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## Physical Learning Environment: Impact on Children School Readiness in Malaysian Preschools

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### Abstract

Preschool physical environments significantly affect children’s development. Malaysian government efforts to improve the quality of preschool education shows lack of emphasis on the physical environment. Despite improvements, school readiness is reportedly moderate. Currently, minimal evidences suggest a direct link between the physical environment and school readiness in Malaysia; therefore, this study aims to investigate and propose a clear relationship between these two aspects through literature review. Findings are hoped to help stakeholders to better understand and attract more interest as well as research into this matter to help Malaysia establish better preschools in the future.

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*Keywords:* Malaysian preschool education; physical learning environment; children school readiness ; children development

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### 1. Introduction

Preschool period is crucial for the development of one’s personality, emotional, social and cognitive abilities (Katz, 1999). Developed countries have long acknowledged this by emphasizing preschool education as a stepping stone to ensure world-class societies. Malaysia’s Vision 2020 highlighted the importance of nurturing children’s

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academic excellence to become a fully developed country. The Malaysian Ministry of Education (MOE) also integrated preschools as part of its formal academic system and is rapidly increasing enrollment rates by increasing preschool numbers throughout Malaysia. For preschools to maximize the development of children, learning programs must be supported by both aspects of the learning environment - social and physical (Loebach, 2005). Unlike developed countries, the awareness among Malaysians regarding this is still lacking (Abbas, Othman & Rahman, 2012). School readiness is also an important aspect of children education as it highlights the level of development the child has achieved. It acts as a yardstick to assess general children physical and mental development (Majzub & Rashid, 2012). Therefore, school readiness should be a major agenda in the education of children in preschools to maximize their development into better human capital for the country.

## 2. Aims and objectives

The paper aims to establish the link between the quality of preschool physical environments and children school readiness. Future directions will be suggested based on trends of developed countries to help improve Malaysian preschool education and attract more research and interest in the physical built environment.

The objectives are:

- To define physical learning environment of preschool and school readiness
- To assess the current state of preschool environments among Malaysian preschools
- To assess the current level of school readiness of Malaysian public preschoolers
- To investigate the relationship between physical learning environment of preschool and primary school readiness
- To propose future direction of improvements of Malaysian public preschool learning environment

## 3. Methodology

Both quantitative and qualitative literature from various disciplines related to the title were reviewed. Three electronic databases were searched: Science Direct, Scopus and Web of Knowledge, indexes Malaysian and international journals on a variety of preschool children related topics from 1923 to present. The following keywords were searched; Malaysian preschool education, physical learning environment, children school readiness and children development, using titles and descriptors.

## 4. Literature review

### 4.1. Definition and types of Malaysian preschools

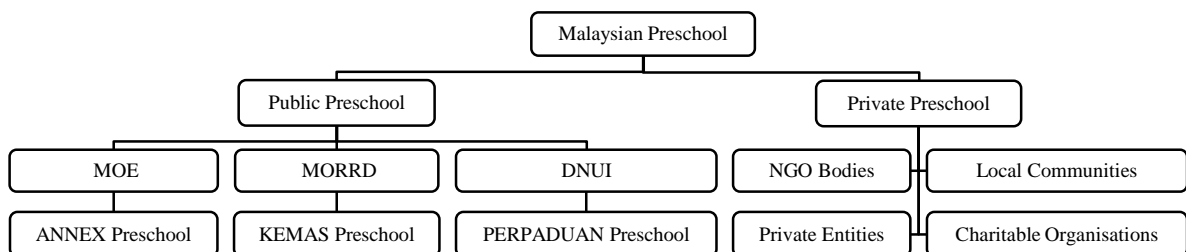


Fig. 1. Malaysian preschool system

(Source: Boon, 2010)

Malaysian preschools also known as “Tadika” serve children aged 4 to 6. Figure 1 above outlines the organization of preschools in Malaysia.

4.2. Government public preschools

KEMAS and ANNEX preschools were introduced to give opportunities to children of low economic backgrounds in suburban and rural areas. While PERPADUAN preschools were set up for children living in the friendly neighborhood scheme, also known as “Skim Rukun Tetangga” (Curriculum Development Centre, 2007). Table 1 shows the breakdown of each type of preschool.

