RESEARCH ARTICLE

DOI: 10.34256/ajir20113

ASIAN JOURNAL OF INTERDISCIPLINARY RESEARCH

Investigation of the design criteria for the new generation learning environment in the scope of architecture first class student works

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DOI: https://doi.org/10.34256/ajir20113

Received: 19-12-2019
Accepted: 07-03-2020

Abstract: 21st century schools are defined as new generation schools. In recent years, studies on new generation schools in educational science have been created with the contributions of the discipline of architecture. In new generation schools, the learning environment can not be confined to classes. According to learning-oriented learning approaches, any environment that affects the learning process for children is the learning environment. In this context, the concept of "learning environment needs to be perceived from a new perspective beyond the concept adopted. The design of educational buildings should be conveyed to the students of architecture, the architects of the future, in the context of the new generation school and learning environment. Within the scope of this study, first year students of the department of architecture were asked to design a learning environment in accordance with the criteria of new generation learning environment design. Student studies were evaluated by the instructor and another faculty member and scored in the context of design criteria of the new generation learning environment. The application results were analyzed comparatively.

Keywords: New generation school, Learning environment design, Educational buildings, Architecture education.

1. Introduction

School is the place that affects the social and cognitive development of children after home and family. The main purpose of these buildings is to create environments in which the student will enjoy coming to school, the excitement of learning will continue and they will enjoy being present (Arslan, 2010). It is clear that the structure of the new generation schools can not be established with the understanding that traditional schools are the information transfer places or information loading units. For this reason, the function of the school should be questioned and the new function that will allow the child to discover and develop himself / herself should be adopted for the school and the institution called the school should be arranged in such a way to realize this. In short, new generation schools should be designed in accordance with an understanding of 'living' and 'learning space (Akpınar, 2010).

Education of the 21st century can only be realized in learning environments that are worthy of its name and content. The differences between school buildings and learning environments can be discussed. However, not every school is a learning environment, nor is every school a learning environment. This is a distinction in terms of their functionality rather than the plates hanging on them. It seems difficult to think of a 20th century school building as a learning environment where skills of the 21st century can be transferred. While the 20th century focuses on standardization, 21st century pedagogy advocates individualization, highlighting the management of differences between achievement and personal characteristics.

21st century schools should first be designed as a set of learning environments where children can exhibit various life activities appropriate to their age, starting from classrooms. In new generation schools, the learning environment can not be confined to what exists in the classroom. All the environments that an individual will spend during his / her life should be questioned as a learning environment. Teacher and subject-oriented insights largely limit learning to classroom space, and therefore the perception of learning environment remains limited.

Designing educational buildings by internalizing the characteristics of new generation learning environments, and new generation school, new generation learning environment design issues should be included in the architectural education curriculum. The aim of this study is to determine how much of the first year students of the department of architecture who have previously studied in traditional learning environments and started university education, after learning the design criteria of new generation learning environments, how much they can transfer to a learning environment they have designed. In this context, the first year students of the department of architecture were given theoretical information about the design of new generation schools and learning environments together with examples, and 50 students were asked to design a new generation learning environment in the context of the information they learned.

The studies of the students have been evaluated one by one within the context of design criteria of next generation learning environment. Student studies were also evaluated by another faculty member to produce consistent findings. It is aimed to determine which of the architects who are accustomed to study in traditional learning environments to internalize the design criteria of the new generation learning environment. It is important to determine the design criteria that the students leave behind in the design studies and to emphasize these criteria in order to ensure that the transfer of the design of the new generation schools in architecture education works correctly.

In the second section of the study, the design criteria of the learning environments in the new generation schools are discussed. In the third section, the application process and findings made with the first year students of the architecture department are analyzed. In section 4, the results of the study were evaluated and recommendations were given.

2. New Generation Learning Environment Design Criteria

The basic principle in the organization of the next generation learning environment is to arrange the most suitable places for students to perform the learning action. This arrangement mainly includes the places where students' desks, teacher's desks, student toilets, eating areas, performance areas of different sizes and shapes, technological equipment, necessary materials are exhibited and stored. All accessories within this arrangement should be designed in

accordance with child ergonomics and anthropometry. In learning environments, there should be light weight, proportional, movable furniture suitable for their height, shelves at high height, closets and clothes hangers that can be accessed, locks that can be opened and closed easily, drawers and doors, materials that they can easily grasp and fit in their hands (Karabey, 2004).

In learning-oriented learning approaches, teachers don't have fixed tables or chairs in the learning environment. Instead, they carry a chair used by children in a learning environment as long as they work with children (De Jesus, 1987). The absence of a teacher's table in the learning environment eliminates the impression that the teacher is in the hands of the whole authority and facilitates the role of an observer in the learning environment that is barely noticed (Hertzberger, 2008).

Spaces where the whole can be seen as areas of focus in learning environments can be considered from a different perspective. Going to a high place and looking at a distance from a distance actually creates a physical and mental distance between the individual and the environment. In this context, a stage environment in which children can demonstrate or discuss their skills can be constructed by going up one or two steps in the learning environment.

