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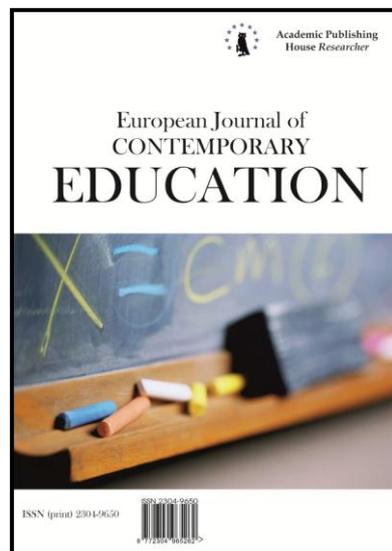
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UDC 378

### **Evaluation of Kindergarten Group Rooms in the Context of Size: Children and Teacher's Perspective in Turkey**

<sup>1</sup> B. Ece Şahin  
<sup>2</sup> Neslihan Dostoğlu

<sup>1</sup> Uludağ University, Turkey  
Faculty of Architecture, Department of Architecture  
16059 Görükle- Bursa,  
Ph.D. (Architecture), Research Assistant  
E-mail: easatekin@yahoo.com

<sup>2</sup> İstanbul Kültür University, Turkey  
Faculty of Architecture, Department of Architecture, 34156 Bakırköy İstanbul  
Ph.D. (architecture), Professor  
E-mail: neslihandost@yahoo.com

#### **Abstract**

Physical qualifications of group rooms are highly important in terms of child development during preschool education. First of all, the required space should be provided in order to create ideal conditions in a group room. The standards of the required space for a child in group rooms vary among countries. It is stated that in Turkey minimum 1.5 m<sup>2</sup> space per child in group rooms is enough. This paper studies whether this standard rate, which is stated as insufficient according to various studies, is seen enough by the users; hence, 30 children and their teachers from three different kindergartens were interviewed. It is seen that the standards in Turkey which are considered as sufficient are actually not enough according to the comments of children and teachers. The purpose of this study is to present an example constructed on the idea that the standards should be defined according to the experiences of users, so to be able to reach the right solutions which meet the needs of users.

**Keywords:** Preschool education in Turkey; the minimum space requirement; changeability.

## **Introduction**

### **Spatial Structure of Preschool Education in Turkey.**

In Turkey, preschool education mostly is given in formal institutions. When the number of children educated in formal institutions is considered, it is seen that the biggest portion belongs to infant schools established within the scope of elementary schools. In Turkey, due to economic deficiencies and over child population, instead of building new structures for preschool education a classroom within elementary schools is converted to a group room. In overcrowded elementary schools, children at the age of preschool education are restricted with only one classroom; even a playground area that should be designed especially for that age group cannot be divided in the school yard. So, that is why such system is criticized by educators for not meeting the requirements of children at that age group. The other formal institutions that give preschool education are independent infant schools. Conditions of independent infant schools relatively are better; however, there is over submission by families to these schools. So, it becomes almost impossible to organize special areas for children to have different activities and usage areas of schools are designed to be able to use as many group rooms. To summarize, in Turkey such formal institutions generally do not have an organization structure that children can spend time in group rooms. In that term, it is highly important that group rooms can respond to different needs of children.

Primarily, adequate space size should be created in group rooms in order to have the conditions which respond to the requirements of education program and support child development. It is argued that 1.5 m<sup>2</sup> area per child in group rooms is accepted as sufficient according to the standards in Turkey. Nevertheless, as the standards of different countries and findings of the studies regarding required areas are analyzed, it is obvious that such assessment is not relative. The answer is tried to bring to the question whether the users find sufficient the minimum space standards. Thus, it is necessary to reach the opinions of group room users in order to be able to make the right assessment about the minimum space standard in Turkey. Hereby, 30 children and their's teachers were interviewed from three different infant schools with different group room dimensions.