Table 1. Classes and enrolment of public preschools

Type of preschool	KEMAS preschool	PERPADUAN preschool
Year established	1971	1976
Number of classes	8307	1496
Percentage	52.9%	9.5%
Number of students	198,275	38,952
Percentage	51.5%	10.1%

(Source: Curriculum Development Centre, 2007)

4.3. Preschool learning environment

Stimuli from preschool environments influence children physical, cognitive, social and emotional development and learning (Acar, 2014). The learning environment in this context comprise of the social environment (the students, the teachers, and the curriculums or programs) and the physical environment (building and infrastructure). A supportive learning environment embeds the learning and development opportunities into both the educational program and the physical form itself (Loebach, 2005).

4.3.1. Social learning environment

4.3.1.1. Appropriate program and competent teachers

Children’s behavior and development in the early years are associated with the social support they receive in preschool (Cabell, Justice, McGinty, DeCoster & Forston, 2015; Majzub, 2009). It is crucial for a preschool to adopt curriculums that provide children with play opportunities as it is well established that it plays an important role in children learning (Loebach, 2005).

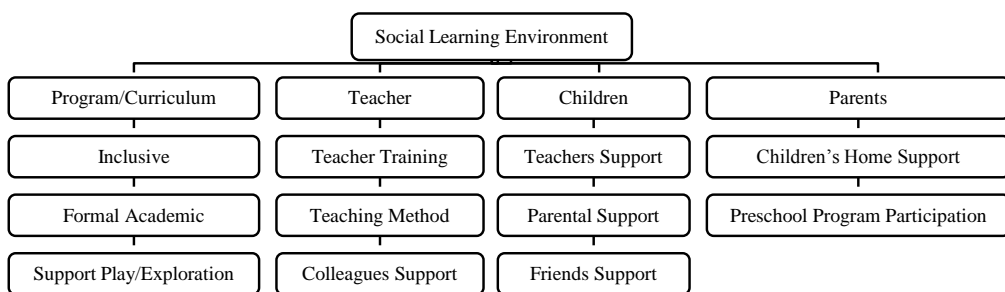


Fig. 2. Elements of the preschool social learning environment

Source: Cabell, Justice, McGinty, DeCoster & Forston (2015) ; Joseph, Ambika & Williams (2015) ; Majzub (2009) ; Loebach (2004) ; Lieber, Capell, Sandall, Wolfberg, Horn & Beckman (1998).

The inclusion of disabled children in mainstream academic programs is also common (Lieber, Capell, Sandall, Wolfberg, Horn & Beckman, 1998). It is believed that inclusive preschool programs benefit both disabled and normal children. It helps in providing opportunities for disabled children to befriend with and to learn social, linguistic and cognitive skills from their normal peers (Lieber, Capell, Sandall, Wolfberg, Hoen & Beckman, 1998).

Moreover, well-trained teachers who use the right methods to conduct the preschool program or curriculum, creating stimulating and attractive environment, establishing social and educational inclusion in class and maintaining regular communication with parents are also crucial. It helps prevent separation and social anxiety (Joseph, Ambika & Williams, 2015).

#### 4.3.2. Physical learning environment

##### 4.3.2.1. Physical environment often overlooked

Research into the design process of preschools found that design elements are typically overlooked in discussions regarding the preschool physical learning environment (Joshi, 2008). Preschool education should not only concentrate on lesson planning, but also on spatial arrangements, which is equally important (Morrow, 2007). Children are influenced by their physical as much as their social settings as it also affects children behavior, academic performance, and development (Maxwell & Chmielewski, 2008).

Because preschool children are rapidly developing physically, cognitively, socially, and emotionally, their experience with the physical environment can have long-lasting effects on their development (Martin, 2004). Poor facilities and spatial quality also affect teachers' motivation and indirectly affect children education (Salleh, Kamaruzzaman & Mahyuddin, 2013). Teachers will feel valued and motivated for working when they have access to good infrastructure, significantly improving their working performance (Uline & Moran 2008), affecting children academic outcome.