In learning environments, the desk can be considered as a module. These modules can be individually or combined to form group work areas. At these tables, books can be read and painting or other art activities can be realized. In addition to these tables and chairs that have a hard texture in the learning environment, soft tissue and cushion-shaped fittings should also be available. These reinforcements can be positioned circularly around a center. The different functions in the learning environment can be separated from each other by accessories or by differentiating color, texture and material properties.

Shelving cabinets with a height of 70-80 cm can be used to separate the different working areas. Books and materials can be stored in these cabinets. These shelves are made of natural wood and can extend particularly along the wall edge where the windows are located. The top of the lockers can be used as an exhibition space for creative works of children (Hertzberger, 2008).

Learning environments should have a structure that allows many activities to be held together at the same time. Designing learning environments as L shape instead of rectangular can provide diversity and flexibility for different activities. Each area in the learning environment should be organized to support individual or group work. Thus, children can be allowed to engage in different activities in different corners of their learning environments without disturbing each other (Hertzberger, 2008).

The individual tables in the corridors and learning environments offer individual tables, quieter and more individual corners, and it is an important achievement to consider individual work areas as well as socialization when each child's learning speed, interest and ability are different. The child can work individually in the learning environment, play games, participate in art activities or demonstrate a skill (Anıktar, 2017).

The new generation learning environments should be designed flexibly to allow children to move freely and find different areas for different functions, so that the child can choose from a variety of activities. Kitchen counter and dining area should be designed in a corner of the learning environment. Children's toilets can also be in the learning environment. Children can feel as comfortable as they can at home. The readability of the interior can be increased by using reinforcements or glass dividers, doors instead of walls as dividers. Simulation method should be used in the process of using technology in learning environments. In this

context, a wall of learning environments and enough space in front of it should be arranged to reflect the image from the ceiling projection.

In learning-oriented learning environments in new generation schools, learning by play has a great place. Learning environments should be like that children can play easily. All learning environments mentioned about the importance of constructing in the school should be arranged in a way that children can play.

In learning environments, there should be a garden or a small greenhouse where children can communicate with nature. Because children should be allowed to nurture living beings in order to enable them to discover the diversity of other creatures in the world and to develop love and trust in children. Another feature that distinguishes learning-oriented learning environments from other environments is that, it has two doors. One of these doors opens to the learning environment, while the other provides access to the garden directly from within the learning environment. This garden is separated from the playground and used as a nature study area and is accessible from all learning environments both physically and visually. This area should be used for quieter and less mobile activities such as horticulture, reading and observation (Anıktar, 2017).

All environments within the new generation schools are social environments for children as well as learning environment. Children communicate with each other in corridors, staircases, gathering areas, under the eaves in front of the door, in the schoolyard outside the closed learning environments. They also socialize within the framework of factors such as communication and the games that support this communication.

Functions in different learning environments can be collected in a single learning environment, these closed learning environments can be opened to other environments, learning environments can interact with each other. The use of shelves, tables and chairs compatible with the dimensions of children instead of walls as dividers in learning environments helps to increase the interaction within the learning environment. Collapsible glass doors or other dividers between the corridor and the learning environment strengthen the relationship between the learning environment and the corridor and contribute to the visual relationship between children.

2. New Generation Learning Environment Design Criteria

Within the scope of the application, 50 people of the first year students of the department of architecture were asked to design a new generation learning environment in the context of the information they learned about theoretical knowledge on the design of new generation schools and learning environments during the 2 hours of Building Knowledge II course. Considering that there will be a maximum of 25 students in a learning environment in the new generation schools, it is said that the gross area per student should be at least 3 m^2. Therefore, students were asked to design a free-form learning environment with an area of 75 m^2. The studies of the students were evaluated separately by the instructor who give the lesson and another instructor in the context of design criteria of the new generation learning environment (Table 1).

The faculty members scored 1 to 10 (1-None, 5-Yes, but no correct fiction, 10-True fiction) in the context of the criteria in Table 1. As a result of the evaluations, the average scores of the first year students of the department of architecture and the standard deviations of these scores are as follows (Table 2). According to this table, it is accepted that the criteria which take average 5 and above are well understood and the criteria which take less than 5 are not understood well.

Table 1 New generation learning environment design criteria

S.No	Criteria
1	Individual-group study order
2	Presence of WC and kitchen
3	Presence of stage as a socialization area
4	Coexistence of different functions
5	Learning with nature
6	Learning with technology
7	Learning with play
8	Existence of teacher desk not in the center
9	Presence of library, storage and exhibition equipment
10	Flexibility

Table 2 Mean scores and standard deviations of student studies

Criteria	1	2	3	4	5	6	7	8	9	10
Average	6,69	6,15	3,23	6,54	3,56	3,30	4,64	6,58	6,04	5,29
Standard deviation	1,81	1,94	2,96	1,77	2,94	2,26	2,14	2,14	2,25	2,11

According to the table, the first criterion is the highest score. In the majority of student studies, individual and group work designs were designed. Secondly, considering that new generation learning environments are designed with a learning-oriented approach, it was observed that in most of the designs, the teacher's desk was not actively located in the center but in a position to help.