In Turkey, the very first preschool institutions were established before 1908 in some cities; but later, it was decided to establish institutions named "Child Garden" in 1914 and in that line "Preschool Statute" was issued in 1915. During the republic period, preschool education was discussed in 1949 and the first related regulation was issued in 1962 (Oktay 2001, Poyraz and Dere 2001). According to the today's regulation of preschool education, infant schools and nursery classes are defined as classes established within formal learning institutions and 36 – 72 months old children attend to infant schools while 60-72 months old ones are educated in nursery classes.\*

Institutive system of preschool education in Turkey has lots of components as it is in other countries.† At the present time, institution based education of Turkey consists of components subject to Ministry of National Education and General Directorate of Child Services. Institutions affiliated with Ministry of National Education are nursery schools established under elementary schools, independent infant schools, and a few nursery and infant schools established under formal institutions. On the other hand, institutions which are subject to General Directorate of Child Services differ by names like day care center, creche, nursery, child club, and playhouse. The variety of preschool education institutions both in Turkey and in the world makes hard to reach a common standard in the quality of education. It is accepted that there are differences in terms of "administration, purpose, program, teacher/educator and equipment" in institutions giving preschool education and so this fact prevents to reach the quality standard in Turkey (Ural and Ramazan 2007). According to Eyüboğlu (2007), there are important deficiencies in these

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\* [http://ooegm.meb.gov.tr/mevzuat/yonetmelik\\_29\\_08\\_09\\_degisiklik\\_tum.pdf](http://ooegm.meb.gov.tr/mevzuat/yonetmelik_29_08_09_degisiklik_tum.pdf), 2014

† Italy: Nursery / Children School (3-6 old), The Day Nursery (0-3 old), Play / Drop-in Centers

Denmark: Creches (0-3 old), Formal Kindergartens (3-6 old) and generally institutions that are part of infants schools with age integration for school-age children (0-6 old / 0-14 old)

England: Day Nurseries, Nursery Schools, Pre-Schools Play Groups, Private Nurseries, Reception Classes

USA: Generally, nursery classes within elementary schools, private half-time play groups, Nursery Schools, Community Day Care Centers

France: Ecoles Maternelles, Jardins D'enfants, Creches, Children Centers (Dudek 2000)

diversified institutions regarding “common program, common standard, standard promotion studies and supervision unit”.

When the number of children attending at preschool education is considered, it is seen that formal institutions subject to Ministry of National Education are at the first place of preschool education in Turkey. Formal education statistics published by Ministry of National Education\* for education period 2013-2014 show that **923.590** of children attend at formal institutions while this number is a lot less, **135.905**, in private schools. Other statistical informations of formal institutions are like 677.923 children at nursery schools, 239.217 children at independent infant schools and 6.450 children attending to other infant schools subject to formal institutions. On the other hand, 135.905 children are educated in private institutions in Turkey. According to the statistics, 66.697 of 135.905 children attend to private infant schools and 26.392 attend to nursery schools subject to Ministry of National Education; and the rest of those children are educated in private institutions which are subject to General Directorate of Child Services.

The biggest portion in statistics belongs to nursery classes organized under elementary schools. Economic conditions, high demand to preschool education and lack of the possibility to establish new independent infant schools lead elementary schools to organize infant schools within the school organizational structure. Nevertheless, educators acknowledge that physical spaces of these infant classes are inadequate in terms of quantity and quality. In addition, elementary schools organize only one nursery class that 60-72 months old children are educated only; hence it is criticized that 36-72 months old ones are drawn away from preschool education. It is stated that preschool education should be independent from elementary school education, and should be given only in buildings particularly designed and organized for preschool education (Derman and Başal 2010).

Other countries which have the same system reveal the very same criticisms. According to Dudek (2000), the reason behind insufficiency of present education system in England is the education strategy adopted for so many years due to economic conditions which he defines as wrong. He also argues that existing classrooms in elementary schools are adapted for 3-5 age groups in education system rather than building preschool education structures for such purpose only; which is the reason of not being able to reach the quality required in education. The system in USA where infant schools are also integrated to existing classrooms in elementary schools lead to criticisms that such system prevent the possible benefits of having garden like stated in Froebel’s “kindergarten” philosophy (Garrick 2009). Yet, such approach which is adopted and criticized for so many years in England and USA is also started to be adopted in Turkey. Unfortunately, economic conditions prevent to build a new structure; so, existing classrooms of elementary schools are separated to a nursery class for preschool education purpose. In addition, in case where existing classrooms cannot be converted to another class due to crowd of the classrooms then an additional classroom is built in school yard only to meet such need without questioning the physical quality of the attached construction (Figure 1).



