

Kindergarten Teachers' Views About Outdoor Activities

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Abstract

Preschool years constitute a vital developmental period during which foundations of later development are formed. It is during this period that essential developments such as establishing attachment bonds, forming a basic sense of autonomy and sense of self (ego), language acquisition and attaining life and social skills. Studies in developmental psychology and in a variety of other disciplines have established that the optimal growth at this stage will prepare the child for later developmental tasks and challenges. For a great part of human history care and education of children at this period was done by extended family and the immediate local community. However, as demands of recent centuries and decades have necessitated longer and more intensive periods of formal schooling, preparation of preschool children for later development has evolved accordingly. Therefore, preschool education has been added to traditional family education and socialization of children. The accumulated literature and experience in preschool education has reached to a point where not only the classroom learning experiences but also the surrounding school and neighborhood settings have been receiving attention. One of the significant aspects of these contextual factors has been the playground. A growing body of research has addressed importance of incorporating the playground into educational activities for preschool children. Studies focusing on the playground activities for preschool in Turkey have been limited. Therefore, this study aimed at examining preschool teachers' use of playground. Fifty-four preschool teachers from three different cities were recruited for this qualitative study. Semi-structured interviews were conducted with each participant. Results of the study showed that although the preschool teachers reported overall positive attitudes toward educational use of the playground, they underutilized the playground due to concerns about children's safety and a lack of equipment and quality playground arrangements. Furthermore, they reported playing certain typically outdoors games indoors for these reasons. Results, limitations of the study and implications the results for both educations and researchers were discussed.

Keywords: preschool education, playground activities, preschool teachers, garden, playground outdoor

1. Introduction

Preschool education refers the time period between birth and the beginning of primary school (Oktay, 1999). It is defined as an education process provided in families and institutions where foundations of physical, psychomotor, social, emotional, cognitive and language development are laid (Oktay, 1999). The proposition that education provided in preschool years constitutes foundation for future development (Gabbard, 2000) has been confirmed by neuroscientific studies. It is widely known that neural (synaptic) connections children use most frequently during preschool years remain with them while the others are eliminated (synaptic pruning) (National Forum on Early Childhood Policies and Programs, 2007). This finding confirms the proverb "as the twig is bent, so grows the tree". Preschool period is a critical period where rapid developmental changes occur. Quality education and experiences foster children's motivation and desire for learning during this period (Aktan, Kerem, & Cömert, 2004).

Given that education by kindergartens is provided by trained staff, it involves more structured experiences designed in accordance with a curriculum and entails use of richer varieties of educational tools and toys, it is often preferable to education at home (Bronfenbrenner & Morris, 2006; Johansen, Leibowitz, & Waite, 1996). A quality kindergarten education tailored in accordance with children's development characteristics has considerable positive contribution to their development (Burchinal et al., 2000; Campbell et al., 2001; Karoly et al., 1998; Peisner-Feinberg et al., 2001; Reynolds, 2000), particularly to their cognitive and academic achievement (Cote et al., 2007; Gormley, Gayer, Phillips, & Dawson, 2005; Mashburn et al., 2008). However, there have also been studies reporting contrary findings. For example, some researchers have found that kindergarten environment might be contributing to development of some problematic social behaviors (Cote,

Borge, Geoffroy, Rutter, & Tremblay, 2008; Huston et al., 2001; Loeb, Bridges, Bassok, Fuller, & Rumberger, 2007; Magnuson, Ruhm, & Waldfogel, 2007; Nomaguchi, 2006). Namely, some studies report that compared to children cared by their mother at home environment those children attending to kindergartens are more likely to demonstrate aggressive behavior and oppositional behaviors toward adults (Belsky, 2001; Han, Waldfogel, & Brooks-Gunn, 2001; National Institute of Child Health and Human Development [NICHD], 2003, 2005; van IJzendoorn et al., 2004; Waldfogel, Han, & Brooks-Gunn, 2002). Likewise, compared to children cared at home environment those who spend time in groups (such as those in kindergartens) have higher levels of cortisol (Watamura, Donzella, Alwin, & Gunnar, 2003). Increase in the cortisol level during the day is often associated with stressful experiences such as anxiety, fear, depression and low immune system (Greenspan, 2003). In other words, cortisol is a biochemical product resulting from experiencing stress. Thus, increase in the cortisol level indicates that kindergarten children might experience more stress during the day compared to children who stay at home. Although a variety of individual and family factors might play parts in this physiological stress reaction, it still does raise questions about the variables inherent in the kindergarten environment.

Effective kindergarten education aims at supporting children's development physically, cognitively, emotionally and socially, providing them with opportunities that foster understanding their surroundings, and developing their imagination and problem solving, creative thinking, critical thinking and communication skills. Realization of these objectives depends on the quality and richness of the stimulant environment and how well educational experiences are structured.

Several characteristics are evaluated when examining quality of preschool educational institutions. Design of indoor and outdoor areas, quality of teachers and implemented curricula and the number of students per teacher are some of these variables. On the other hand, when quality of the process is concerned, variables such as the richness of experience children have, interaction level of children with their teachers and peers and diversity of cognitive, social and linguistic stimuli are examined (NICHD Early Child Care Network, 2002). The former sets of variables do not always ensure optimum learning. Studies have demonstrated that even when institutions have teachers with quality educational backgrounds and small-size classes, they may not be conducive of satisfactory levels of student learning. In a structured environment, rich opportunities for interactions with teachers and peers should be added to quality of teaching and other physical circumstances of the school in order to foster optimum learning (Hamre & Pianta, 2007; Howes et al., 2008; Pianta, 2003). Furthermore, a kindergarten environment aiming at nurturing whole development of the child should take into account social and affective dimensions. Therefore, kindergarten education cannot be limited to classroom experiences. One of the essential aspects of kindergarten education that is often neglected is the playground and the outdoors environment of these institutions.

1.1 Importance of the Outdoors in Preschool Education

Studies show that with planned field trips to botanical gardens, forests or national parks contribute to students' learning both cognitively and emotionally (Rennie & McClafferty, 1996). Indeed, such experiences are likely facilitate students' active participation. For example, students tend to ask more questions during such trips than they do in classroom environment (Peacock & Bowker 2001; Bowker, 2002; Tunnicliffe, 2001). Furthermore, if students are informed and prepared prior to these trips their learning experience is further enriched and they tend to better focus on various details of the environments they visit (Gennaro, 1981; McKenzie, 1986). Likewise, gardening activities such as planting seeds, watering plants or tending to ants, beetles, caterpillars or other animals foster environmental awareness (Alexander et al., 1995; Brunotts, 1998; Brynjegard, 2001; Canaris, 1995; Faddegon, 2005; Moore, 1995; Thorp & Townsend, 2001) and positive attitudes toward environment (Skelly & Zajicek, 1998; Waliczek & Zajicek, 1999) and contribute to development healthier dietary habits (Faddegon, 2005; Libman, 2007; Lineberger & Zajicek, 2000; McAleese & Rankin, 2007; Morris & Zidenberg-Cherr, 2002; Phibbs & Reif, 2005; Pothukuchi, 2004; Thorp & Townsend, 2001).

