

# School ground as environmental learning resources: Teachers' and pupils' perspectives on its potentials, uses and accessibility

**Paramita ATMODIWIRJO\***

*Department of Architecture, University of Indonesia, Indonesia*

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## **Abstract**

This paper addresses the role of school ground as outdoor learning resources for environmental education. The opportunities to use school ground are particularly prominent in tropical climate, where the weather permits plenty of outdoor learning activities. A study in primary schools in Jakarta explored the relationship between the spatial aspects of school ground and its role in providing access to outdoor environmental resources, from the perspectives of teachers and pupils. The findings reveal that the potentials of school ground environment in many schools have not been fully utilised. Outdoor opportunities offered by school ground environment do not immediately result in active environmental learning. The findings suggest the needs to rethink the position of school ground within the current spatial design of school environment, to address the demands for more engagement with nature and current perspectives towards environmental learning.

**Keywords:** Environmental education, learning resources, school ground

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## **Introduction**

Environmental education has become a critical necessity in facing the current environmental issues and problems. Since 2005, UNESCO has declared UN Decade of Education for Sustainable Development (UNDESD) 2005-2014. The objective of UNDESD is "to integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behavior that allow for a more sustainable and just society for all" (UNESCO, 2007). Such declaration means the need for environmental education to be integrated in all aspects of everyday learning in all levels of education. Environmental education in primary levels becomes important for developing early awareness and care towards environment.

To support environmental education in primary schools, it becomes necessary to provide enough access for pupils to interact with various aspects of environment. Learning resources may be found anywhere including in the closest everyday environment. School grounds may become potential resources for various activities in understanding about environment. It consists of various elements, both natural and man-made, that may become a micro representation of our larger scale environment and therefore become a potential setting for learning. This is particularly true in urban contexts, where children have limited

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\* Corresponding Author: Paramita Atmodiwirjo, Department of Architecture, University of Indonesia, Depok, Indonesia. E-mail: mitayandi@gmail.com

opportunities to interact with nature, and thus school ground may play an important role for developing children's environmental awareness and knowledge.

In general, research has indicated the important roles of school ground for children's development in general (Fjortoft & Sageie, 2000; Wells, 2000; Taylor et al., 2003; Taylor, Kuo & Sullivan, 2002). In relation to environmental education learning process, school ground offer potentials as 'outdoor classrooms' (Malone & Tranter, 2003a) that provide learning resources for various aspects of environment. In particular, the school ground could play important role in providing sensory stimulation, opportunities for action and response feedback (Wohlwill & Heft, 1987), which are all necessary to develop children's engagement with nature and acquisition of environmental knowledge. School could develop learning programs that utilize school ground as a setting for science and environmental learning (McKendrick, 2005). School ground becomes a place for learning about living habitat and various environmental process as well as for developing environmental awareness and stewardship (Education Development Center, 2000).

School ground plays an important role for environmental education. However, the presence of school ground does not necessarily guarantee its optimum utilization as environmental learning resources. It is then necessary to discuss the extent to which school ground could play its role as a meaningful learning environment that could support environmental learning processes.

### **School ground as a meaningful environment for learning**

The presence of school ground environment becomes meaningful when it is embedded within the everyday use by the teachers and pupils and plays a significant role in the everyday learning process. To play such a role, school ground should be connected to children and become an environment where children are fully involved and engaged with. Chatterjee (2005) suggested some criteria to determine children's friendship with places, in which an environment that is friendly for children is

an environment that promotes exploration and actualization of its many affordances for different activities and social interactions; offers opportunities for environmental learning and competence by shaping physical characteristics of the place through repeated use and promoting children's participation in care and maintenance of the place; allows children to express themselves freely in creation and control of territories and special places; and protects the secrets and activities of children in these childhood places from harm. (p. 17)

The above criteria indicate that the physical aspects of an environment only play a partial role in determining the meaning of an environment for children. In terms of promoting children's close connection with school ground, it becomes necessary to aim towards the creation of school ground environment within the everyday life of the children. Research suggested some factors that appear to be contributing to the role of school ground in everyday activities and educational process. These factors include the way the school management and teachers see the role of school ground, teacher's attitudes towards school ground and their role in developing learning programme in relation to school ground, spatial design of the school ground environment and other external factors including weather.

School ground physically appears as a complementary of indoor spaces of the schools. However, the point of view of school management or teachers towards school ground may determine the role of this outdoor spaces within the everyday activities of the pupils - whether school ground is considered merely as complementary spaces with no built part of the schools or as an integral part of learning spaces. School ground may become a setting of

the 'hidden curriculum' (Titman, 1994), which is no less important than the formal curriculum established in the formal learning spaces. In fact, the way the school management view the importance of school ground as outdoor learning environment is related to the extent to which children could benefit from it for their learning (Malone & Tranter, 2003a). This means that the way the available spaces are used might be determined by the access and opportunities provided through the establishment of school policies relating to school ground use and management.

Attitudes of school management towards school ground may also be reflected on the way the teachers manage their teaching programs in relation to school ground. Teachers play an important role as 'the gatekeepers' who determine daily schedule of the learning activities and make decision whether or not the children go outdoor (Copeland et al., 2012). It is important that teachers become aware on the role of school physical environment – including school ground – and their ability to use it effectively to achieve the learning goals (Lackney, 2008). Such competence needs to be possessed by the teachers in order to promote the supporting role of the school ground for environmental learning. Otherwise the available school ground spaces would be neglected and disconnected from overall learning activities. Various factors appear to be obstacles for teachers in using the school ground environment effectively (Maynard & Waters, 2011). These factors include their lack of awareness of the benefits and potentials of outdoor environment, as well as the pressure to accomplish the required education requirements which eventually result in the limited use of school ground.

