

# Examining School Grounds as a Place for Children's Physical Activity Performance in Tehran

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## Abstract

Children need to play outdoors to develop socially, emotionally, cognitively, and physically. Outdoor play opportunities have the potential to promote physical and mental health throughout the life of children. Outdoor play has been acknowledged as a primary right for children; therefore there is a need to create spaces, where children can go and play spontaneously every day. Regarding to where the outdoor play of children takes place is significant; school grounds, as a place for children to learn and promote their health, could be assumed as a key setting that enhances and contributes to outdoor play guidelines. It requires making awareness and evaluation of current school grounds referring to outdoor play requirements. Four school grounds were selected as case studies in Tehran to be evaluated by School Environmental Audit Tool (SEAT). The survey shows a lack of proper consideration in the design and maintenance in the current situation of these important sites for children. At the end, some recommendations were proposed in order to outdoor play provision in accordance to current school grounds of Tehran.

**Keywords:** outdoor play, children, evaluation, school ground

## 1. Introduction

### 1.1 Children and Outdoor Play

Past literature highlights the role of outdoor play area for the children's development. Studies show that experiments are an alternative for children to develop and improve their physical fitness, social skills and self-esteem (Bartlett, Hart, Satterthwaite, de la Barra, & Missair, 1999; Bartlett, 1999b). In doing experiments, children are able to experience, communicate, create, think logically and develop motor skills (Barnett, 1990; Bartlett et al., 1999; Beard & Ragheb, 1980; Chawla & Heft, 2002; Chawla & Unesco, 2002; R. Hart, 2002; Hughes, 1990; Mergen, 1975). Moore (1987) agreed by saying that playing with friends will improve skills in conversation and organization, including their sense of adventure and exploration.

Generally, outdoor play is considered as a variety of free and unstructured activities in which children are involved (Pellegrini, 2009) spontaneously without a purpose (Sener, Copperman, Pendyala, & Bhat, 2008). During outdoor play, children become imaginative and creative, push objects into positions, and engage in construction play (Bundy et al., 2009), such as lifting/carrying, exploring, planting, chasing (Dyment, 2008), digging, and raking (Salmon, Owen, Crawford, Bauman, & Sallis, 2003). Interacting with other children increases their coping skills as well. Outdoor play fosters motivation, competence, and belongingness, which enhance psychological well-being (Pellegrini, 2005). Consequently, maximizing quality play opportunities has the potential to promote physical and mental health throughout the life of children.

Moreover, outdoor play has been acknowledged as a primary right for children by the United Nations High Commission for Human Rights (G. T. Moore, 1987; UNICEF, 1990). Several convention and conferences for children's rights in cities have been held. For example, "A World Fit for Children," which was held in New York in 2002, aimed to make different environments in cities more adaptable to the needs and rights of children (Riggio, 2002).

However, literature indicates that children need to play outdoors to develop socially, emotionally, cognitively,

and physically. Studies recognize that outdoor play is not a mere need, but a right for children's bodies, minds, and spirits to engage in a frequent and free-spirited play with peers. Thus, there is a need to create spaces, where children can go and play spontaneously every day.

### *1.2 School Ground as a Key Setting to Promote Children's Outdoor Play*

From the time of birth, every child is affected by his/her surroundings. The child's environment can limit or help in the development of the health and development of the child because the influence of the environment lasts a lifetime, where the outdoor play of children takes place is significant. The outdoor environment affects children's development based on opportunities for everyday experiences of free or unstructured play.

Children spend a large amount of their daily time in schools. Thus, these sites could be assumed as a key setting that enhances and contributes to outdoor play guidelines (Biddle, Cavill, & Sallis, 1998; Davison & Lawson, 2006; Tudor-Locke, Lee, Morgan, Beighle, & Pangrazi, 2006). Nowadays, the aim in schools is not only to provide knowledge and skills, but also to increase understanding on how to learn about different attitudes, behaviors, and communication (OECD, 2001, p. 103). In this regard, school grounds become as significant as school buildings for children to gain knowledge and skills.

