

Exploring primary children's views and experiences of the school ground: The case of a Greek school

Vasilia Christidou • Irida Tsevreni • Maria Epitropou • Constantinos Kittas

Received 11 July 2012; Accepted 9 January 2013

The present study explores the use of a conventional school ground of a primary school and its potential as a space for creative play and environmental learning. Children's play behavior and views of the school ground are explored, as well as their vision for its improvement. The research constitutes part of a wider school ground project and was carried out in a primary school in Volos city, Greece, during the 2010-2011 schoolyear. Geographical and participatory design methods were used that capture children's experience of space and their will for participation in redesigning their school ground. They included mapping of the physical features of the school ground, children's drawings, interviews with children, and observation and mapping of children's behavior in the school ground. Results indicate that children primarily view their school ground as a space for recreation, play, relaxation, and communication with peers. They mainly emphasize structured, pre-constructed elements, such as the football and basketball grounds, or the kiosk, which they use in both conventional and unconventional ways. However, the participants do not seem to have developed an adequate sense of place and belonging in their school ground environment. The paper presents insights on children's play behavior and views for their school ground, the role of children as participants in the school ground design, and design principles for the improvement of the school ground as they have emerged from the research.

Keywords: children's participation, children's play behavior, children's views, environmental learning, school ground design

Introduction

Children have a unique way of exploring and understanding the world around them. Their interaction with the environment –natural and man-made– is a key component in learning (Fleer & Hardy, 2001; Malone & Tranter, 2003a; Maynard & Waters, 2007; Rivkin, 1997, 2000; White & Stoecklin, 1998). For example, even young children can develop an early understanding of connections and interactions between different factors like soil, water, and insects in plant growth and reproduction (Tsevreni et al., 2006; McDonald & McDonald, 2002). However, despite the fact that exploring familiar environments and observing plants and animals outside the classroom are particularly popular activities for primary children, their relevant knowledge is often found to be particularly limited. This is largely attributed to their restricted and decreasing opportunities for

acquiring experiences in the natural environment (Basile & White, 2000; Lindemann-Matthies, 2006; Malone & Tranter, 2003a).

Louv (2005) has highlighted children's need for contact with nature, the importance of the connection between children and nature and the benefits that children can gain by experiencing this bond. As it is well known that the current generation suffers environmental amnesia, it is essential to involve nature in the design of play and learning environments as a source for children's cognitive, physical and emotional development (Tai, Haque, Mclellan, & Knight, 2006; Fjørtoft, 2001). The greening of children's environments and the naturalization of their play and learning spaces contribute to the creation of high-quality physical settings. There, children can learn to respect each other and their environment, to be involved in environmental learning and reconnect with nature, as well as to develop their social, cognitive, creative abilities (Moore & Wong, 1997). The use of the school ground as an outdoor class for learning and creation is not a new idea. Educators like Pestalozzi and Montessori emphasized the use of school grounds in environmental learning as a valuable pedagogical process. However, the use of the outdoor school environment has not attracted considerable attention until recently. Over the last period, however, school ground research is a growing area of interest (Casey, 2003; Moore, 1995; Moore & Wong, 1997; Raffan, 2000; Rickinson, 2004; Skelly & Bradley, 2007).

Therefore school grounds are considered as particularly important for children's learning about the environment (Malone & Tranter, 2005; Rivkin, 2000). They are regarded as outdoor classrooms allowing children's environmental explorations during –and beyond- school time. They provide experiences and opportunities for investigating living things and concepts like interdependence, biodiversity, or food chains and networks (Basile & White, 2000; Dymont, 2005; Lindemann-Matthies, 2006; Malone & Tranter 2003a, b; Woolner & Tiplady, 2009). Empirical studies indicate that outdoor educational activities related to ecology concepts, natural environments and living things can be much more effective than traditional classroom teaching - even if 'outdoor' is only confined within the boundaries of a school ground- at the level of learning outcomes (Bowker & Tearle, 2007; Cronin-Jones, 2005; Dillon et al., 2006; Rivkin 1997), attitudes towards the environment (Waliczek & Zajicek, 1999), social skills, interpersonal relations, and children's physical development (Dymont, 2005; Woolner & Tiplady, 2009). Children gain valuable skills through their connection with nature, including the sense of place (Tranter & Pawson, 2001) -which can be defined as a dialectical relationship to place, a way of thinking of and experiencing the physical and cultural place (Derr, 2002)- and cognitive, social and motor abilities. They also gain place attachment, that is they develop an affective bond, a cognitive and emotional connection between themselves and place (Adams & Ingham, 1998; Hummon, 1992; Low, 1992; Shumaker & Taylor, 1983), as well as topophilia, i.e. all emotional connections that can be developed between the physical environment and human beings (Tuan, 1994).

Moreover, school grounds can support instructive activities in various subjects and topics beyond environmental education, such as language, mathematics, science, geography, art, health education, or drama in an interdisciplinary perspective (Basile & White, 2000; Danks, 2010; Dymont, 2005; Maynard & Waters, 2007). School grounds provide an empirical field for learning in which children –through their direct experience with elements of the natural environment- construct knowledge. This knowledge is socially constructed as a result of the synthesis of newly acquired experiences and existing children's knowledge by means of their interactions with other children and with teachers (Bowker & Tearle, 2007).

Apart from the promotion of new knowledge, activities using the school ground's natural environment can support the development of crucial thinking skills, such as observation; classification; measurement; comparison of magnitudes and quantities; and communication

(including the development of specialized vocabulary and the ability to present empirical findings). These skills are not confined to a specific field of knowledge, but permeate different curriculum subjects. They are also considered as fundamental for learning language, mathematics, or science (McDonald & McDonald, 2002; Woolner & Tiplady, 2009).

However, school grounds' design and usage do not always exploit this potential to serve educational needs. Urban and school environments are frequently considered as irrelevant, or inappropriate sites for developing environmental activities (Lindemann-Matthies, 2006). Moreover, many school grounds are 'sterilized' and firmly designed spaces, with limited or nonexistent possibilities of differentiated use by teachers and children, in order to maintain control over pupils' activities. Often the need for 'clean' and 'tidy' school grounds is prioritized, significantly restricting children's contact with the environment and discouraging them from constructing, investigating and discovering within it. What is more, this priority implies a pedagogical view of children as passive receivers of information, only capable of responding to environmental stimuli and not as active subjects in a reciprocal relation with the environment (Malone & Tranter, 2003b; Takahashi, 1999).

Therefore, transforming school grounds in order to use them as spaces for instruction and creation can improve children's school life and provide them with essential experiences supporting their environmental learning, as well as their affective, physical, and intellectual development (Malone & Tranter, 2003b; Maynard & Waters, 2007). School should be a place where children are educated to understand each other and their environment. Positive child development requires a high-quality physical setting where natural learning is included in the formal curriculum. A high quality outdoor environment contributes to the development of children's social relationships and their educational opportunities (Moore & Wong, 1997).