The role of school ground as a meaningful environment for children's learning cannot be separated with its spatial characteristics. Research has found associations between the quality of schoolyards and the physical activity (Ozdemir & Yilmaz, 2008). Arbogast et al. (2009) found that the presence of vegetation in school ground is related to the amount of recess time spent outside. Another study compared biodiverse and barren school ground, and found that school ground with more biodiversity is related to children's more diverse and more nature-oriented preference, as well as more complex use of outdoor environment (Samborski, 2010). In addition to the quality of the school ground spaces and their elements, the spatial design of the school ground within the whole school layout may also determine their role as meaningful learning environment. As found in a study by Maynard and Waters (2011), teachers often felt practical difficulties in using the outdoor environment due to the size, the condition and the location of outdoor space, with the design that does not support the free flows of activities between inside and outside. These studies suggest the need to consider the spatial design of the school ground to enable indoor-outdoor connection that promote a rich and integrated environmental learning programs.

As the school ground is associated with outdoor activities, weather also plays an important role in determining the use of school ground and their educational values. In general research found that outdoor activities tend to increase in warmer season and decrease in colder season (Wolff & Fitzhugh, 2011; Chan & Ryan, 2009). In particular studies on children's outdoor activities suggested that children are more active in summer than autumn or winter (Silva et al., 2011) and that cold climate and rainy weather becomes one of the barriers to children's outdoor activities (Brockman, Jago & Fox, 2011; Dymont, 2005). However, when looking at children's outdoor activities within the context of school environment, school policy should also be taken into consideration. Some schools may have different policies in determining whether or not the pupils conduct physical activities indoor or outdoor during rainfall (Harrison et al., 2011), and this might eventually affect the pupils' activity levels. In relation to environmental education, pupils' opportunities to interact with various school

ground elements might also be determined by opportunities provided by school management and teachers.

Based on the discussion above, it becomes clear that the development of school ground as a meaningful environment that can support environmental learning process need to be considered in relation to different aspects. The findings of various researches above suggest that the optimum use of school ground for environmental learning is a result of a complex relationship between the spatial design, teachers' attitudes towards school ground and their roles in providing access and opportunities for pupils. We will now look into the situation of school ground in primary schools in Indonesia with tropical climate context.

### **Overview of school ground in Indonesia**

School ground has become an aspect of educational facilities that tend to be overlooked in Indonesia. The data indicates that among the primary schools in Indonesia, only 65% are equipped with school ground (Balitbang Depdiknas, 2004). The condition of school grounds that are available also highly varied. Some schools may possess a sufficient open space of school ground with various physical elements, while some others only have very limited open spaces or even none at all. In Jakarta, there are about 1,137 state primary schools which possess their own school sites. The school grounds that are available in these schools vary from none at all to over 10,000 m<sup>2</sup> (Dinas Pendidikan Dasar Provinsi DKI Jakarta, 2008). This variety indicates different resources of environmental learning that might be available in the primary school. The fact that school ground has not been provided sufficiently in many schools should be a primary attention, since this may reflect on limited understanding on the role of school ground to support environmental learning.

The standard for educational facilities (*Standar Sarana dan Prasarana Pendidikan*) in Indonesia has stated a minimum space of 3 m<sup>2</sup>/pupil to be provided as school ground (Peraturan Menteri Pendidikan Nasional RI Nomor 24 Tahun 2007). Such minimum space allows pupils to conduct playing and sport activities. However, the standard has not taken into account the need to provide various physical elements in school ground that should become learning resources. Therefore more spaces need to be provided in addition to the minimum requirement above, in order to provide sufficient spaces of school ground to support environmental learning.

The utilization of school ground as resources of environmental learning is highly related to the school curriculum. The recent national standard of educational process for primary and secondary education or *Standar Proses* (Peraturan Menteri Pendidikan Nasional RI Nomor 41 Tahun 2007) has highlighted various aspects related to learning process that should be practiced by teachers. This include the learning methods that involve exploration, in which teacher should encourage pupils to learn from various resources, involve pupils to be active in learning activities and facilitate pupils to conduct experiments in laboratory, studio and field. The standard implies the need for teachers to utilize any available resources to allow pupils for exploration in the process of acquiring knowledge. Furthermore, another standard of curriculum or *Standar Isi* also highlighted the various competencies that pupils should acquire at each educational level for each subject (Peraturan Menteri Pendidikan Nasional RI Nomor 22 Tahun 2006). The description in the standard indicates that there are opportunities for teachers to apply various methods, including various resources for learning.

Environmental education has not become a compulsory subject in national curriculum. However, the Ministry of Environment has published *Garis-garis Besar Isi Materi Pendidikan Lingkungan Hidup* or an outline of curriculum for environmental education (Kementerian Negara Lingkungan Hidup, 2006). The document highlights various aspects of

environmental learning which can be integrated into curriculum of any subjects. Some provinces in Indonesia have also included environmental education as a part of local curriculum. Although the contents vary, in general these are the attempts to encourage pupils' understanding and awareness of environmental issues and problems. Such attempts need to be supported by sufficient learning resources in order to build sufficient environmental understanding.

### **Objectives of the study**

This paper addresses the importance of school ground environment in relation to its role as learning resources and its effective use within the school curriculum. The objective of the study is to explore the relationship between the spatial aspects of school ground and their role in providing access to outdoor environmental resources, from the perspectives of teachers and pupils. We began with an assumption that the presence of school grounds in primary schools Indonesia with its tropical climate would enable the teachers and pupils to obtain benefit for environmental learning process, as they would have access to outdoor environment all year long. We were interested to see the extent to which the available school ground environment were actually used and accessed for learning activities that could promote pupils' environmental awareness and knowledge. In particular, this study addressed the following questions:

- How do teachers and pupils use school ground for environmental learning activities?
- How do they perceive the pupils' accessibility to their school ground environment?
- How does the spatial organization of school ground offer opportunities for environmental learning activities and accessibility for the pupils?