The coexistence of different functions in new generation learning environments is also well understood by most students. In addition to education-teaching function, designs have been made by considering separate areas for functions such as socialization, reading books, experimenting and performing art activities. In most of the student studies, WC and kitchen are also in the learning environments. The library, the material cabinets for creative works and the exhibition equipment required for the realization of different functions were also in most of the student works (Figure 1).

The ratio of those who consider the flexibility criterion in the learning environments included in the student studies is approximately half. The number of learning environments designed as flexible spaces considering the opening from the learning environments to the corridor and the garden is not many. Considering the importance of learning in new generation learning environments, the number of students designing a playground within the space is less than half

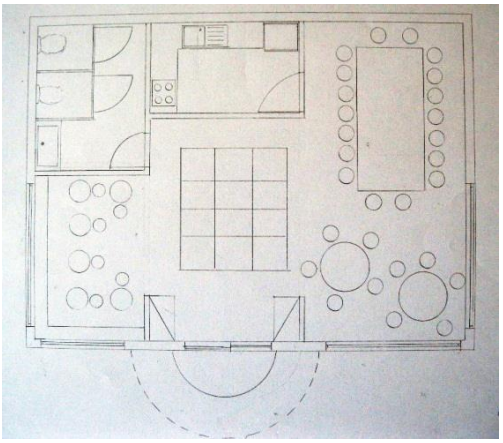

Figure 1. Student Work

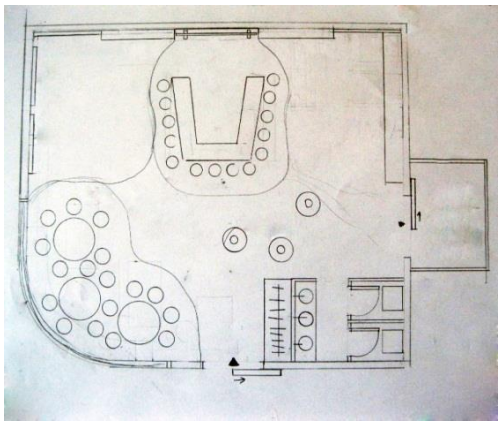

Figure 2. Student Work

The importance of learning with nature and technology in the new generation learning environments can not be denied. In most of the learning environments included in the student studies, the opening to the garden aimed at benefiting from nature was not observed. It was seen that simulation areas and projection walls for technology use were not included in most of the student studies. Although it was also conveyed to the students that there should be a stage where children can perform individually or as a group, the least score criterion was the third criterion (Figure 2).

4. Conclusion

As a result of the application with the first year students of the department of architecture, it was determined that most of the design criteria of the new generation learning environment were understood by the students. When the average scores obtained as a result of the evaluation are examined, it is seen that the agreed criteria are understood by approximately seventy percent of the students. It can be said that the reason why these criteria are not understood in thirty percent of the students is that the environments where the students received their first education are traditional learning environments. In particular, the existence of a performance stage for socializing purposes was not perceived by many students perceptively. It is usual that most of the students studying in gardenless and indoor learning environments don't take part in the garden designed for learning with nature. As a result of the standard deviation figures obtained from the evaluation, it was determined that both faculty members evaluating the student studies scored approximately the same.

As a result of the application made after the transfer of the design criteria of the new generation learning environment to the first year students of the department of architecture, it was concluded that most of the students could design an educational building in the context of a new generation learning environment. The fact that the design of educational buildings takes place in the context of new generation schools and learning environments in architectural education is important for the awareness of the architects of the future in this context. For further research, an application can be made with senior students in the department of architecture to compare students' perspectives after studying architecture. By making an application with interior architecture students, perceptual differences between architecture and interior architecture students can be compared and updated according to the curriculum levels of both departments.

References

Arslan, H. D. (2010), Evaluation of Perception Parameters in Primary School Classroom Design and Suggestions for Design, *PhD Thesis, Seljuk University,* Konya.

Akpınar, B. (2010), The Role of Teacher, Student and Parents in Constructivist Approach, *ETrade Union of Education Union Journal*, 6(16), 15.

Anıktar, S. (2017), New Generation Primary Schools Learning Environments Design Support Guide, PhD Thesis, Yıldız Technical University, Istanbul.

De Jesus, R. D. (1987), *Design Guidelines for Montessori Schools*, Milwaukee, Center for Architecture and Urban Planning Research, University of Wisconsin Press.

Karabey, H. (2004), Educational Buildings: Planning and Designing Schools of the Future, Contemporary Approaches, Istanbul: Literature Publications.

Hertzberger, H. (2008), *Space and Learning,* Rotterdam: 010 Publishers.

Conflicts of Interest: The authors have no conflicts of interest to declare that they are relevant to the content of this article.

Funding: No funding was received for conducting this study.

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