##### 4.3.3. Supportive physical learning environment for children

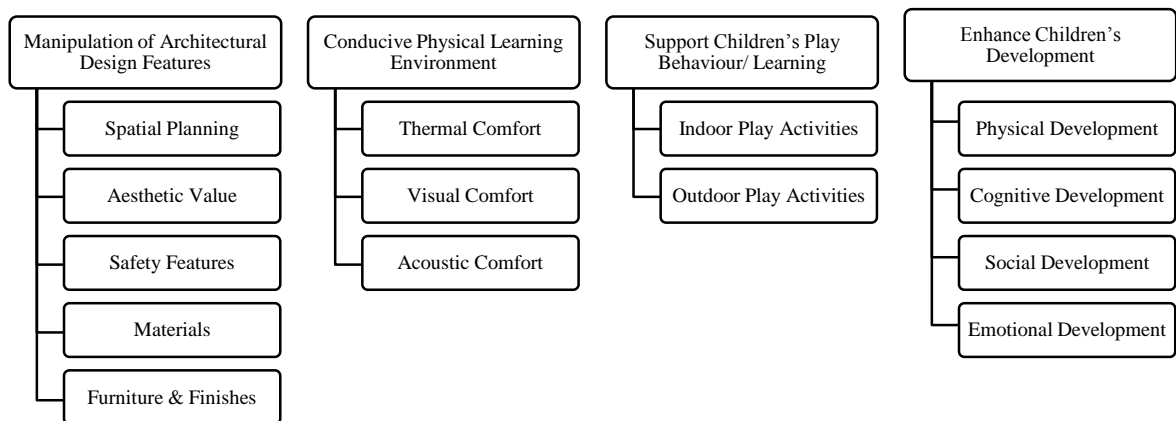


Fig. 3. Supportive preschool physical learning environment for children

Source: Acar (2014) ; Abbas (2012) ; Abbas, Othman & Rahman (2012) ; Nair, Yusof & Arumugam (2012) ; Abbas & Othman (2011) ; Abbas, Othman & Rahman (2010) ; Abbas & Ghazali (2010) ; Joshi (2008) ; Maxwell (2008) ; Badzis (2006) ; Boldemann et al., (2006) ; Davison & Lawson (2006) ; Bratton, Ray, Rhine & Jones (2005) ; Fein, Plotnikoff, Wild & Spence (2004) ; Loebach (2004) ; Fogg (2001) ; Gurkaynak (1996) ; Frost & Wortham (1988).

##### 4.3.3.1. Children's play behavior: Learning Through Play

A child's learning and developmental processes involve a lot of play activities. Children have a natural inclination to play, and it serves as a crucial mechanism for learning and development (Loebach, 2005). Play

significantly enhances children's interest in class (Nair, Yusof & Arumugam, 2012) through active use and exploration of their surrounding environment (Fogg, 2001). According to Habibe Acar (2014), "Play develops a child's talents and creative potential. It increases linguistic, mental, social, emotional, and motor skills; provides learning opportunities through trials and experiences that will be required throughout their lifetime".

More crucially, the continuous barriers that inhibit play activities in their environments could harm their physiology and psychology (Bratton, Ray, Rhine & Jones, 2005). This shows that preschools should be designed with appropriate physical environments that stimulate and support play activities - learning should be fun and accidental, not forced upon (Badzis, 2006). A well-designed preschool should not be built solely to satisfy adult users but also tailored to children's needs, to enhance their developmental opportunities (Badzis, 2006).

#### *4.3.3.2. Physical Outdoor Play Environment – Physical play*

Indoor play environment involves higher-level cognitive play that consists of engaging tasks and self-reliance activities and is often more emphasized. Outdoor spaces, on the other hand, are often neglected in educational settings (Acar, 2014). Access to outdoor play environments is important in triggering physical play activities (Davison & Lawson, 2006), stimulate physical motor development and promote healthy behavior in children (Boldemann et al., 2006). Direct play interactions through touching, seeing and experiencing nature is also a major contributor to cognitive, motor, social and emotional development. Yielding in the sun during outdoor play will improve children health and reduce the risk of sick building syndrome - commonly related to low access to natural daylight and fresh air in indoor settings (Joshi, 2008).

#### *4.3.3.3. Conducive physical environment for children*

Good spatial and esthetic qualities, safety features, and appropriate use of material, finishes, and furniture contribute to conducive environments for teaching and learning. The conduciveness of indoor environments is measured by its Indoor Environmental Quality (IEQ) – thermal, visual and acoustic comforts. Human comfort due to the physical environment is shown to affect child's play behavior, thus influencing learning (Abbas, Othman & Rahman, 2012).

#### *4.3.3.4. Physical Learning Environment and Children's Development*

Spatial arrangements and definition also influence children development; well-defined areas promote better learning and positive behaviors (Abbas & Othman, 2011). Design and quality of material correlate with positive development among preschool children (Abbas & Ghazali, 2010).

Studies show that physically planned environments affect a wide range of development – positive behavior development were seen in better-designed physical environments (Martin, 2004). Physical shortcomings hinder children development because it creates undesired behavioral obstacles, causing withdrawal and lack of integration with their surroundings (Gurkaynak, 1996). Physical dimensions and different aspects of the physical environment influence students' behavior and attitudes differently (Fein et al., 2004).