Figure 1. An example of Prefabricated Nursery School Project (Büyüyoruz 2011)

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\* [http://sgb.meb.gov.tr/istatistik/meb\\_istatistikleri\\_orgun\\_egitim\\_2013\\_2014.pdf](http://sgb.meb.gov.tr/istatistik/meb_istatistikleri_orgun_egitim_2013_2014.pdf), 2014

Independent infant schools have better physical opportunities in comparison with nursery classes established under elementary schools. Children are educated in structures that have separate yard designed with purpose. Moreover, there is also over application for independent infant schools which restricts usage space per child. When structure and garden opportunities are considered, also the differences are seen among independent formal infant schools giving preschool education. Some of the buildings are designed for preschool education purpose only whereas some of them are converted from other existing buildings. In that regard, some of independent formal infant schools have painting, technology classes; but, some of those schools do not have any extra space for other activities other than the classroom. It is observed that there are differences among schools in terms of class dimensions, school design and its yard size.

In general, children for preschool education who attend in two different institutional structures spend their times mostly in one area; which is the group rooms. Nursery classes of elementary schools do not have a separate place even in school yard other than the group rooms. However, it shall not be easy to abandon this system suddenly. Thus, the very first way to raise the education quality of preschool education is to change physical structure of activity rooms in accordance with education period of child. The subject of creating the ideal space especially that can respond to the needs of the users is the first topic that requires importance.

When the standards of different countries are analyzed, the minimum space requirement depends on countries' economical and physical conditions. For example, in Italy the required space for children 3 – 6 years old is minimum 7.5m<sup>2</sup> per child; while this standard is 2 m<sup>2</sup> in Denmark, 2.3 m<sup>2</sup> in England and 3.25 m<sup>2</sup> in USA. Japan has different conditions than other countries. Due to the fact that land property is very prized in the country there is a limitation about the space standards. A child can benefit at most 1.98 m<sup>2</sup> inside areas while this rate is a lit bit higher outside by 3.3 m<sup>2</sup> per child (Dudek 2000, Montie 2001). However, in Turkey according to the standards prepared by Ministry of Education minimum 1.5 m<sup>2</sup> per child in play rooms is sufficient. As other countries' standards are considered, it is seen that there are few countries in general which adapt standard rates around the one in Turkey. Turkey, China, Romania, Thailand, Indonesia and Hong Kong have close minimum space standards (Figure 2). The minimum space requirement in infant schools in China is 1.2 m<sup>2</sup> per child in urban and rural areas; 1.2 m<sup>2</sup> per child in infant schools whereas 1.5 m<sup>2</sup> in child care centers of Hong Kong; in rural areas of Indonesia the minimum space requirement is 1.6 m<sup>2</sup> per child; and in urban schools of Romania the standard is 1.7 m<sup>2</sup> per child while this drops to 1.5 m<sup>2</sup> in rural schools; and according to Thailand's educational program the minimum space requirement is 1.7 m<sup>2</sup> per child (Olmsted and et. 2001).

It is obvious that the standards have really different values. However, the importance is acknowledged in architectural psychology field that when trying to define the ideal space requirement it is important to analyze also the effects on child development of the ideal space requirement. According to Smith and Connolly (1980) and Gifford (1997, 2002), each child should have minimum 2.8m<sup>2</sup> to 3.7m<sup>2</sup> space in preschool education environment. If the standard is higher or lower than the stated ones, children are affected negatively. Higher standard causes negative emotions, extreme thrill and negativities in social relations (Walden 2009). However, if the intensity of standard is lower, social interactions among children decrease. Olds (2001) who offers design guide for preschool education structures explains that the ideal space is around 5.5 m<sup>2</sup> – 7 m<sup>2</sup> per child (Figure 3). Although it is seen from the table that the space requirements are quite different, yet the most important common point is that when advised dimensions are defined they are tried to be defined in the line with child development. The 1.5 m<sup>2</sup> standard in Turkey is accepted as adequate; nonetheless, there is not any reference of how such rate was reached. Generally, the standards do not include any study reference which is an important deficiency.