### **Methodology**

#### *Research setting*

The study was conducted in school grounds in fifteen state primary schools in Jakarta. The fifteen schools were taken as research settings to represent various areas of school ground environment. Five schools have the school ground with the area of less than 2,000 m<sup>2</sup>; six schools have the school ground with the area between 2,000 to 4,000 m<sup>2</sup>, and the other four schools have larger school ground areas, which are more than 4,000 m<sup>2</sup>. Compared to the number of pupils in each school, the school ground area-pupil ratios of the fifteen schools also vary, ranging from 2.1 to 24.1 m<sup>2</sup> per pupil. By taking such variety of school ground, we expect to obtain a general description on how the school grounds are utilized for environmental learning activities and the degree of accessibility for the pupils.

#### *Research procedures*

The study was conducted through the observation of spatial environment of school grounds and the distribution of questionnaire to pupils and teachers. The purpose of the observation of the school ground was to provide an illustration on the spatial environment of the school ground that exists in different primary schools. During the observation we recorded the spatial layout of the school ground within the context of the whole school layout and the presence of physical elements that have potentials as learning resources for environmental education.

The questionnaires for pupils and teachers were the instruments to assess the utilization of school ground by teachers and pupils as well as opportunities given to pupils by the teachers to access school ground. The questionnaires were distributed to teachers and Year

5 pupils in the fifteen schools chosen as the research settings. In total there were 83 teachers (20 males, 63 females) and 493 pupils (258 males, 235 females) participating in this study.

To examine the utilization of school ground environment, we asked the teachers to list learning activities that they had conducted utilizing the school ground. In addition they also made another list of the ideas of learning activities that they might have in their mind. They were encouraged to list as many activities as possible. For each activity, the teachers should mention the school subjects to which the activities are relevant, their learning objectives and the physical elements in the school ground that they used for the activities. In the questionnaire for pupils, we listed ten environmental learning activities that could be conducted in the school ground. For each learning activities, the pupils were asked whether they had or had not done those activities. They were also asked to provide a few sentences to describe their experience in those learning activities. The data obtained from teachers and pupils were then compiled to provide an illustration on the extent to which the physical environment of school ground had been utilized for environmental learning activities.

To assess the accessibility to school ground given by the teachers to the pupils, we presented a list of twenty activities that are considered supportive for promoting the pupils to get closer to nature and to understand various environmental phenomena. We asked the teachers whether they usually allow or not allow the pupils to do these activities, by rating each activity in the scale of 1 to 5 (1=never allow; 5=always allow). The similar list of activities was also presented to pupils in the questionnaire, and we asked the pupils whether in their opinion these activities are allowed or not allowed to be conducted in the school ground, by rating activity in the scale of 1 to 3 (1=never allowed; 3=always allowed). In addition, the teachers and the pupils were also asked to mention any elements that the pupils should not touch or approach. The data obtained from teachers and pupils would provide a description on the extent to which the school ground is accessible by the pupils for various environment-related activities.

The following sections describe the findings from the study which are presented in two parts. The first part discusses the findings on the teachers and students' uses of school ground to support learning activities. The second part discusses the teachers and students' perspectives on the accessibility of school ground in everyday learning activities. The third part discusses the spatial design of the school ground environment in relation to the findings on its use and accessibility.

## **Findings**

### *School ground as a setting for learning activities*

*The use of school ground by the teachers.* The results of the study indicate that the majority of teachers (91.6%) had conducted learning activities utilizing school ground. Only a small proportion (8.4%) mentioned that they never utilized school ground for learning at all. The teachers also mentioned the detailed information about the learning activities that they had conducted by utilizing school ground. In total there were 277 learning activities mentioned by the teachers.

The result indicated that the teachers had utilized the school ground for learning activities related different school subjects. It indicates that school ground have been utilized primarily to support learning activities in science (52.0%). Other subjects that utilize school ground are: social studies and civics (8.5%), arts and crafts (8.19%), physical education (7.83%), languages that include English and Bahasa Indonesia (6%). Other subjects such as religion, mathematics, local studies, and extracurricular subjects were less often mentioned by the teachers as school subjects utilizing school ground for learning resources.



The data above illustrates that science is the subject that most often utilize school ground. There are various science activities that may be delivered by using elements in school ground as examples, object of observation and as a setting for experimentation. Compared to other subjects, school ground offers various possibilities for teachers and pupils to use to support their learning activities in science.

What is interesting is the low utilization of school ground for local studies subject, namely *Pendidikan Lingkungan dan Kehidupan Jakarta (PLKJ)* subject. The title of the subject bears the name environmental education (*Pendidikan Lingkungan*), and the environmental contents in the curriculum include knowledge and understanding about healthy environment, management of garbage, the importance of clean water, the maintenance of various water bodies, clean air, air pollution, and the importance of green environment (Dinas Pendidikan Dasar DKI Jakarta 2007). Such knowledge and understanding are very likely to be developed by utilizing school ground as learning resources. However, the low utilization of school ground for this subject as found in this study indicates a tendency to deliver the subject based on theory and not relating directly to the surrounding environments of the pupils. Ideally, school ground may provide various examples for pupils to learn about various aspects of environment, without having to go further to other places or taking references from other types of environments somewhere else.

It also becomes necessary to explore the types of activities that utilize school ground as learning resources. Based on the description by the teachers, we could categorize these activities into two groups. The first group consists of learning activities that really utilize the physical elements of school ground. Around 54.2% of the activities mentioned by the teachers falls within this category. The second group, the rest 45.8%, consists of learning activities that only use the school ground as location of activities, without any relationship with the physical elements of school ground. For example the use of school ground for practicing traditional games, running and jumping exercise and marching. These activities do not require any physical elements of school ground as learning resources.