Since schoolyard activities provide opportunities for observation, hands-on-concrete experiences and use of multiple sensory systems they promote cognitive processing and learning. Indeed, by illustrating how the nature operates (i.e., observing life cycle of butterflies) schoolyard experiences foster (Brynjegard, 2001; Thorp & Townsend, 2001) science achievement (Dirks & Orvis, 2005; Klemmer, Waliczek, & Zajicek, 2005; Phibbs & Reif, 2005; Smith & Motsenbocker, 2005), and support skills such as measuring area, observation, designing and conducting experiments, problem solving and finding creative solutions (Alexander et al., 1995; Brunotts, 1998; Brynjegard, 2001; Canaris, 1995; Faddegon, 2005; Moore, 1995; Thorp & Townsend, 2001) which are essential skills for achievement in both science and mathematics courses. Studies have demonstrated that teachers can use plants or animals tended in the schoolyard in teaching challenging math subjects. For example, students may measure, make charts or graphs of the growth of plants and calculate weekly or monthly changes in them (Ürey,

Çepni, Köğçe, & Yıldız, 2013). Likewise, schoolyard activities also improve cognitive skills such as naming, classification and recalling information which are skills grouped under the first domain of Bloom's Taxonomy (Kellert, 2002). In addition, such activities foster higher cognitive functions such as planning, testing, combining, using evidence to support ideas, problem solving and evaluating according to a given criterion (Mabie & Baker, 1996; Waliczek, Logan, & Zajicek, 2003). Furthermore, schoolyard activities carried out with peer groups, parents or individually have significant positive affective impacts as well. Indeed, some studies emphasized that participation of parents in schoolyard activities support student achievement (Henderson & Mapp, 2002), positively affect their well-being (Ulrich, 1999), becomes an important predictor of formation of positive attitude, behavior and values at adulthood (Blair, Giesecke, & Sherman, 1991; Francis, 1995; Lohr & Person-Mims, 2005), increase self-esteem (Cammack, Waliczek, & Zajicek, 2002; Phibbs & Reif, 2005), and support team work and peer cooperation and thus strengthen peer bonding between students (Alexander, North, & Hendren, 1995; Birney, 1986; Brunotts, 1998; Brynjegard, 2001; Faddegon, 2005; Hung, 2004; Moore, 1995; Thorp & Townsend, 2001). Many studies found out that students enjoyed participating in schoolyard activities; they were motivated to be part of them; they were excited about learning by discovery and even about getting "dirty"; students' attitudes towards school improved; and students often reported feeling proud for their achievement resulting from the yard activities (Alexander, North, & Hendren, 1995; Brunotts, 1998; Brynjegard, 2001; Canaris, 1995; Faddegon, 2005; Moore, 1995; Thorp & Townsend, 2001).

1.2 Purpose of the Study

Studies show that despite the fact outdoor activities provide unique learning opportunities for kindergarteners; they are not adequately and effectively used. They are even ignored (Stork & Sanders, 2008). Findings of studies conducted in Turkey show that outdoor-green areas in kindergartens and elementary schools per student are very inadequate; considerably weak in terms of landscaping; lacking yard equipment; and some yard equipment even pose danger to children's health/safety (Algan & Uslu, 2009; Karaküçük, 2008; Karatekin & Çetinkaya, 2013; Muhacir & Özalp, 2011; Şişman & Gültük, 2011; Özdemir & Yılmaz, 2009; Yılmaz, 1995). Some researchers have observed that the schoolyard grounds are often made from compacted soil or damaged grass; the playground ground is concrete or sand and some of the plants found in the schoolyard are even poisonous, allergenic and thorny (Özgen, 1997). Most of the schoolyards are used for parking (Aksu & Demirel, 2011; Muhacir & Özalp, 2011; Özdemir, 2011). The schoolyards are structured or organized in ways that provide students with opportunities for social learning (communication, observation etc.), movement (running, jumping, climbing, crawling, etc.) and resting (relaxing, sitting, laying down, etc.) (Özdemir, 2011). Some authors criticize most of the schoolyards in Turkey as far from supporting children's physical-mental and social development (Karakaya & Kiper, 2013). These findings show that kindergartens outdoors areas are scarcely used for student learning.

Schoolyards could be thought of as the bridge between the class and the real life (Karatekin & Çetinkaya, 2013). In developed countries, schoolyards are more than places where children spend their free time during the recess. Instead, they are considered and utilized as educational areas (Erdönmez, 2011). If adequately designed, organized outdoors areas can provide valuable educational experiences that can support every developmental area of children. Particularly considering that play is an essential part of preschool children's learning and development, underuse of the outdoor for kindergarten education is worth paying attention to (Chakravarthi, 2009). Furthermore, considering that crowded urban areas limit children's life to indoor areas, neglecting outdoor activities and play in kindergartens have the danger of fostering a physically passive lifestyle for preschool children (Alat, Akgümüş, & Cavalı, 2012, p. 48). This kind of negligence will make it difficult to realize the fundamental objectives of kindergarten education. For this reason, the purpose of this study was to identify the outdoor features of kindergartens and examine kindergarten teachers' view on and use of schoolyard activities.

2. Method

2.1 Research Model

This qualitative study attempted to examine viewpoints of the participants and to obtain an in depth picture of kindergarten teachers' utilization of schoolyard as an educational tool.

2.2 Participants

Participants of the study were 54 kindergarten teachers working in schools located at cities of Niğde, İstanbul and İzmir in Turkey. Only those teachers whose schools had schoolyards/playgrounds were included in the study. In addition, teachers were selected based on convenience and willingness to participate. Initial data

collection was done in the city of Niğde, then two of the largest cities in Turkey (İzmir and İstanbul) were added to the study to diversify the sample.

All 54 participants were females. Their ages ranged between 26 and 55, with a mean of 33.89 (SD=5.52, Median=33). Three of them had high school level occupational school diplomas, three had associate degrees, three had bachelor's degrees obtained via distant education and the rest of 45 teachers were had regular undergraduate degrees. Participants' years of work ranged between 2-32 years with a mean of 9.8 (SD=6.58, Median=8.5). Teachers' duration of work in their current schools ranged between 1 to 6 years. Schools in rural areas had classes of 10-15 students (Mean=12) while the ones in urban areas had 17-23 students (Mean=20.6). Table 1 summarizes information on participants' ages, education, years of work, location of the school and their respective students' age groups.

Table 1. Information on participants

Variable	Category	<i>f</i>
Age	26-30	9
	31-35	26
	36-40	13
	41-45	4
	46-50	1
	51-55	1
Education Level	High School	3
	Associate Degree	3
	Distant Education/Bachelor's	3
	Bachelor's	45
Years of Work	0-5 years	12
	6-10 years	28
	11-15 years	11
	16-20 years	2
	Over 20 years	1
School Location	Village	1
	Small town	3
	City center	50
Students' age group	4 years	18
	5 years	21
	6 years	15

2.3 Data Collection Tools

In this study, "Personal Information Form" and "Semi-structured Schoolyard Activities Form for Kindergarten Teachers" developed by the researcher were used as data collection instruments. The first draft of the questionnaire was presented to two field experts (from child development and preschool education), two kindergarten teachers and two psychometrists for their input.

These persons were asked to review the interview form with respect to clarity, comprehensibility, length, depth, user friendliness and whether there were any items or wording that could cause resistance in responding. The form was finalized based on feedback from the experts. Some authors claim that compared to self-administered measures, issues of social desirability and overstatements of responses might be more likely in interviews (Locander, Sudman, & Bradburn, 1976). In order to at least partially eliminate these threats, when face-to-face interviews were held, the participants were assured of the confidentiality of the information and of the fact that their names will not be used. In addition, particular care was given to avoid questions inquiring information on their personal lives or items that can in any ways be perceived as intrusion to their professional conducts.