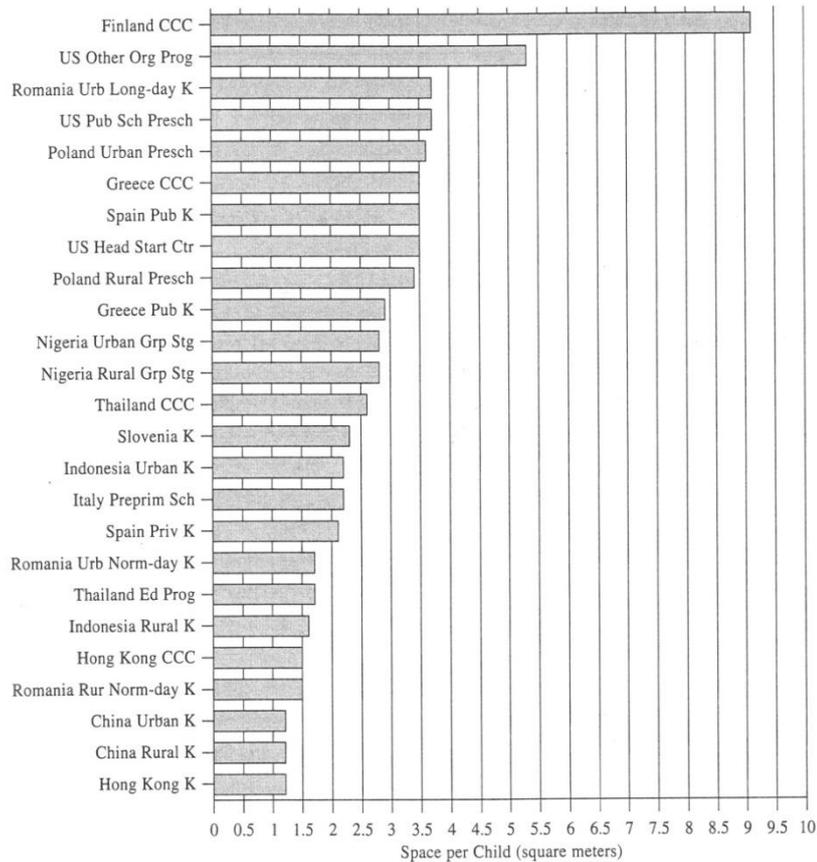


Figure 2. The standards of the minimum space requirement in different countries (Olmsted and et. 2001)

Space Standard (Quality)	Primary Activity Space in Each Group Room	Secondary Activity Space in Each Group Room <sup>*,**</sup>	Adult & Common Space (Outside the Group Rooms)	Tertiary (Nonassignable) Space	Total Building Square Footage
Minimum (Insufficient)	35 sq ft/ch	20 sq ft/ch	15 sq ft/ch	17.5 sq ft/ch (25%)	88 sq ft/ch
Workable	42 sq ft/ch	20 sq ft/ch	18 sq ft/ch	20 sq ft/ch (25%)	100 sq ft/ch
Better	46 sq ft/ch	20 sq ft/ch	22 sq ft/ch	26 sq ft/ch (30%)	115 sq ft/ch
Recommended	50 sq ft/ch	22 sq ft/ch	24 sq ft/ch	29 sq ft/ch (30%)	125 sq ft/ch

Figure 3. The Space Requirements (Olds 2001)

When the findings of literature are considered, it is easy to say that the structures that are designed according to the accepted standards of the minimum space size, 1.5 m<sup>2</sup> - 1.7 m<sup>2</sup>, do not support child development. In addition, observation of space users should be acquired and it is necessary during the definition of the ideal space to deduce from problems and expectations of existing environment.