The learning activities mentioned by the teachers consist of five types: a) observation of natural elements (43.7%), such as observation of plants, animals and their characteristics; b) other observation activities (10.5%), such as drawing objects, measuring distance and area, drawing plan of school; c) science experiments (7.2%), such as experiments with sunlight, water, soil, rainbow; d) growing and caring for plants (6.5%); and e) other activities, such as sport, traditional games, religious practice, storytelling etc (32.1%). The majority of the other activities that belong to this last group are those that do not have any relationship with the physical elements of school ground. The data suggests that school ground has been utilized for various activities but mostly as the objects of observation by pupils. The observations generally involve the observation of plants that exist in the school ground. Meanwhile, the physical elements of school ground also provide possibilities for various other observation activities like measuring, plan drawing, as well as for scientific experiments and growing or caring for plants, although less often than their use for observation. However, there are many activities that do not directly relate to the physical elements of school ground, hence the school ground only become a location of learning activities, which can also be done somewhere else.

*The use of school ground as learning resources by pupils.* To understand the utilization of school ground from the point of view of pupils, we also found out different types of learning activities related to school ground that had been conducted by pupils. We provide a list of ten activities which involve interaction with natural environment and each pupil should state whether they had or had not done the activities. From the ten activities, two activities are related to plants, two activities are related to animal, one activity related to ground

surface materials, two activities related to water and three activities are related to trash. The responses of the pupils regarding these activities are illustrated in Figure 1.

The majority of pupils stated that they had done the following learning activities: observing types of plants and their characteristics (88.6%), growing and caring for plants (91.1%) and observing types of animals and their characteristics (61.8%). Observation of plants, as well as caring for plants, seems to be the most common activities done by the pupils. This is related to the facts that plants are the most common physical elements that can be easily found in most school grounds. Some schools even dedicate certain areas of school ground as the planting area that are maintained by pupils. The activities of growing plants become a part of their learning to take care of the nature. However, it seems that pupils are only given responsibility to take care of a small part of school ground. In fact, they may be actively involved in the maintenance of the wider areas of school ground.

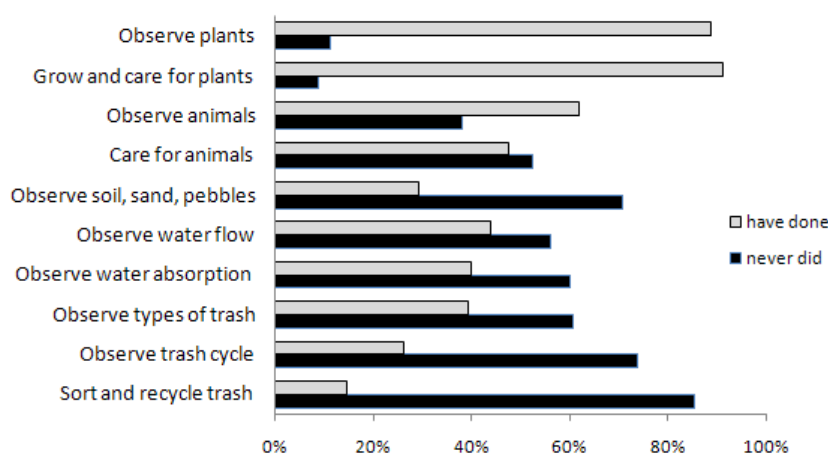


Figure 1. Environmental learning activities conducted by the pupils

Meanwhile Figure 1 also shows that the following activities have been done by fewer pupils: caring for animals (47.7%), observing the characteristics and condition of soil, sand and gravels (43.9%), observing types of trash (39.2%), observing the trash cycle (26.2%), sorting and recycling trash (14.7%) and observing the absorption of water on the ground surface (39.8%).

The data indicates that there are very few pupils who have done learning activities related to trash, including the observation of how the trash are managed in school environment as well as how trash can be sorted and recycled. It seems that the education of trash tend to be concentrated on the formation of habit not to litter, but the learning of trash as related to the environment as a whole still need to be developed. It becomes necessary for schools to provide various physical elements that may support the development of knowledge on trash management and recycling, such as separated trash bins to sort organic and non-organic trash, and composting boxes.

Other learning activities that seem to be uncommon are the activities related to the understanding of water flows and water cycles. Some schools provide water pool that may be utilized as learning resources to learn about water, its characteristics and its cycles. However, not all these pools are in good condition; some are even abandoned and no longer used as pool. Another important learning activity is the observation of what happen to water when reaching the ground, which is an important part of the whole cycle of water.



Pupils need to be aware that different surfaces of ground may have different ability in absorbing water. Different parts of school ground may be utilized to demonstrate such simple but important knowledge. However, the study shows that it is not a common learning activity experienced by pupils.

#### *School ground as an accessible space*

*Accessibility to conduct environment-related activities.* An indicator of school ground accessibility for environmental learning activities is the extent to which the students are given opportunities to interact with the physical elements in the school ground. In this study, the accessibility of the school ground was examined by taking into account the perspectives of both the teachers and the students. We provided a list of twenty activities that are related to the school ground, and the students and the teachers should mention whether these activities are allowed or not allowed to be conducted.

Figure 2 illustrates the students' opinion of the activities in school ground that they are allowed or not allowed to conduct, while Figure 3 illustrates the teachers' opinion on activities that they would allow or not allow their students to conduct in the school ground. The data in both figures suggest the presence of some environment-related activities that tend to be perceived as forbidden activities for the students, such as: touching area with plants, stepping on grass, touching soil/sand/stone, climbing on trees, sitting on the soil/grass, getting close to trash collection area, getting close to water drainage, and playing with water. These findings indicate that the school ground is not fully accessible to students, with certain activities that could not be conducted by the students.