The Personal Information Form involved items seeking information on teachers' gender, age, education level and years of experience. The Schoolyard Activities Form inquired how teachers evaluated schoolyards in their schools in terms of physical, social and educational properties and as to what kind of activities they conduct in the schoolyards. While some of the questions in the questionnaire were open-ended (for example, *What kind of games do you prefer the children play in the schoolyard?*), other questions are closed-ended questions (for example, *What kind of activities do you prefer outdoors or in schoolyards?* Free play Games Reading book Art works Drama Other...).

Data collection was done through semi-structured interviews conducted with the teachers.

2.4 Data Analysis

The data obtained by the closed-ended questions were analyzed with descriptive analysis technique. The information analyzed using descriptive analysis technique are interpreted and organized according to predetermined themes (Yıldırım & Şimşek, 2005). Interview questions were the first reference points in organizing the data and determining the themes. Then data were rewired and coded accordingly. Then the coded data was organized and categorized. While reporting these categories participants' responses have been cited.

2.4.1 Reliability and Validity

Coding reliability and detailed description were used as ways to improve validity and reliability.

Coding Reliability: The coding was done by two persons independently; the researcher and a preschool education expert. To determine the coding reliability the following formula suggested by Miles and Huberman (1994) was used:

$$\text{Reliability} = \frac{\text{Number of Reconciliation}}{(\text{Number of Reconciliation})+(\text{Number of Disaccord})} \quad (1)$$

Using this formula, the coding reliability was calculated as 0.94. This result shows that there is a high agreement between the encoders.

Detailed Description: Detailed description refers to providing detailed information the participants and research, data collection and data analysis processes. A significant part of it involves incorporating direct citations from participants' responses (Merriam, 2013). In this study, the research process has been described in details and sufficient participants responses have been cited.

2.5 Ethical Considerations

In this study, as noted above confidentiality of the participants identity and of the information they shared was ensured. Only those teachers volunteered were included in the study. Required institutional permissions and informed consents were obtained. Both during the interviews and in data analysis an unbiased stance was maintained. Likewise, information on the results of the study was shared with those participants who requested (Creswell, 2014).

3. Findings

In this part of the study, findings regarding kindergarten teachers' views on schoolyard activities are provided.

3.1 Frequency of Outdoor Activities, Time Spent Outdoors, Types of Outdoor Activities

Of the participating teachers 60% reported that they spent 0-20 minutes; 35% 21-40 minutes and 5% over 40 minutes outdoors every day depending upon their daily program. Teachers working in rural schools noted that they spent about 2 hours each day in outdoor class activities if weather and other circumstances permitted. This time was average 38 minutes (SD=7.63) for teachers working in small towns; those in urban areas reported an average of 22 minutes (SD=13.21) of outdoors activity.

Kindergarten teachers were asked about how often they do outdoor activities during each season. They reported that they do outdoor activities most frequently during spring months and either used outdoors only once a month ($f=12$) or never ($f=42$) used during winter.

Table 2. Frequency of going outdoors according to seasons

Frequency	Fall	Winter	Spring	Summer
Nearly everyday	3	-	2	11
2-3 times a week	15	-	18	19
Once a week	12	-	28	12
Once a month or less than once	12	12	-	6
Never	12	42	6	6

When the teachers were asked what kind of activities they do outdoors, they stated that they preferred games played with "traditional", "ball and rope", "group games with rules" such as "dodgeball, open the door, merchant head, and hopscotch" etc. Only the teachers working in villages and small towns that have relatively small class sizes (10-15 students) noted that they let students have free play time outdoors other than having

them play group games with rules. This might be interpreted as teachers preferring group games with rules during the outdoor activities in order to control the crowded classes.

All of the participating teachers indicated that the physical features of the schoolyards in their respective schools were not suitable for a variety of play or educational activities. They stated that a large section of the school yard area was made of concrete ($f=54$) and used as car parking space ($f=42$) which did not only restrict the area used by children but also caused safety issues. Furthermore, teachers expressed complaints about a lack of schoolyard equipment ($f=54$).

Perhaps these were at least in part reasons behind most of the participating teachers (53; with the exception T1 who works in the village and has a very small size class) preference to have students play the outdoor games at indoor environments (hallways, indoor gym, playroom or classroom if possible). For example, T2 noted: “*I always have children play the outdoor games indoors. I even like traditional games: gunnysack race, egg-and-spoon race*”. While T7 indicated: “*we mostly play games indoors like dodgeball, skipping rope, mostly in the hallways*”, T8 asserted: “*I mostly use the hallway ... It is not adequate but it saves the day*”.

3.2 Teacher Views on the Benefits of Outdoor/Schoolyard Activities

Most of the participating teachers reported the believe that outdoor activities enrich students the learning environment by providing opportunities to be in nature, develop spatial perception, support psycho-motor and language development. In addition, many participating teachers stated that when children spent time outdoors, their cognitive, physical, social and emotional development is supported, their immune system is strengthened and thus their risk of getting sick is decreased. Categories made from the teacher views on the benefits of children spending time in outdoor activities are presented in Table 3.

Table 3. Benefits of outdoor activities

Category	<i>f</i>
Provide opportunity to be in the nature	54
Improves spatial perceptions	54
Support language development	54
Support motor development (gross-fine-psycho)	54
Enrichment/diversification of learning environment	48
Contribute to physical well-being	48
Fosters social well-being	45
Contribute to mental/cognitive development	42
Foster emotional well-being	36
Strengthens immune system	33
Protects against diseases/ decreases risk of disease	24
Provide freedom	21

Findings show that teachers view outdoor activities as providing opportunities to develop children’s spatial perceptions. Compared to indoors, outdoors settings provide richer stimuli for various spatial tasks and observations. Teachers noted that they find it easier to teach concept related to distance such as “far” or “near” during the outdoor games. Outdoor activities have implications for language development as well. Some of the teachers asserted that children feel freer during the free outdoor games, have “*opportunities to let loose*”, thus communicate freely, share more, and they are more “*fun, lively, chirpy*”, “*enjoyable, fun*”, and comfortable. One participant summarized this by saying, “*Indoors have restrictive feature. This forces us (teachers) and the children to have more passive activities. It seems like the constraints of the indoor restrict us and the kids alike. But we are more active outdoors because we feel more free and independent outdoors*”.

Participant teachers mentioned that indoors games and outdoor games differ in that children tend to prefer more individual games in the classroom but group games outdoors. Thus one could reason that outdoors games might have greater contribution to children’s linguistic and social-emotional developments than indoor games.

Teachers remarked that one of the greatest benefits of being outdoors is its positive effect on children’s psychomotor development. Teachers voiced this effect by statements such as:

“... because bending, climbing, fast running, jumping, skipping are done better outdoors, they positively affect motor development” (T11), “*stumbling while running and even falling, straightening before falling, these all increase their coordination*” (T28), “*I can do more and active activities outdoors towards motor*

development with obstacles and lines” (T9), “following the ball, throwing the ball during a game are very important for psycho-motor development” (T41).

Most of the participant teachers remarked on the positive effects of outdoor activities on children’s mental/cognitive development:

“... when we play find the treasure in the yard, they focus immediately on the treasure map in their hands... they both enjoy it and follow attentively because it is a race” (T3), “... when we return back to the classroom from the yard they do matching, completing, finding the piece, memorization and math activities easier” (T34).

