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PROVISION OF GREEN SPACES IN MALAYSIAN PRIMARY SCHOOLS: ISSUES, GUIDELINES AND RECOMMENDATION

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Abstract

The provision of conducive learning environments in schools is important in determining the effectiveness of the curriculum and co-curriculum implementation, as well as enriching children's outdoor play and environmental learning. However, the development of green spaces within school compound is not a priority in Malaysian schools. This paper aims to explore the issues related to the provision of green spaces in Malaysian national primary schools. There are various green spaces that can be provided in school setting such as field, pocket spaces, soft and hard play areas, and animal life, which serves different purposes for children's activities. Though, the limited budget and the lack of knowledge and design guidelines are among the obstacles encountered by Malaysian schools in developing functional green spaces that provide learning opportunities for children. A greater effort is needed in helping the schools developing their green spaces in terms of funding, expert knowledge and community support.

Keywords: green spaces, learning environment, school grounds greening, sustainable schools, children's development

INTRODUCTION

In 2016, there were 7,772 primary schools under the MOE (Ministry of Education Malaysia, 2016b). The number has increased as there were only 7,696 primary schools in 2011 (Ministry of Education, 2013b). Apart from the MOE primary schools, in 2016, there were also 126 primary schools under private institutions and 74 primary schools under other government agencies (Ministry of Education Malaysia, 2016a). The number of schools is expected to increase in the next ten years as the ministry has planned to build more schools and classrooms to accommodate the increasing number of students (Ministry of Education Malaysia, 2012b). The statistics suggest that the Malaysian government is committed in providing the primary education infrastructure in line with the policy of compulsory education at the primary level (Ministry of Education Malaysia, 2012a). The policy is in accordance with the right of all children to a primary education as stated in Article 28 of the United Nations Convention on the Rights of the Child (United Nations, 1989). Moreover, the provision of the primary schools is to fulfil the National Education Philosophy of Malaysia.

The Malaysian government is committed to improving education in Malaysia. For example, in 2011, the government allocated 16% (RM37 billion) of the national budget to education – the highest allocation among the ministries. The budget did not include the additional RM12 billion that was allocated to the Ministry of Higher Education (MOHE) and other ministries that provide education-related services (Ministry of Education Malaysia, 2013a). The budget shown an increased in 2016, which the government allocated around one-fifth of its budget on education, and almost 76% of the budget was allocated for the MOE (RM41.3 billion) (Ministry of Finance Malaysia, 2016). As a developing country, the Malaysian government has spent most of the budget on the development of the educational infrastructure and increased the number of teachers to increase the access to education. For example, the government spent more than RM20 billion for the development of the educational infrastructure from 2006 to 2010 (Ministry of Education Malaysia, 2013a).

The MOE is working to strengthen the educational infrastructure as one of the important components in their strategic plan for educational development. The provision of an adequate and comfortable educational infrastructure is significant in determining the effectiveness of the curriculum and co-curriculum implementation (Ministry of Education Malaysia, 2012b). The ministry mainly focuses on the provision of the physical infrastructure for educational buildings and their maintenance and the provision of clean water and electricity to all schools (Ministry of Education Malaysia, 2012b). The purpose is to provide a conducive learning environment for students. It was mentioned in the implementation strategy of National Education Policy of Malaysia that a conducive learning environment can be created by improving the safety, health and aesthetic aspects of the school environment (Ministry of Education Malaysia,

2012b). However, the provision of green spaces is not included or mentioned clearly as part of concerns that also can contribute to the creation of conducive learning environments at schools. The reason for this might be the priority of the ministry to provide the basic infrastructure for schools as this is considered the most necessary and important. This priority is in response to the condition that there are still many schools in Malaysia that have inadequate basic infrastructure (Ministry of Education Malaysia, 2013a). However, by focusing only on the provision of the educational infrastructure, the significant benefits of school grounds for children's development and learning outcomes can be easily overlooked. According to National Landscape Department (2012) and Tanner (2000), green spaces at school refer to the variety of outside spaces close to the school buildings which comprise the softscape, hardscape and the space functions for children's outdoor activities.

Therefore, this paper aims to explore the issues related to the provision of green spaces in Malaysian primary schools. A study on the different types of green spaces in school setting is conducted through review of landscape design guidelines for primary schools in Malaysia and other countries for future recommendations.

GOVERNMENT CONCERNS ON THE PROVISION OF GREEN SPACES IN SCHOOL SETTING

Initiatives and Programmes

Even though the MOE has not made the provision of green spaces in schools a priority, it has always supported any initiatives or programmes that aim to improve the learning environment at schools, either inside or outside the classroom. This is due to the growing concerns on the importance of conducive learning environments in enhancing students' performances at school. The ministry has been involved in the organization of initiatives such as the 3K Programme and the Sustainable School Programme Environment Award (SLAAS), which included the greening and beautification of school grounds as part of the criteria for evaluation.