Preschool physical environments affect children competency and development in many ways (Abbas, 2012; Abbas & Ghazali, 2010; Abbas, Othman & Rahman, 2010). The physical environment and children's development of cognitive and social competency are directly related (Maxwell, 2008).

#### *4.3.4. Interaction between social environment and physical environment is important*

##### *4.3.4.1. Complementary role – social and physical learning environment*

Preschool objectives are achievable when there is a successful interaction between social and physical environments (Abbas, Othman & Rahman, 2010). To produce a good preschool social environment, teaching programs must be designed to work with the built infrastructure and vice-versa. Teaching and learning activities should not obstruct access but utilize the designed facility. Well-designed preschools, equipped with good spatial and esthetic qualities, good safety features, and appropriate use of materials, finishes and furniture, contributes to conducive environments for teaching and learning. Emphasis on both aspects of the learning environment will, therefore, maximize a child's development and learning.

#### 4.4. Preschool quality improvement

##### 4.4.1. Developed country trends

##### 4.4.1.1. Holistic quality improvement of preschool

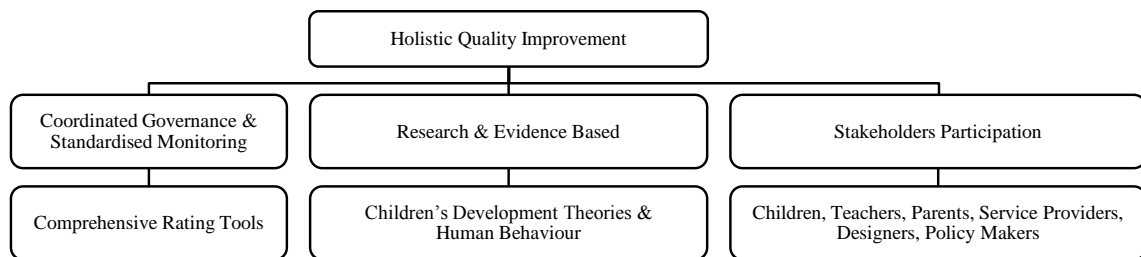


Fig. 4. Holistic quality improvement of preschool

(Source: Abbas, Othman & Rahman, 2012; Abbas & Ghazali, 2010; Morrow, 2007)

As per Western approach, quality preschools must emphasize on the quality of social and physical learning environments equally (Morrow, 2007). Equal improvements warrant positive and effective learning environments that are safe and supportive for preschool users (Abbas, Othman & Rahman, 2012; Abbas & Ghazali, 2010). Therefore, holistic improvements may be defined as balanced improvements that utilize both types of environments – social and physical environments.

Most implementations made by developed countries are based on evidence from years of research in children developmental theories such as Piaget and Werner. Lessons learned from previous studies are significant and crucial to their preschool quality improvement.

Designers who have minimal understanding of user behavior may repeat recurring design mistakes (Morrow, 2007). Despite the developed country status, the ongoing studies related to children among Western countries prove that they are placing continuous efforts and initiatives in emphasizing the importance of children. If studies on children are still considered significant to them, Malaysia as a developing country should also acknowledge this and be more concerned.

##### 4.4.2. Malaysian trend

##### 4.4.2.1. Minimal emphasis on physical learning environment

The government's strategy to improve the quality of preschool education is highlighted in the Education Act 1996, Early Child Care and Education (ECCE) Policy, National Key Result Area (NKRA), 9th Malaysia Plan (9MP, 2006-2010) and 10th Malaysia Plan (10MP, 2011-2015). However, most policies are biased towards social environments. More emphasis on teacher training and curriculum were given, but minimal allocation to address the quality of physical environments (Abbas, Othman & Rahman, 2012; Abbas & Ghazali, 2010). For example, the Permata Program, which fails to adequately provide appropriate physical environment supportive of children's development (Abbas, Othman & Rahman, 2012). If this persists, more money will be wasted to modify, maintain or reconstruct preschools with a properly designed physical environment to cater children needs. This situation can be avoided if the government seriously considers a more holistic approach - now rather than later.