Reducing outdoor play opportunities for children (Hardman, 2008), and the increasing rate of overweight and obesity among them (Eisenmann, Laurson, Wickel, Gentile, & Walsh, 2007), place school grounds as a critical site, where public health provisions could be promoted through children's outdoor play. The growth in attention on school grounds providing outdoor play is vital in offering children the skills through which they could learn to be physically active (I.-M. Lee, 2007). Schoolyards are considered as areas outside of the school building, and students actively use this external environment regardless of its size, design, or condition (Weaver, 2000, p. 42). A proper design of school ground provides safety and minimizes risks for children. With existence of safety in the environment, children can play, learn, and explore properly.

#### *1.2.1 School Ground Influence on Children's Physical Activity*

The National Taskforce on Obesity Report stated, "every child should be enabled through a restructuring of school day to achieve a minimum of 30 minutes dedicated physical activity every day in all educational setting." (Government of Ireland, n.d., 2005b, p. 88). In Europe, the project, "Schools on the move," aims to increase the outdoor play and physical activity opportunities for children per school day (Koulutliikkeelle, 2006 cited by Marron, 2008). The project consists of developing various areas, engaging in physical activity in the way to school and during recess, considering the situation of school yards, increasing outdoor play in friends and groups, and informing children about its benefits.

Developing school-based interventions requires a better understanding of children's environment and the promotion or inhibition of their physical activity in such area (van Sluijs et al., 2012). Some scholars have been focused mainly on environmental influences on health outcomes. These studies show the condition of school ground or campus were within the objective measurements of physical activity (Cradock, Melly, Allen, Morris, & Gortmaker, 2007). For instance, children in small schoolyards were more active (Ozdemir & Yilmaz, 2008), and children in large school grounds were healthier (Özdemir & Çorakçi, 2010). Furthermore, factors have been identified to encourage effective physical activity. These factors include the impact of the size and type of the schoolyard, fixed outdoor and extra equipment (Fjørtoft, Kristoffersen, & Sageie, 2009; Ozdemir & Yilmaz, 2008; Sallis et al., 2001; Verstraete, Cardon, De Clercq, & De Bourdeaudhuij, 2006), recess time in school (Ridgers, Carter, Stratton, & McKenzie, 2011; Ridgers, Stratton, Clark, Fairclough, & Richardson, 2006), green areas (Dyment, Bell, & Lucas, 2009; Lindholm, 1995; Sobel, 1993), improvements in school environment (Haug, Torsheim, Sallis, & Samdal, 2010), paintings in school ground (Ridgers, Stratton, Fairclough, & Twisk, 2007; Stratton & Mullan, 2005), availability of balls, and school size (Zask, van Beurden, Barnett, Brooks, & Dietrich, 2001).

In addition, some interventions attempt to fill the decline in children's outdoor play by implementing provision of game equipment, activity cards, sports (Lopez, Campbell, & Jennings, 2008; Verstraete et al., 2006), and physical playground structures (Ridgers et al., 2007), and school playground markings (Stratton & Mullan, 2005; Stratton, 2000). Generally, while these interventions foster structured outdoor play with specified locations and facilitate sports and fitness (Sener et al., 2008), it is necessary to examine interventions during recess that encourage unstructured and free play in school ground (Dyment et al., 2009; Dyment, 2008). The main purpose in all these studies is the provision of school grounds, in which students feel safe and could have education and healthy social interactions.

### 1.3 School Grounds in Iran

Recently, many countries have implemented changes and improvements to redesign school grounds to make them proper places for children. However, children in third world societies are not very lucky. In a country such as Iran, the main part of the education in schools is allocated to closed places, such as classrooms. Although the outdoor areas in Iranian traditional school have held a vital role in education and most of learning process has happened in central schoolyards, this arrangement limits the education system in the closed area and results in the lack of interest and attention to potential performances of the open area. This situation is present in typical Iranian schools, and originates in both the neglected values of schoolyards in traditional architecture and no new interest to create the functional open space in recent schoolyards (Sami Azar,2000).

