

Physical Environment and Learning through Play: Case Studies in Malaysian Preschools

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Abstract

As acquisition of knowledge includes the role of experience in acquiring knowledge, Learning through Play (LTP) becomes essential for children's physical, social and cognitive development. LTP has also been identified as one of the teaching and learning approaches in Malaysia's National Preschool Curriculum Standard (NPCS) to achieve its specified learning and development components. With physical environment capable of providing sensory stimuli and learning opportunities, physical environment aligned with the vision and principles of LTP should equally be given emphasis. This paper examines the physical environment of preschools in an attempt to demonstrate the relationship between LTP practices and a preschool's physical environment. A case study research was undertaken based on a sampling frame with purposive homogeneous sampling employed to select four privately operated preschools within converted residential houses in Johor Bahru. Findings of qualitative analysis indicated that albeit physical environment of preschools are less supportive of LTP, children used ingenuity to modify and adapt their physical environment in support of their individual play needs. LTP was hindered due to lack of children's own free will and accessibility to materials and equipment as well as constrained independent mobility and allowable play with restrictions imposed due to safety concern and time factor. Finally, conclusions are presented and suggestions for possible future direction are discussed.

Keywords: Learning through play; Physical environment; Preschools; Malaysia.

1. Introduction

Preschool education is an indispensable part of young children's learning with a growing body of research and evaluation studies illustrating that the first five years of a child's life are critical to cognitive development, non-cognitive development and later life outcomes (Bjorklund and Pellegrini, 2000; Haghghat and Bahauddin, 2011; Shackell *et al.*, 2008; SSM and UNICEF, 2010). Integration of play as part of enhancing children's learning is increasing (Gestwicki and Bertrand, 2011) based upon findings demonstrating benefits of programs offering a healthy mix of play and child-initiated discovery learning (Gomley and Gayer, 2005; Shaffer and Kipp, 2014). While definitions of play within the learning context are aplenty, 'Learning through Play' (LTP) as a term has been adapted into various preschool curriculum as a part of teaching and learning approach, including in Malaysia. Although curriculum stresses the role of play in supporting children's learning and development, Wall *et al.* (2015) notes that effectiveness of pedagogical practices and approaches are associated with how well these approaches facilitates play in the learning environment.

When it comes to the learning environment, quality of preschools encompasses not only curriculum and programmes but also the physical environment in which education happens. Because experiences within the physical environment have long-lasting effects on children's behaviour and development (Bronfenbrenner, 1994; Martin, 2004), architecturally planned and designed physical environment of preschools significantly affect children's cognitive and socioemotional development (Ferguson *et al.*, 2013; Moore, 2002). Children were found to exhibit more appropriate behaviours in more well-defined classroom (Abbas *et al.*, 2010) while specific physical environment attributes such as windows and views in preschool classrooms contributed towards teacher motivation and child engagement (Monsur, 2015).

Nevertheless, comparative to curriculum and programming, less attention has been given to the quality of physical environment (Abbas *et al.*, 2016). Sanoff (2015) opines that prevailing misconceptions reinforces the view that academic performance have little to do with quality of school buildings. Thus, this paper sets out to examine how far physical environment of preschools in Malaysia support children's LTP.

2. Background of Study

1.1 The role of physical environment in young children's learning

Preschool children are categorized under the representational stage, developing reflective orientation through internalization of actions and converting them to images (Piaget, 1964). This makes the case for education expert's concern relating to academic approaches that put too much pressure on young children to succeed without providing opportunities for them to actively construct knowledge (Kagan and Kauerz, 2012). Since changes in the environment changes the brain, it follows that changes in the environment transforms behaviour (Eberhard, 2009). Findings on how the brain learns have shown that appropriate and enriched environments have long lasting effect on children as studies discovered that physical environment plays a role in providing sensory stimuli (Sousa, 2011). Because sensory stimuli work towards the creation of memory, it helps in learning especially in the early years with information entering the brain through "windows" which emerges and tapers off succinctly at various times (*ibid*). The importance of these 'windows of opportunity' coupled with the susceptibility of the brain to early environmental influence is recognized to be profound and long-lasting (Olds, 2001). Hence, preschools must be capable of supporting and stimulating children's sensory perceptions in order to develop and refine them (Dudek, 2005). It follows that under-stimulating environments would tend to dull or deafen the child's perceptions.