### Materials and Methods

The purpose of the field study is to reach the observations of group room users who are children and teacher regarding the dimensions of the space and to be able to make a statement on the minimum space requirement under the light of their ideas. In the frame of the doctoral thesis that this study rests on, the detailed comments of children on preschool education period were tried to be received and hence different studies by using verbal and visual methods were made with

children from three separate independent infant schools. This paper presents the observations of children and their teachers from one-to-one interviews regarding to size the education environment that suggested in the thesis. Independent infant schools were preferred for field study to be able to analyze different dimensions of classrooms. It was interviewed with 30 children and their teachers in total who are educated in different size of activity rooms from three different formal independent infant schools. 60-72 months old children were interviewed as considering the high age groups of children participate in preschool education of formal institutions in Turkey.

Since the goal is to be able to make a statement of how children see the dimensions of their actual classes; questions like “Do you think that your classroom is small?, Do you think that it is crowded?, Does it make you uncomfortable?” were asked during the interviews. While children were asked more simple questions, teacher were asked with more detailed ones such as “Does the classroom limit you during the activities?, in which way it limits?, How many children should be in an ideal class and what should be the dimensions of it and why (you can make comments from your actual classrooms)?”

### **Evaluations of Group Rooms Regarding the Dimensions from Children and Teachers’ Point of Views.**

Group rooms of three independent infants schools included in the study have the similar number of children but different dimensions. These rooms were classified with numbers 1, 2 and 3 in the study paper. The group room number 1 is 60 m<sup>2</sup> and there are 25 children which the space per child is 2.44 m<sup>2</sup> (Figure 4 and 5). Children of this room do not have any other place that can be used for painting, music activities. The structure is one floor building and designed for preschool education purpose.



Figure 4. Group room 1: activity area



Figure 5. Group room 1:  
entrance and playground area

The group room number 2 is 35 m<sup>2</sup> and is used by 18 children. Thus, the class has space 1.94 m<sup>2</sup> per child (Figure 6, 7). In the infant school, there are not any other free spaces for activities like painting, music etc. The school is three floor building and was remodeled for preschool education later.



Figure 6. Group room 2



Figure 7. Group room 2

The last group room is number 3 and is 30 m<sup>2</sup> with 19 children which the area per child is 1.57 m<sup>2</sup> (Figure 8, 9). The infant school is two floor building and designed with preschool education purpose. There are distinct other rooms for painting, computer and sport activities in the school.



Figure 8. Group room 3



Figure 9. Group room 3

In this chapter where the space requirement in group rooms is evaluated, the relation between dimension of the room and the use is analyzed with perspective of children and teacher. When the comments of children are considered, the group room number 3 which has **1.57 m<sup>2</sup>** space per child is perceived as “small”, by verbal definition of children, and stated that this creates discomfort on them.

*Yağmur (3): Our class is small, crowded. I am not comfortable during play time.*

*Sude Naz (3): Our class is small, only two class of the school are like this one, other classes are big. Sometimes it feels jammed.*

In the group room number 2, children have **1.94 m<sup>2</sup>** space per child where you can see the slight change of children’s comments; such as, “a little small, a bit small”. Even some of children find the space of the room enough.

*Miray (2): It is a little bit small, sometimes we want to run but we can’t, it feels crowded, I feel uncomfortable, I wish it was a little bit bigger. Only one table is big enough, we squash into each other during painting*

*İsmail Emir (2): It is a little bit small. We have to squeeze while we are studying at the table.*

*Duru (2): Our classroom is not small but crowded, 20 children. When we are playing it feels good but when painting on the table it becomes a little difficult, our papers get mess with each other.*

Children define their classroom as “normal and big” and do not mention of any discomfort in the group room number 1 where the space size per child is 2.44 m<sup>2</sup>.

*Orhun (1): Our class is medium size, big – he is indecisive- we use it comfortably.*

*Ekin (1): The class is a little bit small, a little bit big, in other words, medium. It is a little bit crowded but I don’t feel any discomfort.*

*Yağız (1): Our class is pretty big, that is to say it is comfortable.*

*Sude (1): Our classroom is big and comfortable.*

The findings are presented in Table 1 obtained from the teacher and children interviews regarding the space requirement and different classrooms' size of related schools. Teachers try to explain the space usage problems of group rooms which defined as small (3) and a little bit small (2) by children. In that regard, teachers of these specified schools expressed the ideal space size by giving a reference to the other spaces of the school that seems to have the ideal