3.3 Teachers’ Views on Drawbacks of Children Being Outdoors

Many of the participant teachers specified physical conditions, weather conditions, dangers such as the students’ likelihood falling and getting injured, safety issues such as getting lost, vehicle entering and exiting the yard, children talking to strangers and children getting out the schoolyard as the reasons for not utilizing the outdoors. Teachers, also, stated that they do not use the outdoors when the classes are crowded, there is chaos in the playground and it is difficult to control the students. Categories of the teachers’ reasons for not using outdoors are presented in Table 4.

Table 4. Teachers’ reasons for not preferring outdoor actives

Category	<i>f</i>
Unsuitable physical conditions	54
Catching a cold	42
Difficulty in controlling the class	42
Cold weather	39
Windy/rainy weather	30
Getting sick	27
Likely safety risks	24
Hot weather	24
Chaos in the playground	9
Playground being too crowded	6
Getting dirty	3

Teachers reported several reasons for their lack of outdoors use. Teachers working in cities of İzmir and İstanbul reported presence of one or two students with special needs as one of the determining reasons. These teachers further noted that control and supervision of the class with special needs children was more difficult:

“I do not take my class to the schoolyard because I have one student with autistic spectrum disorder. He becomes upset and angry outdoors and does not participate in activities which in turn affects the entire class.” (T51), “It is so hard to control inclusion students in the schoolyard. They can harm other students. Therefore these students parents end up raising complaints.” (T52), “... inclusion students require one on one attention. Given that we have crowded classes and physical circumstances of the outdoors are not great, it becomes such a hassle to take the kids out for activities.” (T44), “It is particularly useful in the spring for the kids to alleviate their excess energy outdoors. However, I have two inclusion students in my class. They require close supervision. If I pay attention to these kids then I end up worrying about the rest of the class.” (T39).

Hence, the participating preschool teachers indicated presence of inclusion children (special needs kids) in their classes as the main obstacle to having more outdoors activities. Some teachers reported students safety and the disorderly behavior that comes about outdoors as the main reason for lack of utilization of the schoolyard.

3.3 Parent Feedbacks to the Teachers

All of the teachers mentioned that parents did not want activities to be done outdoors during the cold weather because they believe the children will get sick. Parents also specifically warn teachers that they do not want their children playing outdoors in hot weather because they do not want their children to sweat. For example;

“Parents believe that children will get sick if they go out during the cold weather. They don’t have thick clothes that will keep them warm while playing outdoors. When they see children outdoors during the hot weather, they believe they aren’t doing anything” (T1), “They tell us not to take the children out during the

cold and hot weather. They like it when we take them outdoors when the weather is suitable” (T6), “I get negative feedback about children getting sweaty and thus getting sick and getting dirty when they play outdoors” (T7), “I sometimes get negative feedback regarding their worries for children’s health” (T10), “Many of the parents complain that their children will catch a cold and get sick when they play outdoors” (T14), “They complain when children fall and get hurt when they play outdoors” (T15), “Because the children don’t spend that much time outdoors when they aren’t at school, they get sick easier when they go outdoors at school. Families don’t like their children to spend time in the yard during the summer or winter” (T17), “... my hearing impaired student’s mother does not want her child be involved in outdoors activities...” (T23), “One day one of my students was running. She hurt her knee. The next day her parent came to school and walked toward me in such a furious way that I never forget since.” (T41), “I have 23 students in my class. One day one of my inclusion student grabbed another student’s throat while playing in the schoolyard. I was shocked. After this incident, I did not take kids out anymore.” (T46).

However, the teachers stated that if the weather conditions are suitable, they receive positive feedback:

“I get positive feedback from the parents when we go outdoors if the weather conditions are appropriate” (T27), “My parents support us going outdoors and playing games when the weather conditions are suitable” (T28), “My parents support us playing games in the yard as long as the weather conditions are suitable” (T39), “Because the parents know that we don’t take the children outdoors unless the weather conditions are suitable. We didn’t receive any negative feedback. We are careful about this issue” (T42).

When teachers’ statements are examined generally, it is evident that parents are very cautious about outdoor activities, weather conditions are the determining factor on this subject and weather conditions can restrict the teachers. If the weather conditions are suitable, parents support children going outdoors. By “suitable” parents seem to mean weather that is not hot, cold, rainy, windy and snowy. On the other hand, when the weather is found suitable, then there are worries about safety. Such worries seem to make teachers sensitive and overly cautious. Thus, teachers appear to mostly avoid taking the risk of going outdoors for activities and prefer indoors.

3.4 Outdoors Rules

In this study, teachers were asked whether the outdoor rules and indoor rules differ. Teachers expressed that outdoor/schoolyard rules and indoor rules vary:

“... Before we go outdoors, we decide together what the outdoor rules are and we try to act together as a group because the physical conditions of the yard require that” (T41), “... Since the schoolyard is not well-organized and structured I need to be more controlling and protective” (T34), “Since there are more risks outdoors I become more controlling while outdoors with the students” (T30), “We need to be more careful during the outdoor activities. There are more rules to follow there” (T51), “The boundaries inside are determined by itself. We set the boundaries outdoors” (T24), “You need to be more careful because children can fall and get injured. Also, since there are cars entering and exiting the school yard, it is not safe” (T26), “Since it is more difficult to ensure security outdoors, outdoor rules vary than the indoor rules” (T37), “We draw attention to rules like not getting out of sight and not sweating because of running too much” (T48).

In short, participant teachers expressed beliefs that outdoors involve more risks thus they endorse more rules while outdoors in order to ensure students’ safety.

4. Discussion

This study intended to identify kindergarten teachers’ views about use of outdoor and schoolyard activities. The participating kindergarten teachers generally reported positive views regarding outdoor and schoolyard activities. All the teachers believe that schoolyard activities support children’s physical and motor developments. This is in line with the results of many previous studies (Barbour, 1999; Chakravarthi, Schilling, Hestenes, & McOmber, 2007; Fjortoft, 2004; Zachopoulou, Trevlas, & Konstadinidou, 2006). Teachers were also of the opinion that outdoor and schoolyard activities support children’s cognitive, linguistic and social-emotional development and also support learning. Again a host of previous studies have reported similar findings. Sattelmair & Ratey (2009) found that physical activity supports academic achievement. Dowda et al. (2009) insisted that activities done in playgrounds that have portable schoolyard equipment increase children’s cognitive functions. While Katz (1999) suggested that outdoor activities increase children’s curiosity and endurance, Stephenson (2003) and Waller (2005) asserted that they provide opportunities for risk taking and developing skills for risk management thus fostering development of executive functions as well a positive attitude toward learning. Findings by Copley

(2000) and Jackman (2005) showed that games and outdoor activities play an important role in the development of spatial concepts. Likewise, Schilling et al. (2006) stressed that outdoor games provide important opportunities for language acquisition. Examining behaviors of preschool children playing outdoors, Hartle (1994) reported that children tend to engage in social interaction for reconciliation purposes, exhibit more effective and intensive communication skills and tend to understand others' needs and feelings. This could be at least in part due to the fact that children feel more comfortable and free while outdoors. Indeed, one of the striking findings of this study is teachers' belief that children felt freer during the outdoor activities. Several other authors have reported similar findings in the literature. Rivkin (1998) stated that children are expected to sit and be quiet in the classroom and they are left free to run and make noise while outdoors. For this reason, children consider outdoors as a free place where boundaries and rules are more flexible and where noise and even chaos is usual (Bilton, 2002; Ouvry, 2003; Rivkin, 1995). Furthermore, Clements (2004) suggested that preschool children are more likely to exhibit a new skill or produce an original product while they are spending time outdoors because parents' or teachers' support or encouragement for their creative outdoor activities boosts their self-esteem more in outdoors settings.