1.2 Learning through play

LTP can be generally categorized into two schools of thought. Free play where children are able to freely chose activities are closest to what Wood (2010) calls 'pure play' and includes object play, pretend play, sociodramatic play as well as rough-and-tumble play whereby children are in control without close oversight by adults (Fisher *et al.*, 2011). Conversely, structured play are adult led activities involving planned approaches with defined learning intentions and is applicable to a group as well as the whole class (Wood, 2010). Bennett *et al.* (2009) argues that structure play is important as children require adults' help in making sense of their discoveries and connecting the dots between new discoveries with their existing knowledge. This belief stems from Vygotsky's (1986) concepts of "zone of proximal development" and "scaffolding" referring to support offered by adults or more competent peers in thus helping children learn.

Essentially, play is advantageous for all children as it empowers children with control over their activities and provides opportunities for exploration and discovery leading to learning (Heaslip, 1995). Several studies have portrayed the lost of initial advantages in rudimentary academic competencies by the end of preschools for children who attended academically orientated preschool between three to six-years of age with students in these academically orientated programs shown to be less creative, more anxious and stressed as compared to those in programs offering flexible, discovery based hands-on learning (Shaffer and Kipp, 2014). When engaged with responsible others, active involvement in discoveries and self-initiated activities in play such as hands-on manipulation, sensory engagement, and self-initiated explorations multiplies a child's learning (OECD, 2006). These discoveries that children make serves as a foundation for creativity or later innovations further on in life (Bjorklund and Pellegrini, 2000). Hence, rather than an education model focusing on rote instructions, young children learn best in an interactive,

relational model (Waldfoegel, 1999).

1.3 Learning through play in Malaysia

LTP is one of the eight teaching and learning approaches acknowledged in National Preschool Curriculum Standard (NPCS) by the MOE (2016) to achieve six learning and development components. NPCS defines LTP as a structured approach providing children with the opportunity to learn in a free, safe, enjoyable, and meaningful environment. However, the NPCS does not provide guidance in terms of physical environment supporting LTP but only briefly mentions three related factors including safety and health concerns; flexibility of furniture arrangement and accessibility of materials; and the need for learning spaces to have easy accessible and appropriate equipments. On the other hand, Guidelines on the Establishment Kindergarten and Child Care Centre (JPBD, 2012) only specifies allowable premises for establishing preschools, minimum floor area per child and staff-child ratios with no additional information into provisions of physical environment supporting LTP. This study contends that simply knowing the importance of play for learning and development is inadequate because for preschool teachers to holistically integrate LTP in preschools, the physical environment has to be supportive of children's play. Furthermore, noting that learning context including the way arrangement of physical environment both indoors and outdoors as well as materials and equipment they contain matters (Bakar *et al.*, 2015), it is crucial to examine more closely the physical environment of preschools in an attempt to demonstrate the relationship between LTP practices and a preschool's physical environment.

1.4 Physical environment supportive of learning through play

As physical environment has the ability to inhibit or enhance participation (Law *et al.*, 1996; Itoh, 2001) aptitude to interact ably with the environment is a significant basis for young children's learning. Kagan (1990) views that facilitation of play through the environment is one of the appropriate practices in implementing play in classrooms. Shackell *et al.* (2008) suggested five characteristics contributing towards successful play spaces as shown in Table 1. These spaces provide opportunities for- i) movement and physical activity; ii) stimulation of the five senses; iii) social interactions; iv) manipulation of natural and fabricated materials by children; and v) challenges and activities that test the limits of children's capabilities.

Table 1: Five characteristics contributing towards successful play spaces

Characteristics	Features
Movement and physical activity	Allocation of space and features for energetic and strength building play experiences
Stimulation of five senses	Provision of access to music and sound, and diverse smells emitted by plants and leaves
Place for social interactions	Provision of spaces allowing children to select when to play alone or with others
Manipulation of natural and fabricated materials	Allocation of natural and fabricated materials for children to manipulate and use as tools, as well as access to diverse bits and pieces
Opportunities for Challenges	Provision of challenges offering children a chance for activities testing the limits of their capabilities, including rough and tumble, sports and games, and opportunities to climb

Adapted from: (Shackell *et al.* 2008)

These five characteristics were used during observation at selected case studies to demonstrate the

relationship between LTP practices and a preschool's physical environment in Malaysia.