Table 1. The minimum space requirement in the line of teachers' opinions

Number of the group room	Size of the group room / Number of Children	Space per child and the comments of children	Teachers' suggestions of the ideal space size	The ideal space size per child
1	60 m2/ 25 children	2.44 m2 - Normal and big	The size of the present classroom defined as sufficient.	Approximately <b>2.5 m2</b>
2	35 m2/ 18 children	1.94 m2 - Little bit small	<ul style="list-style-type: none"> <li>The double size of the present classroom (70 m2) is defined as the ideal space size for 20 children.</li> <li>The two classrooms of the school, 60 m2 each, are defined as the minimum space size required for 20 children.</li> </ul>	<b>3- 3.5 m2</b>
3	30m2/ 19 children	1.57 m2 - Small	<ul style="list-style-type: none"> <li>The double size of the present classroom (60 m2) is defined as the ideal space size for 20 children.</li> <li>The two classrooms of the school, 60 m2 each, are defined as the ideal space for 20 children.</li> </ul>	<b>3 m2</b>

A pilot study in the school of the group room number 3 was realized before for the thesis study that this paper based on. In this study, children were asked questions about the places they like, dislike, scare and find dangerous in the group rooms and within the school. Children interviewed were educated in the group rooms where the space size per child is 1.5 m2 and 3 m2. In this study, the effects of size differences on children can be easily seen from the comments of children. Although the small group room space is accepted sufficient for Turkish standards, actually children do not find it as sufficient enough. It is observed that children from small classrooms like the most to play outside from the class while on the contrary children of larger rooms want to play within the group room (Şahin and Dostoğlu 2012).

### Discussion

#### Enabling to Use the Space of Group Rooms Efficiently through Changeable Design Approach.

When the issue is analyzed from user perspective and the comments of children and teachers are considered all together, it is understood that the minimum space standard of 1.2 m2 accepted for preschool group rooms in Turkey is not enough. The places that a child approximately has 3 m2 space is defined as the ideal standard by teachers; and also children who have approximately

2.5 m<sup>2</sup> space in the group room did not mention during the interviews about any discomfort on the use of the space. Teachers of the group room number 2 and 3 that define the space size as insufficient stated the limitations they face while organizing an activity within the classroom which makes them unhappy. The minimum space size of 1.5 m<sup>2</sup> should be reconsidered to create ideal conditions by considering the user perspective. In addition, bringing suggestion for existing structures is also important to improve the quality of education. Although the ideal limits for standards are defined, the desired conditions could not be created under the present circumstances. For example, the required space standard is defined as 7.5 m<sup>2</sup> per child in Italy, yet the average of present condition is 2.2 m<sup>2</sup> (39 m<sup>2</sup> for 18 children). Finland has the highest space standard with 9.1 m<sup>2</sup> per child among the minimum space standards; however, in a general study made with schools of countries including Finland, Romania, USA, Greece, Spain, Nigeria, Poland, Thailand, Slovenia, Italy, Indonesia, Hong Kong and China, shows that only %60 of all the institutions actually provide space between 2 - 4 m<sup>2</sup> per child (Olmsted and et., 2001). It is understood from the results of the study that Turkey is not the only one country having problem to provide the ideal space in group rooms.

According to the teachers interviewed, the biggest problem of small classroom is trying to adapt the group room for changing activities. Teachers complain that when changing the group room for a new activity, the whole changing process affects negatively their physical performance and also children's attention and motivation. Moreover, it leads to lose the control of the classroom and to waste time. One of the subjects of the thesis study which this paper relies on is to redesign the present group rooms with lack of enough space so to be able to respond to the needs of children and to increase the quality of education. The thesis proposes ateliers for preschool education and the basic parameter in designing these spaces is changeability. Changeability can be defined as the possibility to form education space according to the needs of children (Figure 10). When limited function of using only one group room during preschool education is preferred, the structure of group rooms to be adoptable for lots of daily changing activities becomes even more important. The static structure of the present classrooms is the biggest obstacle in front of changing the class into another activity like for example going from painting order into free play order. For the space to be adoptable to a changing activity, education environment should be changed to a new order at short notice. Children should have an active role during the changing process and can create a usage area through multi-functional designs of education environment that responds to their needs.