In order to encourage creativity and learning, a school ground should allow flexibility in form and usage (Malone & Tranter, 2003b; Maynard & Waters, 2007). Furthermore, school ground redesign programs are more meaningful and increase their educational value when children are actively engaged in conceiving and implementing their transformation (Danks, 2010; Dymont, 2005; Malone & Tranter, 2005). Teachers are often hesitant in using the school ground for instructional purposes (Malone & Tranter, 2003a), claiming health and safety risks for children, lack of specialized knowledge, lack of confidence in implementing relevant activities, time restrictions, or lack of resource material (Dymont, 2005). Thus, apart from redesigning school grounds, changing their use and exploiting their instructional potential also requires supporting school communities by providing teachers with resource material to encourage and support them in using outdoor school environments in their daily teaching (Waliczek & Zajicek, 1999).

The aim of the research is to explore how the school ground is perceived and used by children and how children communicate their experience of place (Cele, 2006). Furthermore, the paper emerges the important role of children's involvement in their school ground transformation (Rickinson, 2004). By expressing and communicating their behaviour, ideas and needs from their school ground, children are actively involved in a process of vision and change of their environment. Children's ideas and needs can be considered as the basis for the transformation of a conventional school ground to a creative learning setting (Hart, 1997; Iltus & Hart, 1995; Tsevreni 2011a).

Research Design and Methodology

Aims of the Study

The study presented in this paper constitutes part of a wider research project, titled "Contribution of rational landscape design to the improvement of bioclimatic parameters of school grounds and

their utilization as a learning spaces” implemented at the University of Thessaly, Greece, by the Department of Agriculture, Crop Production and Rural Environment in collaboration with the Department of Early Childhood Education.

The research presented in this paper focuses on the exploration of the use of the school ground by observing, mapping and analyzing children’s behavior and common activities within it. It also aims at investigating children’s experiences and views about their school ground concerning their favorite places and activities, as well as their suggestions for its improvement. Children’s vision for their school ground as recorded in the research is going to inspire the redesign and construction of a new, child-friendly and environment-friendly school ground.

The part of the school ground project presented here was carried out in a public primary school in Nea Ionia, Volos city, Greece, during the school year 2010-2011 (from November until February). The primary school includes a conventional school ground in terms of design, use and management. It represents a typical case of a Greek school ground that has a stereotypical design (a football, a basketball and a volleyball ground, some trees, some benches etc) as illustrated in Figure 1. There is no variation or fantasy and creativity potential in the setting. The school ground under study is mainly used during the intervals between the classroom lessons and also during the physical education courses. It is only used for specific activities after the teachers’ permission and under their supervision. The present study was oriented towards three key research questions:

- What are children’s experiences and views related to their school ground?
- How do children behave in a conventional school ground?
- How can children be involved in the design of their school ground?

The research methodology involved geographical and participatory design methods that are considered to be appropriate for documenting children’s behavior and the geographies of the school grounds and for involving children in the improvement of their environment (Cele, 2006; Chawla & Heft, 2002; Hart, 1979; 1997; Iltus & Hart, 1995; Sanoff, 2000; Tranter & Malone, 2004).

Furthermore, the school ground project highlighted the importance of the expression and communication of children’s views and needs, and their involvement in the design of their environment. Children’s engagement in the design of their school ground is viewed as a path towards children’s participation. Their engagement in the design of their own environment promotes their cognitive, motor, communicative and emotional development. The exploration of the dialectic between children and space is a dynamic procedure whereby they transform themselves by transforming the landscape (Tsevreni, 2011a, b), at the same time contributing to the improvement of solidarity (Horelli, 1997; Horelli & Kaaja, 2002) and justice in modern societies (Bojer, 2000). Therefore, the present study focused on:

- exploring children’s views and experiences of their school ground;
- mapping the school ground and children’s behavior in it;
- recording children’s vision for the improvement of the school ground and their will for participation in its design.

The analysis and synthesis of the data that emerged from the present study aimed at formulating design and pedagogical guidelines for the school ground improvement.

Data Collection and Analysis

A combination of qualitative and quantitative approaches was used for the collection, analysis and synthesis of data. Qualitative techniques were used that capture children's experience of space. They were based on geographical methods for mapping children's behavior (Hart, 1979; Cele, 2006; Tranter & Malone, 2004), as well as on participatory design methods that are specially created for children (Rickinson, 2004; Groning, 1986; Heusser, Adelson, & Ross, 1986; Tsevreni, 2011a, b). Children were active participants in research on how they perceive and experience and their own environment (Rasmussen, 2003). More particularly, data collection involved mapping of the physical features of the school ground; children's drawings of the school ground; interviews with children; and observation and mapping of children's behavior in the school ground.

Drawings

This part of the study involved 36 4th and 5th grade pupils (aged 9-10 years), of which 15 were boys and 21 girls. Children were asked to draw their school ground as it is now, including the elements of the school ground that they like, the elements that they do not like, and the activities in which they usually engage in the school ground.

Children's drawings were analyzed according to the number of different elements of the school ground that they included. This provided a measure of the complexity and accuracy of children's visual representations; it also gave an indication of the elements that were considered by the pupils as most important, or prevalent in their school ground. This information was also reflected in the frequency of inclusion of the different elements in pupils' drawings.

Interviews

After completing their drawings, the pupils were asked to participate in individual, semi-structured interviews. The interviews were based on their drawings and included three sections. In the first section children's experiences in the school ground were investigated. The elements of the school ground that children like, the elements that they dislike, and their favorite activities in the school ground were also recorded. In the second section the use of the school ground was explored. Discussions with children focused on the most prevalent uses of the school ground, including activities directed towards learning, creation, sports, recreation, or interaction with nature. The third interview section focused on children's visions and suggestions regarding the improvement of their school ground, along with their will for participation in the design of the school ground and their estimations about the importance of their views.

Children's responses to the interview questions were categorized according to their favorite elements of the school ground; their preferred activities and types of experiences; their suggestions for the improvement of the school ground; and their estimations of the importance of their views and suggestions for others –especially teachers and parents. Interview data were independently coded by two members of the research team, with an inter-coder agreement of at least 92%, while disagreements were resolved in collaboration with a third member of the research team.

Observation and Mapping of Children's Behavior in the School Ground

The technique of observation was selected since it is regarded as the most valid reflection of human behavior. The mapping of children's behavior involved the observation of the entire school population (230 children, grades 1-6). During observation the types of activities taking place at various areas of the school ground were recorded. Thus, a 'macroscopic' view was adopted,

focusing on ‘what happens where’, and not at observing particular children to identify their activities. For this purpose, children’s behavior in the school ground was observed by two specially trained coders acting independently. The observed behaviors and activities were recorded on behavior mapping sheets (Tranter & Malone, 2004) during three consecutive days in November 2010 for a period of 3 intervals each day. Observation during these intervals was continuous. Each mapping sheet comprised a floor plan of the school ground with different areas and sections designated by different numbers. Thus, observations concerned the different types of activities taking place at different areas of the school ground during intervals. Inter-coder agreement was particularly high (at least 94%). Through this procedure 9 different mapping sheets corresponding to 135 minutes of observations were obtained.