Findings of this study showed that there was significant discrepancy between the participant teachers' views and their practices. Namely, on the one hand the teachers said that they noted that outdoor activities are highly important and conducive of all the developmental domains, they did not prefer to utilize such activities because of a number of reasons such as bad weather conditions, sicknesses and safety risks. Thus they instead preferred to have children play games with balls and ropes indoors. Curiously, there are studies reporting that teachers frequently do not implement the activities they find developmentally appropriate and important (Charlesworth et al., 1993). However, children need to spend at least one hour at an outdoor area with suitable equipment, space and landscaping for healthy development (National Association for Sport and Physical Education, NASPE, 2010).

It seems that several factors such as unsuitable physical circumstances of the outdoors, a lack of support from school administration and/or parents seem to be among the causes of the inconsistency between teachers' views and their actual practices. Indeed, school staff's attitudes toward children's outdoors activities seem to be a significant determinant (Brady, Gibb, Henshall, & Lewis, 2008; Huang, Sallis, & Patrick, 2010). Likewise, teachers' avoidance of outdoor activities seems closely related to parents' attitudes. In their study with kindergarten teachers, Alat, Akgümüş, & Cavalı (2012) found that parents' attitudes toward outdoor activities are generally negative. In particular, parents voicing their concerns about the possibility of children getting sick and safety risks appear to play an important role in teachers' reluctance toward utilizing the outdoors. This issue has been stressed considerably in the literature. Indeed, studies conducted in many both developed and developing countries report that present time parents are more concerned and worried about their children's outdoors play (Gray, 2011), they tend to find outdoors pose safety concerns thus they voice preference for indoors activities instead (Singer, Singer, D'Agostino, & DeLong, 2009).

Findings showed that unsuitable physical features of the schoolyard such as having concrete grounds, allocating the outdoors space for car parking and a lack of equipment for both play and other educational purposes appear to limit teachers' utilization of the schoolyard. This finding is in line with many studies conducted on preschool and elementary schoolyards in Turkey (Aksu & Demirel, 2011; Alat, Akgümüş, & Cavalı, 2012; Algan & Uslu, 2009; Karaküçük, 2008; Karatekin & Çetinkaya, 2013; Muhacir & Özalp, 2011; Şişman & Gültük, 2011; Özdemir, 2011; Özdemir & Yılmaz, 2009; Yılmaz, 1995). These studies show that structure of schoolyards is physically problematic and have serious limitations.

5. Result and Suggestions

Findings of this study showed that even though teachers had positive attitudes about outdoor activities, they did not do many of the activities because of unsuitable features of the existing schoolyards and safety concerns and they even preferred the children play games with balls and ropes indoors rather than playing them with a large group outdoors. Schoolyard standards are specified in related regulations. Article 54 of the Regulation on Preschool Institutions dictates that:

In order for preschool educational pursuits to take place in healthy and effective ways, these institutions must have suitable environments involving a playground and a yard structured and organized in accordance with their educational purposes. Any change or arrangement should take place at times when students are not present. Schoolyards and the equipment should support children's motor skills and cognitive development, provide opportunities to play and teach love for the environment, and the schoolyard should

have traffic training track, sand pit, playground equipment and enough ground area forestation (Ministry of Education, MOE Regulations Bank, 2004).

Therefore, necessary measures should be taken to bring schools to complying with these regulations so as to arrange the schoolyards in accordance with students' developmental and educational needs.

One of the findings of this study was that parents' concerns and negative attitudes about the outdoors and schoolyards seem to hinder teachers' utilization of outdoor activities. Therefore, schools might consider conducting educational meetings with parents in order to change their perceptions of the schoolyard activities.

Concrete-hands on experiences, observations and sensory organs have important functions starting from early childhood. Opportunities in schoolyards can be provided to children where they can use their sensory organs effectively, especially in concept development. Contrary to general opinion, learning does not only occur in the classroom. Schoolyards are areas that can support and compliment classroom learning. Therefore, all learning and developmental opportunities should be provided at the highest level to children outdoors as well as indoors. Hence, the location of the schoolyard and its environmental and seasonal characteristics should be kept in mind while designing a yard. A host of factors such as safety, aesthetics and functionality can be taken into account in order to make school-spaces suitable for recreational, socio-cultural, sports, ecological and educational activities. Further empirical work examining learning environments outside of the classrooms is needed in order to further enrich children's school experience. Such body of research will shed light on the arrangement and design of out of class environment.

It is striking that teachers see the schoolyard as only a "play" area and assess their school's outdoor spaces as only being suitable to children's play. However, in many countries schoolyards are designed as a sort of "developmental laboratory". Therefore, in service training programs for teachers may consider incorporating information on the importance, planning and implementation of outdoor activities.

Also, when schoolyards are effectively structured, children develop environmental awareness and accept themselves as part of a natural system with its fauna and flora. If environmental literacy is acquired at an early age might foster environment-friendly attitudes in their adult lives as future policy makers, educators, engineers, social scientist and economists. If the idea that most fundamental attitudes and behaviors are shaped during early childhood is accepted, preschool curriculum needs to be effectively structured accordingly in the long run. When the schoolyards turn into natural environments closest to the child, they will become effective educational spaces. Ideally, schoolyard activities should not depend upon the personal attitudes and preferences of teachers, administrators and parents. Instead, they should be integral parts of the curriculum.

As human beings are part of the nature, it is their fundamental right to grow and learn in the nature. Children should not be denied of such a basic right. The effect of activities done in nature should be examined especially through empirical research at every educational level starting from preschool institutions. A holistic approach to education requires researchers in the educational sciences to focus both on classroom as well as out of classroom settings. Finally, such an approach necessitates that parents, preschool experts and teachers view and value play as part of children education and learning. In short, the importance of "outdoors", "schoolyard", and "play" should be taken into consideration for the healthy development of future generations.

References

- Aksu, Ö. V., & Demirel, Ö. (2011). Trabzon kenti ilköğretim okul bahçelerinde tasarım ve alan kullanımları. *SDÜ Orman Fakültesi Dergisi*, 12, 40-46.
- Alexander, J., North, M. W., & Hendren, D. K. (1995). Master gardener classroom garden project: An evaluation of the benefits to children. *Child Environments*, 12(2), 124-133.
- Algan, H., & Uslu, C. (2009). İlköğretim okul bahçelerinin tasarlanmasına paydaş katılımı: Adana örneği. *Akdeniz Üniversitesi Ziraat Fakültesi Dergisi*, 22(2), 129-140.
- Barbour, A. (1999). The impact of playground design on the play behaviors of children with differing levels of physical competence. *Early Childhood Research Quarterly*, 14(1), 75-98. [https://doi.org/10.1016/S0885-2006\(99\)80007-6](https://doi.org/10.1016/S0885-2006(99)80007-6)
- Belsky, J. (2001). Developmental risks (still) associated with early childcare. *Journal of Child Psychology and Psychiatry*, 42, 845-859. <https://doi.org/10.1111/1469-7610.00782>
- Bilton, H. (2002). *Outdoor play in the early years*. London: David Fulton.