3. Method

Qualitative study employing multiple case studies was conducted as a single case review might provide less accurate information. Purposive homogeneous sampling was used to select four preschools in Johor Bahru to understand how private preschool within residential settings are adapted from corner lot terrace houses. Private preschools were selected as they represent 40% of preschools in Malaysia as compared to government and government aided preschools at 24% and other educational agency at 36% (Department of Statistics Malaysia Official Portal, 2016). Corner lot terrace houses were selected as terrace houses typically comprise a majority of master-planned developments corresponding to a large portion of urban land use in major urban areas within Malaysia (Teriman, 2012). Continuous recording was used to document activity patterns and how the physical environment supports or constrains activities as continuous recording enables natural event streams to be recorded without prior selection of behaviour sets to look out for (Salkind, 2000). Data was documented through daily logs which form much of the evidence used in qualitative research (Yin, 2015) and vignettes to depict existing conditions of preschools including short scenarios which are salient in relation to attitudes and beliefs (Renold, 2002).

4. Findings and discussions

Observation showed that the types of allowable play in each of the preschools were generally distributed into three categories - structured play, semi-structured play and free play. Semi-structured play was included to differentiate play which were situated between structured play which according to Wood (2010) involved planned approaches defining learning intentions, and free play which included elements involving make-believe and peers (Lillard, 2007). Hence, semi-structured play in this study involved children's play whereby teachers determined the type of play but children were given the freedom to be involved in make-believe play and social play. Table 2 provides a profile summary of allowable play in the respective preschools and a general observation of activities and time allocation for activities.

Most of the case study's pedagogical orientations were subject based with emphasis on drilling methods especially in literacy. Hence in all cases, children typically had very little opportunity for 'free play' save the limited time afforded to them at the end of the day. Even so, materials for play were determined by teachers giving children little opportunity in making their own decisions whereby these types of play were in fact more semi-structured than free play. Emphasis on children's obedience in Case Study 1 and Case Study 2 further limits children's ability to play freely.

Table 2: Summary of allowable play

	Case Study 1	Case Study 2	Case Study 3	Case Study 4
Type of Play	Structured play. Occasional semi-structured play.	Structured play.	Semi-structured play.	Structured and semi-structured play. Occasional free play.
Availability of materials outdoor	Play equipments available outdoors. But children's movement outdoors restricted by teachers.	Limited outdoor play structures.	No outdoor play structures.	Dedicated play equipment outdoors. Free play allowed at areas determined by teachers.

Availability of materials indoor	Variety of materials for indoor play. Distributed by teachers as not accessible to children independently.	Limited materials for play indoors	Variety of materials for indoor play. Distributed by teachers as not accessible to children independently.	Less material for indoor play but teachers bring a 'busy bag' with materials for children to draw and create.
Type of activity	Activities directed by teachers - children's movement limited	Activities directed by teachers - children's movement limited	Activities directed by teachers – children allowed more free movement.	Activities directed by teachers– children allowed more free movement.
Time allocation	Rigid timetable : Children allowed to play while waiting for parents.	Rigid timetable : Children allowed to play one day per week.	Less rigid timetable : Children allowed to play when deemed needed by teacher.	Rigid timetable but less rigid lessons: Play incorporated into lessons.

4.1 Movement and physical activity

With regards to allocation of space and features for energetic and strength building play experiences, majority of equipment for movement and physical activity were located outdoors. However, play did not happen outdoors. Instead, play sessions happened predominantly indoors. The common play area for all children was concentrated indoors in Case Study 1 while exercise play was conducted in the shaded outdoor area. In Case Study 2, teachers commented that children generally did not have time for play. However, during the observation, as a demonstration of children's play session, teacher directed games were allowed outdoors as there was no dedicated space for play indoors. Children in Case Study 3 typically spend their days indoors for play and morning exercises. While play spaces outdoors provided by Case Study 4 encompassed sand pit, balancing beams, space for tricycle course as well as a slide in the semi-outdoor area, these play spaces were generally used by toddlers and children aged three and four years. Play time for ages five and six concentrated indoors in the common area where activities concentrated on exercise play such as yoga sessions.



