
DRAWINGS AS CHILDREN'S VOICE IN STUDIES OF CHILDREN'S LEARNING BEYOND CLASSROOM

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Abstract

Children learn to engage with nature when they have access to play various kind of outdoor activities. This enhances the growth for their development, which has a significant impact on children's quality of life. Through children's drawing the possibility to express their moods, feeling and idea on aesthetic sense has little attention. Hence this study to explore the character of the development pattern of children's expressive drawings especially in shapes, according to their age, as well as portraying awareness in the natural environment that focuses on the farming activities. Through a participatory approach, this research was conducted in a rural setting in Laman Tamara, Kuala Pilah, Negeri Sembilan, Malaysia. The study examined on 20 middle childhood children, aged 7 to 12, from an urban school. As part of the farming programme, the children need to identify the landscape elements surround them before they interpret into their drawings. Their responses were analyzed through two analytical perspectives which based on inductive content analysis. Data were recorded in Microsoft Office Excel 2013 for further analysis. The study found that children have the abilities and skills of remembering on the physical characteristics through their intellectual realism which they transformed into its drawing shapes. Through drawings, children also showed their awareness and appreciation of nature as they were experimenting the real-life education that found in their surroundings. Therefore, children's expression through drawing leads to the betterment of their knowledge and their experience that can extend the child-friendly outdoor learning to be more fun and joyful.

Key words: Children's Drawing, Farming, Content Analysis, Intellectual Realism, Outdoor Learning

INTRODUCTION

Children spent most of their waking hours at home and in school every day where they can play outdoors and learn from nature. The outdoor settings allow children to participate in play environment freely. Interacting with plants and insects outside is found to be fundamental to children's health and well-being. According to Yildırım and Akamca (2017) the outdoor learning activities contribute to cognitive, linguistic, motor and social development to children through indirect experiences. In fact, Mustapa (2018) found that indirect experiences with nature influenced children physical and social factors in the way of children connectedness to nature. There is much evidence that being in natural environments

or participate with elements of nature promotes recovery from stress (Shibata and Suzuki, 2004). Nonetheless, the effect of children's interaction with nature associated with unstructured play. How this interaction with nature can be explored during play, One example is from children's drawing. Therefore, this study to explore the character of the development pattern of children's expressive drawings by adding basic knowledge on geometry form, which associates with farming activities. For example, creating beds and paths or planter boxes for which children learn about familiar basic shapes in a fun way. As mentioned by Anim, (2012) children can use many symbols to create meaning and to represent reality within the medium of drawing.

Effectiveness of Outdoor Learning

The topic of children's outdoor learning has been surveyed in different ways by researchers with different theoretical, interest and approaches (Fiennes *et al.*, 2015; Chawla, 2015). Through outdoor learning, the children involved in activities which help them to gain awareness and respect for their environment (NICE, 2008).

Learning and Teaching Scotland, (2011) defines that any form of learning which takes place outdoors can consider as outdoor learning. Being in outdoor help children to make contact with nature. Children learned best when their activities involved with nature where they able to move freely and independently. It happened when they used their body's structures to maneuver around the environment. Known as proprioception which means the ability to hold the body upright and a steady without falling (Gehris *et al.*, 2015). For children to engage in the outdoor learning experiences creates awareness towards the importance of greenness and the invisible of environmental issues (Kubota *et al.*, 2013). As children physically have direct interaction with natural materials, it means that their outdoor learning has given an impact as changes in thinking, feeling and behavior resulting directly or indirectly from what they have experience. In other words, it is all about rewilding to be part of nature.

Dillon *et al.* (2005) defines the outcomes of outdoor as learning environments changes in thinking, feeling and behavior resulting directly or indirectly from outdoor education. Therefore, outdoor learning environment contributes significantly to the personal, social and emotional developments and to prepare for the next future of their lives. From the outcomes, this study identifies three impacts that relate to research aim 1) environmental knowledge, 2) cognitive competency, and 3) motor skill development. Recently, research has shown that the amount of time and experiences children engage with nature is declining. Thus knowledge of the environment is getting lesser. Secondly, cognitive impacts concerning knowledge limited within the house or school. And thirdly, children have less opportunity for physical activity each day due to excessive on new technology (on gadget play). However, nature is important to early childhood development that affords children to directly with nature that make a significant contribution to children's connectedness to nature (Collado and Corraliza, 2015). In other words, natural environment provides many affordances that further contribute to children's cognitive, physical and social development (Hussein, 2015; Said and Abu Bakar, 2012; Yatiman *et al.*, 2013). Children are given opportunities to develop their creativities when

they begin to gain confidence in their ability to find and explore new affordances (Gurholt and Sanderud, 2016). Therefore, children should be accustomed learn freely about nature for them to develop to be closer to nature and surroundings (Oloumi *et al.*, 2012). Prior to the work of Gill (2011), he mentioned that when children were spending their time in nature is part having a healthy balanced diet that promotes children's healthy lifestyle. Thus, it agreed that by having experience in nature, children would be more knowledgeable that improve in scientific learning.