It should be noted that the researchers conducting the observations remained in the school ground between intervals (i.e. during lesson periods), being prepared to record any outdoors formal learning activity taking place that would involve elements of the school ground’s natural environment. However, during observation time the only formal learning activity taking place in the school ground was that of physical education lessons, which centered on engaging children in running, playing football, or basketball, under the teacher’s supervision and instructions.

Children’s behavior was coded regarding social, cognitive, motor and creative aspects, as well as the opportunity to interact with nature. More particularly, children’s behavior in the school ground was analyzed according to the following criteria:

- Are children active (running, playing etc) or inactive (sitting, standing etc)?
- Do children act in groups or alone?
- What are children’s activities?
- How are the different sections of the school ground used by children?

Further issues regarding the validity and reliability of the study were addressed in the following ways (Faulkner, Swann, Baker, Bird, & Carty, 1991; Robson, 2002): First, a mixed-methods research scheme was adopted in order to approach the issue under study from different perspectives by means of different techniques –i.e. drawings, interviews and observations. Second, none of the members of the research team related to the school community (i.e. pupils and staff) in any way, which ensured avoidance of bias in data collection and interpretation. Third, the research team compared and controlled the topics investigated by means of each technique so that they elicited data that would respond to the research questions initially posed. Fourth, data collection and coding was performed by specially trained researchers, who had been given detailed instructions on data collection and coding to ensure that different researchers would end up with identical records for the same episode. Training involved using the interview scheme and observation sheets in a preliminary pilot study at the same school with a sub-sample of pupil population who did not participate in the main study. Fifth, since this study focuses on a single school ground, the external validity of the research presented here is substantiated by the fact that the space under investigation is a typical Greek school, with firmly pre-constructed and pre-determined infrastructures and uses, and this applies to the school ground too, as already mentioned above. The participants come from homes with middle socio-economic status, and attend a curriculum common in all Greek schools, centrally prescribed by the Ministry of Education. The curriculum does not provide for systematic outdoor activities that would take advantage of the school ground as an outdoor classroom. Therefore, the case under investigation could be considered as representative of Greek schools both in terms of pupil population and use of the school ground.

School Ground Description

The school ground under study was rather spacious compared to the area of the school buildings around it and the number of children it received. As illustrated in the air photograph in Figure 1 and in the corresponding floor plan in Figure 2, the school ground was bounded by two school buildings, namely Buildings no 1 and no 2. Apart from the classrooms, labs and offices, there was a gym, which is found in Building no 1 (see Figure 2). Moreover, the school complex comprised a kindergarten, housed in Building no 3. This school was delimited from the other schools and the school ground by a fence.

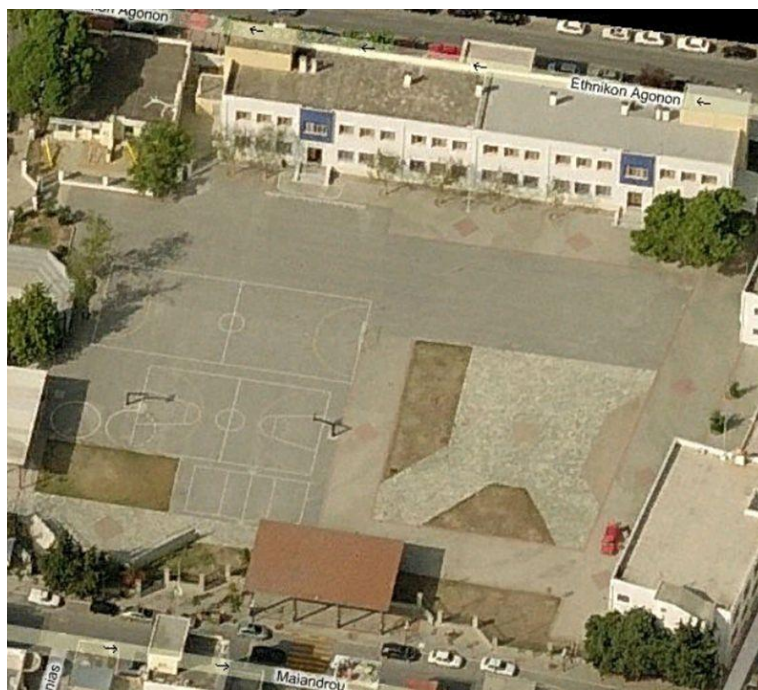


Figure 1. Air photograph of the school ground in its initial form

The school ground comprised a football, a basketball, and a volleyball ground. It also involved a stone and grass-paved area, some trees, and two shelters. A cafe, where the children could buy something to eat or drink, and some drinking fountains were found in the area between buildings no 1 and no 2. Benches where the children could sit and relax were found in front of the two buildings, between the stands of trees (see Figure 2). It should be noted that Figures 1 and 2 correspond to the initial form of the school ground, which –by the time this study took place- had been modified in some respects. The final form of the school ground, corresponding to the actual arrangement at the time of the study, is illustrated in Figure 3. The most important modifications will be described below.

In its initial form, the school ground also comprised a small amphitheater. However, at the time this study took place, a new school building that would house another kindergarten was being constructed. This new building was built in the area initially occupied by the amphitheater, the volleyball and the basketball grounds (compare the bottom left corners in Figures 2 and 3). During this process, the amphitheater was knocked down, while the basketball and the volleyball grounds were reallocated at the northeast and southeast sides of the stone and grass-paved area.

