

# How Do Children Experience Nature at Preschool? A Preliminary Study

Siti Noor Fauziah Abd Rahim<sup>\*a</sup>, Mastura Badzis<sup>b</sup>, Nik Suryani Nik Abdul Rahman<sup>c</sup>,  
<sup>abc</sup>Kuliyah Of Education, International Islamic University Malaysia, Malaysia

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## Abstract

The debate about children's decreasing experience of and contact with nature has increasingly captured researchers' interest over the past decade and has been going on for many years (Fägerstam, 2012). Exploration in natural worlds offers concrete and real learning experiences for young children. The "necessity of experience" as advocated by Edward Reed (1996) argues that primary or first-hand experiences opens people to boundless possibilities for learning, including creative new discoveries. Yet, children today have less opportunity to spend time in nature places than they did 20 or 30 years ago (Hofferth & Curtin, 2006). More importantly, as far the early childhood education is concern, the exploratory studies of children's experiences with nature is scarcely investigated at preschool settings especially in Malaysia. Therefore, this study was carried out to explore the experience of children with nature at preschools in Malaysia and to examine preschool teachers understanding about nature-related activities for young children. A semi-structured interview question is the main instrument for data collection. The participant consisted of two preschool teachers from two private preschools. They were selected through convenience sampling. The data was analysed using thematic analysis procedures where it was read carefully to understand emerging themes. It was then coded, categorized, labelled manually and synthesized for patterns and reduced into themes for the narratives. The results identified three major categories of children's experience with nature at preschools, namely: observing and studying nature elements, using nature elements for nature art activity and nature recreation (playing in nature). The analysis revealed that preschool teachers did not organise nature-related activities very often although they find it very important. The findings discovered some current implementations, perceived benefits and barriers for nature-related activities implementation at preschools. This study recommends the nature-related activities as an effective way to stimulate children's senses, provide opportunity for experiential learning to them as well as to support their social skills. It also fulfilled an existing research gap by describing how children experience nature at preschool settings and preschool teachers' perspectives about it. Ultimately, the outcome of this study envisions a perspective on nature-related activities at preschool as a promising early years experiences to natural worlds by promoting first-hand learning opportunity to children.

**Keywords:** preschool children, nature-related activities, experiential learning, sensory learning, social skills

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## 1. INTRODUCTION

The importance of experience in early childhood learning process is obvious. Thousands of years ago, the great Greek Philosopher Aristotle said, "*The things we have to learn before we do them, we learn by doing them.*" Edward Reed (1996) called "the necessity of experience" which argues on the primary or first-hand experiences which gained through senses as a basic way of understanding the reality and learning for ourselves. This is in present times referred to learning from experience or experiential learning as advocated by John Dewey (1859-1952) and David Kolb (1984)

\*Corresponding author. Tel.: +60 125671930  
E-mail: [sn.fauziah@gmail.com](mailto:sn.fauziah@gmail.com)

Dewey (1916, p.50) passionately insisted that educational process is a “continual reorganization, reconstruction and transformation of experience” (Samuelson, 2012). Experiential education views the individual experiences (i.e. learners) as an educative material and use them to produce learning, in which differentiate it from the traditional education with employ texts and knowledge imposed by teachers unto individual learners (Georgopoulos, Birbili & Dimitriou, 2011). Dewey (1938) believed that the ability of a person to learn was dependent on many things, one of which was the environment. He observes that, “When education is based upon experience and educative experience is seen to be a social process, the situation changes radically. The teacher loses the position of external boss or dictator but takes on that of leader of group activities.” (Sharma, 2007, p.135). Similarly, David Kolb (1984) explains experiential learning as a type of learning that support students in applying their knowledge and conceptual understanding through the process of having concrete experience, observation and reflection, the formation of abstract concepts and applying it in new situations. In this aspect, learning from experience is when an individual learner can make a connection between what he or she does unto a certain thing and what happens to them as the consequence which means the value of an experience lies in the perspective of relationships or continuities among events. Miller (2007) argues that experience is a powerful learning tool, and children remember hands-on learning. Teaching in a natural setting offers a way for teachers to foster children’s all-around development which include physical, intellectual, emotion, and spirituality to connect with nature and internalize their learning.