- Birney, Y. B. A. (1986). *A comparative study of children's perceptions and knowledge of wildlife and conservation as they relate to field trip experiences at the Los Angeles County Museum of Natural History*. Unpublished Ed.D. dissertation, UCLA, Los Angeles, California, US.
- Blair, D., Giesecke, C. C., & Sherman S. (1991). A dietary, social and economic evaluation of the Philadelphia urban gardening project. *Journal of Nutrition Education*, 23, 161-167. [https://doi.org/10.1016/S0022-3182\(12\)81191-5](https://doi.org/10.1016/S0022-3182(12)81191-5)
- Bowker, R. (2002). Making the most out of Eden. *Primary Science Review*, 75, 4-7.
- Brady, L., Gibb, J., Henshall, A., & Lewis, J. (2008). Play and exercise in early years: Physically active play in early childhood provision. London: Department for Culture, Media, and Sport. Retrieved from <http://dera.ioe.ac.uk/10527/1/Playresearch2008.pdf>
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.), *Handbook of child development, 1. Theoretical models of human development* (6th ed., pp. 793-828). Hoboken, NJ: Wiley.
- Brunotts, C. M. (1998). *School gardening—A multifaceted learning tool. An evaluation of the Pittsburgh civic garden centers Neighbors and Schools Gardening Together*. Unpublished masters thesis, Duquesne University, Pittsburgh, PA.
- Brynjegard, S. (2001). School gardens: Raising environmental awareness in children. San Rafael, CA: School of Education, Dominican University of California. (ERIC Documentation Reproduction Service No. ED452085). Retrieved from <http://edres.org/eric/ED452085.htm>
- Burchinal, M. R., Roberts, J. E., Riggins, R., Zeisel, S., Neebe, E., & Bryant, M. (2000). Relating quality of center childcare to early cognitive and language development longitudinally. *Child Development*, 71, 339-357. <https://doi.org/10.1111/1467-8624.00149>
- Cammack, C., Waliczek, T. M., & Zajicek, J. M. (2002). The Green Brigade: The psychological effects of a community-based horticultural program on the self-development characteristics of juvenile offenders. *HortTechnology*, 12(1), 82-86.
- Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Burchinal, M. R., & Ramey, C. (2001). The development of cognitive and academic abilities: Growth curves from an early intervention educational experiment. *Developmental Psychology*, 37, 231-242. <https://doi.org/10.1037/0012-1649.37.2.231>
- Canaris, I. (1995). Growing foods for growing minds: Integrating gardening and nutrition education into the total curriculum. *Children's Environments*, 12(2), 134-142.
- Chakravarthi, S. (2009). *Preschool Teachers' Beliefs and Practices of Outdoor Play and Outdoor Environments* (Doctoral dissertation, University of North Carolina at Greensboro). Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.453.1839&rep=rep1&type=pdf>
- Chakravarthi, S., Schilling, T., Hestenes, L., & McOmber K. (2007). *Investigating factors of outdoor play that impact preschoolers' physical activity levels*. Poster symposium presentation at the Biennial Conference for the Society for Research in Child Development, Boston, MA.
- Charlesworth, R., Hart, C. H., Burts, D. C., Thomasson, R. H., Mosley, J., & Fleege, P. O. (1993). Measuring the developmental appropriateness of kindergarten teachers' beliefs and practices. *Early Childhood Research Quarterly*, 8(3), 255-276. [https://doi.org/10.1016/S0885-2006\(05\)80067-5](https://doi.org/10.1016/S0885-2006(05)80067-5)
- Clements, R. (2004). An investigation of the status of outdoor play. *Contemporary Issues in Early Childhood*, 5(1), 68-80. <https://doi.org/10.2304/ciec.2004.5.1.10>
- Copley, J. V. (2000). *The Young Child and Mathematics*. Washington: National Association for the Education of Young Children Published.
- Cote, S. M., Boivin, M., Nagin, D. S., Japel, C., Xu, Q., & Zoccolillo, M. et al. (2007). The role of maternal education and nonmaternal care services in the prevention of children's physical aggression problems. *Archives of General Psychiatry*, 64, 1305-1312. <https://doi.org/10.1001/archpsyc.64.11.1305>
- Cote, S. M., Borge, A. I., Geoffroy, M., Rutter, M., & Tremblay, R. E. (2008). Nonmaternal care in infancy and emotional/behavioral difficulties at 4 years old: Moderation by family risk characteristics. *Developmental Psychology*, 44, 155-168. <https://doi.org/10.1037/0012-1649.44.1.155>

- Dirks, A. E., & Orvis, K. (2005). An evaluation of the junior master gardener program in third grade classrooms. *HortTechnology*, 15(3), 443-447.
- Dowda, M., Brown, W. H., McIver, K. L., Pfeiffer, K. A., O'Neill, J. R., Addy, C. L., & Pate, R. R. (2009). Policies and characteristics of the preschool environment and physical activity of young children. *Paediatrics*, 123(2), 261-266. <https://doi.org/10.1542/peds.2008-2498>
- Faddegon, P. A. (2005). *The kids growing food school gardening program: Agricultural literacy and other educational outcomes*. Doctoral dissertation, Cornell University, Ithaca, NY.
- Fjortoft, I. (2004) Landscape as playscape: the effects of natural environments on children's play and motor development. *Children, Youth and Environments*, 14(2), 21-44.
- Francis, M. (1995). Childhood's garden: Memory and meaning of gardens. *Children's Environments*, 12(2), 183-191.
- Gabbard, C. (2000). *Lifelong motor development*. Champaign, IL: Human Kinetics.
- Gennaro, E. D. (1981). The effectiveness of using pre-visit instructional materials on learning for a museum field trip experience. *Journal of Research in Science Teaching*, 18(3), 771-781. <https://doi.org/10.1002/tea.3660180312>
- Gormley, W. T., Jr., Gayer, T., Phillips, D., & Dawson, B. (2005). The effects of universal pre-K on cognitive development. *Developmental Psychology*, 41, 872-884. <https://doi.org/10.1037/0012-1649.41.6.872>
- Gray, P. (2011). The Decline of Play and the Rise of Psychopathology in Children and Adolescents. *American Journal of Play*, 3(4), 443-463.
- Greenspan, S. I. (2003). Child care research: A clinical perspective. *Child development*, 74(4), 1064-1068. <https://doi.org/10.1111/1467-8624.00591>
- Hamre, B. K., & Pianta, R. C. (2007). Learning opportunities in preschool and early elementary classrooms. In R. C. Pianta, M. J. Cox, & K. Snow (Eds.), *School readiness, early learning and the transition to kindergarten* (pp. 49-84). Baltimore: Brookes.
- Han, W., Waldfogel, J., & Brooks-Gunn, J. (2001). The effects of early maternal employment on later cognitive and behavioral outcomes. *The Journal of Marriage and the Family*, 63, 336-354. <https://doi.org/10.1111/j.1741-3737.2001.00336.x>
- Hartle, L. (1994). Outdoor play: A window on social-cognitive development. *Dimensions of Early Childhood*, 23, 27-31.
- Henderson, A. T., & Mapp, K. L. (2002). A new wave of evidence: The impact of school, family, and community connections on student achievement. Annual synthesis, 2002. National Center for Family & Community Connections with Schools, Southwest Educational Development Laboratory: Austin, TX.
- Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., & Clifford R. M. et al. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly*, 23, 27-50. <https://doi.org/10.1016/j.ecresq.2007.05.002>
- Huang, J. S., Sallis, J., & Patrick, K. (2010). The role of primary care in promoting children's physical activity. *Journal of Sports Medicine*, 43, 19-21
- Hung, Y. (2004). East New York Farms: Youth participation in community development and urban agriculture. *Children, Youth and Environments*, 14(1), 56-85.
- Huston, A. C., Duncan, G. J., Granger, R., Bos, J., McLoyd, V., & Mistry, R. et al. (2001). Work-based antipoverty programs for parents can enhance the school performance and social behavior of children. *Child Development*, 72, 318-336. <https://doi.org/10.1111/1467-8624.00281>
- Jackman, H. L. (2005). *Early Childhood Education Curriculum* (3rd ed.). United State: Thomson Delmar Learning.
- Johansen, A. S., Leibowitz, A., & Waite, L. J. (1996). The importance of child-care characteristics to choice of care. *Journal of Marriage and the Family*, 58(3), 759-772. <https://doi.org/10.2307/353734>
- Karakaya, B., & Kiper, T. (2013). Edirne kent merkezindeki bazı ilköğretim okul bahçelerinin peyzaj tasarım ilkeleri açısından mevcut durumunun belirlenmesi. *Journal of Tekirdag Agricultural Faculty*, 10(1), 59-71.