All school grounds need to provide facilities that are required to promote play opportunities for children to enhance their mental, cognitive, and physical abilities. These sites have been assumed as significant places that can provide a stimulating environment along with the safety for children to play, learn, and explore; however, for research, what is lacking now the assessment of the outdoor play area in the cities around the world like in Tehran. Most studies were done in developed countries, although the demand for such study is much needed in developing countries due to increase number of children and school grounds. It is important to evaluate and examine the present conditions of the school grounds in order to propose suitable environmental planning for the play area. A city like Tehran really need to have such study for its schools in effort to have open play area for the children.

One way of better school ground design is to identify its weaknesses and reduce them as to ensure that children will have more physical activities that improve their motor development and experiences. In daily routine, children spend time at the school yards as part of their outdoor activities, thus it is important to focus on these yards in order to shape the children as environmentally active.

## 2. Material and Method

### 2.1 Case Studies

In the first step, District 3 was selected among the 22 districts of Tehran according to the convenience sampling method. There are two school systems in Iran, namely, public and private. Public schools are managed by Education and Training Organization with collaboration of Tehran Municipality, whereas the private ones are supervised by the private section. As majority of children in Tehran attend public schools, this school system was selected for this research. District 3 includes 16 girly (all-female) public schools. We sent a letter that included a short explanation of the study objectives along with the request for school's permission and cooperation to all the school directors of District 3. Among these 16 schools, 4 accepted the request in this research. Tables 1 and 2 show the main characteristics and illustrations of the schools.

As there were no site plan documents for the considered schools, the researcher conducted a physical survey to prepare these site plans, including school ground features and equipment. Outdoor environments and the adjacent areas were assessed with respect to physical and landscape qualities (i.e., vegetation, material, size). In this regard, the study used environmental audit tools in a simple evaluative framework for assessing whether an environment incorporated the necessary design elements and qualities. To score school design attributes related to children's play and physical activity, the study used a modified version of the School Environmental Audit Tool (SEAT) developed by Jones (2010). Table 3 illustrates the school ground attributes relating to children physical activity performances. The design of the school ground, its play facilities, aesthetics, and other components were evaluated by using SEAT.

Table 1. Main characteristics of case studies

Site study	School 1	School 2	School 3	School 4
Construction Year	1367	1357	1361	1359
Total Area	1616	1006	2752	1682
Open Area	960	517	580	500
Student No	570	320	515	558

Table 2. Illustrations of case studies




	
School 1	School 2
	
School 3	School 4

Table 3. Case studies evaluation by SEAT

School ground audit tool	S1	S2	S3	S4
	Presence / Quantity / Quality / Suitability			
<b>Play facility provision</b>				
Bright marking on play surface	No	No	No	No
Playground equipment	No	No	No	No
Hard surface playground	Yes	Yes	Yes	Yes
<b>Design of school ground</b>				
School ground on a split site	No	No	No	No
Suitability for informal games	Somewhat	Somewhat	Somewhat	Somewhat
Suitability for general play	Somewhat	Somewhat	Somewhat	Somewhat
<b>Aesthetics</b>				
Planted bed	No	No	Some	Some
Tree	Some	Some	Some	Some
Ambient noise	Some	A lot	A lot	Some
Litter	None	None	None	None
Murals / Outdoor art	Some	Some	Some	Some
<b>Other facility provision</b>				
Benches	7/Adequate	0	7/Adequate	6/Adequate
Picnic tables	0	0	0	0
Drinking fountains	Some/Good	Some/Good	Some/Adequate	None
Gardens	No	No	No	No
Shading	40%	15%	32%	35%
<b>Components</b>				
Ground shielded from surrounding area	Yes	Yes	Yes	Yes
Ground well maintained	Poor	Poor	Poor	Poor

To assess the levels of shade at each school ground, a shade map during recess was used (see Table 4). The school yard shade scores for each time were calculated using the percentage of school ground’s area that was

shaded during that specific time. The recess in school was scheduled three times, 8:30 a.m., 9:45 a.m., and 11 a.m. The shade score in Table 3 represents the average percentage of sunny area during a sunny day at each school ground.