Therefore, early childhood education should provide children with learning opportunities that are planned and organized so that experiential learning can take place. Young children learn best from concrete examples, things they can experience first-hand. Abstract and difficult topics may hinder learning and cause frustration in children’s efforts to learn. Natural worlds within school area offers countless opportunities for experiential learning. Previous studies have revealed that experiential learning in natural environments not only have a positive impact on academics, but also on environmental attitudes and other areas of development of children participated in such programme. For instance, nature offers unlimited sensory output. Children learn through exploring their surroundings, they wonder, hypothesize and ask questions about nature. By working with nature elements also, children gain knowledge about real animal, plants and soils (Mohd Yusop, Abdul Rahman & Md Yassin, 2018; Abdul Rahman, Md Yassin, Yusop & Ashikin, 2016; Gambino, Davis & Rowntree; 2009; Ogelman, 2012; Zoldosova & Prokop, 2006). Not only that through this occasion, children develop their empathy skills towards plant and animal (Randler, Ilg & Kern, 2005; Shteir, 2007; Strgar, 2007; Lindemann-Matthies, 2006; Frisch, Unwin & Saunders, 2010; Nyberg & Sanders, 2014; Link-Pérez & Carl, 2016; Longbottom & Slaughter, 2016). A growing body of research supports the view that activities focused on nature support children’s physical ability (Fjørtoft, 2004; Kaarby, 2005; Dymont & Bell, 2008), creativity and imagination (Ånggård, 2010), observation skills (Stephens, 2007), mathematical learning (Miller, Tichota & White, 2014; Kaarby, 2005), enhance attentional ability in ADHD and ADD children (Faber Taylor, Kuo & Sullivan, 2001; Kuo & Faber Taylor, 2004; Faber Taylor & Kuo, 2009; Van den Berg & Van den Berg, 2011) and foster educational and developmental domain in special needs children (Hussein, 2010; Pedersen, 2013).

Early experiences in natural environments have proven to be a far more effective way to nurture environmental awareness. The theory of ‘biophilia’ as proposed by Edward O. Wilson (1984) asserts that humans have an inherent inclination to affiliate with nature (Grinde & Patil, 2009). Biophilia refers to fondness and positive regard for plants and other living things (Grinde & Patil, 2009). Many researchers have suggested the formation of ‘biophilia’ in children is present during early years of their life (Kellert, 2002; Louv, 2008) and became a permanent emotional characteristic (to love and attach with nature) (Kellert, 2002). Moore and Marcus (2008) observed that biophilia has been developed in children as younger as two years old. This kind of awareness and understanding is crucial as it serves an encouraging foundation on the way children perceive themselves in relation to the living world and in their future life.

Nonetheless, children today have less opportunity to spend time in natural places than they did 20 or 30 years ago (Hofferth & Curtin, 2006). Children today spend less time in the outdoor, they wander less, encounter less and losing some of the important connections to nature and place (Pretty, et.al, 2015). At school, factors preventing children for being outside includes the concern about young children health and safety (Ernst, 2014), teacher’s confidence and expertise in teaching and learning outdoors (Ihmeideh & Al-Qaryouti, 2015), the requirements of school curricula towards academic achievement (Miller & Almon, 2009; McNeil, 2000) and logistical constraints such as limited time, weather tolerance, equipment and resources (Ernst, 2014; Ihmeideh & Al-Qaryouti, 2015; Maynard & Waters; 2007; Link-Perez & Carl; 2016) which have caused greater detachment for children to engage in and with nature. On the other hand, the reasons for less outdoor play at home include parental fear (Tovey, 2007), the attachment to wired-technology indoors (Burgess & Mayer-Smith, 2011; Kimbell, Schuhmann & Brown, 2009; Rideout, Foehr, Driessnack, 2009; Roberts, 2010; Roberts & Foehr, 2008; Louv, 2008; Kahn, 2002) and lack access to outdoor space at home and school (Thomas & Thompson, 2006).

The Natural England (2013) reported that less than 10% of children playing in natural environments such as woodlands, countryside and heathland as compared to 40% of children 30 to 40 years ago (Pretty, Barton, Pervez-Bharucha, Bragg, Pencheon, Wood & Depledge, 2015). Additionally, the annual report published by Outdoor Foundation, United States of America observed a parallel pattern of a decrease participation of children and youth between the age of 6 to 17 in the outdoor activities from approximately 76% in 2006 to approximately 60% in 2009 (Outdoor Foundation, 2008, 2009, 2010 as cited in Larson, Green & Cordell, 2011). Previous studies have demonstrated the disparity between the time children spend indoors wired to technology and the time spend outside enjoying nature at home and school (Burgess & Mayer-Smith, 2011; Kimbell, Schuhmann & Brown, 2009; Rideout, Foehr, Driessnack, 2009; Roberts, 2010; Roberts & Foehr, 2008; Louv, 2008; Kahn, 2002). In 2010, the media usage among children and teens (2000 participants) in the United States exposed that the generation between the age of 8 and 18 years these days spend approximately 6.5 hours per day on electronic gadgets (Rideout, Foehr, Roberts, 2010; Roberts & Foehr, 2008). In addition to that, the Norton Online Family Report 2010 (published in July 2, 2010) revealed Malaysian children spending on average of 19 hours online a week, which is eight hours more than their parent's estimation (Nahar, Rosli & Abdullah, 2018). According to Rowan (2010), on average children spend eight hours a day on entertainment technology with 65% of them having televisions in their own bedrooms and 50% of North American homes have the televisions on all day.