The 3K Programme was launched in 1991 to improve school safety, health and beautification through the implementation of an established system related to the issues by the participating schools (Ministry of Education Malaysia, 2013c). The programme was organised by the MOE, Ministry of Health Malaysia (MOH), Utusan Malaysia Team and Tetra Pak (M) Sdn. Bhd. (Department of Environment, 2012). Starting from 2004, the programme was restructured and was known as the 3K Initiative, which combined three separate programmes: Safe School Programme, Health and Hygiene Programme and School Beautification Programme (Ministry of Education Malaysia, 2013c).

In addition to the 3K Programme, the MOE has also collaborated with the Malaysian Department of the Environment (DOE) in the Ministry of Natural Resources and the Environment (NRE), and the Institute for the Environment and Development (LESTARI) of Universiti Kebangsaan Malaysia in organising the SLAAS Programme (Department of Environment, 2004). The programme has started in 2005 and went into its seventh session in 2017/2018. It is a Malaysian initiative in nurturing, developing and embedding sustainability through education that involves learning about, for and in the environment (Shaharudin, Abdul Samad, Ahmad Fariz, Siti Nashroh, & Mazlin, 2010, Hanifah et al., 2015). The objective can be achieved through the development of school environments that emphasise environmental preservation and conservation in the aspects of management, curriculum, co-curriculum and school greening (Department of Environment, 2004; Shaharudin et al., 2010; Hanifah, Shaharudin, Mohmadisa, Nasir, & Yazid, 2015). Therefore, it is crucial for the participant schools to create a sustainable school environment to achieve the objectives of the programme. All the criteria are outlined in the Guideline for Implementation and Evaluation of Sustainable School – An Environment Award (Department of Environment, 2004).

The organization of both programmes has been seen to have several positive impacts on the development of a more conducive learning environment for students through school greening activities. A conducive school environment has been proved to affect students' learning experiences (Nik Roh Hayati, 2008; Chen, Zaid & Nazarali, 2016) and academic performance (Mohd Redzauddin, 2008). Participated schools also have demonstrated their sustainability through the enrichment of environmental activities which complement the learning in classrooms (Shaharudin et al., 2010, Hanifah et al., 2015). These developments are seen as a good start and an opportunity to promote environmental learning among students in the school grounds.

The Implementations

The aforementioned initiatives and programmes are conducted as competitions to attract more schools to participate since Malaysian schools have become accustomed to the concept (Shaharudin et al., 2010). However, several circumstances and issues have been raised regarding the implementation of the programmes.

First, not all schools in Malaysia have the opportunity to participate in such programmes because the participation is limited by the schools' academic performance (Shaharudin et al., 2010). Students' achievement in national examinations is always the priority of the MOE. Second, many schools have a limited budget to organise the school's greening activities and to develop and manage their school environment for the competition since they have to use their own financial funding. There is no budget allocated by the MOE for the

development of green spaces within school compound. The MOE, through the Procurement and Asset Management Unit, allocates financial support only for basic maintenance work such as mowing the grass (Fazlie, 2012). Therefore, the schools have to raise their own funding through networking and support from various parties (Department of Environment, 2012), such as the Parent-Teacher Association (PIBG), local authorities, the private sector, and non-government organizations (NGO), to ensure the success of the programmes as well as the sustainability of the school environments after the competition. In other countries, some of the school grounds greening projects are funded by the city councils and other organizations. For example, the 'Urban Jungle' project in Merrylee Primary School in Glasgow was co-funded by the City Council and the Forestry Commission (Children in Scotland, 2011).

The criteria of SLAAS Programme emphasised environmental activities that can be conducted by schools according to the four components. No design guidelines are provided to the schools. For example, in the criteria of garden and landscape design, the aspects taken into consideration are the conditions of the garden and the landscape, that is, their cleanliness and layout (Department of Environment, 2004). It seems that the criteria focus only on the availability and conditions of the school landscape without looking at the aspect of function of the school landscape. Hence, the design of the school garden and landscape as part of the components of school's green spaces may not suit the students' needs and preferences or the climatic factors and the affordances of the landscape for the students' environmental learning and performances: physically, socially and cognitively. Thus, the green spaces at school normally are developed by the teachers, who maybe lack in any knowledge in designing green spaces for educational environments. This situation may lead to the creation of green spaces that are valueless for children's play and learning.