4.1 Stimulation of five senses

Provision of access to music and sound, and diverse smells emitted by plants and leaves were generally not present in all classrooms. In fact, Case Studies 1 and 3 did not have green areas and were devoid of plants even outdoors. Although Case Study 2 had a lawn, children were not allowed outside without teacher's consent. While the classroom in Case Study 4 was devoid of plants and natural features, its outdoor contained a well kept lawn and a sand pit with plantings on wall. However, children were not allowed outside with supervision and consent by teachers.



4.2 Place for social interactions

Structured lessons took up the majority of time in preschools with two thirds of the observed sessions conducted in a formal way through rote learning with children being passive learners. Children were observed to spend most of their time completing workbook activities determined by teachers. Thus, there was no provision of spaces allowing children to select when to play alone or with others as teachers did not allow independent mobility in preschools. During lessons, play rarely happened and obedience was expected of children. However, object play involving distribution of homogeneous objects such as interlocking blocks or wooden blocks by teachers was common. Social play often during semi-structured play was under the scrutiny of teachers and happens as a consequence of children's own initiative in involving peers during object play.

4.3 Manipulation of natural and fabricated materials

Allocation fabricated materials for children to manipulate and use as tools were generally under the supervision of teachers. However no natural materials and bits and pieces were available in all case studies. Fabricated materials for play were not present in Case Study 2. Case Studies 1, 3 and 4 had a variety of fabricated materials for play in common areas but these materials were only accessible to children when teachers distribute them. In classrooms, there were generally not many fabricated materials for manipulation as teachers engaged children through a mixture of textbook and play using bodily movement. However in Case Study 3, children would be provided with materials from a 'busy bag' by teachers in which children had free reign over what they wanted to draw or cut.



4.4 Opportunities for Challenges

Although there are minimal provision of challenges such as opportunities to climb outdoors in all preschools, opportunities for challenges were generally limited. Allowance for rough and tumble play was not observed as children were required to be obedient. Nevertheless, observation showed that children would utilise the available furniture by modifying the positions of the relevant objects as well as using

various body postures to create challenging situations for themselves. For example, in Case Study 4, a boy was seen balancing on the back of his chair to lift his upper body up while in Case Study 1, children were seen taking turns to lift their body up and balance themselves between a kitchen counter and the wall. These activities however happen when teachers are not around which goes to show that children had the ability to actively shape various physical environment features to support their needs for challenges and play.

5. Conclusion

Findings reveal that not only does LTP rarely happen in preschools, most preschools were not equipped with play spaces which Shackell et al. (2008) characterized as successful. While a majority of equipment for movement and physical activity as well as opportunities for challenges were located outdoors, play rarely takes place outdoors. Instead, these activities took place indoors in undesignated common area. The physical environment of preschools also lacked simulation of children's five senses. Fabricated materials were present in most of the case studies. However, these materials were not freely available to children and were only handed out to them by teachers. To encourage stimulation of the five senses, the inclusion of natural materials for manipulation as well as provision of access to music and sound, and diverse smells emitted by plants and leaves should be developed. Besides, according to Gainsley (2011, p 2), including the use of sand and water table indoors provide many sensory attributes for children to distinguish such as '...warm or cool, wet or dry, rough or smooth, hard or soft, textured or slimy.' Besides, the physical environment set up of preschools reflects an academically structured pedagogy, with time factor and safety concerns further constraining children's independent mobility and free play. In an attempt to demonstrate the relationship between LTP practices and a preschool's physical environment, observation shows that the physical environment is a reflection of a preschool's culture. As findings reveal that pedagogical orientation of preschools determine the type of allowable play which in turn establishes opportunities for play, a preschool's culture determines how the physical environment is set to support the type of allowable play. Nevertheless, qualitative analysis indicated that albeit physical environment of preschools are less supportive of LTP, children used their ingenuity to modify and adapt their physical environment in support of their individual play needs.

6. Recommendations

Although LTP has been recommended as a successful learning and teaching approach for young children especially in Western literatures, structured academic learning commonly takes place in Malaysian preschools. Thus, the physical environment is shown to be less supportive of play. In this instance, it is suggested that future studies on physical environment of preschools should not only look at existing physical environment per say, but rather understand the learning and teaching approaches to fully grasp how the physical environment can be contextually appropriate to the Malaysian context.

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