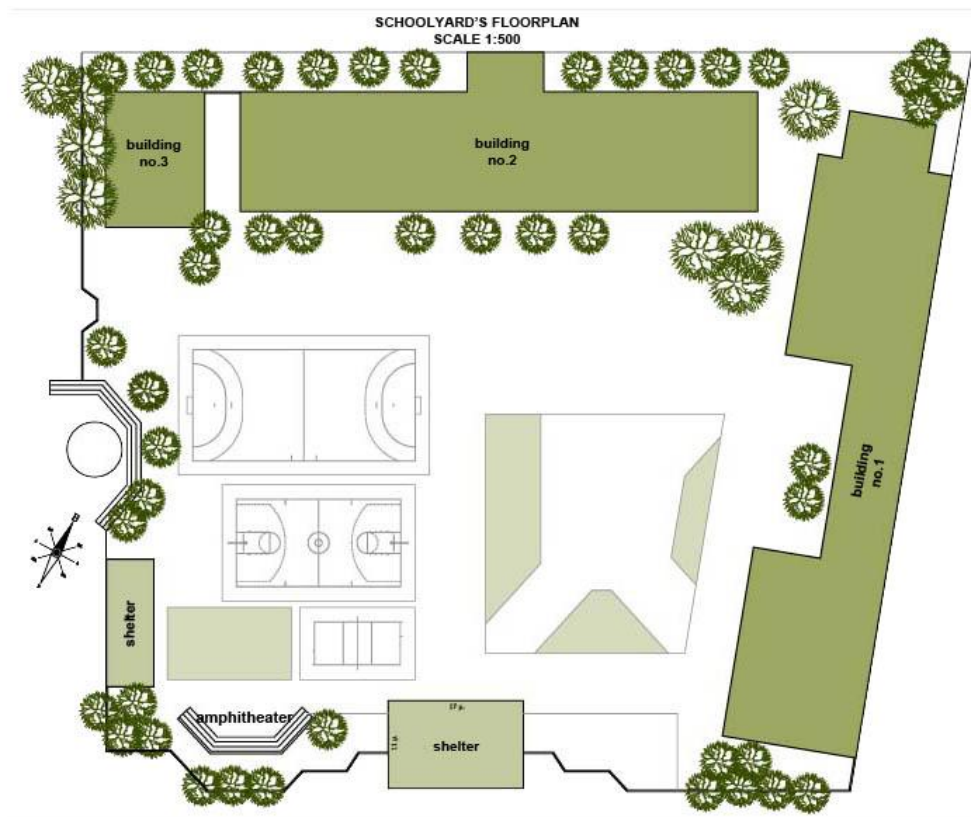


Figure 2. Floor plan of the school ground in its initial form

Also, during this period a sheltered kiosk with some more benches was constructed at the north-west part of the school ground, by the football ground. It should also be mentioned that by the time the present study took place, the trees in front of Building no 2 and the grass in the stone and grass-paved area had significantly grown, while some new trees had been planted in the latter area.

Results

In the following subsections the results concerning children's drawings, their interviews, and the observations of children's activities in the school ground will be presented.

Children's Drawings

Children included a variety of elements in their drawings of the school ground. Their drawings varied in detail and complexity. Some depicted various elements and produced fairly detailed representations of the school ground (see Figure 4), while others concentrated on one or two elements only, probably considered as most important (Figure 5). More particularly, children's drawings involved 1 to 8 elements each, with an average of 4.3 elements per drawing.

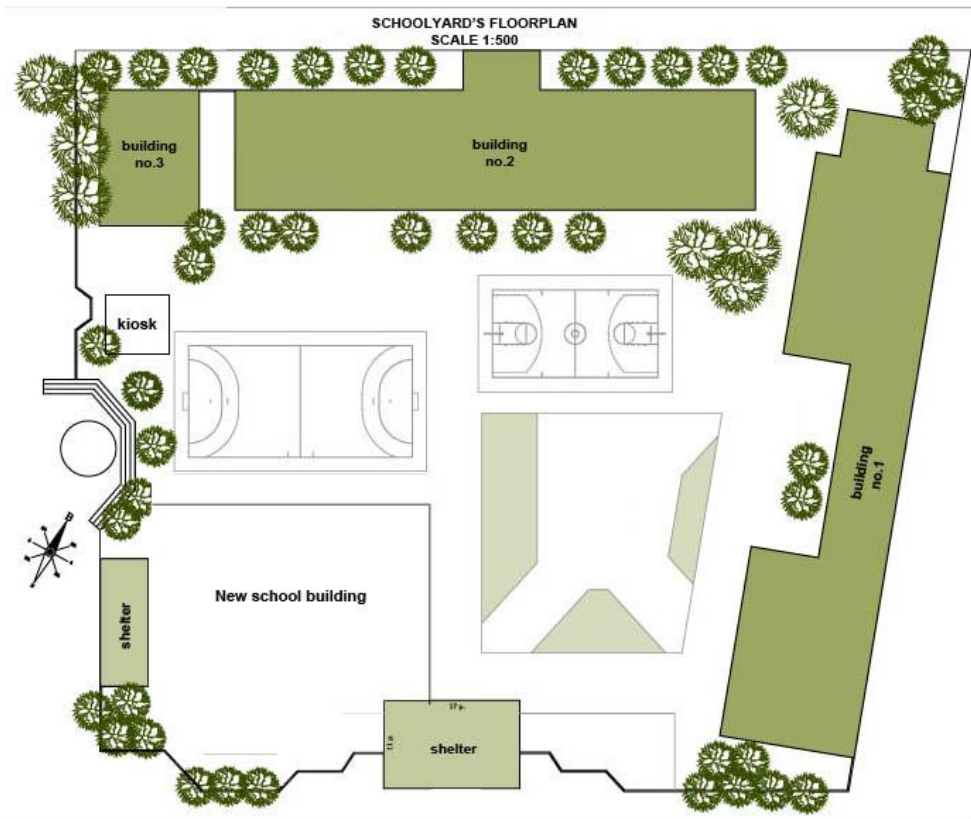


Figure 3. Floor plan of the school ground in its final form

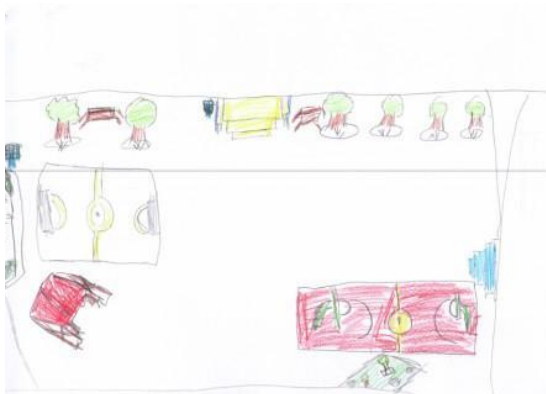


Figure 4. A complex drawing depicting a variety of elements of the school ground (football and basketball grounds, amphitheater, kiosk, trees, benches, green areas).

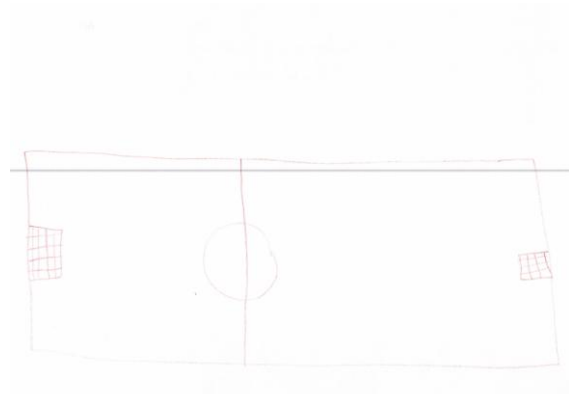


Figure 5. A drawing involving only one element of the school ground (football ground)

Furthermore, some elements of the school ground were more dominant and appeared in different drawings more frequently than others. As indicated in Table 1, the basketball ground (26 instances), the football ground, and trees (25 instances each) were the most prevalent elements in pupils' drawings, followed by depictions of the school building (17 instances), the kiosk (11 instances), children (only marginally appearing in 8 drawings), the volleyball ground (7 instances), the school ground fence (7 instances), asphalt-paved areas (5 instances), the benches (4 instances), stone and grass-paved areas (3 instances), or other elements (14 instances) such as waste bins, the kindergarten building under construction, or the gym entrance area. No significant differentiations were recorded between the elements selected to be represented in girls' and boys' drawings.

Moreover, some of the depicted elements were enlarged –hence emphasized- in children's drawings; that is, their relevant size was significantly bigger compared to other elements and to the school ground area. Magnified elements (mainly the football and basketball grounds and the school building) appeared in 26 drawings (see Figure 6), while only 10 drawings represented the relative sizes of the school ground elements realistically (see Figure 7).