Table 4. Shading maps of school grounds



### 3. Findings and Discussions

The survey shows a lack of proper consideration in the design and maintenance in the current situation of these important sites for children. Mostly, the school grounds are barren, empty, and neglected. Open spaces that are asphalt-covered with tough surface without any specific design provided, very limited play opportunities for children, which can affect their behavior improperly. Some of the schoolyards, especially in private schools, which have been used recently, are yards of the residential buildings that currently play the role of school environment for children. In this case, children do not enjoy the boring environment of their school grounds. As Moore stated, "Boredom is the result of an absence of playing and learning opportunities. It extracts a high cost in missed learning opportunities-benefits lost forever, if not captured in early childhood." (G. T. Moore, 1987). In many developing countries like Iran, there is lack of children's outdoor play in school grounds and majority of school systems do not prioritize and provide high value on this subject. In summary, school grounds offer children many vital learning and developing opportunities, which they might be missing in their life.

Nature provides a sense of wonder which can be a positive contact for children. According to White and Stoecklin (1998), children tend to have positive feelings towards themselves and whatever around them when their play setting is a natural one. If the situation is vice versa, the children will have negative feeling, acting aggressively with each other. An example would be the case of bullying in Australian schools. It is a major problem in the nation's schools and in the report of National Crime Prevention, the role of school ground is not considered as a factor to be considered in the preventive measure (Rigby, 2002). In fact, schools with bullying and fighting issues are the schools with limited natural spaces.

Lambert (1999) mentioned that destructive behavior can be triggered by boring open play ground without any trees, bushes or hedges as boundaries. Such setting does not offer any natural shade or restful spots, hideouts for children to keep their distance from others.

Natural play area proves to be a better choice for the children than the typical playground as they think the

natural type as challenging and not boring (Fjørtoft, 2000, 2001; S. H. Lee & Christiansen, 1999). The typical playground is a standard, sterile one without any choices for the children to explore and develop their skills although it is designed for the children. Most of these playgrounds are covered with asphalt slabs. In a study, it is proven that people spent less than 50% of their level of playing in barren area if compared to the natural setting (Taylor, Wiley, Kuo, & Sullivan, 1998). Fjørtoft and Sageie (2000) conducted a study that showed there is a positive correlation between natural environment and children's motor activities. In addition, Bienenstock (2010) also said that 60% of children without supervision at a dull barren play area tend to be a passive lot of them.

In one study which performed by ...., based on the expressed preferences of the children and their drawings, barren asphalt and grass school grounds most closely met the needs of sports-oriented boys aged 11 and older. The needs of other user groups tended to be ignored on the barren grounds. He also stated, girls aged 11 to 13 expressed high levels of satisfaction with the biodiverse school ground and dissatisfaction with the barren school ground. They often stayed inside because the school ground, in their opinion, was not only boring and ugly, but had no place for them to sit or to visit.

Research (Roger Hart, 1982; Lucas & Dymont, 2010) showed children preferred to play in them and because they provided "many more affordances for play and discovery than barren school ground[s]" (Fjørtoft, 2004; Samborski, 2010, p.100). Similarly logs, twigs, leaves, stones and flowers were incorporated in the belief they encouraged students to use the schoolyard in purposeful ways (Malone & Tranter, 2003). Additionally, natural environments encourage positive social interaction between children (Bixler, Floyd, & Hammitt, 2002; R. C. Moore, 1990). Over the course of several years, Robin Moore (1989) helped convert an asphalt schoolyard into a nature area called the Environmental Yard. Follow-up interviews with students indicated that they felt more peaceful in their new environment and were less likely fight with one another. The school nurse reported that fewer injuries occurred in the Environmental Yard than the previous asphalt schoolyard. Moore's study parallels other research that reports that play in diverse natural environments reduces or eliminates bullying (Malone & Tranter, 2003).