In addition, the disadvantage of organizing a programme as a competition is that the schools might participate in the competition simply with a view to it being considered one of the school's achievements; however, the efforts made before and during the competition could be discontinued and not maintained after the competition if constant monitoring is not feasible.

GREEN SPACES DESIGN ISSUES IN SCHOOL GROUNDS

The circumstances may have led to issues with the design green spaces in Malaysian schools. Based on the assessment of the existing educational environment, some common problems were identified, including a lack of comprehensive planning for green spaces design, inappropriate designs for certain area at schools, no systematic tree planting method being applied, the use of inappropriate materials for hard landscaping, and a lack of maintenance of school landscape (National Landscape Department, 2001).

According to the Garden Nation Landscape Guidelines for primary schools, 30 to 50 percent of the total development area of schools should be green areas for landscaping and for students' outdoor activities (National Landscape Department, 2012). However, in 2001, only five to six per cent of the total green area in schools was developed as places for learning activities. This means that the remaining green area at schools did not fulfil the criteria of functional spaces for use by both teachers and students, as stated in the draft of National Landscape Guidelines for Specific Area – Educational Environment (Nik Roh Hayati, 2008).

It was found that the school landscapes are least utilised by the students and teachers for learning purposes because the designs do not emphasise the function of the school grounds as an extension of the classroom (Nik Roh Hayati, 2008). In addition, the use of school grounds for other activities was also limited. Generally, the school grounds were designed only for the purpose of beautification, and so the emphasis is on the attractiveness, neatness and cleanliness of the environment (Nik Roh Hayati, 2008) rather than its functions. The green spaces and landscapes might look pleasing to the viewers, but in terms of affordances, they offer low quality landscapes and a minimal amount of actualised affordances for students (Ozdemir & Yilmaz, 2008; Kytta, 2003).

The criteria of school ground design and management are seen as reflecting only the adults' values (Malone & Tranter, 2003; Bakar, Osman, Bachok, Zen & Abdullah, 2017) and do not consider the students' needs and preferences in that they do not reflect students' physical, communal, emotional and educational needs. Adults often disregard the potential of school grounds and green spaces in schools in enhancing students' performances and learning experiences, either through formal or informal learning activities (Zainol & Au-Yong, 2016). Therefore, the design of green spaces in Malaysian schools has been proven to be unsuccessful in meeting children's needs and certainly do not afford the students any meaningful outdoor environmental experiences (Nik Roh Hayati, 2008; Khazainun, 2007).

School grounds should not only be designed to create conducive environments for students' doing, thinking, feeling and being (Titman, 1994), but also should provide control, comfort and security for them. However, without an understanding of the function and the importance of green spaces in schools for students' learning experiences and needs, it is impossible for schools to design a green space that meet all the criteria.

METHODOLOGY

A review of primary school's green spaces design guidelines was conducted to identify (i) the aspects of design guidelines, and (ii) the different types of green spaces in school setting. For local context, the community facilities' planning guidelines for educational facilities (FDTCP, 2012) and landscape design guidelines (National Landscape Department, 2012) for Malaysian primary

schools were reviewed. Besides review of the local guidelines, a review of the guidelines, handbooks, research and case studies of primary school's green spaces in other countries, including the United States (Tanner, 2000), the United Kingdom (FutureLab, 2008; Department for Education and Skills, 2006), Scotland (Children in Scotland, 2011) and Australia (Play Space Guide, 2013) were also made. This review was analysed using content analysis in order to identify the green spaces of primary schools, how they are defined, and their functions for students' activities.

RESULTS AND FINDINGS

The planning and design guidelines for schools in Malaysia were based on the National Education Policy and the syllabus of the Integrated Primary School Curriculum (KBSR), which were in line with the National Education Philosophy of Malaysia (Economic Planning Unit, 2008, 2015). The Public Works Department (PWD) generally is responsible for planning and designing the layout and building of schools under the MOE. A field and sports courts are included in the layout design, depending on the configuration of the buildings and site constraints. However, the scope of their works does not include designing the school's green spaces.

The Aspects of Primary School's Design Guidelines

School Total Area

Based on the analysis of the community facilities' planning guidelines for educational facilities, the minimum requirement of area for a primary school is 2.5 to 5 acres for a flat area and 4 to 8 acres for a sloping area (FDTCP, 2012). The school area is limited, and therefore, the efficient planning and design of school facilities and green spaces is essential to ensure the adequacy, safety and comfortability of the environment for the users.