Figure 6. Drawing with magnified elements of the school ground

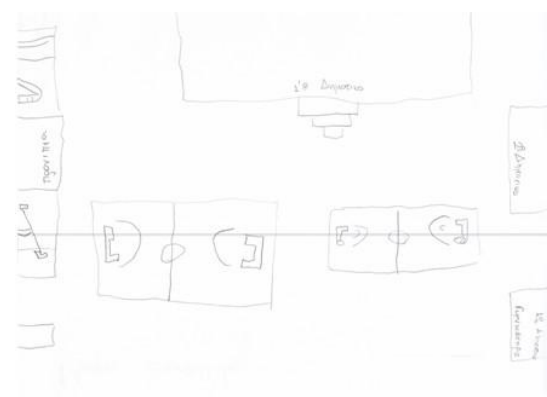


Figure 7. Drawing with school ground element sizes represented realistically

Table 1. School ground elements depicted in pupils' drawings

Depicted Element	Frequency
Basketball ground	26
Football ground	25
Trees	25
School building	17
Kiosk	11
Children	8
Volleyball ground	7
Fence	7
Asphalt-paved areas	5
Benches	4
Stone and grass-paved areas	3
Other	14

Children's Interviews

In the following subsections, the results from children's interviews will be presented regarding their views about their school ground; their activities and experiences in the school ground; their vision and suggestions for the improvement of the school ground; and their estimation of the importance of their suggestions to others. Again, no significant differences were recorded on either of these issues between girls and boys.

Children's views about their school ground

The first part of the interview concerned children's feelings about their school ground, as well as the elements of the school ground they liked or disliked. In majority (22 children) the pupils suggested that they liked their school ground as it was, since it comprised all elements a typical school ground would be expected to have. Eleven children expressed rather neutral views, while 3 pupils were rather negative. The following excerpt reflects a neutral view:

Example 1

Interviewer: Do you like your school ground?

Child 15: So and so. All right, it comprises what any school ground does.

In regards to specific elements of the school ground that children claimed they liked, their responses (see Table 2) indicated that they preferred the green parts of the school ground (15 references), the basketball ground (10 references), the football ground (9 references), the kiosk (5 references), the amphitheater that used to be in the area where the new school building was being constructed (4 references), the stone-paved areas, the benches and the shelter (3 references each), the volleyball ground and the cafe and drinking fountains (1 reference each). The following excerpts reflect typical pupils' responses:

Example 2

Interviewer: What do you like in the school ground?

Child 7: I like the flower patch and the trees where they put the stones and it's nice and green. And I like the kiosk where we can go and sit and talk when it rains, and the shelter.

Example 3

Interviewer: What do you like in the school ground?

Child 23: I liked the stairs it used to have [she means the amphitheater], because we all used to go there.

Interviewer: Anything else you like besides the stairs they knocked down?

Child 23: I like the football and basketball grounds because we can play whatever we want there.

Interestingly, when asked about the part of the school ground they liked the most, children differentiated their priorities (see Table 2), primarily referring to the football ground (15 references), to the kiosk (10 references) and to the basketball ground (6 references), while sporadic responses indicated the benches, the shelter, the cafe and drinking fountains (3 references each), the amphitheater (2 references), and the volleyball ground (1 reference) as children's favorite elements of the school ground.

Children's responses about the elements of the school ground they disliked were rather systematic. As indicated in Table 2, several pupils (15 references) expressed their dissatisfaction

about the new school building -under construction at the time the interviews took place-, since it occupied part of the school ground area, and more particularly the part where the amphitheater used to be. Eight pupils indicated that they were unhappy with the green areas, because they found them to be inadequate, i.e. they would like their school ground to be greener, to have more trees and vegetation. Another element of the school ground considered as problematic by 7 children was the litter covering the ground, especially after the first interval, when most of them have a snack. Children stated that this had to do with the lack of sufficient litter bins in the school ground. Sporadic responses concerned pupils' dislike of other elements, such as the football ground (4 references), the cafe and drinking fountains (3 references), the asphalt-paved areas (2 references), or the basketball and the volleyball grounds (1 reference each).

Table 2. Elements of the school ground children like and dislike

Element...	...children like	...children like the most	...children dislike
Green areas	15	0	8
Basketball ground	10	6	1
Football ground	9	15	4
Kiosk	5	10	0
Amphitheater	4	2	0
Stone-paved areas	3	0	0
Benches	3	3	0
Shelter	3	3	0
Volleyball ground	1	1	1
Cafe and drinking fountains area	1	3	3
New school building	0	0	15
Litter	0	0	7
Asphalt-paved areas	0	0	2

The following example is indicative of pupils' views and feelings about the elements of the school ground they dislike:

Example 4

Interviewer: What is it that you don't like in your school ground?

Child 32: I don't like the football ground because the goal posts don't have any nets.

Interviewer: Is there anything else you don't like in the school ground?

Child 32: I don't like that there are not enough litter bins -there are only two- and I don't like that our school ground is not clean and tidy. And the trees are few. Generally, there is lack of green spaces compared to the area of the school ground.

Children's Activities and Experiences in the School Ground

This part of the interview concerned the ways children used the school ground during the intervals between their classroom lessons. As indicated by their responses presented in Table 3, pupils' dominant activities in the school ground were related with play. More specifically, children suggested that they engaged in rule-based play like chase (19 instances), hide and seek (11

instances), or games with rules invented by themselves (11 instances). Others preferred sport games such as football (16 instances), basketball (5 instances) and volleyball (2 instances). It should be noted, however, that the children were not allowed to use balls during intervals, a policy adopted to ensure safety of other –especially younger- children who could be hurt by forceful shots. Balls were only used during the physical education courses under the supervision of a teacher. Therefore, when engaging in sport games during intervals, children used a variety of objects as substitutes for balls, such as plastic water bottles, or balls made of paper.

Table 3. Pupils' activities in the school ground during intervals

Types of activities	Specific activities	Frequency
Rule-based play	Chase / Hide and seek	30
	Football / basketball / volleyball	23
	Invented games	11
Strolling and talking		16
Soil exploration		1

Some children (16 instances) mentioned strolling around and talking with friends as their favorite activity in the school ground, while only one pupil mentioned exploring the soil with his friends. Most children indicated two or more activities in which they usually engage, as illustrated in the following example.

Example 5

Interviewer: What do you like doing when you are in the school ground?

Child 24: I walk with my friend and we talk.

Interviewer: What else do you do?

Child 24: I play various games with my classmates.

Interviewer: What kinds of games?

Child 24: Hide and seek, chase, and the 'color of the witch'.

Pupils were also asked to identify their school ground as a place for different kinds of experiences. This question also addressed the issue of the use the school ground as an outdoor classroom in the course of school subjects -besides physical education, which is typically implemented in the school ground in Greek schools.

Most children (31 instances) considered the school ground as a place for recreation, while others (17 instances) regarded the school ground as a place for relaxation and communication with friends (see Table 4). Only 4 pupils mentioned using the school ground as an outdoor classroom in the course of a school subject (namely environmental science), while only one child suggested that he considered the school ground as an opportunity to come in contact with nature. Furthermore, it is worth noting that –according to children's comments- the school ground is scarcely used for learning purposes (e.g. in the course of a project), as the following excerpt of a pupil's comments recalling an experience he had one year before he was interviewed suggests.