Figure 10. A design example with different usage alternatives in school  
([http://www.baupiloten.com/en/Main\\_projekte.htm](http://www.baupiloten.com/en/Main_projekte.htm), 15.09.2014)

In the thesis study changeability, which is prescribed as a quality enabling children to design their own space to use by attributing them an active role in the changing process of education environment, is endorsed to children through toys with changeability feature and furniture designs (Figure 11). Teachers see changeability as a solution that must be used especially in activity rooms with limited space. Moreover, a space including designs with options shall help children to have lots of different gains in term of their development during early childhood. Children describe

changeable designs as solutions that shall respond to functional needs. When such description can be made by five year old, it is seen that the space problem of group rooms is clear enough to be able to observe by children.



Figure 11. An example of changeable design used in the thesis study: FlexibleLove (<http://www.nyiad.edu/design-articles/archive/green-design-flexible-love-seat>, 2014)

Comments of teachers also support the estimation that if group rooms have changeable designs which combine different functions, child development will acquire important gains from the process. Teachers define changeability as suitable feature for using the classroom efficiently. The process of adapting the space to changing activities leads both to lose children's attention and motivation; and also children cannot participate to the changing process (for instance; teacher move the table and chairs in the classroom for the new order and physical performance of children is not appropriate for the process); in other words, they become isolated from the changing process which is defined as a problem for their education process. In that regard, using changeable designs that enable children participation is described as a solution to prevent distraction in the meantime of adapting the classroom to changing activities. Different opportunities to support child development can be achieved with such design approach that attracts children and integrates usage alternatives they required into the classroom.

*Teacher (1): Two-way usages would be very beneficial for us, for instance when the kitchen corner of the classroom is rotated into an experiment corner. Such designs can also be applied to sitting corner, as children pull them out it can change to a different space they can use. Also closet doors can be changed; it can have a secret division inside. Such solutions can be very useful both for children and teachers. For instance, children like things they can be covered up, hide inside, they like to create a space just for themselves; maybe children can pull out any attachment from the wall and create a cover and later close the cover, it can be very good.*

*Teacher (2): The size of the class is not very big. It is very hard to pull out the tables for an activity. We have to tidy up when we are playing games; this is both time consuming and distraction for children. The control of the class becomes really hard.*

*Teacher (3): Only teacher of the class as me or another teacher can organize the classroom for other class activities since the classroom is very small. Such organization time is a huge time waste and children get distracted easily so we lose the control of the class. This is the biggest problem for me, because time is very precious for us. If there are changeable designs, we can save time and children can get the pleasure to create something for their own.*

Children was able to consider the changeability feature as a solution that can solve the problems they have in the group rooms due to lack of space

*We could fold the chairs so we would not have to pull out during play times (2).*

*An extended seat would not take too much space. Everyone can sit that much (opens two arms to show how much). When the seat is open again we can watch cartoons all together, so we won't need any other chair (1).*

*These are very pretty (refers to the samples of the movie), I wish the chairs in our class can also be folded; it will be very good for our small class (3).*

*When extended seat and chairs are untidy we won't need to tidy them up again (3).*

*When we run, we won't hit the chairs, we just can fold them. During play times we can close them up and so won't hit them when we run (3).*

It is obvious from this small scale study that the minimum space standard of 1.5 m<sup>2</sup> per child accepted in Turkey does not respond to the needs of teachers and children at all. Such finding can be considered as a result that when the standards are specified the participation of users should be included as a strategy. In addition, it is understood from the comments of space users that it should be benefited from changeability designs to overcome the problems when the minimum space per child is not enough in group rooms which is a quite accurate remark. Changeability should be interpreted by designers from different perspectives in order to provide efficient use of group rooms and create a physical space in accord with developmental needs of children.

Children should meet with different sources to develop their imagination and skill to produce something. Hence, changeability helps the space to have different usage alternatives. Children can make different choices on themselves and experience the new conditions through changeable designs. As a result, it will be beneficial to use multi-functional designed furnitures first of all in present group rooms to convert the negative conditions into positive ones at a short notice.

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