At present, health professional are concern with the increase number of boring, unstimulating playgrounds, lacking of natural factors and green area that pose a threat in physical and psychological sides (Kaplan, 1983, 1995; Kellert, 2005; Taylor, Kuo, Spencer, & Blades, 2006).

The green approach for the school grounds has gained weight for the last decade in effort to improve the play area for children and their learning exposure (Bell & Dymont, 2007). In developed countries like Canada, Australia, the United Kingdom, the United States, Scandinavia, New Zealand and South Africa, transformation in schools can be seen with the barren area is no longer exist, replaced by natural elements like trees, shrubs, bushes, flowers and garden in promoting natural wonders for the children and their development (Bell & Dymont, 2007).

### *3.1 Play Provision of School Grounds in Iran*

Today, the relation between the healthy development of children and school grounds are evident. In this regard, the important and critical point includes the application of the gained knowledge in practice. Many studies have tackled these issues and provided information on the relation between school ground and children's health and the effect of schools on child development. Yet, the complex and important point is how to deal with the knowledge and make it applicable. In this regard, some items and points in school grounds of Iran require attention.

At present, significant factors have been neglected in Iranian school grounds, such as beauty, diversity, and natural features. The existence of these factors in school grounds makes the children active and dynamic while they play in this environment. Considering natural features and plants is important in designing school grounds. And even more vital in countries like Iran, where in many cities there is few greenery and nature for the interaction of children. This connection with nature and green space can be reached through school grounds, as children with different socioeconomic and cultural background have access to these sites. Moreover, providing space and facilities for children to engage in outdoor play is another aspect of these sites that should be considered in planning and designing of school grounds in Iran. Consequently, school grounds should be investigated in revaluing and redesigning strategies to make them as useful as could be.

Therefore, a suggestion of guidelines is proposed in improving the studies of school grounds in Iran and filling the gaps of future studies on children's play area. The guidelines may not be enough but at least it is a start for the designers and planners of school grounds. What should be considered are the learning, socializing and fun parts for the children.

- Considering landscape in different levels and spaces that are allocated to various kinds of play, and access to play equipment for a variety of new and traditional play could enhance children's outdoor play activities.
- Considering places where children can find shelter, shade, and privacy, providing several features to sit on, in, or under and natural landscapes, could fulfill their social needs and increase socialization among them. These areas should also consider the privacy that can protect them from disturbing and being disturbed by children who spend their break time in other ways.
- Considering a variety of sensory stimulations, such as different colors, textures, smells through man-made or natural elements like different kinds of vegetation, to build creative things, and different environments to children in various ages, provide the opportunity for cognitive development and enhance learning process during recess in school grounds.
- Considering safety in design and play space, such that children could feel safe enough, can make children enjoy playing and dare to have physical activity.

These environments should be planned and designed a way in which similar opportunities they may have in a natural setting could be offered. This idea is significant for their emotional, social, and cognitive development. This aim may be achieved by having proper design approaches in planning the school ground in which the children's needs and special characteristics are considered.

#### 4. Conclusion

In recent years, attempts to bring the school, where learning occurs, to its original mission have been done. School grounds as the open spaces that children use daily could be the place where children could learn through play and develop their physical activity level and motor development, while gaining childhood experiences in natural settings. Given the possibility of achieving these goals by reducing the weaknesses in current school ground design, more attention to these places could help attain better school grounds that encourage children to be environmentally active.

Despite the benefits that greenery might bring to schools, these types of initiatives have yet to become widespread in schools of Tehran, and still barren school grounds are the norm. Neglected school grounds are particularly critical in disadvantaged schools in Iran and especially those located in urban contexts. Moreover, the reason for many of these barren school grounds without efforts in changing their situation is due to a lack of sustained support from higher authorities in delivering relevant policies for the greening of school grounds. The question now is how to close the gap between the present conditions of school grounds and natural play setting that can be an integration of education, health, culture and social aspects of the children and the society at large. In keeping with this question, the further studies needed in case of Tehran to identify relevant aspects during the planning phase that will help schools initiate and sustain proper design strategies and achieve a successful environmental transformation in the long term.

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