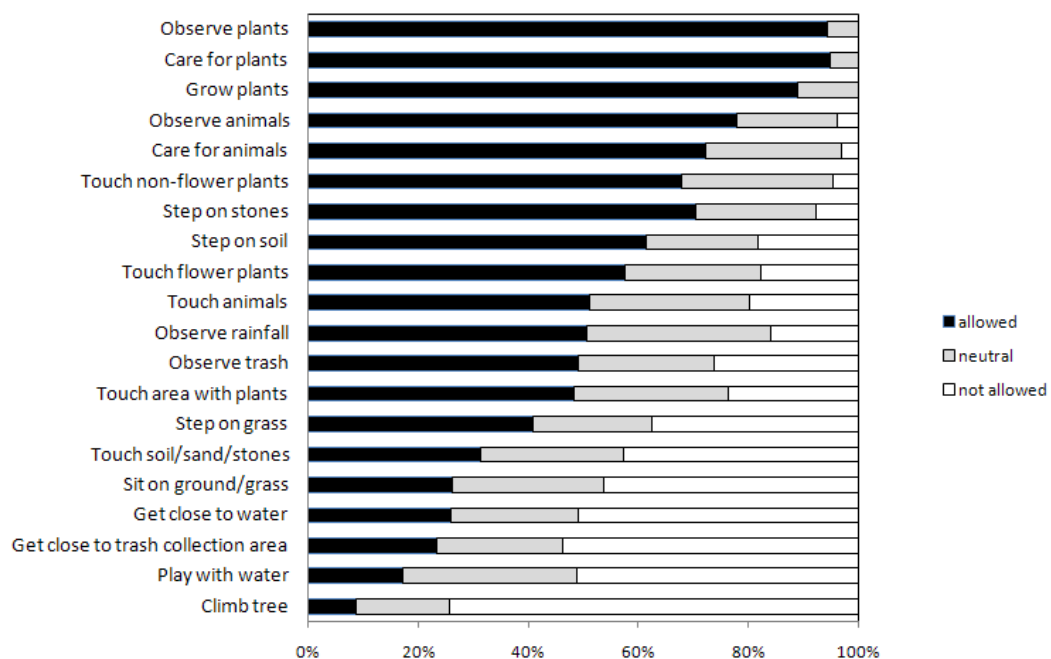


Figure 2. Activities that are allowed and not allowed in school ground according to pupils

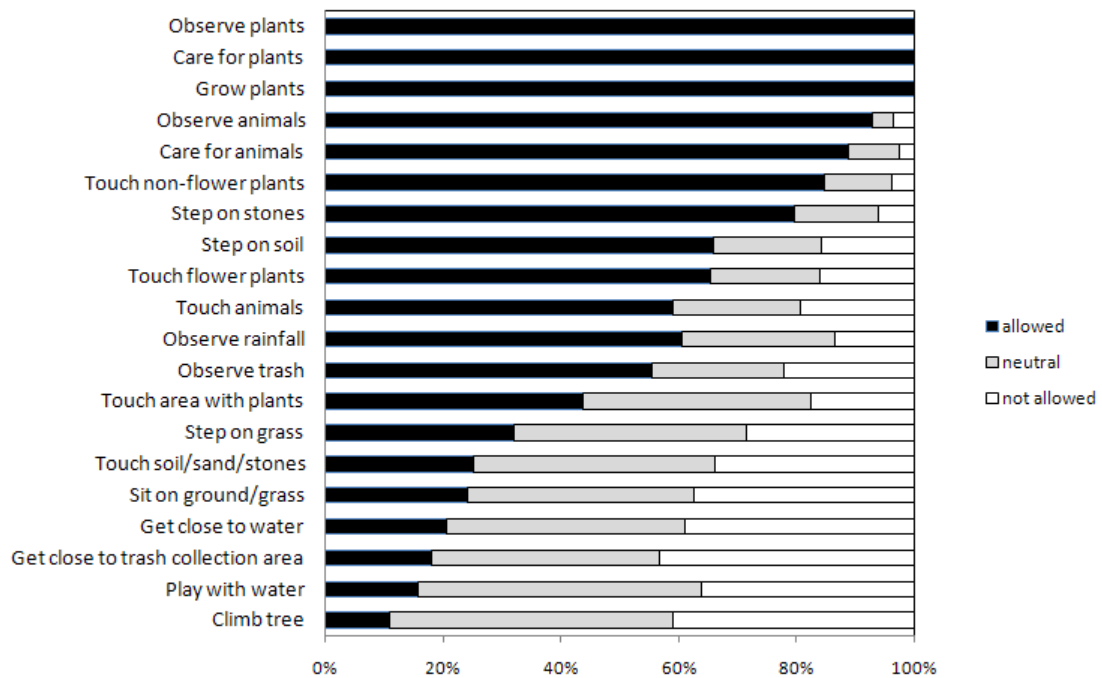


Figure 3. Activities that are allowed and not allowed in school ground according to teachers

*Accessibility to interact with school ground environment.* Another indicator of school ground accessibility is the physical elements in school ground that could or could not be touched or approached. The more elements that are restricted for the students suggest limited access for the students to interact with the school ground environment. In this study, we asked the teachers and students to mention the elements on the school ground that could not be touched or approached by the students. The students' responses were illustrated in Figure 4 and the teachers' responses were illustrated in Figure 5. The findings suggest that both teachers and students mentioned various elements in school ground that the students should not touch or get close to. These elements can be categorised into the ground surface elements (such as soil, sand, stone), plants, animals, water elements and trash elements.