School Zoning and Facilities

In general, the layout of schools in Malaysia can be divided into four main zones: (i) administrative zone, (ii) academic zone, (iii) residential zone, and recreational zone (FDTCP, 2012; Economic Planning Unit, 2008). The administrative zone includes the school's administrative and principal offices, meeting rooms, library, and staff room. The academic zone includes the classrooms, workshops and laboratories, computer laboratory, music room, and prayer room, while the residential zone includes the dormitories and teachers' quarters (for schools with dormitories only). Finally, the recreational zone includes the school field and sports courts. Other supporting facilities include the school hall, canteen, toilets, store, guard house, parking area for staffs and visitors, lay-by for buses and cars, pedestrian pathway (open or roofed), entrance road, and other services, such as

water tank tower and electricity substation. It is mentioned in the guidelines that the planning and design of schools should also consider the facilities for users with disabilities, such as ramps, pathways, and toilets.

School Grounds Greening

Regarding the green spaces and landscapes, the community facilities' planning guidelines for educational facilities only emphasise the selection of suitable, attractive and easy maintenance trees for the school environment (FDTCP, 2012) though there is no guideline provided for the selection of trees.

However, the National Landscape Department of Malaysia has provided guidelines for school landscapes which state that 30 to 50 percent of the total school area should be a green spaces and for students' outdoor activities (National Landscape Department, 2012). The green spaces includes:

- ***School field:*** an area that functions as a playing field for team games, such as football, and field events, such as an athletic track.
- ***Courtyards and pocket spaces:*** the spaces between school blocks or laboratories that have the potential to be sites for outdoor learning activities. Mini gardens with various concepts and activities such as horticultural therapy, planting areas, and fish ponds can be designed in these spaces.
- ***Assembly area:*** an area that functions as a place for school assemblies and as a gathering point during an emergency.
- ***Main entrance area:*** an area that includes landscaping for a visitors' parking area, waiting area, signboards, information boards, guard house, and feature wall. It should evoke a welcoming feeling and be highly visible to the students and visitors.
- ***Plaza:*** an area that functions as a foyer or gathering area that allows social interactions during recess and times between classes.
- ***Semi-enclosed spaces:*** spaces that function as transition areas between the indoor and outdoor spaces of school buildings.
- ***Campus village zone (for schools with dormitories):*** an area that includes landscaping and recreational areas, such as a field and sports courts for students' recreation.
- ***Buffer zones:*** an area between the school area and its surroundings, especially the area beside the road. A tree buffer is normally planted between the school buildings and school field to prevent accidents.

According to Tanner (2000), 'green spaces' refers to the outside space close to the school buildings, which comprises lawns, trees and gardens. All the green spaces in schools should be linked by the pathways that function as transition spaces. The pathways are the clearly defined areas that allow freedom

of movement (Tanner, 2000) from one activity to another at different times, such as for meetings while walking.

When comparing the Malaysian guidelines with the guidelines, handbooks and case studies from other countries regarding the planning and design of school environments, it was found that there are several green spaces which have not been included or have been paid scant attention in the Malaysian guidelines. The green spaces are the informal and social areas (either soft or hard play areas) and habitat areas. A variety of informal and social areas function as places that suit the students' learning development and cultural needs during informal times as well as for a range of formal curriculum needs (Department for Education and Skills, 2006). The habitat area refers to the places in the school for animals to live in (Tanner, 2000). The description of the green spaces is as follows:

- ***Soft play area (informal and social area)***: The area includes a grassed space and sloping grass area that should be suitably situated and safe, and should provide some shade, imaginative landscaping and planting. It allows students to sit and socialise, as well as to engage in imaginative play.
- ***Hard play area (informal and social area)***: The area includes a hard surface playground and sheltered space which is facilitated with play equipment and site furniture. It affords social interactions and encourages active and creative outdoor play.
- ***Habitat area and animal life***: The area includes wildlife habitats, butterfly houses, bird houses, ponds, various gardens, and outdoor science gardens that support outdoor classrooms and environmental learning activities in the school grounds, as well as diverse outdoor play activities. Some wildlife habitats should be undisturbed and are best positioned away from busy social areas.