These continuing events contribute to the loss of important learning process which is experiential learning opportunities and meaningful experiences that would affect children cognitive development particularly the acquisition of superficial understanding of what have been taught in classroom, unable to receive first-hand learning experiences, not able to relate facts with the real truth and incompetent to exercise imagination and thinking skills. This fact is true with regards to early childhood learning, where children make sense of what they see, feel and experience in the world around them by using their senses, minds and body (Tovey, 2007). As children are gradually experiencing less direct contact with nature today than ever before in history, this ongoing occurrence could lead to the 'extinction of experience' as has been described by Robert M. Pyle two decades ago (Soga & Gaston, 2016). Subsequently, due to the loss of this experience with and in nature in young children especially, they lose the more profound and essential benefits and learning opportunities that nature environment and elements could offer.

It is evident that early nature experience benefitted children in many ways and this affordance is promising especially in teaching and learning for young children. Preschool setting and learning activities that incorporate nature experiences might be many of parents, communities, educators and children's last hope of reaping the potential and rich benefits of this cost-effective and accessible gift. As far the early childhood education is concern, the exploratory studies of children's experiences with nature is scarcely investigated at preschool settings especially in Malaysia. Therefore, this exploratory research is undertaken with two objectives:

1. To explore children's experience with nature at preschool nowadays
2. To examine to what extent preschool teachers, understand about nature-related activities for children?

This study was guided by these following research questions:

1. How do children experience nature at preschool?
2. What is the understanding of preschool teachers about nature-related activities for children?

## **2. RESEARCH DESIGN AND METHODOLOGY**

This preliminary study employed an exploratory qualitative interview study with two preschool teachers from two private preschools. Two preschool teachers were selected through convenience sampling. The interview took place at separate time and settings.

Interview method was employed to explore their views and knowledge regarding children's experience with nature at preschool in Malaysia. A one-to-one interview session with two preschool teachers and lasted for about 40 minutes to 90 minutes for each participant. A set of semi-structured interview questions were used as instrument. Semi-structured interviews involve the use of some questions that are prepared in beforehand, but there is no strict adherence to them (Myers, 2009).

The interview questions focused on the involvements of children with nature at preschool and teachers' understanding about nature-related activities for young children and so forth. The interview sessions were conducted in both language, Malay and English language and an MP3 recorder was used to record the interview sessions. These interviews later have been transcribed and analysed using emergent coding.

### 3. FINDINGS

#### 3.1 Children's Experience with Nature at Preschools

Teachers were asked about how children have been engaged with nature at preschools from their teaching experiences. The analysis revealed three major categories: observing and studying nature elements, using nature elements for nature art activity (i.e. vegetable printmaking) and nature recreation (playing in nature).

##### 3.1.1 Observing and studying nature elements

Children had the opportunity to see and learn about real parts of nature such as leaves, twigs and plant during teaching and learning activities. Teacher 1 (I1) explained this lesson was conducted depending on topics of the day.

*"In a teaching module, teachers are encouraged to use real objects in teaching, for example in an animal life-cycle topic, and we have to bring objects to resemble the topic such as leaves, twigs which are real..."*

[I1, 6]

Teacher 2 (I2) described children participated in learning about plant during Science subject:

*"usually take place in preschool playground where we did nature-walk and learning about plant in Science subject..."*

[I2, 4]

##### 3.1.2 Using nature elements for nature art activity (i.e. vegetable printmaking)

The teacher considered creative activity in classroom as one of the ways children involved with nature. Teacher 2 (I2) mentioned:

*"In a normal practice at preschools' classrooms, nature elements like vegetables were brought into the classroom to be used by children to create prints."*

[I2, 22]

##### 3.1.3 Nature recreation (playing in nature)

According to both teachers, outdoor place is amongst favourite places that children always look forward to play. Outdoor place also is a place where children had opportunity to observe plants other than the normal classroom. Outdoors as referred by teachers include the preschool's playground and preschool area with some plants. Teacher 2 (I2) stated:

*"Children prefer to go outdoors even just to our school playground, they always look forward, or they like it because our school also has a pool for water play (I2, 30) where they can splash, splash the water."*

[I2, 32]

Teacher 1 (I1) further added,

*"In the afternoon, I brought children outdoors (outside of classroom) to see flowers and explained to them the parts of flowers, about the twigs and the root."*

[I1, 20]

#### 3.2 Preschool Teachers' Understanding and Perceptions about Nature-Related Activities for Children

This analysis not only revealed the types of nature activities that young children at preschools were exposed to, but the understanding of teachers regarding nature-related activities for children.