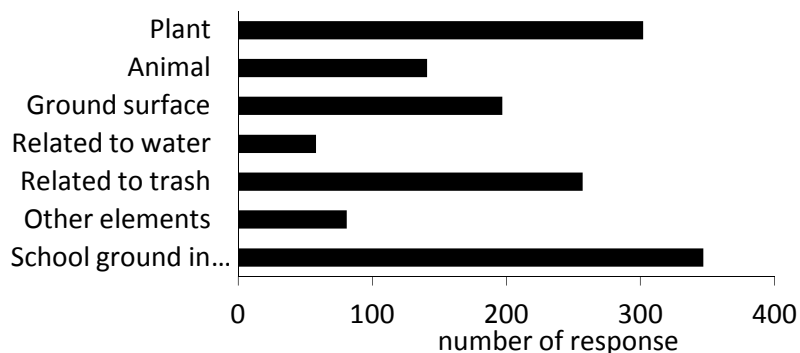


Figure 4. School ground elements that could not be accessed by pupils according to pupils

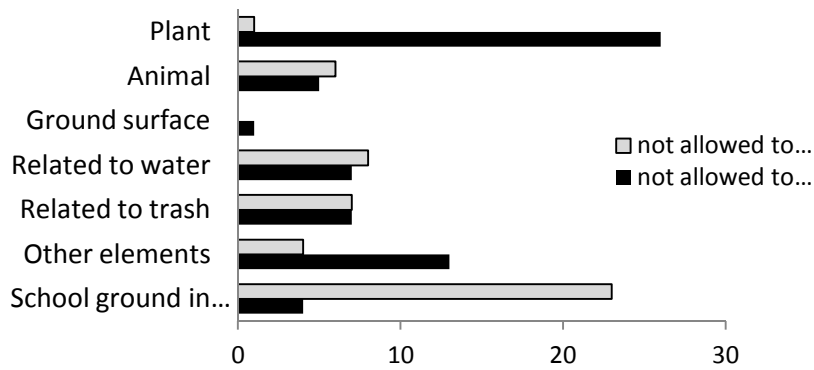


Figure 5. School ground elements that could not be accessed by pupils according to teachers

There are various reasons behind the restriction of students' interaction with these physical elements (Figure 6 and Figure 7). Some of the reasons mentioned by both the teachers and students are related to health; they thought that some elements are related to dirtiness, smell and therefore the students should not interact with them. Some reasons are aesthetic; the elements could be broken or ugly if they are touched, stepped into or sat on. The aesthetical reason primarily came from the teachers who felt afraid that the students' interaction with the school ground elements might reduce the aesthetical values of the school ground. Others reasons are related to safety; that the students might get hurt or wounded if they interact with the elements. These reasons show the fear of both teachers and pupils that the elements might be broken, might cause accident or health issues and thus the access of the students to these elements need to be limited.

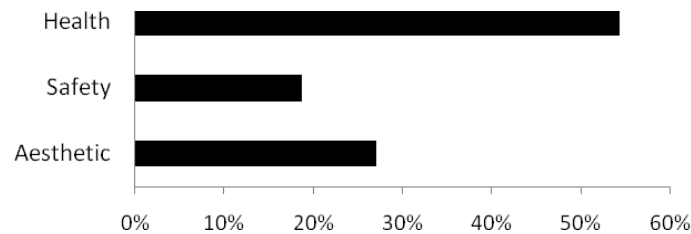


Figure 6. Reasons of why certain elements are not accessible according to pupils

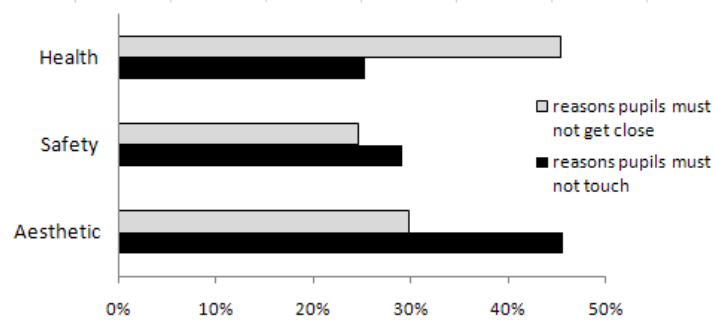


Figure 7. Reasons of why certain elements are not accessible according to teachers

The above findings reveal that the potentials of school ground environment in many schools have not been fully utilized. The outdoor opportunities offered by school ground environment do not immediately result in active environmental learning. The findings on the use of school ground indicates that school ground has been utilized for learning activities, however, the pupils' engagement with school ground environment tend to be limited to certain common learning activities and integrated with certain subjects only. Various learning experiences that should contribute to the development of environmental knowledge and awareness have not become common learning activities that utilise the school ground.

The findings indicate that the use of the school ground as learning resources among the schools in this study is not optimum yet. The fact that this limited use happen in a tropical climate context is somewhat disappointing, considering that this context allows for plenty of outdoor opportunities all year long. The limited use of school ground also means that rich experiential and sensory experience that could be gained from outdoor activities (Waite, 2011) is missed. The lack of school ground use for learning is often related to the lack of awareness the possible links between the school ground and the curriculum, and this is particularly true in subjects other than science (Dyment, 2005). The findings of this study suggest similar pattern on less awareness on the potentials that exist in school ground that could be utilised as learning resources.

The findings on the accessibility of school ground also indicates the limited access to the school ground for the pupils, as illustrated by the presence of many activities that are not allowed for the pupils. There is limited accessibility for pupils to interact with the physical elements of school ground based on various reasons of health, safety and aesthetics. These reasons have also been identified in other studies (Maynard & Waters, 2011; Dyment, 2005). However, this also indicates a failure to recognise the potentials of the school ground to offer an open, natural environment that is relatively safer compared to other environmental setting outside school (Dyment, 2005). The inaccessibility of school ground is a result of the tendency of "dwelling on barriers rather than opportunities" (Waite, 2011, p. 77); hence the school ground tends to be seen as sources of problems rather than sources for learning. Such attitude eventually neglects the existing potentials of the school ground.

Another important point is related to the aesthetic-related reasons that tend to be expressed by the teachers, illustrating their understanding of school ground as an environment that need to be taken care as a nice, ordered environment but as a result become inaccessible environment. It becomes necessary to address such misunderstanding by increasing the teachers' awareness of the educational values of the school ground environment rather than its aesthetical values. The ability of teachers to use school ground effectively becomes an important competence (Lackney, 2008) that needs to be continuously developed.