- Karaküçük, S. A. (2008). Okul öncesi eğitim kurumlarında fiziksel/mekânsal koşulların incelenmesi: Sivas ili örneği. *Sosyal Bilimler Dergisi/Journal of Social Sciences*, 32(2), 307-320.
- Karatekin, K., & Çetinkaya, G. (2013). Okul bahçelerinin çevre eğitimi açısından değerlendirilmesi (Manisa ili örneği). *Uluslararası Sosyal Araştırmalar Dergisi*, 6(27), 307-315.
- Karoly, L. A., Greenwood, P. W., Everingham, S. S., Hoube, J., Kilburn, M. R., Rydell C. P., ... Chiesa, J. (1998). *Investing in Our Children: What We Know and Don't Know about the Costs and Benefits of Early Childhood Interventions*. RAND, Santa Monica, CA.
- Katz, L. (1999). Another look at what young children should be learning (Champaign IL, ERIC Clearinghouse on Elementary and Early Childhood Education) (ERIC Document Reproduction Service No. ED430735). Retrieved from www.vtaide.com/png/ERIC/Learning-EC.htm
- Kellert, S. R. (2002). Experiencing nature: Affective, cognitive, and evaluative development in children. In P. H. Kahn Jr., & S. R. Kellert (Eds.), *Children and nature: Psychology, sociocultural and evolutionary investigations* (pp. 117-151). Cambridge, MA: MIT Press.
- Klemmer, C. D., Waliczek, T. M., & Zajicek, J. M. (2005). Growing minds: The effect of a school gardening program on the science achievement of elementary students. *HortTechnology*, 15(3), 448-452.
- Libman, K. (2007). Growing youth growing food: How vegetable gardening influences young people's food consciousness and eating habits. *Applied Environmental Education and Communication*, 6(1), 87-95. <https://doi.org/10.1080/15330150701319388>
- Lineberger, S. E., & Zajicek, J. M. (2000). School gardens: Can a hands-on teaching tool affect students' attitudes and behaviors regarding fruits and vegetables? *HortTechnology*, 10, 593-597.
- Locander, W., Sudman, S., & Bradburn, N. (1976). An investigation of interview method, threat and response distortion. *Journal of the American Statistical Association*, 71(354), 269-275. <https://doi.org/10.1080/01621459.1976.10480332>
- Loeb, S., Bridges, M., Bassok, D., Fuller, B., & Rumberger, R. W. (2007). How much is too much? The influence of preschool centers on children's social and cognitive development. *Economics of Education Review*, 26, 52-66. <https://doi.org/10.1016/j.econedurev.2005.11.005>
- Lohr, V., & Person-Minis, C. H. (2005). Children's active and passive interactions with plants influence their attitudes and actions as adults. *HortTechnology*, 15, 472-476.
- Mabie, R., & Baker, M. (1996). The influence of experiential instruction on urban elementary students' knowledge of the food and fiber system. *Journal of Extension*, 34(6), 1-4.
- Magnuson, K. A., Ruhm, C., & Waldfogel, J. (2007). Does prekindergarten improve school preparation and performance? *Economics of Education Review*, 26, 33-51. <https://doi.org/10.1016/j.econedurev.2005.09.008>
- Mashburn, A. J., Pianta, R. C., Barbarin, O., Bryant, D., Hamre, B., & Downer, J. et al. (2008). Measures of class- room quality in pre-kindergarten and children's development of academic, language and social skills. *Child Development*, 79, 732-749. <https://doi.org/10.1111/j.1467-8624.2008.01154.x>
- McAleese, J. D., & Rankin, L. L. (2007). Garden based nutrition education affects fruit and vegetable consumption in six grade adolescents. *Journal of the American Dietetic Association*, 107(4), 662-665. <https://doi.org/10.1016/j.jada.2007.01.015>
- McKenzie, S. J. (1986). Teaching teachers. *Roundtable Reports*, 11(2), 9-10.
- Miles, M. B., & Huberman, A. M. (1994). *An expanded sourcebook qualitative data analysis*. London: SAGE Publications.
- MOE Regulations Bank. (2004). Okul öncesi eğitim kurumları yönetmeliği. Retrieved from http://mevzuat.meb.gov.tr/html/25486_.html
- Moore, R. (1995). Growing foods for growing minds: Integrating gardening and nutrition education into the total curriculum. *Children's Environments*, 12(2), 134-142.
- Morris, J. L., & Zidenberg-Cherr, S. (2002). Garden-enhanced nutrition education curriculum improves fourth-grade school children's knowledge of nutrition and preferences for some vegetables. *Journal of American Dietetic Association*, 102(1), 91-93. [https://doi.org/10.1016/S0002-8223\(02\)90027-1](https://doi.org/10.1016/S0002-8223(02)90027-1)

