THE THIRD TEACHER: NEW APPROACH TO DESIGN OF EDUCATIONAL ENVIRONMENT FOR CHILDREN

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Abstract: The paper considers children needs, how they learn, what they should learn through the different stages of their development and how the design of educational environment should respond to their needs. Based on the new learning concepts, culture and climate, the new approach is discussed. Various aspects of school physical environment are analysed and new design concepts are presented. The topic examine real issues and approaches for planning an optimal learning environment, that is consistent both with children and the specifics of various educational concepts and processes.

Keywords: EDUCATIONAL ENVIRONMENT FOR CHILDREN, LEARNING ENVIRONMENT, CHILD DEVELOPMENT, LEARNING CONCEPTS

1. Introduction

Children are not small adults, they are in a continual process of growth and development. They need to realize who are they, what is their world and how to influence it. Children learn all day, not only from their parents and teacher, but throw active interaction with their physical environment. It is proved that inappropriate environment not only promotes the development of children, but may delay it. For this, optimal environment is crucial for cognitive, psychological, physical and emotional development.

2. From traditional to new educational approach

Children spend most of the day in educational institutions and is appropriate to question today learning environment “Is it adequate? Does it meet the needs of children, teachers, educational process and contemporary research?” In fact, most of the schools not only in Bulgaria are build with identical classrooms, that still follow the layout created in 19th century – one teacher to 25-30 children, facing towards them and students sited in row of desks. This layout is created to place greater control over children and the size of the room is determined by the reach of teacher's voice. 19th century scheme, thoughtfully or not, suggests that children learn in the same way, at the same time, from the same person, in the same place and they learn better in isolation. This approach ignores the impact of physical environment on children and learning, and students are treated as one homogenous mass, not as individuals. But children are individuals, just like adults, and even if they are on the same age, some of them are more advanced in their development compared to others. It follows that the educational approach, respectively, the environment should be changed so as to meet the individual needs of children, because they learn in different patterns, different things, at different time, from different people and places.

19th century approach teach children to be disciplined, organized, productive, pragmatic, predictable, grateful - all qualities needed for the labor community, but not for today progressive time. Children between age 4 and 6 years learn trough repetition and practice (preoperational stage according to Piage's theory). Preschool environment for these children should encourage representation of real-life situations, through toy kitchens, shops, banks and etc. While playing, children unconsciously prepare both for real life and for school subjects, as reading and math. If learning is not fun, it is not life long learning.

The organization of the space should encourage children to follow their interest, to give answers of their questions, to represent what is on their mind, and build healthy relationships and love of learning. Open shelves, which offer variety of materials will enhance the imagination of children and will meet their desire to rearrange and combine materials for experiment and discoveries. Furthermore, children need not only area for “messy” and noisy play, but also places for quite and restorative activities to calm and communicate with their friends.

Activity centers are excellent example of how design environment can influence behavior. For example, activity center designed for 4-5 children will cause interaction between children, while larger will not predispose them to group on small groups and play together. Activity centers can be separate by difference in floor level, while giving the children different perspective to explore the relationship between their bodies and space. Environment should be with appropriate scale.

Filling environment with things from natural world can activates the senses and sensibilities of those present. For example, replacement of plastic container for toys with baskets from natural materials, or replacement of plastic toys with wooden and textile ones, will create a completely different sensory experience.

Learning and literacy involves unlocking a system of symbols and codes, and there are many ways you can increase the experience of children with these processes. The most extensive world of symbolic representation is the visual arts. The provision of multiple materials will help children to explore the world, will encourage them to understand and express themselves using art materials, music, dance and theatrical expression. The variety of materials and development. Spaces in kindergarten affect cognitive and physical development through supportive or inhibited behavior.
opportunities will support the development of “multiple intelligences” (Howard Gardner) or “hundred languages” (Reggio Emilia).