Example 6

Interviewer: How do you normally use the school ground?

Child 10: We go out and play. Once, in fourth grade, we went behind the amphitheater with our teacher and explored the plants for the environmental science course, and then we

observed and counted how many motorbikes and cars passed by in the road outside the school.

Table 4. Types of experiences considered by the pupils as relevant in the school ground

Experiences	Frequency
Recreation	31
Relaxation and communication	17
Teaching and learning	4
Coming in contact with nature	1

Children's Vision and Suggestions for the Improvement of Their School Ground

Children's responses to the relevant interview questions indicate that they had quite clear visions for the improvement of their school ground. This is apparent in their suggestions outlined in Table 5. Their first and foremost suggestion concerned their desire for more green spaces in the school ground, expressed by 29 pupils who asked for more trees and plants, while another 5 children wished the whole school ground was covered with grass instead of asphalt and stone. However, only 2 pupils suggested activities related to a greener school ground, wishing there were gardening and plant exploration programs. Several children (15 instances) suggested better or bigger football, basketball, or volleyball grounds, along with their wish to be allowed to play ball games using real balls during intervals. Others (9 instances) mentioned that they would like to have a playground with more activities and plays, like swings, seesaws, and horizontal bars. Seven children asked for more benches and a bigger sheltered kiosk to sit under during rainy day intervals instead of remaining in the school building. Four children expressed their wish for a cleaner and tidier school ground and suggested the placement of more litter bins so that they have easier access to them and more possibilities of using them. Last, 2 pupils mentioned that they would like to have an amphitheater again in their school ground, so that they could gather, play, and talk.

Table 5. Children's suggestions for their school ground

Children's suggestions	Frequency
More green spaces	29
Better / bigger grounds	15
Playground with more activities and plays	9
Benches / sheltered kiosk	7
Grass instead of asphalt	5
More litter bins	4
Amphitheater	2
Gardening and plant exploration	2

The following excerpt reflects a pupils' vision for the improvement of the school ground.

Example 7

Interviewer: How would you like the school ground to be?

Child 17: I would like the football ground to be covered with grass and the basketball ground with plastic so that we don't get hurt when we fall.

Interviewer: For the rest of the school ground what would you like?

Child 17: I would like it to have more trees, preferably plane trees, to have more shade.

Children's Estimation of the Importance of Their Views about Their School Ground

In the course of the interviews pupils were asked to estimate what the reactions of others – especially grownups- would be about their views and visions for the school ground. As the results presented in Table 6 indicate, most children (18 instances) believe that others would not find their views and suggestions important. These children typically claimed that grownups would not listen to their views, or would not bother redesigning the school ground, either because of inherent difficulties in the suggested changes, or because of their high cost.

Table 6. Children's estimation of the importance of their views for others

Children's estimation	Frequency
Others would not find my view important	18
Don't know/ maybe	13
Others would find my view important	5

The following examples clearly reflect this low estimation of children's own views and visions:

Example 8

Interviewer: Do you believe that others would pay attention to your views and suggestions?

Child 27: Yes, my friends would certainly listen to me.

Interviewer: What about the grownups? The teachers?

Child 27: The teachers, no.

Interviewer: Why?

Child 27: Because the teachers would not concern themselves with the things in the school ground.

Example 9

Interviewer: Do you believe that anyone would listen to your views?

Child 6: No, who would bother making the school ground now?

Other children (13 instances) appeared undecided about their confidence regarding their views about the school ground. The rest of the children (5 instances) seemed rather confident, claiming that they would expect their views and visions to be welcomed and supported by others.

Observation of Children's Behavior in the School Ground

Observation records indicated that children used the school ground in various ways, both formal and non-formal. 'Formal' refers to the uses for which specific areas of the school ground had originally been designed (for example, the football ground for playing football), while 'non-formal' denotes unexpected uses of specific areas (for instance, the cafe and drinking fountains area for free play). Table 7 illustrates the different types of activities recorded at different areas of the school ground. These areas are also illustrated on the school ground plan in Figure 8, designated by the corresponding numbers in the first column of Table 7. The types of activities

recorded included rule-based play (coded as RP); free play (FP); relaxation (R); conversation (C); solitary child (SC); and sports (S). The numbers in the cells in Table 7 indicate the frequency of use of a school ground area or element for a specific type of activity: 1 signifies regular use; 2 indicates frequent use; and 3 indicates systematic use (i.e. the same activity took place at the same area during all, or nearly all intervals). The exact numbers or the density of children in each area could not be calculated more accurately, since pupils would commonly move around the school ground from one observation area to another during an interval.

Table 7. Children's types of activities observed at different areas of the school ground

No	School ground area	RP	FP	R	C	SC	S
1	Kiosk	1	1	1	2		
2	School building main entrance			1	1	1	
3	School building secondary entrance			1		3	
4	Football ground	3	2	1	1	1	3
5	Basketball ground	1	1		1	1	1
6	Gym entrance area	1		1	3		
7	Cafe and drinking fountains area		1	1			
8	Kindergarten fence			1			
9	Shelter	1		1	1		
10	Benches		2				
11	Rest area of 2 nd school	1			1	1	
12	Stone and grass-paved area	1	2	1	1		1

Overall, the football ground, the stone and grass-paved area, and the kiosk were the most popular and busy school ground areas supporting a diversity of activities. The most popular activities in the school ground included rule-based and free play, relaxation, sports and communication. However, it seems that the school ground contributed to children's solitary play and loneliness, by not enforcing socialization opportunities. Furthermore, Table 7 indicates that the school ground's design did not provide opportunities for cognitive or creative activities. Likewise, no indications of children's interaction with the few natural elements of the school ground, or of the use of the school ground as a space appropriate for environmental learning were recorded.

Below, each element appearing in Table 7 along with the relevant activities will be described. The kiosk (1) was primarily used by the children as a place for conversation and relaxation. However, children used it in other ways, as well. For example, during an interval a child was recorded jumping from one bench to another, or during another a group of children were playing chase around the kiosk (Figure 9). The school building main entrance (2) was also used as a relaxation and conversation area. This was a fairly sunny area, where teachers used to gather during intervals. The pupils used to sit and discuss on the stairs in front of the entrance, or on the ground (Figure 10).

On the other hand, the secondary school entrance (3) was mainly used as a relaxation area for solitary pupils; no groups of children were recorded sitting there at any time. The most crowded areas of the school ground were the football (4) and basketball (5) grounds, as well as the space between them and between them and the school building. In these areas free play and rule-

based play activities -that is intensely kinetic activities- were observed (Figure 11). As already mentioned, since the use of balls had been banned during intervals, the children used other objects as substitutes to balls to play football.

