundaries of social facilities,
- Optimum potential for extension - extension of social facilities
- Availability to use the premises independently of the school working regime,
- Excellent external usability makes this organizational design a significant spatial resource at the community level.



**Fig. 4.** Dislocated disposition of social facilities  
 New Upper Elementary School, North Hanover, New Jersey, USA, 2006  
 Designers: VITETTA [4]

## 5. CONCLUSIONS

In the development of new architectural concepts of spatial composition of elementary school as a modern educational environment, social facilities are one of the major development determinants

In the process of design, architectural concept of primary school largely has to answer to the question of the essence of the functioning of the pedagogical process in different spatial constellations of social facilities. Although they are mutually complementary by their purpose, in the field of spatial disposition they can be systematized through three manifestations: central, linear and dislocated.

Based on the analysis conducted, a number of benefits of an architectural organization of primary schools with a central social facility disposition is pointed out. This disposition allows achieving a high degree of mutual physical and functional variability, as well as exceptional adaptability to different models of pedagogical and social activities of students and teachers. Also, there is the possibility of wider spatial interaction of educational functions. Treatment of central disposition of social facilities in the architectural organization of primary schools can range from conventional, relatively independent spatial structures to totally open, transparent architectural layouts

Linear disposition, as a transitional organizational form between a central and dislocated ones, can be considered as the optimal solution, either from the aspect of pedagogical requirements, either in the part of social factors. However, should the general conditions (location, programming ...) allow, functional quality of the architectural plan becomes especially prominent when the peripheries of linear disposition are without adjacent facilities or when one side of the longitudinal linear disposition, for the most part is free facilities, so that social facilities can be used independently of other segments of the school premises.

Primary schools architectural concept based on the disposition of dislocated social facilities are only adequate solution in situations in which educational policy does not require the possibility of mutual spatial variability of functions. However, such solutions are characterized by extreme flexibility in terms of usability, both internal and external levels. Therefore, the dislocated disposition of social facilities is a solution that fully opens the school to the local community.

It is the fact that the proposed spatial disposition of social facilities, depending on the intensity of the impact of specific factors, to a lesser or greater extent, can contribute to shaping the functional content of an elementary school.

Based on the systematized functional value of disposition of social facilities, it can be concluded that the highest possible levels of spatial and functional quality of primary school can be achieved by applying the central disposition. The central social facility disposition is not only a system that can establish a dynamic form of social interaction, both in educational and in leisure activities of students, but it is also the architectural concept open to change, educational innovation, a model that can be continuously developed, designed and developed differently depending on the internal and external needs of primary school.



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## PROSTORNA DISPOZICIJA DRUŠTVENIH SADRŽAJA U ORGANIZACIJI OSNOVNIH ŠKOLA

**Milan Tanić, Slaviša Kondić, Danica Stanković**

*Kao posledica proširenja funkcija osnovne škole, pojavni oblici društvenih sadržaja predstavljaju neizostavni deo prostornog okvira savremenog pedagoškog procesa sa posebno naglašenom socijalnom komponentom. Bez obzira na veličinu škole, integracija ovog sklopa prostorija doprinosi transparentnijem arhitektonskom planu škole, visokom stepenu iskorišćenosti i povezanosti svih prostora koji često dobijaju višefunkcionalni karakter, što predstavlja jedan od osnovnih načina za prevazilaženje krutih prostorno-funkcionalnih gabarita karakterističnih za arhitektonska rešenja tradicionalne škole.*

*U radu je izvršena analiza tri moguće dispozicije društvenih sadržaja – centralne, linearne i dislocirane. Uslovljene specifičnim uticajnim faktorima, za svaku od prostornih dispozicija sistematizovane su funkcionalne karakteristike. Na osnovu njih je zaključeno da u optimalnim uslovima arhitektonske organizacije osnovne škole, primena centralne dispozicije u najvećoj meri može doprineti ostvarivanju prostorno-funkcionalnog kvaliteta društvenih sadržaja.*

Key words: osnovna škola, društveni sadržaji, funkcija, prostor, dispozicija.