### 3.2.1 Teachers understood the concept and experienced in conducting it

Both teachers received the exposure and experienced in conducting nature-related activities at their preschool such as Nature-walk activity and bringing nature elements into classroom for teaching and learning purpose.

On the frequency of nature-related activities being conducted for children on weekly-basis, analysis revealed that for nature-related activities that took place inside classroom, the frequency is once per week for approximately half an hour (30 minutes) depending on related subjects (i.e. Science), whereas for nature-related activities that took place outside of classroom in nature environment (i.e. school garden or playground) like Nature-walk, it was conducted daily if the weather permits or no pre-planned activities for children for the day.

### 3.2.2 It is important as children learn through senses

The teachers considered nature-related activities for children to be important and thought it useful for learning because they can use all their senses in learning process.

*“Children want something which is very sensory, okay, even just like how it looks like, that would be the colour, they can touch the texture, the smell and then they can see what is happening, they can look, they can hear, maybe about bugs, the chirping of the birds...”*

[I2, 58]

*“I think this kind of activity gives long-term learning for children. When we just explained things verbally without showing them real objects, children will just know about it and only grasp. But, when we bring them outside, they can touch, they sense the texture, learning is more effective in that way.”*

[I1, 92]

### 3.2.3 Provides opportunity for experiential learning activities

In the teachers' opinions, nature-related activity is based on children being explorative and inquisitive. The respondents view nature-related activities primarily as an opportunity to carry out experiential and meaningful daily educational activities about nature and in nature.

*“When I showed them things that I brought from nature like plants, they were excited to explore and asked questions like why this leaf looks like this, why the stripes look like this? ...”*

[I1, 148]

*“...they can touch the texture, the smell and then they can see what is happening, they can look, they can hear, maybe about bugs, the chirping of the birds...”*

[I2, 58]

*“While we were outside, I had the opportunity to provoke their minds by asking why there is a difference in the colours of leaves, why some of them were green and shiny, while some others turned to dark brown colours, interestingly, children responded, those with dark brown were already died, if they did not know, they will ask me back.”*

[I1, 152]

*“Children will tell me, this one is already died, and if they didn't know the answer, they will ask me, and most of the time, that is what happening.”*

[I1, 156]

### 3.2.4 Gives excitement

The understanding of real essence of nature-related activities as a way of supporting the all-around development of children was shown by the fact that in their responses, the teachers named the children's emotion: *“children were more excited”* and *“children look forward”*.

*“...with the limited environmental resources, I tried my best to get whatever elements accessible around me to give different learning experience to children. Children’s reactions changed when we use resources from environment, they looked forward to it.”*

[I1, 148]

*“Children reaction is different and excited when they got to know that they are going to have learning activity outside of classrooms.”*

[I1, 138]

*“...children were more excited when they were outside in nature because they can see plants and leaves in real as compared to what they used to see in books or from their own drawings...”*

[I1, 152]

*“Children can’t concentrate in the class if we just give them books or just let them to focus. They prefer to go outdoors even just to our school playground, they always look forward, or they do like because our school also a pool for water play.”*

[I2, 30]

### **3.2.5 Offers long-lasting knowledge about nature to children**

The respondents emphasised the importance of learning in nature environment as it is authentic and ready, and it provides more precise and longer-lasting knowledge about nature to children as compared to conventional ways of learning.

*“I think this kind of activity gives long-term learning for children. When we just explained things verbally without showing them real objects, children will just know about it and only grasp. But, when we bring them outside, they can touch, they sense the texture, learning is more effective in that way.”*

[I1, 92]

*“It is effective from learning through books, children sometimes do not know how the taste feels like, children learn better through sensing.”*

[I1, 70]

*“You know, kids love to learn... Children should be exposed to nature because it close to them, okay, and then it is like hmmm.... what they call it, it is easy to teach them because it is already existed ...”*

[I2, 58]

### **3.2.6 The implementation could be done interdisciplinary**

The teachers were asked to explain how they integrate nature-related activities into the current preschool curriculum standards (KSPK). Teacher indicated a belief that nature-related activities do not necessarily to be conducted in Science or subject which relates to environmental education only. The process of integrating nature-related activities can be done in other subjects like Mathematics too where children learn through play with the nature objects such as learning concept of numbers or counting numbers. One teacher pointed out the following:

*“As for me, I don’t think nature elements are meant purposely to be talked, discussed and used in Science subject only, but we can use nature in Mathematics, such as we collect pebbles and bring inside into classroom and learn Mathematics.”*

[I1, 168]