##### 4.4.2.2. Basic standard physical design, facilities, materials and safety specification consideration

Based on the ECCE Policy Implementation Review (2007), through the 141 MOE preschools inspection criteria by the School Inspectorate in 2005, there are some concerning physical problems among Malaysian preschools – namely space allocation for kitchen, dining and storage areas, furniture or facility allocation including cupboards,

shoe racks and electrical fittings, lighting, ventilation, and water quality. Despite this, it was reported that teachers are satisfied with the kind of provision in their classrooms – showing a lack of awareness of the need for better physical design.

However, the assessments were only focused on teachers' satisfaction and basic needs. They do not show that current preschool physical environments maximize the learning process for children. Teacher satisfaction is also doubtful; they may not be aware of the appropriate physical learning environments in terms of maximizing children development and children and teachers' performance. There is a lack of assessment of children satisfaction and facilities that support the developmental process and play learning activities. More initiative is needed to address this.

#### *4.5. School readiness*

##### *4.5.1. Definition*

School readiness is defined as a measurement of how well the child has mastered key development domains before they enter primary school. It encompasses all the basic aspects of a child's development – gross motor, social skills, emotional behaviors, intellectual and cognitive behaviors (Smart, Sanson, Baxter, Edwards & Hayes, 2008). School readiness varies due to preschool experience, preschool locations, and educational background as well as socio-economic status of parent (Smart, Sanson, Baxter, Edwards & Hayes, 2008). It can also act as a predictor of skill competency and future career success (Lee, Burkam, Ready, Honigman & Meisels, 2006).

##### *4.5.2. Benefits of school ready*

A ready child will adapt better to primary school (Majzub & Rashid, 2012). Because school readiness is a measure of overall development, it also indicates how well the child has acquired abilities and milestones. A less ready child will have social, health and physical problems when participating in school activities (Majzub & Rashid, 2012). They are more likely to become school dropouts, teen parents, engage in crime and have poor jobs (Duncan, Dowsett & Claessens, 2007). Children readiness can predict future school performance – less ready children are more prone to academic, behavioral and emotional problems. Therefore, it is crucial for the government to ensure that the design of preschools must serve as a place or platform for children to develop normally and optimally. Preschool designs should help children to achieve their maximum potential in the future (Majzub & Rashid, 2012).

##### *4.5.3. Preschool physical learning environment and impact on primary school readiness*

Children spend most of their daytime in preschools. Their development and school readiness are mainly influenced by preschool environments as they interact with their surroundings. Many aspects of environmental behavior among Malaysian children have been shown to be influenced by the physical environment (Abbas, Othman & Rahman, 2012; Abbas & Othman, 2011).

School readiness is heavily influenced by preschool setting (Carlton & Winsler, 1999). Carlton & Winsler (1999) argues that emphasis should be given to preschool environment as it is more coherent with neurobiological concepts. He stated that children brains are plastic and adaptable to their environment – in this case, the preschool environment.

There is no doubt that the environment outside preschool – parental support and socioeconomic background - play a big role in influencing school readiness (Majzub & Rashid, 2012). However, the importance of the preschool environment – social and physical, and its impact on children development should also be viewed as a major factor in enhancing school readiness. The physical environment affects the development of children and, therefore, their school readiness. Because there is a lack of a clear link between the preschool physical environment and school readiness in Malaysia, this research hopes to final establish this.

##### *4.5.4. Malaysian preschools – primary school readiness*

Recent studies showed that Malaysian Year 1 students have moderate levels of school readiness (Majzub & Rashid, 2012). The study also showed that a significant amount of children is still struggling to master Reading, Writing, and Arithmetic Skills (The 3R's) when they first attend primary school. With so much emphasis on the

preschool social environment, which focuses on the improvement of teaching system and lesson planning, yet the children is not fully ready for school. This situation leaves the preschool education quality status in doubt. It also indicates that the children's learning and developmental milestones during preschool years is not fully achieved as targeted.

Being a developing country, this is a major concern for Malaysia as the government could not afford to waste money on improvements that are not beneficial. It can be speculated that the lack of emphasis on preschool physical environment contributes to the non-readiness. Current efforts must need second thoughts and prompt revision, thus calls for more improvement in the preschool physical aspect.

## **5. Recommendation**

### *5.1. The need for preschools establishment that is 'research and evidence-based'*

While developed countries have gone through many trials and errors in achieving their current standard of civic education system, pioneering ground-breaking frameworks in the process, developing countries such as Malaysia have the advantage of avoiding time-consuming trials and errors in the effort to improve our education system (Abbas, 2012). Any improvement and implementation of preschool must adopt lesson learned from developed countries and adapt to the local context – calling for more local research on this matter.

