

EVALUATING THE AFFORDANCES OF FISHING VILLAGE PERTAINING TO CHILDREN'S FUNCTIONING

Ismail Said

Department of Landscape Architecture, Faculty of Built Environment, Universiti Teknologi Malaysia, 81310, Sekudai, Johor, Malaysia. b-ismail@utm.my

ABSTRACT: *This study presents an evaluation on the affordances of fishing village pertaining to the behaviours of children. It analysed the physical properties of the natural landscape and architecture of the village and social attributes which influenced the routine behaviours of the village children. Seventy-six children, aged 2-12, from a fishing village in Sabah, Malaysia were observed. Data of their behavioural responses, movements and words, toward the landscape and architecture of the village. The former were elicited from participatory observation and the latter were gathered from open-ended interview. The data was analysed in three stages: (i) positive and negative affordances, (ii) taxonomy of affordances, and (iii) types of children's activities. The children experienced 78 positive affordances and only 2 negative ones. From the taxonomy, graspable objects and water offered the most positive affordances, 20 and 15, respectively. And, the largest percentage of activities (70%) was the performatory ones. The results suggest the children effectively perceived the fishing as a playspace which was sensorially rich and varied; affording them complex and diverse natural and man-made properties for social play and affection to the fishing village. This finding implicates that development of coastal community should consider the behavioural responses of the children in relation to their perception, physical movement and social interaction.*

Keywords: children interaction, fishing village, affordances, natural landscape, rural architecture

Introduction

There is a growing body of empirical research supporting that interaction with the physical and social environments contribute to the children's growth and development. The contribution can be seen in the improvement of three aspects of functioning, cognitive, physical and social (Kellert, 2002). Physical and visual contacts with the environmental features, either natural or man-made, stimulate the children's senses, and subsequently, provide feedbacks to the children (Wohlwill and Heft, 1987). The experience with the environmental features such as sand permits the children to recognize the scales, textures and structures of the environment (Christensen, 2003). For example, scooping sand with their hands allow children to sense the looseness and weight of the natural element. These are feedbacks that may trigger curiosity and fascination to the children. As such, the children may gain

satisfaction because they are positively affected by the cognitive (sensual) and physical (motoric) activities (Kytta, 2003) with the sand. Moreover, when the activities involve social play with peers, the children gain social skills including communication, sharing and acquaintanceship (Ladd, 1999). Ultimately, the children may value the sand as a worthy element to play. This evaluation is cognitive evidence of children functioning in natural environment (Kellert, 2002; Kahn, 2002). The cognition, affection and evaluation are known as phenomenal process (Hart, 1997). The process involves perception and movement of children in a physical space (Kytta, 2003). For example, Said (2006) posits that children perceive stream and river as playspaces that generate three aspects of functioning: cognitive, physical and social. Likewise, Fjortoft (2004) discovers that experience with a forest setting improve the gross-motor skills and growth development of kindergarten children.

Furthermore, phenomenal process in natural landscape helps children to create bonds with the place that they have experienced. Studies in environmental psychology and children cognitive development recognized the bonds as sense of place (Chawla, 1992), topophilia (Tuan, 1974), place identity (Proshansky and Fabian, 1987), place preference (Malinowski and Thurber, 1996), place attachment (Chawla, 1992), and favourite place (Korpela and Hartig, 1996). These bonds are progressive responses suggesting the places of experience affording the children with significant properties or social attributes to play. The bonds also means the place permits a child to consciously aware of his or her sensuous presence in the world (Christensen, 2003).

Literature on children's preference for outdoor spaces suggests that the value of a place is not determined by its appearance or aesthetic qualities, but by its potential for affording different activities (Fjortoft, 2004; Gibson, 1979; Whitehouse et al., 2001). In other words, the functional properties of a feature are affecting the perception of the children. Functional properties are affordances of the environment that are perceived through active detection of information (Kytta, 2002, 2003). Affordance of an environment is defined by the individual's qualities, such as children's physical skills or bodily proportions (Kytta, 2003). As such, an object that smaller than the hand-span of a child, for example, a twig, is perceived by the child to be graspable, that is, it affords grasping (Heft, 1999). The twig also affords the child to throw it away, to scratch the ground, to dig dirt, and so on. Thus the twig, as an environmental feature, has multiple functional properties understood by the child through experiencing the environment. The concept of affordance, therefore, is well suited for describing the psychologically essential qualities of children's environment (Kytta, 2002). Children take particular delight and continue to engage those affordances that give clear evidence of their efforts (Kytta, 2003). As such the affordances of a place are recognized when children encounter, traverse, construct and perceive the place (Christensen, 2003). These are the cognitive responses that shaped the behaviours and growth development of the children (Olds, 1989; McDevitt and Ormrod, 2002; Gallahue, 1993).