Farming refers to agricultural activities either in the urban or rural area for which agriculture-base country like Malaysia, have made the introduction and acceptance of food, nutrition, and agriculture into the school curriculum as part of educational packages (Economic Planning Unit, 2015). Therefore an appropriate curriculum in food and agriculture must be based on science learning, and the introduction must introduce primary and secondary school level. Recently school garden programs pair with classroom syllabus which some part of outdoor activities may promote academic achievement. From the 2000s onward programme of school, gardening has widely known as Science Learning which becomes part of the school syllabus, in an environmental education program.

Blair (2010) found that children build relationships with landscape areas by having direct, hands-on interaction with vegetation during play and participation, which demands repeated access, the possibility of being creative, and adaptation to the preferences of children of different ages. In a study on theory of affordances by the number of researchers (Fjørtoft, 2004; Heft, 1988; Kyttä, 2002; Sandseter, 2009) mentioned that an affordances exists in the relationship between children with their play environment. Therefore, when children get to involve with the farming setting, they deal with forms and shapes as a form of learning as well as playing.

Children's Drawing and Nature

There are many possible approaches to the study of children drawings that relate to cognitive which expressing their thoughts and feelings. According to Oğuz (2010), children can draw variety type of pictures based on their developmental levels using their curiosity which needs to support regarding their interests and creativity. Children can interpret their moods through drawings. For example, their desires, happiness, and anxieties. Thus, the picture becomes a past time and narrative technique (Matthew 1992), which reflects their physical action performance by internal and external factors. Bodrova and Leong,

(2015), mentioned that Vygotsky's views on play as a 'transitional stage' from action to visual, which also known as child's pictorial expression. It means children feel enthusiastic when they know that the outdoor environments do offer exciting features. For instance, landform, vegetation, river, and the animal can be reflected in children drawing. For these views, its indicate that children will be able to recognize, differentiate, disclose and make a comparison on what they have encountered in nature and become educational drawings. Part of the activities relates to science learning are concerned with nature such as planting trees, plants, flowers, record the growth, plants breeding, and home farming.

In this paper, the setting mainly supports children's explorative behaviors that are important for the development and creativity. Accordingly, children define and discover themselves through the objects that they found in their surroundings and starts trigger their mind and expressed into the drawings (Labintah and Shinozaki, 2014). In parallel to the understanding of the engagement with different level of affordances, hoped that children could share their knowledge ideas and experience through sensorial and physical approaches as the preferred learning interpretations.

RESEARCH METHOD

Study Setting

The chosen study context was located in the rural area in Laman Tamara, Kuala Pilah, Negeri Sembilan, Malaysia, due to a natural characteristic. The land is located in the rural area, of which its greenery and close-knit community typify the Malay rural landscape. Laman Tamara has its courtyard with an enormous open space in front and back with the scale of the greenery that can access to the natural material (refer Figure 1).



Figure 1. Site Condition which Surrounded by Elements of Nature

Participants

The participants consisted of 20 middle childhood children, aged 6 - 12, were recruited from an urban school in Kuala Lumpur, Malaysia. And these children hardly had a chance to involve in play and learn with nature due to space constraints. The data collection process divided into three phases. The first phase, the children were asked to explore the surroundings of the house just to identify the existence nature elements such as stones, plants, water bodies, hardscape elements and animals. These allowed children's to work individually or in groups which they choose what they wanted to do. In other words, through the children exploratory within the house compound, children with natural elements such as trees, fish pond, leaf pile, logs, and plants, they deal with any lines, shape, form, and color which found in nature. According to Di and Bo (2010), imitations of biomorphic forms from nature are the most popular design methods, which some familiar shapes of biomorphic have tested into few product designs. And for the children, a form's can only be recognized when they have the connection with the outdoor environment that intertwined in both exploratory and performatory (Yusuf, 2016; Adolph and S. Kretch, 2015; Aziz, 2014;). In other words , these will get them to inspire of life experiences as well as learning about the natural environment.