### **Reconsidering the spatial design of school ground environment**

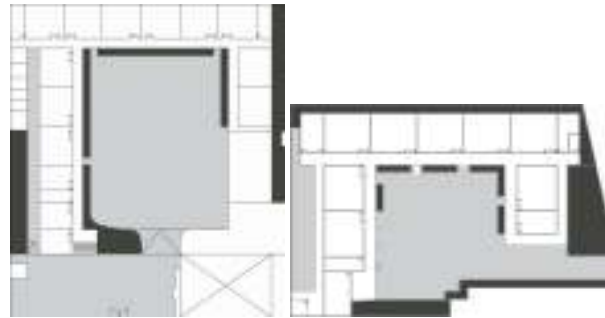
The following discussion would reveal the spatial aspects of school ground environment that might contribute to the limited uses and accessibility of school ground as environmental learning resources. The spatial environment of school ground in this study will be discussed by considering various aspects: space area, availability of environment-related elements, and the spatial layout of school ground within the whole school.

The fifteen school grounds included in this study represent school grounds with different space areas. Interestingly, the quantitative area of school ground does not necessarily reflect the quality of school ground. The observations in the fifteen school ground show that there was a variation on the availability of environment-related elements. Nine schools possess a

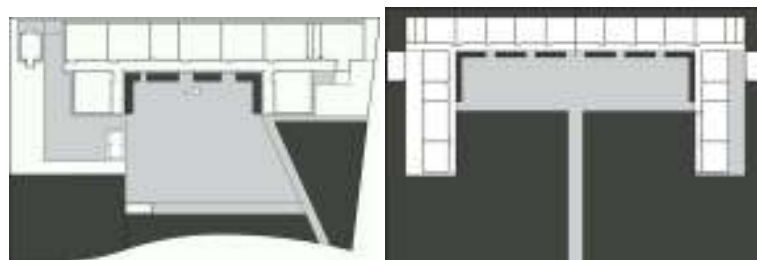
good variety of physical elements in the school ground, while six schools have less variety of physical elements in the school ground. Some of these schools, however, have plenty of space available for school ground but not maintained very well.

This fact suggests that the schools with limited space area might still possibly provide variety of elements that could contribute to various environmental learning experiences. On the other hand, some schools might have plenty of outdoor space, but when not equipped with variety of environment-related elements and not maintained very well, this potentials would not be used optimally as learning resources.

The observation in the fifteen school ground also indicates that there was a variation in terms of spatial layout of the school ground. Our findings show that there are at least three different typical layout of school ground within the context of the whole school layout. The first type is the schools with the school ground located in front of the school, with most of the classrooms and corridors are orientated to the school ground (Figure 8 and Figure 9). Generally this layout consist of a part of school ground with hard landscape (sport yard, assembly field) and a part of school ground with more natural elements. However, there are some schools with hard landscape only and no natural area of the school ground.



*Figure 8.* Examples of school layout with school ground in front of the school building with hard landscape only



*Figure 9.* Examples of school layout with school ground in front of the school building with both hard and natural landscape

The second type is the schools with school ground located both in front and at the back of the school (Figure 10). Generally the part of school ground with hard landscape is located in front of the school, while the rest of the school ground is not accessible from most classrooms and corridors. This inaccessible part of the school ground usually creates problems as they are not maintained very well and definitely not used very often. The third type is the schools with school building located in the middle of the school site (Figure 11).

In addition to the main school ground, there are some parts of the school ground surrounding the school building. The main part in the middle of the school usually consists of some parts of hard landscape and it becomes the main orientation of most classrooms and other spaces, while the school ground around the school building is usually consist of natural ground area. Some of these parts might be accessible while some are not accessible, not maintained and used.

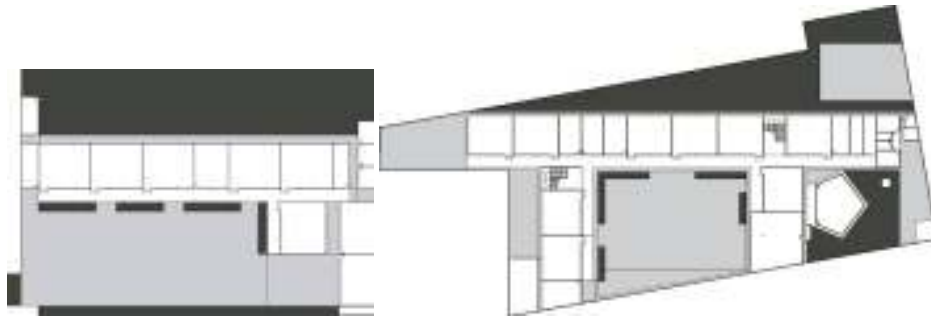


Figure 10. Examples of school layout with school ground in front and at the back of the school building

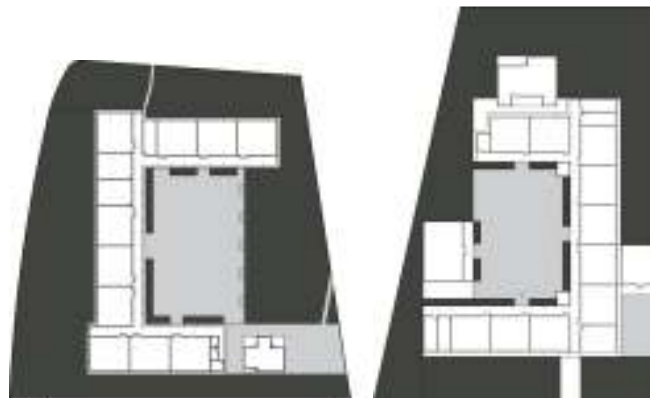


Figure 11. Examples of school layout with school ground in the middle and surrounding the school building

In all these three types of spatial layout of school ground, it could be observed that there has been a tendency to differentiate between the 'main' school ground area, which is located in the middle of the school building and becomes the main orientation of most classrooms and other spaces, and the 'other' school ground area, which could be located in front, at the back, or surrounding the school building. Differentiation of these two parts of the school ground could be seen in the provision of physical elements, the uses and the maintenance.