A successful approach to design of educational environment for preschool and primary school age children is a consequence of the pedagogical approach of Reggio Emilia. In the core of this approach is the natural development of children and their close relation with the environment. It includes several key features of the environment:

1. Recognition – architectural language and atmosphere of the environment have an established identity
2. Horizontality – the horizontal plan of the school building emphasizes the conscious choice of not to create hierarchy among the different by function spaces. Horizontality is physical manifest for democracy of functions, equal status and sociality.
3. Piazza – presence of large connecting space in the center is consciously designed to eliminate corridors, as their function is subject only to the connection, guidance and their area is unusable for children's activities. Piazza, like city square, not only perform the connecting function, but also creates an environment for relationships, communication, interaction between children and adults.
4. Transformability and flexibility – learning environment should allow to be modeled and changed as a result of children and teacher experiments, during the day and year. Temporary transformations are made by movable furniture, screens, partitions, wall panels, etc. Permanent ones are made by physical modification of the space, through additions to the main building and other technical systems.
5. Varied use of space – the group keeps its teacher but each year they switch their space. In this way each room is equipped for specific age, and children growth is more tangible for them.
6. Atelier – studio which compliments the functions of the classroom, without replacing it. Used for research, experiments, and work with variety materials.
7. School as workshop – while atelier is dedicated to investigation and experiments, the whole school is considered as a workshop for autonomous learning. Each space is designed according this and is equipped with materials encouraging exploration. It is important all spaces in the school to be accessible to the children to use them, including the kitchen and the offices.
8. School and community – the architecture and the design of the school environment should be in connection with the surrounding aesthetic and culture. School should be part of the community, not isolated.
9. Inside-outside relationship – another important element is the strong connection between inside and outside. School should “feel” what is going on outside – from weather to seasons change, from time to the rhythm of the town, simply because it exists at a certain place and time. Several elements strengthen the link inside-outside: filtering spaces (porches, sheds etc.); conservatories, interior courtyards with plants and other natural elements, hills, patios, installations which make visible the actions of physical forces, like wind, water etc.; an entrance who give information for the school and its work, space for welcoming.
10. Transparency – transparency does not exclude opacity and focus on providing sense of depth and perception of space. For example, providing visibility between rooms helps children gain a better understanding of the building structure and space or uncovered brick wall declares static role of each part and give positive value of each element.
11. Communication – communication is an essential tool for any activity involving research, exchange of ideas, discussions and also an important element of educational projects in preschool centers in Reggio Emilia. Parents are active participants in the educational process, which increases the need for large spaces inside and outside, and furniture for adults. The environment should be able to communicate the school life and children activities, for example with walls which could accommodate large displays with children works.

4. School age - needs, learning concepts, effective learning environment

New learning concepts are focused on lifelong learning, which is not isolated process that occurs only in the school, but continue with no time and space boundaries; just-in-time learning, which use curiosity as natural motivator for learning; project-based learning with real life projects involving collaboration, hands-on, research and production; problem based learning which include student as active problem solver; student centered learning, consider students as individuals and they should have greater choice.
what, how and when to learn; collaborative learning requires interaction between peers; brain based learning requires conditions to support natural learning processes and patterns etc. All these concepts create a new learning culture, which requires consideration of the physical educational environment, its functions and impact on learning.

Significant part of the research on design of environment show that comfort has positive effect on learning, productivity and creativity. We need to go over the required minimum for comfort as temperature, humidity, ventilation, lighting etc., and to consider possibilities for more natural light in all rooms, child size windows with beautiful landscapes, operable windows for fresh air at any time, access to food and beverages through the day in a comfortable environment, comfortable seats and private spaces. The hierarchy of spaces and grouping them is one of the key aspect to achieving comfort and security. By providing spaces for different groups can reinforce a sense of belonging. For example: individual rocking chair or cubies for kindergarten to the private working station for students; areas for small groups and collaborative work; small learning communities of 100-150 students; educational camp of two or more communities.