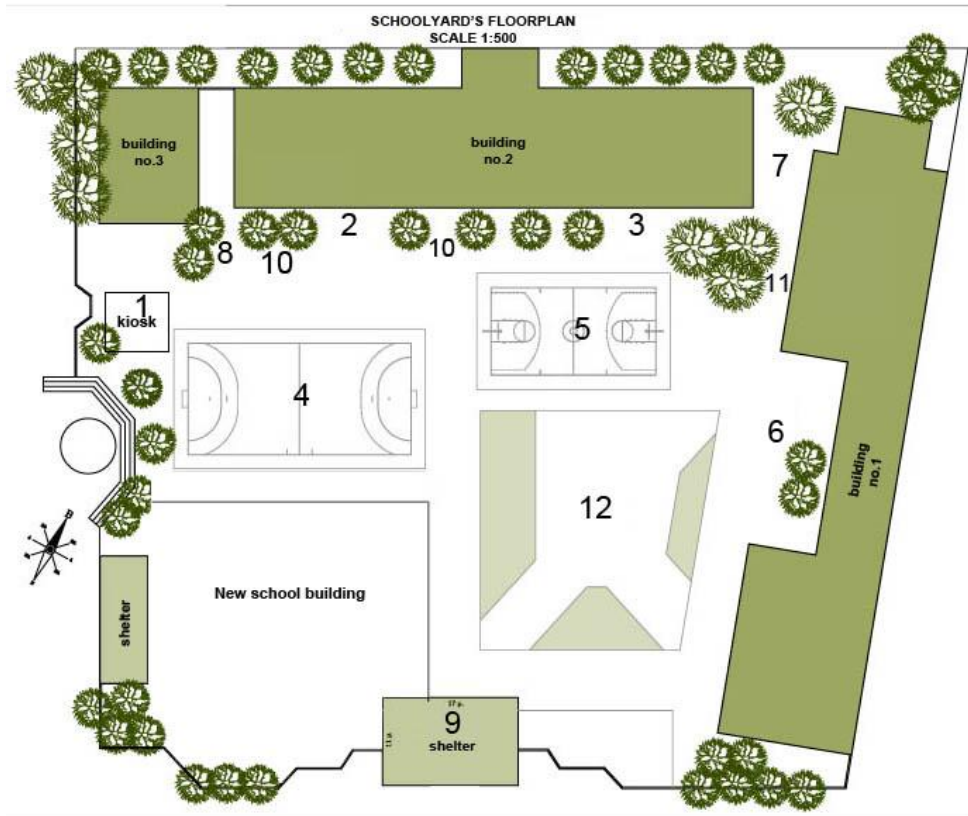


Figure 8. The school ground plan with observation areas designated by numbers



Figure 9. Children sitting under the kiosk to relax and discuss, while others play chase around it



Figure 10. Children sitting and discussing around the school building main entrance and on a bench

At the same time, other, non-formal uses of the football ground were observed. For example, several children used to gather near the goal posts and discuss in groups, while hanging from the goal post bars (see Figure 12). The basketball ground (5) was mostly used for rule-based and free play. The children used the basketball posts as ‘nests’ when playing chase, or other invented games, but not to play basketball. Children walking in small groups while eating or discussing were observed around the gym entrance area (6). Moreover, this area was also regularly used for free play, like the neighboring basketball ground.



Figure 11. Children engaging in kinetic activities in and around the football ground



Figure 12. Children in the football ground, hanging from the goal posts, and discussing in groups

The cafe and drinking fountains area (7) was also used for a variety of activities. Pupils used to gather there to eat and relax, while sometimes they engaged in kinetic activities (such as hanging from and climbing on the railing and nearby stairs). The kindergarten fence (8) was not originally planned as a potential element for observation. Nevertheless, several children used to gather near or climb on the fence, and stare at the kindergarten children on the other side.

The shelter (9) nearby the school building under construction was mainly used by the children to play chase, or to relax and discuss. However, this area of the school ground was not preferred by many children, but remained rather neglected. Interestingly, the two areas originally designed for relaxation, i.e. the benches (10) and the rest area of the second school (11), were hardly used for this purpose. Only a small number of pupils sat there to relax and talk; in contrast, most children would use these spaces for rule-based or free play. Last, but definitely not least, the stone and grass-paved area (12) has been recorded as one of the most popular elements of the school ground (Figures 13 and 14). Children would gather there to engage in kinetic activities of free play, such as rolling, wheeling, or running around the trees. Several children would walk in groups while talking.



Figure 13. Children running in the stone and grass-paved area



Figure 14. General picture of the stone and grass-paved area

Discussion and Conclusions

Insights on Children's Play Behavior and Views of the School Ground

The results presented in the previous section indicate that the children primarily viewed their school ground as a space for recreation, play, relaxation, and communication with peers. Both in their drawings and interviews they mostly tended to emphasize the structured, pre-constructed elements of the school ground, namely the football and basketball grounds and the kiosk. The pupils included a variety of elements of the school ground in their drawings, often selecting and overemphasizing those considered as important, while neglecting others. One of the most neglected elements in their drawings was the presence of children, only sporadically appearing in a few drawings. Apparently, the pupils did not consider themselves –i.e. the users of the school ground– as an inherent or important element.

The limited elements of the school ground and the absence of children in pupils' drawings indicate that the children who participated in the study had not adequately developed a sense of place. According to Tranter and Malone (2004), children are supported in developing a strong sense of place and the ability to participate in the creation of their environment when living and acting in places that provide sensory-rich experiences and children's freedom to explore them. Furthermore, it seems that the children had not gained the sense of belonging in their school ground environment. A diversity of play experiences, areas and activities, and children's active participation in the design and management of their play environment are important factors in order for them to develop the sense of topophilia (Tuan, 1994) as well as the sense of belonging.

Another interesting outcome concerns the uses of different school ground elements. As indicated by both interviews and observations, children tended to use specific elements in non-formal ways. This was especially true for the football and basketball grounds occupying a significant part of the school ground area. Apparently, the rules and regulations imposed by the teachers –especially the ban of balls during intervals, a common policy in most Greek schools– entailed further restrictions to children's activities and behavior in the school ground. Therefore, areas originally designed and intended for sports activities were largely used for rule-based and free play, as well as relaxation, communication, or lonely wandering. Similarly, the benches –originally designed for relaxation– primarily supported children's free play.

The abovementioned outcomes indicate that children hardly identify themselves with a conventional, firmly structured, and pre-constructed school environment, even when this is

intended and used for recreation and relaxation. On the other hand, the children seemed to have developed clear and resolved views and visions concerning their school ground. They were willing to discuss their likes and dislikes about its structure and functions, as well as to offer recommendations for its improvement. However, most of their suggestions concerned the structure and elements of the school ground, and not their actual activities within it. Despite the fact that the majority of children suggested that their school ground should become greener, they hardly saw themselves actively engaging in relevant activities, like gardening, or plant exploration. Their preferred activities and behaviors and their relevant visions were mainly related with play and sports. Relevant demands related to the children's need to engage in sport games using balls, as well as to have access to a variety of play areas and activities.

Furthermore, the outcomes of the present study clearly indicate that the school ground was neither conceived of nor used as a teaching and learning space, where pupils and teachers can engage in organized activities. This is probably not irrelevant to the fact that the children neither viewed their school ground as a space for coming in contact with and exploring nature nor as a space for developing and expressing their creativity.