- Muhacir, E. S. A., & Özalp, A. Y. (2011). Artvin kenti ilköğretim okul bahçelerinin nitelik ve niceliksel durumunun coğrafi bilgi sistemleri kullanılarak belirlenmesi. *Artvin Çoruh Üniversitesi Orman Fakültesi Dergisi*, 12(2), 172-184.
- National Association for Sport and Physical Education, NASPE. (2009). *Active start: A statement of physical activity guidelines for children from birth to age 5*. Sewickley, PA: American Alliance for Health, Physical Education, Recreation, and Dance.
- National Forum on Early Childhood Policies and Programs. (2007). *Early Childhood Program Evaluations: A Decision-Maker's Guide*. Cambridge, MA: Harvard Center on the Developing Child, National Forum on Early Childhood Programs and Policies. Retrieved from http://developingchild.harvard.edu/index.php/download_file/-/view/68/
- National Institute of Child Health and Human Development Early Child Care Research Network. (2003). Does amount of time spent in childcare predict socio-emotional adjustment during the transition to kindergarten? *Child Development*, 74(4), 976-1005. <https://doi.org/10.1111/1467-8624.00582>
- NICHHD Early Child Care Research Network. (2005). Early child care and children's development in the primary grades: Results from the NICHD study of early childcare. *American Educational Research Journal*, 43, 537-570. <https://doi.org/10.3102/00028312042003537>
- Nomaguchi, K. M. (2006). Maternal employment, non-parental care, mother-child interactions, and child outcomes during preschool years. *Journal of Marriage and the Family*, 68, 1341-1369. <https://doi.org/10.1111/j.1741-3737.2006.00332.x>
- Ouvry, M. (2003). *Exercising muscles and minds: outdoor play and the early years curriculum*. London: National Early Years Network.
- Özdemir, A. (2011). Okul bahçesi peyzaj tasarım anlayışındaki değişim ve bu değişimin uygulamaya yansımalarının Bartın kenti örneğinde irdelenmesi. *Bartın Orman Fakültesi Dergisi*, 13(19), 41-51.
- Özdemir, A., & Yılmaz, O. (2009). İlköğretim okul bahçelerinin çocuk gelişimi ve sağlıklı yaşam üzerine etkilerinin incelenmesi. *Milli Eğitim (Eğitim ve Sosyal Bilimler) Dergisi*, 37(181), 121-139.
- Özgen, Y. (1997). Eğitim kurumlarındaki okul çağı çocuklarının bahçe donatıları ve araçları üzerinde bir araştırma. *İstanbul Üniversitesi Orman Fakültesi Dergisi*, 47(1), 31-50.
- Peacock, A., & Bowker, R. (2001). Thinking of Eden: developing children's thinking about sustainability at the Eden Project. *Teaching Thinking*, 5, 22-24.
- Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., & Kagan, S. L. et al. (2001). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. *Child Development*, 72, 1534-1553. <https://doi.org/10.1111/1467-8624.00364>
- Phibbs, E. J., & Relf, D. (2005). Improving research on youth gardening. *HortTechnology*, 15, 425-428.
- Pianta, R. C. (2003). *Standardized observations from pre-K to 3rd grade: A mechanism for improving access to high quality classroom experiences and practices during the P-3 years*. Working paper, Foundation for Child Development.
- Pothukuchi, K. (2004). Hortaliza: A youth 'nutrition garden' in southwest Detroit. *Children, Youth and Environments*, 14(2), 124-155.
- Rennie, L. J., & McClafferty, T. P. (1996). Science centers and science learning. *Studies in Science Education*, 27, 53-98. <https://doi.org/10.1080/03057269608560078>
- Reynolds, A. (2000). *Success in early childhood interventions: The Chicago Child-parent Centers*. Lincoln: University of Nebraska.
- Rivkin, M. (1995). *The great outdoors: restoring children's right to play outside* (Washington, DC, NAEYC).
- Rivkin, M. (1998). Happy play in grassy places: the importance of the outdoor environment in Dewey's educational ideal. *Early Childhood Education Journal*, 25(3), 199-202. <https://doi.org/10.1023/A:1025613413109>
- Sattelmair, J., & Ratey, J. J. (2009). Physically active play and cognition: An academic matter? *American Journal of Play*, 1, 365-374.

- Schilling, T., McOmber, K., Mabe, K., Beasley, B., Funkhouser, S., & Martinez, L. (2006). Promoting language development through movement. *Teaching Elementary Physical Education, 17*(6), 39-42.
- Singer, D. G., Singer, J. L., D'Agostino, H., & DeLong, R. (2009). Children's pastimes and play in sixteen nations: Is free-play declining? *American Journal of Play, 1*(3), 283-312.
- Şişman, E. E., & Gültürk, P. (2011). İlköğretim okul bahçelerinin peyzaj planlama ve tasarım ilkeleri açısından incelenmesi: Tekirdağ örneği. *Journal of Tekirdağ Agricultural Faculty, 8*(3), 53-60.
- Skelly, S. M., & Zajicek, J. M. (1998). The effect of an interdisciplinary garden program on the environmental attitudes of elementary students. *HortTechnology, 8*, 579-583.
- Smith, L. L., & Motsenbocker, C. E. (2005). Impact of hands on science through school gardening in Louisiana public elementary schools. *HortTechnology, 15*(3), 439-443.
- Stephenson, A. (2003). Physical risk-taking: dangerous or endangered? *Early Years, 23*(1), 35-43. <https://doi.org/10.1080/0957514032000045573>
- Stork, S., & Sanders, S. W. (2008). Physical education in early education. *The Elementary School Journal, 108*, 197-206. <https://doi.org/10.1086/529102>
- Thorp, L., & Townsend, C. (2001). Agricultural education in an elementary school: An ethnographic study of a school garden. *Proceedings of the 28th Annual National Agricultural Education Research Conference in New Orleans, LA* (pp. 347-360). Retrieved from http://www.aaeonline.org/conference_files/758901
- Tunnicliffe, S. D. (2001). Talking about plants—comments of primary school groups looking at plants exhibits in a botanical garden. *Journal of Biological Education, 36*(1), 27-34. <https://doi.org/10.1080/00219266.2001.9655792>
- Ulrich, R. S. (1999). Effects of gardens on health outcomes. In C. C. Marcus & M. M. Barnes (Eds.), *Healing gardens: Therapeutic benefits and design recommendations* (pp. 27-86). New York, NY: John Wiley and Sons.
- Ürey, M., Çepni, S., Köğce, D., & Yıldız, C. (2013). Serbest etkinlik çalışmaları dersi kapsamında geliştirilen disiplinlerarası okul bahçesi programının öğrencilerin bazı matematik kazanımları üzerine etkisinin değerlendirilmesi. *Türk Fen Eğitimi Dergisi, 10*(3), 37-58
- van IJzendoorn, M. H., Tavecchio, L. W. C., Riksen-Wal-raven, J. M. A., Schipper, J. C., de Gevers Deynoot-Sch- aub, M., & Schaub, M. (2004). *Center day care in the Netherlands. What do we know about its quality and ef- fects?* Paper presented at the biennial meeting of the International Society for the Study of Behavioural Development. Ghent, Belgium.
- Waldfogel, J., Han, W., & Brooks-Gunn, J. (2002). The effects of early maternal employment on child development. *Demography, 39*, 369-392. <https://doi.org/10.1353/dem.2002.0021>
- Waliczek, T. M., & Zajicek, J. M. (1999). School gardening: Improving environmental attitudes of children through hands-on learning. *Journal of Environmental Horticulture, 17*, 180-184.
- Waliczek, T. M., Logan, P., & Zajicek, J. M. (2003). Exploring the impact of outdoor environmental activities on children using a qualitative text data analysis system. *HortTechnology, 13*, 684-688.
- Waller, T. (2005). 'This is the way we go to the park!' Recording and evaluating young children's knowledge and perspectives of geography, paper presented at the British Educational Research Association Annual Conference (BERA), September.
- Watamura, S. E., Donzella, B., Alwin, J., & Gunnar, M. R. (2003). Morning-to-afternoon increases in cortisol concentrations for infants and toddlers at childcare: Age differences and behavioral correlates. *Child Development, 74*(4), 1006-1020. <https://doi.org/10.1111/1467-8624.00583>
- Yıldırım, A., & Şimşek, H. (2005). *Sosyal bilimlerde nitel araştırma yöntemleri*. (2. baskı). Ankara: Seçkin Yayıncılık.
- Yılmaz, H. (1995). Erzurum kenti okul bahçelerinin peyzaj mimarlığı ilkeleri yönünden incelenmesi. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi, 26*(4), 537-547.
- Zachopoulou, E., Trevlas, E., & Konstadinidou, E. (2006). The design and implementation of a physical education program to promote children's creativity in the early years. *International Journal of Early Years Education, 14*, 279-294. <https://doi.org/10.1080/09669760600880043>

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