### **3.2.7 Involves creative teaching**

Additionally, teachers indicated a belief that while adhering to the curriculum standard or modules, teachers need to be creative with the approach. One teacher (I1) shared that as for her:

*“...of course, we should focus on the standard, but we should be diversified in our teaching at the same time. When we teach Science and photosynthesis process in classroom, do not only focus on the process, we can also combine the exploration of flower petals, how many are they, start from basic to more advanced stage.”*

[I1, 168]

Furthermore, another teacher (I2) asserted that:

*“...teachers should be creative with the environment, for instances, if you want to teach them about Science or about Mathematics, just be creative with the nature. And at the end, what they call it, nature do helps children to understand well. Ha, based on what I mentioned to you, the texture and colours...because if not, the teacher needs to create, for instance the teacher needs to create the colour, teacher needs to create okay circle shape, they have to trace them on paper. Nature is already there, you just explain right, you just let them to touch or let them to see.”*

[I2, 58]

She further suggested the following:

*“...for me, it is very easy, no need for you to learn through book, because maybe teachers don't have time, I think maybe they should be exposed to how British people did to their children. Even if you watch television program like CBeebies, they even teach nature, they go to playground, and learn about pet and me...how to clean the pet, how to touch him properly, and even they teach about you know you using the environment and but at the same time it is outside...”*

[I2, 62]

### **3.2.8 Is contested by reluctant parents**

Teacher explained that most of teachers nowadays did not bring children for learning outside the classroom and into the natural environment because they worry that parents might not allow their children to play in the dirt. The best example of what teacher (I2) shared in this regard was of:

*“...of course, they (teachers) will not do because parents will say this, “I don't want my kids play with the dirt.” That is how the parents nowadays. But, when children get scratch, they will know that, next time, I should not run, like that right, or perhaps I will remember of this kind of situation, children will remember, and they enjoy the moment. It is not like they are climbing the trees and then they will fall, no, we are allowing that kind of thing, at preschool we just do simple thing, like collecting pebbles.”*

[I2, 64]

The teacher also further mentioned the health benefits provided by outdoor nature. As I2 described:

*“...and children, when they exposed to nature, their antibody develop much better as compared to children without an exposure to it.”*

[I2, 98]

To cope with the situation and to make it works, the teacher suggested that:

*“I think early childhood education need to encourage more cooperation between teachers, parents and the management to do the training and the exposure for the teacher. For the parents, actually they should be given like a conference or maybe ways that they can play together or to let to see the children; how they play with the nature, so that they didn't have very sceptical minded like, such as I don't allow my daughter to play with the dirt, I don't think so it is hygiene, it got worms.”*

[I2, 66]

## **4. DISCUSSIONS**

The aims of this study are to explore nature-related activities for children at preschool nowadays and to examine to what extent preschool teachers understand about nature-related activities for children. Interestingly, the findings show that both teachers perceived themselves as intentionally supporting nature-related activities for children at

their preschools and describe a wide variety of related activities, perceived benefits as well as challenges in implementing them.

In this current study, the teachers noted that having learning activities in nature environments supported children's learning in terms of providing more precise and longer-lasting knowledge about nature to children. Learning in classroom alone would not be enough for all-round development of a child, thus the learning outside the classroom is essential and would give young children an opportunity to explore different things. A place has special meanings and attributes and is a centre for intentions and actions (Änggård, 2017). School environments can be regarded as the "third teacher", besides teachers and peers (Pirchio & Passiatore, 2019). This concept of the environment as a participant in the educational experience opens the possibility for students to participate in the environment with their peers and respond to careful decisions made by the teachers to support student engagement. As of today, learning is still confined to the traditional four-walled classroom setting; however, integrating regular classroom learning with informal setting that is outside of classrooms lessons would significantly enhance student's motivation for the learning (Soh & Meerah, 2013). This perspective is supported by Mygind (2007) who emphasizes that "learning outside of classroom should not replace the classroom setting but should complement each other as both learning contexts are essential for children's needs."