From traditional classroom to small learning community, www.designshare.com

The traditional classroom with fixed furniture and with little or no options for reconfiguration should be transformed to a more fluid and flexible space, in order to support the new learning concepts. It is needed to allow both arranging quite spaces for individual work and stimulating places for socializing and collaborative projects. Movable equipment such as furniture, including storage furniture, movable screens and sound absorbing panels, presentation displays for daily work of students, not only perform their specific function but also help in the reorganization of space. Learning is more complex process than memorizing. It involves thinking, communicating, analyzing, doing, and other activities, but the most lasting impression of learning is left by doing and failure. Failure get our attention, provoking emotions which are crucial for learning. Having atelier for creative work and experiments with direct access to the outdoors and outdoors learning spaces with protection from rain, sun, storage and power supply, will complement the classroom's functions and will give opportunity for learning by doing.

The layout of traditional school is build with identical classrooms and corridors, which may support the orientation and navigation, but does not contribute to the educational process. Corridors functions is only to connect the rooms and guide the flow and their area is unusable for children's activities. Often they accommodate lockers for students personal belongings. For several reasons, this is rather a coincidence than a deliberate design: in terms of function, it creates chaos when students at the same time want access to the lockers, the traffic flow is interrupted and because of the noise there is no possibility for communication; in terms of children's needs for territory and personal space, they are uncomfortable because when children are digging in their lockers they are backwards to the traffic flow and can't see who is behind them, but everyone needs to monitor who is coming and who is going; in terms of perception, when the corridor has lockers on both walls it is very dark and unpleasant. There is a concept for school without corridors, but with one space connecting all classrooms. This new space, like the town square, gives opportunity for meetings and interactions, and for displaying children's works. Places for personal belongings are organized in small family like groups, with open and closed shelves, and hangers like home wardrobes.

Millenium High School, New York

Nowadays schools are becoming larger, which makes children fell into anonymity. As a result, the vandalism increased and the sense of belonging is reduced. According to some
anthropologists the critical size of one group to be cohesive is 60-70 persons. Malcolm Gladwell writes about learning group maximum of 150 people to function effectively. Based on these researches, the new approach suggests schools should be build from small learning communities with no more than 150 students. In Western Heights Secondary College in Geelong, Australia, decided to reate a flexible space for 100 children from the seventh grade, by removing the walls of the corridors and classrooms. By movable glass partitions and equipment, space can be organized as a single space or as separate spaces for each class or team working on a project. As space permits passive monitoring, the teacher can focus on individual work with one or more students and leave others to work independently on a project. This model not only avoid the anonymity of children, but also increase their sense of belonging, indirectly teaches responsibility and self-control. The results after reconstruction shows that the moral is raised from 17% to 80%, efficiency of teachers jumped from 20% to 87% and peer interactions increased from 20% to 85%.

Western Heights Secondary College in Geelong, Australia, small learning community for 7th grade

Concept Diagram for small learning community of 125 students and five to six techers, www.fieldingnair.com

We need to consider other school areas such as cafeteria, library, teachers working area, sports area and recreation, as well as the yard.

Cafeteria should be designed like these out of school, with variety of seats and groups arrangements. The aim is to avoid institutional look with long rows of tables and chairs.

The library must be available to children at any time and equipped with new technologies. As part of the concept for lifelong learning, the library should be available to adults too.

Teachers need a working space to prepare educational materials and for individual work with students. By imposing the individual approach to each student, teachers need at least 2 hours to prepare for the day.

Spaces for sport and active recreation, should provoke children while educate them for lifetime physical activity.

All people benefit from connection with nature. The yard can strengthen that connection with local trees and plants, with walking, jogging and cycling paths, fountains, benches and amphitheater for events or interactions. Installations which demonstrate the action of natural forces and equipment for renewable energy, not only familiarize the children with them, but make children more responsible users.

5. Conclusion

Spaces are usually created with purpose or intention, whether visible or not. Each environment gives group of values or beliefs about people who will use the space and the activities to be carried in it. Intentionally or not, more or less, any environment affects people who use it. Educational environment can be an active participant in the educational process through its passive lessons. Consciously designed, for the purposes of the educational process, it can provide the necessary climate and can stimulate learning.