In Phase 2, before the children get started to draw, an introduction of the fundamental on geometric shapes has been introduced to them. Understanding the fundamental, it will enable children to express their imagination through drawings using their expressive own viewpoints, images stories. Innitately, the researcher had divided into 3 groups which each accompanied by the reseach assistant. In total, 20 children participated for the drawing activity. Sampled from the following groups: 6-, 7-, 9-, 10-, 11-, and 12-years. Finally, in Phase 3, we accessed the children's drawing base on their understanding on the basic shapes. A total of 20 pieces drawings were analysed using analytical perspectives of interpreting their drawings (see Figure 2). The task was conducted indoor without the involvement of research assistant. This were to make the children feel more comfortable in expressing their creativity and memorizing what they have experienced in outdoor. Stationery set consist of colored pencils and A4 paper were given to them (see Figure 2).



Figure 2. Drawing Activity by the Children

RESULTS AND DISCUSSION

The drawings served as starting points for the children to express their natural emotion in which can be real, imaginary or forms of characters. The drawings were analyzed for the frequency of shapes appeared in the sketch, and only significant shapes were highlight in Table 1.

Analysis of children’s drawings indicated that the 6-year children showed a great interest to draw more on square shapes. These were referring to 2D illustration as it has more converging lines which usually lead to ‘vanishing point.’ For example, an image of a house, swimming pool, cars, greenhouse (Figure 3 (a) and (b)).



Figure 3. (a) A 6-year girl stated that she designed the house with varieties of colors, and she imagined

that she lives in a castle, (b) A 6-year boy living in an urban with high rise building, saying that there is nothing for him to appreciate due to living at high rise building. For him living there is like living in the concrete jungle.

The other strategy of asking children to draw is when they are all in happy mode. The pictures below (Figure 4 (a)), tell the ability in identifying the character of shapes. For example, this girl aged of 7 describes that she wanted to redesign the whole area, and what she did was to draw vertically, she then decided to draw the house as main subject followed by another hardscape. When the researcher asked her why she drew horizontally, her answered was, she needs bigger space to play and doing farming. Her favorite shape was a square which she described all sides are the same length, and it exists as a mirror image.

The other drawing from a boy aged 9 (Figure 4 (b)) shows that he identified and manipulable shapes into a house plan. In the drawing, he allocates for open space. He described his drawing as walking in the botanic park. The boy also drew few houses in a mushroom shape, and other houses were the typical shapes. For fishing activity, can be seen at the back of the house.



Figure 4. (a) A 7-year girl and (b) a 9-year boy drawings showing the use of form and shapes that gave more comprehensives the elements of design.

For this study, each child was asked to draw the basic elements that they engaged in the farming subjects where the entirely psychological and physical activities were combined. When the children aged increase, each of the single geometric symbols repeatedly appeared in a single drawing which there are many hidden meanings behind it.

The results focused on types of basic shapes that based on what they have encountered during

their observation during their play with nature, which offer various of affordance. For example, plants, pond, pile of leaves, tree barks, timber logs and twigs to be found within that house compound. The drawings were individually drawn by the children aged 6-12 years.

As shown in Table 1, the result indicates that from the 20 drawings, the numbers of the children who drew more on geometric shapes are among children aged between 6-9 years. Highest percentage that more identify and distinguish were the shapes of a circle (89%) and followed by 9 years (11%) which indicates that children at this age identify circles as an easier object for them to draw. Sometimes they spotted circles as an ellipse. For this reason, the objects that resemble a circle that to be found on site were tree canopy, pond, from the car tires and potted plants. For the farming object, the children placed the water hose shapes inside a hoop to resemble a circle.

Second, highest percentage to be seen as the favorite shape was the triangle, where children at aged of 6 year (63%), 9 year (25%) and 7 year (8%) identify it as more accurate shape. At this point, children are likely to accept triangle form with no curved sides as it resembles the shape of the house roof. They were the first impression when they entered the house compound by looking at the shape of the house. These were because they have been taught by their teacher in school, from the image that they copied from books or drawn by the teacher. Another counterexample, the children will try to manipulate the triangle shape to combine with a rectangle shape that will refer to a house.

The third basic shape that obtained from children of aged 6 years (62%), 9 years (30%) and 7 years (7%) was a square. The children identified the square like real life objects were able to recognize in different images and sizes. For example, elements that found at Laman Tamara such as a shape of a car, house and swimming pool were placed as an existing element that featured in different sizes. Therefore children choose to draw the outdoor elements based on their schemata. It was believed that children's cognitive development begins with a recognition of nearby and familiar spaces (Kellert and Kahn, 2002). To children, when they do the exploration through different four different levels: actions, symbolic representation; functional dependency; and thought, it shows that they are making a connection with nature (Deguara and Nutbrown, 2018). In other words, occasionally on the drawings turns to be lack of detail, but most of these drawings representing the visual form.