However, the findings revealed teacher were on the opinion that they did not organise nature-related activities especially in the outdoors considering the fear of parents would not let their children to be injured or dirty as the main factor hampering the organization this kind of activity. The teacher also thought parent have sceptical minds on play in nature like they worry about the kids falling or getting messy with dirt and germs while having fun. Risky play is part of children's play which they love and often go after to challenge their skills and experience the thrills. As mentioned by Sandseter & Kennair (2011), the focus of risks in this type of play is primarily on thrilling and exhilarating forms of play that involve a calculated acceptable risk of physical injury. The risks should be understood as a 'benefit' and at the same time as 'risky' for the child. Outdoors, around home or early childhood education settings provides endless possibilities for risky-play to take place. Each of these settings offer different opportunities, levels and affordances for risky play. A quasi-experimental study conducted by Fjørtoft (2004) has noted the importance of environment in affording opportunities for children to take risks in their play. Different types of environments would allow for different types of challenges and risk taking, or affordances (Fjørtoft, 2004). Fjørtoft (2004) found that children engaged in several types of play activities such as functional play, symbolic play and construction play depending on different types of landscape features and natural elements around them. In a recent study by Norðdahl and Einarsdóttir, (2015) to explore children's views and preferences regarding their outdoor environment, the study discovered that children wanted to challenge themselves and at the same time want to be secure, explore things, be in contact with others, find or create nests and enjoy beautiful things outdoor. The children appreciated the natural environment and enjoyed the variety of playground equipment. The children in the study also shared their view and requested for adults to "secure their safety in risky circumstances in the outdoor environment," which "indicates the importance of finding a balance between allowing and encouraging children to try out new things and take risks, and at the same time ensuring their safety" (Norðdahl & Einarsdóttir, 2015, p. 15). This study is in consistent with the findings from previous research done by Sandseter's (2007) categories of risky play and the children's need to take risks. In his observations in two Norwegian preschools, there are six categories of risky play: play with great heights, play with high speed, play with harmful tools, play near dangerous elements, rough-and-tumble play and play where children can get lost (Sandseter, 2007). Overall, there are positive effects of risky play in the outdoor especially in terms of assisting children to develop risk-taking skills and the ability to cope to the situations.

This current study also acknowledged that nature-related activities support children's socio-emotional development. In this current study, children were described by their teachers to be excited, became inquisitive and look forward for this type of activity. The wild places occupy the unique and novel qualities which encourage exploration and offer surprise and wonderment (Bixler, Floyd & Hammit, 2002). Rachel Carson (1956), the author of *The Sense of Wonder* beautifully wrote that "A child's world is fresh and new and beautiful, full of wonder and excitement." Children explore the world around them with an awe, inquisitive and wide-eyes to enquire, connect and construct meaning from every new experience that they sensed. Children make sense of what they see, feel and experience in the world around them by using their senses, minds and body (Tovey, 2007). Natural environment and surroundings within early childhood education institution afford a natural setting that could be used for learning activities besides a normal classroom as they allow children to experience the real, rich and wider learning opportunities with their own senses.

Creative and natural objects are often found in the outdoor nature. For example, leaves in different colours and shapes, stones, animal eggs are in nature. According to Louv (2008), the nature that drives all the senses has the feature of being the richest of loose parts. Theory of loose parts introduced by Simon Nicholson (1972) refers



loose parts to basically any loose, concrete materials and found objects that children can move or exploit during exploration and play (Smith-Gilman, 2018). These objects are manageable, open-ended and can be combined to any learning environment for children to adapt and to turn to anything where their creativity allows (Gençer & Avci, 2017; Daly & Beloglovksy, 2015). Children tend to be passive participants with structured materials (Gençer & Avci, 2017), however, when they get the chance to meet loose parts, they use their creativity and imagination in endless variety. Findings from current study found that children had the opportunity to make vegetable printing by using vegetable. Through this activity, children not only practiced small muscles in the hand, wrist and fingers to hold the object, dip it in paint and print with it on paper, but also, they learned that each object has its own unique quality that each thing makes its own print. In this regard, nature in the form of loose parts can be brought into classroom to be used by children and teachers in creative arts activities too.

More foundational than this, loose parts also provide opportunities for children to enhance their creativity, collaborative behaviours, and cognitive functioning (Maxwell, Mitchell & Evans, 2008). The research literature supports that children prefer playing with natural elements available as they provide countless discovery opportunities, enabling them to move about creatively, use them in hands-on construction projects, and incorporate them into various dramatic, imaginative and cognitive play activities (Wilson, 2008; Zamani, 2015). Part of nature loose parts like leaves, rocks, trees, small caves and branches is exploratory and open-ended, they can be used as dramatic and pretend play props. For example, in a study conducted by Kaarby (2005) in Norwegian kindergarten, the *Friluftsbarnehager*, children were described to have participated in role play by using nature environments and elements in the forest. Nature environment turned out to be a stage scene and nature elements were used to be their props. Female children performed more in homey-type roles play with a mother, children as well as pet animals' characters whereas, male children role-played in masculine roles like pirates, spaceship workers, car drivers, Robin Hood and Harry Potter. Interestingly, natural elements have been used in different ways for example the trees and shrubs have been transformed into houses, cars, garages, spaceship and palaces whereas the stepping-stones were turned as a door for a house (Kaarby, 2005).