The 'main' school grounds tend to consist of hard landscape, with the main function as a space for sports and play activities. Meanwhile, the 'other' parts of the school ground tend



not to be considered as important part of learning environment. This is evident in some schools where the parts of school ground that are located at the back or surrounding the school building are not maintained very well. These spaces tend to become abandoned spaces, as they are located away from the other school activities, with no spaces orientated to these school ground spaces. To access these spaces, usually there are no clear circulation spaces and in some cases the spaces are hardly accessible at all. In this way, there is no strong connection between the school ground and the other activities that are centred in the classrooms or other parts of the school building.

The condition in some schools observed also indicates that the parts of the school ground at the back or surrounding the school building tend to be the places where there are elements that are considered as dirty, unhealthy or dangerous as mentioned in the previous section. These are the places of trash collection, wild plants, mud or water, which tend to be perceived as elements that should not be touched or approached by the students. Therefore, these spaces become the inaccessible spaces.

These spaces actually have some potential to offer learning experiences that could not be found in the 'main' school ground area with hard landscapes and more structured elements. Parts of these spaces provide opportunities for planting, interacting with natural elements, learning about trash, water and other natural elements. The findings in the fifteen school ground studied here suggest that such opportunities are still rare, and thus the potential of the school ground, regardless of its spatial layout, have not been utilised in an optimum way.

An environment becomes meaningful when it offers benefits for those using it. Gibson (1986) proposed a concept of environment affordance to explain the potential possessed by an environment. "The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or for ill" (Gibson, 1986, p. 127). However, not all existing potentials of an environment are perceived and then utilised. Among the potential affordances possessed by an environment, only some are perceived and some are utilised (Kytta, 2004). In line with Gibson, Gans (1968) also proposed the idea of potential environment and effective environment, and that only some aspects of the potential environment could be transformed into effective environment. There are various contextual factors that might "define and evaluate portions of the physical environment relevant to the lives of the people involved and structure the way people will use (and react to) this environment in their daily lives" (Gans, 1968, p. 5). The findings of this study illustrates clearly that the existing potentials of the school ground have not been fully utilised and become effective environment for the purpose of environmental education. The availability of large areas as well as various school ground elements does not automatically result in the optimum use of school ground. To some extent the limited use of the school ground is reflected by the limited opportunities for the pupils to access various school ground elements.

Nevertheless, the use of school ground could not be separated from its design. Poor design might influence the limited use of school ground (Dyment, 2005). What is also important is also how the design could reflect the views of learning that recognise the importance of relating the indoor and outdoor environment (Malone & Tranter, 2003b). The spatial layouts of the school grounds within the context of the whole school environment in this study reflect the views of learning that tend to be oriented to the indoor environment. Meanwhile, the existence of the outdoor environment is still considered as complimentary spaces, and thus access to school ground is not fully encouraged. The findings of this study suggests the need for redesigning the available school ground space and how it relate to the whole

school environment in order to maximise its potentials, especially in terms of providing enough access for the pupils to access school ground and its various elements.

### **Conclusion**

This study examines the potential of school ground environment as learning resources for environmental education. Based on the study in fifteen primary schools in Jakarta, Indonesia, the findings reveal that the potentials of school ground environment in these schools have not been fully utilized. Outdoor opportunities offered by school ground environment do not immediately result in active environmental learning, as indicated by limited use of school ground to support learning activities, and limited access for the students to interact with various school ground elements and to conduct various environment-related activities.

The findings suggest that there is a need to rethink the position of school ground within the current spatial design of school environment. The design and development of schools need to put more emphasis on the outdoor environment and to address the demands for more engagement with nature and current perspectives towards environmental learning. The year-round outdoor opportunities of tropical climate need to be optimised to support environmental learning process. However, rich environmental learning experiences could only be offered to the students when the school ground environment are equipped with variety of elements and become accessible to the students. This would mean the needs to create physical access to the spaces as well as to allow students to conduct various learning activities and to interact with various elements, without any restriction. The provision of physical elements and the spatial design of school ground environment should also support the shifting of students' and teachers' attitudes towards school ground environment, by allowing more interaction without any concerns on aesthetic, health and safety issues.



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# Çevre eğitimi kaynakları olarak okul arazisi: Öğretmen ve öğrencilerin okul arazilerinin potansiyeli, kullanımı ve ulaşılabilirliği üzerine bakış açıları

**Paramita ATMODIWIRJO<sup>†</sup>**

*<sup>†</sup>Department of Architecture, University of Indonesia, Indonesia*

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## Özet

Bu makale çevre eğitimi için açık öğrenme kaynağı olarak okul zemininin rolünü ele almaktadır. Özellikle tropikal iklim gibi havanın dışarı aktivitelerini öğrenme için kullanmaya bolca izin verdiği yerlerde okul arazisini kullanmak için çok fırsat vardır. Araştırmada Jakarta'daki ilkokullarda okul arazisinin mekânsal yapısı ve onun çevre eğitimi ile arasındaki ilişkiyi öğretmen ve öğrencilerin bakış açısıyla keşfetmeyi amaçlamaktadır. Bulgular birçok okulda okul-arazi çevre potansiyellerini tam olarak kullanılmadığını ortaya koyuyor. Okul arazisinin sunduğu açık hava eğitim fırsatları hemen etkin çevresel eğitime yol açmaz. Bulgular çevre eğitimine yönelik doğa ve güncel bakış açıları ile daha fazla katılım talebini sağlamak için, okul ortamının mevcut mekânsal tasarımı içinde okul arazi konumunun yeniden düşünülmesine ihtiyaç duyulduğunu göstermektedir.

**Anahtar Kelimeler:** Çevre eğitimi, öğrenme kaynakları, okul arazisi

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<sup>†</sup> Sorumlu Yazar: Paramita Atmodiwirjo, Department of Architecture, University of Indonesia, Depok, Indonesia.  
E-posta: mitayandi@gmail.com