Therefore, a 'dual' image of pupils' views of their school ground emerges: on the one hand, they include several elements of the natural environment both in their drawings and interviews; they also express their need for natural elements in the school ground and for the development of a connection with nature. On the other hand, while they acknowledge elements like trees, or grass, as attractive, or 'good', they do not seem to commonly interact with them, or to value and use them as opportunities for contact with nature. This is actually a challenge: children recognize and express their need for the development of a bond with nature, but they are not educated to manage and use the natural elements in their environment. Furthermore, despite the fact that they tend to use their school ground in creative and unconventional ways, they have not been encouraged to actively express their imagination and creativity.

The lack of any association of the school ground with the aspects of learning and creativity is remarkably discouraging, yet predictable. A conventional, firmly structured school ground imposes significant restrictions on its users. Combined with the lack of instructive guidance, it leaves no room for learning and creating opportunities. It seems that children reproduce the conventional structures of playgrounds they see around them. They have not been educated to question the traditional spatial design and to participate in the creation of alternative play and learning spaces using their imagination and creativity.

Children as Partners in the School Ground Design

Children's participation in the design of their environment helps them develop their critical thinking, creativity and imagination, cognitive and communication skills as well as the sense of belonging and the sense of group membership. It is also an important component of their well-being and their quality of life. Participation can also help children care for nature as well as for each other, developing environmental and social consciousness (Hart, 1997; Sutton & Kemp, 2002). Children's participation in planning their environment contributes to the creation of a strong community identity and place attachment (Adams & Ingham, 1998). Through participatory design projects children develop the ability to control important aspects of their life and to become engaged and active citizens (Chawla & Heft, 2002).

Furthermore, children's participation in redesigning their environment contributes to the creation of ecological and solidary societies (Horelli, 1997; Horelli & Kaaja, 2002) and is an essential component of social justice (Bojer, 2000). In the present study children's participation was considered as an essential part of the school ground design. Thus, it was important to explore children's experiences, needs and views for the improvement of their play environment and

involve them in the design process. Children were considered as co-researchers in the design process and partners in the creation of the final plan of the improved school ground.

Even though children exhibited a rather low estimation of their views regarding their school ground, they were willing to participate and to propose ideas for its improvement. Children's participation is a pedagogical choice offering many benefits for their personal development. The research process was a valuable opportunity to involve children in the design of their school ground and to help them gain self-confidence. The school ground project was a pilot pedagogical path towards children's empowerment through the expression and communication of their views and their participation in the creation of a new school ground plan.

The present study attempted to bring forth the dialectical relationship between children and their play space and proposed a space-based pedagogical process that involved children in the design of their play environment. This process provides the tools that may lead to the creation of an empowering framework. Within this framework, children can be educated to reflect upon their own condition, to express and communicate their views and needs, to be involved in the design process and to make important steps towards their empowerment (Tsevreni, 2011a, b).

Emerging Design Guidelines for the School Ground

The study presented in this paper revealed the restrictions and shortages of a conventional school ground as well as children's needs and ideas for an improved school ground that will contribute to their development. Firstly, children emphasized the need for increased presence of natural elements in the school ground. Children's need for contact and interaction with nature can be considered as a priority in the plan of the improved school ground. The creation of natural areas will support children's relaxation. Moreover, the greening of the school ground is expected to enforce environmental learning, providing opportunities for a variety of activities such as observation and investigation of natural elements, organisms and species, cultivation of plants and breeding of animals, thereby supporting the development of their cognitive and perceptual skills. As Danks (2010) indicates, an ecological school ground is a valuable outdoor asset for teaching and learning, supporting a variety of grade levels and scientific subjects. It also addresses important environmental issues enabling children to change their own corner of the world.

Secondly, it seems that a variety of play areas and activities is needed. The school ground under study, in its present condition, provides limited opportunities for play and learning. Except for sports activities, the children do not have any other stimulation in their play area. However, children need access to a diversity of play settings in order to liberate their creative energy (Moore & Wong, 1997). Play environments should be novel and complex, stimulating children's curiosity and exploration. A rich and complex play and learning environment should replace the conventional, empty school ground that does not offer rich sensory experiences to children. A variety of areas should be provided that support different activities aiming to the development of motor, social and cognitive abilities and contact with nature.

Thirdly, an important design guideline for the school ground, as it emerged from this study, is the enforcement of socialization. The present school ground fails to counteract children's isolation and loneliness. Therefore, a play environment that encourages socialization and peer interaction is needed. Areas that support a variety of group activities (sports, arts, environmental learning and relaxation) could replace the emptiness and passiveness of the current conventional school ground. Spaces that function as shelters where children could be isolated in case of anxiety and frustration can be also included, but in harmony with a network of creative areas that enforce collective action. According to Moore and Wong (1997), the diversity of a play environment

allows children to interact with each other, to match their common interests and to experiment with social interactions.

Finally, as indicated in the results section, the children attempted to use the school ground in their own, non-formal and unconventional ways, as the stimulations it provided were limited. Children's free play could be further supported through the creation of areas that would enhance their creativity and imagination. The presence of natural elements (plants, trees, water, sand etc) and loose materials would contribute to this direction. Imaginative play that takes place on fences, benches, tables, ledges and trees and uses materials such as leaves, sticks, sand, water and even dirt impacts all aspects of children's development: cognitive, emotional, perceptual and physical (Moore & Wong, 1997). Furthermore, areas where children can participate in the making of their environment (plant cultivation, wall painting etc) could also contribute to the development of their abilities and place attachment. The abovementioned implications -stemming from pupils' expressed views and visions, as well as from their observed behavior- serve as guidelines to direct crucial decisions and set the standards for the final step of the project, namely the redesign and improvement of the school ground.

Acknowledgment

This work constitutes part of the project titled "Contribution of rational landscape design to the improvement of bioclimatic parameters of school grounds and their utilization as a learning spaces", which was funded by the University of Thessaly Research Committee (Grant Code: 4090.03).

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Authors

Vasilia Christidou is Professor at the University of Thessaly, Greece. Her research interests include teaching and learning in science, the promotion of Public Understanding of Science, and the process of recontextualization of scientific texts addressed to non-experts. **Correspondence:** Department of Preschool Education, University of Thessaly, Argonafton & Filellinon, 38221, Volos, Greece. E-mail: vchristi@ece.uth.gr

Irida Tsevreni is an environmentalist and holds a PhD on children's participation in urban planning. She is a post postdoctoral researcher at the School of Architecture, National Technical University of Athens. Her research interests include children's participation in urban and regional planning, children's involvement in the design of their play spaces, environmental education and critical pedagogy. Email: iridatsevreni@hotmail.com

Maria Epitropou is a kindergarten teacher and holds a Master's Degree in Education. She has participated in several research projects on the development of educational material and software. E-mail: epitropou@gmail.com

Constantinos Kittas is Professor. Constantinos Kittas, PhD in Thermodynamics is an Agricultural, Civil and Mechanical Engineer. He has more than 30 years of extensive research and teaching involvement in Agricultural Engineering, Bioclimatology and Renewable Energy Sources. He has coordinated and participated in several R&D projects and has more than 200 publications. E-mail: ckittas@agr.uth.gr