As far as learning with young children is concerned, Project Approach is one of teaching methods that can be adopted to give children the opportunity to use their senses, to explore and investigate. It is a teaching and learning strategy that engages learners in multiples activities which requires more than one class period and sometimes can be up to a month or longer (Rahman, Yasin & Yassin, 2012). Professor Lilian Katz (1994) states that: "A project is an in-depth investigation of a topic worth learning more about. The investigation is usually undertaken by a small group of children within a class, sometimes by a whole class, and occasionally by an individual child. The key feature of a project is that it is a research effort deliberately focused on findings answer about a topic posed either by the children, the teacher, or the teacher working with the children (Katz, 1994, p.1 as cited in Helm & Katz, 2016)." Projects can be generated from whatever thing that can be researched and the subjects to be studied usually rely on children's interests. Thus, it can incite children intrinsic benefits (Rahman, Yasin & Yassin, 2012). In a kindergarten in Perak, a group of researchers observed a Project Approach participated by children aged five years old in investigating the concepts about butterflies (Mohd Yusop, Abdul Rahman & Md Yassin, 2018). Throughout this project, children learned about structure, eating habits, life cycle, and camouflage of butterfly. They also involved in various activities such as discussion, investigation, field study at butterfly park, knowledge representation and exhibition regarding all learning activities. This single-case study was completed in 5 months and the researchers followed the three phases of the Project and examined them carefully through interview, observation and document analysis. The study concluded that Project Approach was one of learning approaches that give opportunities to children to initiate their learning process based on their interest and inquiry. Besides that, children also had the opportunity to use real resources and material to ensure their investigation can be accomplished successfully (Mohd Yusop, Abdul Rahman & Md Yassin, 2018).

Nature Walk is another learning approach where children are provided with the opportunity to use all five senses and investigate the outdoor elements and environments. Nature Walk activity which was one of the phases in children's Project Approach was studied by a group of researchers from Universiti Pendidikan Sultan Idris (UPSI). Nature Walk activity participated by a group of children (aged 3 years old) at one childcare centre was observed to see how children explore their environment and build knowledge on the subject in their daily lives (Abdul Rahman, Md Yassin, Yusop & Ashikin, 2016). Findings revealed that children engaged in active interaction with their peers during exploration of plants outside of the classroom. Monitored and facilitated by teacher, children also involved in questions and answer session with their teacher about the plant they saw in the garden. During this time, teachers provoked children with questions to stimulate their thinking on the observed plant. The study acknowledged that in this type of activity, the role of educators is important as a facilitator in providing resources and material for children's exploration of their topics of interest (Abdul Rahman, Md Yassin, Yusop & Ashikin, 2016).

Findings also reported that children engaged in active conversations with their teacher in nature-related activities. For example, children debated about the studied elements; (i.e. the different colours of leaves between green and brown and different texture of leaves for instance between shiny and green). The findings from current study is in line with the work done by White (2004) which support that natural environments encourage social interaction between children. In a more recent study to demonstrate how natural environments influence human communication, a novel experimental was conducted unto 18 parent-child pairs (parents and 3 to 4-year-old children) at Bute Park and Arboretum in Cardiff, Wales, United Kingdom (Cameron-Faulkner, Melville & Gattis, 2018). Their study reveals that parent-child communication is more responsive and connected in a natural environment compared to an indoor environment. The study found that the children in the study were significantly more talkative in the natural environment. Additionally, the parent-child interactions were reported to be longer (i.e. more connected) and levels of responsiveness were higher for both parents and children in the natural environment. Although the study was conducted between parent-child interaction, but it gives promising insights into the influence of natural environments on social interactions between human beings especially by increasing responsive and connected communicative behaviour. In a broader picture, social interactions in the outdoors are important in the creation of an environmental identity and consciousness (Parsons, 2011).

From biophilia hypothesis (Wilson, 1984), humans have an innate affinity for every living thing. If individuals feel connected to nature and appreciate its values, they may be more inclined to care and behave in responsible manner in their environment (Braun & Dierkes, 2017). Therefore, in this regard, educational programmes at preschools that helps children to develop positive attitudes and connection towards the nature which includes small animals, plants, earth elements, and the ecosystem a whole is extremely crucial. This is because early experiences children have while spending time in nature, gardening, conserving habitat, observing birds, counting plants, walking on trails, visiting parks, and playing with muds create lasting connections and nurture children a path to protect the world around them.