### *5.2. The need for 'holistic' improvement and implementation of preschools – the physical aspect should not be ignored*

A quality preschool should provide both, the best of social and physical learning environment for the child to learn and develop.

### *5.3. The need to address the 'key issues of the physical environment' that is 'tailored to support children's developmental needs' (support play activities)*

Key issues of the physical environment include aspects such as spatial planning and esthetic quality, appropriate use of furnishing and finishing, safety features and conducive environment for human comfort (Davison & Lawson 2006). The application of these aspects should be tailored to support children's developmental needs and can be detrimental if ignored. Given the immense amount of research done to highlight this issue, the Malaysian government can no longer turn a blind eye. Although there is a standard guideline to setup preschool in Malaysia – "Garis Panduan Penubuhan Tadika dan Taska" (Jabatan Perancangan Bandar dan Desa Semenanjung Malaysia, 2012), it is relatively new and it showed no comprehensive requirements on the design aspect.

### *5.4. The need for a standard comprehensive physical environment quality guideline and monitoring among ministries*

Issues of individual preschool monitoring among Malaysian ministries shows that there is no coordination - no standard mechanism to ensure the quality of preschool education among the governing ministries. Effective implementation of policies requires good governance mechanism (Boon, 2010). There is no comprehensive physical learning environment assessment made by the Malaysian government. The existing preschools physical environment were not evaluated for its 'fit for purpose' for children. The status whether the provided infrastructures had fulfilled the children's unique demands and developmental needs, from children's view is unknown. This situation calls for more coordination among government ministries as to ensure their roles and responsibilities are laid out and coordinated properly, thus increase the provision of high quality of preschool, socially and physically.



### *5.5. The need for local-based, quality rating tool for Malaysian preschools*

Due to the lack of self-developed quality rating scale for buildings in Malaysia, the adaptation of internationally known and recognized scales for the physical learning environment and school readiness have to be done. However, it is best to have a scale that is tailored to Malaysian local context. It will provide technical assistance to assist the government to develop accountable systems for recognizing and rewarding high-quality preschool programs. Developing countries such as Malaysia do not necessarily need to come up with new tools. Available toolkits can be easily modified to meet local conditions. For example, modified versions of such toolkits were used in the Post Occupancy Evaluation Studies done in Malaysia by the author on Healthcare (Abbas & Ghazali, 2010) and on Early Childhood Education (Abbas, Othman & Rahman, 2010). Both the UK's NHS AEDET Evolution Toolkit (for evaluating the physical environment) and AEDET Evaluation Toolkit (for evaluating satisfaction levels amongst users) were used as the basis for data collection. In the latter, a study was conducted on the quality status of the physical environment of kindergartens. NSW CPERS toolkit was used as the basis for data collection.

### *5.6. The need for participation from all stakeholders – to get feedbacks and to increase awareness*

The participation of all stakeholders will significantly increase their awareness of learning environment and school readiness – what is required in establishing a setting for children to enhance their school readiness. Every preschool stakeholders namely, the children, the teachers, the service providers, the parents, the designers and the policy makers, should participate and be consulted in the design process & during occupancy (Majzub & Rashid, 2012). Through participation, efforts in getting their feedbacks and increase awareness will ensure that every need are catered properly. Such participation is in line with the four principles of Convention on the Rights of Children (CRC) signed by the government. Children must not be discriminated, have a right to survival and development, their best interest must be a primary consideration, must be allowed as active participants in all matters affecting their lives and be free to express their opinions (Boon, 2010). In Malaysia, this kind of practice is growing but still lacking – calling for more initiative.

### *5.7. Awareness of the aspects of school readiness should be given more emphasis*

The level of school readiness among preschool children must be given more attention by the government. In western countries, school readiness is shown to be a good measure to gauge the development of children and their ability to contribute better in the future of their society. As previously explained, a ready child for school will prevent many later problems. Careful consideration of preschool learning environment, social or physical, should maximize children's developmental potential, thus contribute to the higher level of school ready for children.

## **6. Conclusion**

It is concluded that there is a link between physical learning environment and children school readiness. The importance of the physical environment of preschool can no longer be ignored among Malaysians. A quality and properly-designed physical environment will boost the development and education of children in Malaysia, contributing to improved school readiness among children and a better education system. Ensuring that preschool children are more school ready is key when designing a preschool. Children must be developed to their fullest potential while in preschool – they must be school ready. By helping children achieve this, we are significantly increasing their chances of success in the future which can be beneficial for the future generation of our country.

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