According to Table 1, the percentage of children between aged of 6 - 9 years who drew

freeform showed that children at aged 6 years (60%) are the highest among 7 (13%) and 9 (7%) years children. Children identified the freeform as making marks on a paper. For example, freeform can be viewed as clouds, a manmade pond, fishes and water ripples. As the children learn how to control the lines, the images can be viewed as repetition. The lines at first were meaningless at the at the early stage but turn into meaningful pictures in time. Children learned best when they were able to discover new things outdoor by themselves. The shape of rectangle to be seen as the lowest percentage which for 6 years (33%), followed by 7 years (27%) and 9 years (11%). Children associated with image of retangle to be a four sided figure with with 2 long parallel sides and close the 'square corners'. Throughout the process of drawing the retangle, children start to add details so that become more realistic. For example, shape of the swimming pool, car, house, apartment and green house became their favorite images.

The results indicated that children develop an intellectual realism which they stored as many of the essential shapes and to represent each in its characteristic shape, which means the children eager to draw in details.

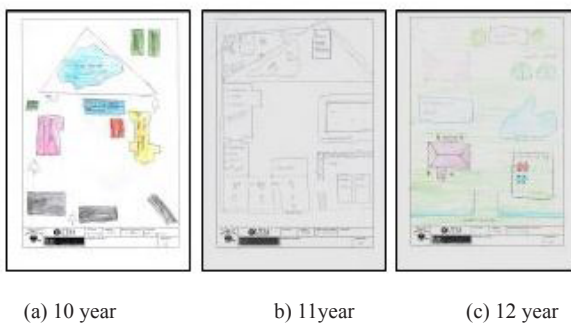
Table 1. Number and Percentage of Children Responses to Basic Shapes

Age/ Shapes	6 (n=9)	7 (n=4)	9 (n=4)	10 (n=1)	11 (n=1)	12 (n=1)
Circle	89%	0%	11%	0%	0%	0%
Square	62%	7%	30%	1%	0%	1%
Triangle	63%	8%	25%	4%	0%	0%
Rectangle	33%	27%	11%	10%	11%	8%
Freeform	60%	13%	7%	2%	12%	6%

As shown from Table 2, overall for aged 10 -12 years, score for freeform is the highest for aged of 11 years (12%) but yet still considered to be lower among the aged group of 6 – 9 years. Based on the percentage, the result shows that children at aged group 10 - 12 years draw lesser on the variousness of the geometric shapes in the drawings. For each of the shape, children were likely to repeat in a single drawing which there are many hidden meanings behind it. For instance, single drawing can be dramatic which children have a different level of thinking about shapes. In completing the task, the researcher realized there was a repetition shape occurred in the drawing. For this reason, this aged group able to copy and sorting the shapes precisely so that it can understand by others on what they tried to deliver (Matsaridou, 2015). See Figure 5.

Table 2. Percentage of Children Responses on Basic Shapes, aged 10 -12 years

Age	Shape	Percentage
11 year	Freeform	12%
11 year	Rectangle	11%
10 year	Rectangle	10%
12 year	Rectangle	8%
12 year	Freeform	6%
10 year	Triangle	4%
10 year	Square	1%
12 year	Square	1%

**Figure 5:** Drawings from three different aged group, (10-12) years for identification on geometric shapes.

This research found that children were fascinated to complete their drawing, but yet keen to do it quickly as possible as they were eager to play in outdoor again. Therefore, the arrangement of all shapes in the drawing is all in order which they attempt to arrange in relation to one another. In other words, their way of cognitive, logical thinking did express their visual through exploratory of the outdoor space's which affect children's perceptions (Shawket, 2016). The research findings agree with the finding from Kytta, (2003) mentioned that, to understand how children think, are by looking how the children learn what things are manipulable and how they manipulated. It seems clear that children defined the geometric shapes from their visual during their outdoor experienced and communicated through drawings.

CONCLUSION

The study concludes that children's often surprised about shapes when they get connected with nature. It is found that when children draw they construct and convey range on meaning. In this research, it is related to the understanding of basic shapes found in the outdoor environment. By learning outside classroom, children also show their

emotional indicators in which of each drawings children incorporate their perceptions based on what they have experienced. The progression in children drawing shows significant growth and development throughout their critical thinking process. Hence, this would educate children's way of thinking that should be applied starting from early aged. Therefore it should be a starting point for play with geometric shapes through learning beyond the classroom in which encouraged children to think broader in a way that children able to communicate the contents of their drawings as a visual meaning making.

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