Based on the findings, the teachers viewed nature-related activities as an opportunity to organize daily or weekly educational activities for different learning experience for children, however they did not emphasize the broader influence of nature-related activities on the aspects of environmental conservation and global sustainability. The reason for this could be the current implementations of nature-related activities at preschool itself did not intense enough to allow principles of environmental stewardship and sustainable development to leave deep imprints on children. Numerous publications have appeared in recent years documenting on collaborations between schools and non-governmental organisations to organise educational programme which relates children and nature (Ogelman, 2012; Gambino, Davis & Rowntree; 2009; KEMAS Annual Report, 2011). In Turkey, the Schools of Nature and Science from Scientific and Technological Council of Turkey (TUBITAK) has introduced a soil educational project for preschool children, aged 5 to 6 years old namely *Learning about Soil with Tiptop and His Friends*. It was an outdoor environmental project which aims to create an environmental awareness and sensitivity especially on the concept of soil and its conservation procedures among children. The project was conducted unto two nursery classes at two primary schools under Ministry of National Education in Denizli, Turkey between November and December 2009. Post-experimental findings discovered there was a statistically significant improvement in soil-related knowledge scores (characteristics of soil, its benefits, living materials in and on the soil, their uses, soil care and soil erosion) among children in experimental groups as compared to those who were in the control group (Ogelman, 2012).

Another study led by Gambino, Davis and Rowntree in 2009 was through field trip to Bunyaville Environmental Education Centre in Queensland, Australia. The centre is a home for *Connect with Nature* program, a nature inspired educational activities at parks and forests across Queensland which aims to explore the benefits of children' real involvement in nature. For this purpose, 21 children between 4 to 5-year olds in the preparatory (Prep) year from three schools in Queensland, Australia attended a structured half-day field trip in a Bunyaville Easter Bilby Adventure program. Upon the completion of this program, children were described to have learned new knowledge of native animals particularly the bilbies and understood about the threats to them. Findings also reported participants expressed a change in their attitudes such as greater fondness, concern and caring for bilbies. At the same time, children also came out with a list of activities in native animal conservation as their strategies for bilby protections comprising dialogue, fund-raising as contribution to conservation efforts and constructing special burrows for them.

Garden-based learning offers students the opportunity to learn in integrated framework, inter and cross disciplines through active, engaging, real-world and hands-on experiences in an informal learning context. In Malaysia, under Supplementary Food Programme activities in childcare centre and KEMAS preschools for example, a special program known as *Program Kebun Dapur*, or Kitchen Garden Programme has been introduced in 2011 (KEMAS Annual Report, 2011). In this Kitchen Garden Programme, preschool's communities, including teacher, assistant

teacher, parents and children work together to start their edible kitchen garden. The garden contains flowers and food-producing plants such as fruits, vegetables (curry leaves, ginger, pandan, turmeric, lemongrass), herbs, seeds and plant that they can eat. As of September 2011, 75% KEMAS preschools and 84% childcare centre under KEMAS had taken part in the kitchen garden activities (KEMAS Annual Report, 2011). Other than preschool communities harvesting and eating their own crops, this program also aims to reduce the reliance on the commercial food system, saves both time and cost, to foster a loving generation of nature, practice the 3R concept (re-use, reduce, recycle) as well as to be used as resources and setting for children's teaching and learning. However, to date, little investigation has been done in this context especially in Malaysian preschools in terms of the incorporation and contributions of the Kitchen Garden programme into teaching and learning activities for children. As a result, there is a scarcity of valuable information.

## 5. CONCLUSION

As a part of a larger study, this study has identified three major categories of children's experience with nature at two private preschools in Malaysia and attained the understandings of preschool teachers regarding the subject matter. The results showed that children within these preschools are exposed to few nature activities either inside or outside the classroom. Though there is a strong endorsement by preschool teachers of the importance of nature-related activities for children learning and development at preschool, the findings of the study showed preschool teachers did not organise nature-related activities regularly. Apparently, preschool teachers raised concerns on the implementation of such activities. For example, it needed creative teaching approach and could be implemented interdisciplinary as well as it might be contended by parents.

This study contributes to a small yet growing body of knowledge regarding the present-day implementation of nature-related activities with young children at preschools in Malaysia to educators, parents, academic researchers and early childhood education personnel. The researchers are in the view that the findings will be useful for the Malaysian National Preschool Curriculum Standard or Kurikulum Standard Prasekolah Kebangsaan (KSPK) since the nature-related activities could become an approach for teaching and learning process through Elemen Merentas Kurikulum (EMK), or Cross Curriculum Element especially in the aspects of Environmental Conservation (*Kelestarian Alam Sekitar*), ethical and moral values (*Nilai Murni*), Science and technology and Global Sustainability (*Kelestarian Global*) (National Preschool Curriculum Standard and Revised Assessment, 2016). Furthermore, while the study focused on two preschool teachers from two private preschools and therefore cannot be generalised to all preschool or early childhood education centres, it does demonstrate the importance of early nature exposure and education "with, by, in and about" nature for young children. Future study can be conducted in the same area by looking at the implementation at other type of preschools throughout Malaysia, increasing the number or samples and/or incorporating different methods of data collection.

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