DISCUSSION AND RECOMMENDATIONS

The provision of various green spaces in school setting creates different meaningful spaces that serve different developmental purposes for students with different needs. Each green space at a school may hold more than one meaningful space, while some of the meaningful spaces may overlap, depending on what kind of activities that each outdoor space can afford when each child engages with the environment. Therefore, 'meaningful spaces' refer to the functional spaces within the designed green spaces at schools which were defined by the children when they utilised the spaces. There is no specific boundary or location for the meaningful spaces because their extent depends on the action and perception of individual affordances which perceive the functionally significant properties of the environment (Gibson, 1979) towards giving meaning to the green spaces at schools. The meaningful spaces (Tanner, 2000) include:

- **Private spaces:** social places where a small group of students may go to be alone and perform their own activities such as telling secrets, chatting, and playing in the playhouse.
- **Quiet areas:** solitary places where students may go to pause and refresh themselves in a quiet setting.
- **Play areas:** special locations where students are given the opportunity to be together and be healthy and active by using their bodies, building up muscles, and testing new skills. Using imagination and releasing energy are two important activities seen in these areas.
- **Personal spaces:** places for students to participate in activities and tasks independently without being crowded. It is a good environment to aid concentration.
- **Outdoor rooms or specialist areas:** outdoor learning environments function like a classroom, but with the added benefits of nature that allow exploration.
- **Activity pocket:** spaces for small group work where members are aiming for the same goal, allowing access to resources and a shared working area.
- **Large group spaces:** spaces that can hold many people for an occasion or daily activity.
- **Eating spaces:** places to eat, drink and socialise. An inviting setting may allow students to eat comfortably.
- **Display spaces:** places to find out what others are doing and to see examples of other people's work.

Table 1 summarises the meaningful spaces that can be created within the primary school's green spaces. As can be seen from the table, it is obvious that each green space in the school grounds has the potential to be a play area for students. However, the difference is the types of play that each green space can afford, depending on the designs and features it has. For example, a school field affords structured play and team games, such as football and handball, while other green spaces, such as pocket spaces and habitat areas, can afford imaginative and creative play. Therefore, the green spaces also can be defined as play spaces which incorporate a range of play experiences that are suitable for students across the primary school years (Play Space Guide, 2013).

Table 1: The relationship between primary school’s green spaces and meaningful spaces for students with different needs

Primary school’s green spaces	Meaningful spaces created within green spaces								
	Private spaces	Quiet areas	Play areas	Personal spaces	Outdoor rooms/ specialist areas	Activity pocket	Large group spaces	Eating spaces	Display spaces
School field			√				√		
Courtyard			√		√		√		
Pocket spaces	√	√	√	√	√	√		√	√
Assembly area			√				√		
Main entrance area			√						√
Plaza		√	√			√		√	
Semi-enclosed spaces			√				√	√	
Campus village zone	√	√	√						
Buffer zone			√		√				
Transition spaces/pathways			√						√
Soft play area	√	√	√	√	√	√		√	
Hard play area			√			√	√		
Habitat area/animal life	√	√	√		√	√			

√ indicates the meaningful spaces that can be created within the green spaces

Some of the play spaces can also become part of the outdoor learning environment at schools because the range of play experiences that occurs can complement and extend learning in the classrooms (Play Space Guide, 2013). This is especially true for the play spaces that are integrated with the natural environment, such as pocket spaces, soft play areas and habitat areas. The play spaces allow students to have direct contact with nature and inspire them to learn through exploration, observation and investigation with the natural environments. Furthermore, the natural play spaces also serve other developmental purposes for students, such as private spaces, quiet areas, personal spaces, activity pockets and, sometimes, as eating spaces. Therefore, schools should diversify their school grounds environments with natural elements as much as possible to enrich the children’s outdoor play and environmental learning.

For a few schools in Malaysia, the limitation of school area is another issue that arises in the development of the green spaces in school grounds. As solution, the green spaces around the school buildings can be designed for multiple uses rather than only for beautification, such as the pocket spaces. The

spaces should function as places for relaxation, social interaction, and exhibition as well as for educational purposes.

CONCLUSION

Malaysia has its own initiatives such as ‘Sustainable School – An Environment Award’ and the 3K programmes, which were organized as competitions and which were intended to improve the learning environment in Malaysian schools. However, the organization of these competitions alone is not enough to ensure the success and sustainability of the programmes. This is due to certain circumstances encountered by the schools, such as lack of knowledge, guidelines and funding in developing a functional green spaces for children’s play and learning in schools. Therefore, a greater effort is needed in helping the schools to develop their school grounds in terms of the provision of funding and advice from experts in landscape design that can assist them to transform their school grounds environments. The school community, including the principals, teachers, parents, and children, and also the surrounding community, should be educated and involved in the processes, so that they will be aware of the potential of the school grounds environment in providing important learning opportunities for children.

Children have the right to play and to get primary education. Therefore, schools should provide the best opportunities for children to meet their rights and needs. In order to achieve this, children should be actively involved in the whole process of planning and designing their school grounds environment. Their voices should be heard because they are the active occupants of their environment. Without an understanding of children’s behaviour and preferences, it is impossible for adults to create the environment that meets children’s needs.

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