All levels of affordances involves perception and movement that the division between sensory and motoric activity disappears (Kytta, 2003). Inasmuch, Gibson (1979 p.223) notes "We must perceive to be able to move around, and we must move around to be able to perceive." "Such perception at its primary level is synaesthetic—

an affair of the whole body sensing and moving" (Christensen, 2003 pp. 16). In other words, a child recognizes the affordances of the place through perception and movement (Kytta, 2003). It seems clear that children's fascination to the physical elements involves sensory and motoric activities. Sensory activity is perception and motoric activity is movement that affords the children to make physical contacts with the natural elements. And, movement means play to children (Gallahue, 1993). Play involves perceiving the landscape elements and forces through the children's senses—sight, audio, touch, smell and taste. As such, play is an informal participation that permits the children to perceive plenty of information according to their own terms and control.

Categorization of Children Activities in the Outdoor Environment

Natural environment affords possibilities and challenges for children to explore their own abilities for playing and skill mastery (Fjortoft, 2004). Functioning of children can be observed and classified in three categories (Chawla and Heft, 2002):

1. Performatory activities are those actions directed toward objects or peers within the village setting for play. Children make use of the known properties of environmental features such as swimming in the sea, running on decks or footbridges, climbing poles, chasing peers, and playing local games with peers.
2. Exploratory activities are actions directed discovering new properties. The activities may include searching and collecting shellfish and fishing.
3. Productive activities are actions transforming the environmental features to new structures. Speculatively, the activities include making kites and mending torn nets.

Problem of the Study

Home setting is the place that children spend most of their time, either in play or rest. However, little is known about the fabric of children's everyday lives, that is, the physical activities and social interactions that form part of everyday experiences (Tudge and Hogan, 2005). Moreover, most of the studies concerning children relationship with built and natural environments were conducted in western setting for which the findings on children behaviours were most likely different from less developed community. As such, there is a lack of empirical research on the functioning of children in fishing community particularly in developing countries including Malaysia. Hence, the knowledge how the properties of the fishing village influence the children's behaviours and growth development is not known. Moreover, we do not know how children of fishing community interact with peers. That is, there is a lack of study examining the affordances, both physical and social, on the fishing village influencing children's functioning. Yet, the rural residential setting is a diverse and dynamic context where life of rural children is shaped. Its diversity and dynamism, perhaps, are in its architecture and natural elements and forces of the sea and climate. Since the architecture is self-built, its construction depends not only on the needs and social-cultural values of the residents, but directly related to the sea

and climatic forces—rain, tide, wind, temperature and sunlight. Understanding the relationship of the children with the natural and man-made elements and forces of the fishing village will give better insight how to plan, to improve or to conserve the place fit for children functioning.

Aims of the Study

This paper focuses on two issues related to children's play and functioning, namely, the value of the fishing village as playspace for children, and the ability of such landscapes to afford challenging and stimulating play environments for children. The objectives of are three folds, firstly, to examine the cognitive, physical and social functioning of children in coastal community, secondly, to evaluate the affordances of the architectural and natural elements and forces of the village concerning the functioning of young children, and thirdly, to evaluate the affordances of sociality among children in the coastal community. The specific questions dealt with here are:

1. What are the nature of children's interactions with the natural landscape and architecture of fishing village?
2. What are the elements of the natural landscape and architecture affording the children to interact?
3. How are affordances distributed within the categories of the affordance taxonomy developed by Heft (1988) and Kyttä (2003)?

Method

Following the review of children experiencing outdoor environment, the village is viewed as the context that influences the children's behaviours. That is, the village is the independent variable and the children are the dependent variable. Speculatively, the causal relationship means that natural and man-made elements of the village are affecting the children's functioning.

The Village

The study was conducted at a fishing village, Kampung Sri Aman Batu 3 ½ which was located six kilometres from Tawau town in the state of Sabah, Malaysia. With a population of 1100 of Bajau ethnic, the village comprised of 215 houses, a mosque, seven small provision shops, two boat workshops, and a jetty (Figure 1). The villagers were mostly fishermen whose livelihood depended on the Sulu Sea. The architecture was mostly made from timber and on stilts because most of the buildings were built on water. Hence, the influence of the tides and waves were much to life of the residents. The buildings were built closely together without standardised setbacks leaving spaces for sideyards, alleyways, decks and footbridges. These



Figure 1: A typical view of the fishing village, Kampung Sri Aman Batu 3 ½, during high tide

outdoor spaces were the places for the children to play. With a diurnal temperature range from 23⁰ to 33⁰C and warm sea, much of the children activities centred to the water, mudflats, beaches, decks, jetty and sideyards and frontyards of the houses.

The Children as Respondent

There were about 250 children, aged 2-12, in the village, and 67 of them were observed and interviewed randomly for the study. More than 60 percent of them attended school permitting them to be away from their homes for six to seven hours during the weekdays. Once they were back from the school, they readily played with their siblings or peers whom not attending the school. They spoke a mixture of the ethnic Bajau and Malay languages, in which the latter was widely spoken throughout Malaysia.

Behavioural Observation and Open-ended Interview and Analysis

Two types of behavioural data were gathered: overt and covert responses. The former was the locomotion of the children, that is, physical functioning of the children moving from one space or feature to another. Examples include running and walking on the deck, jumping into the water and rowing boat from one spot to another. Hence, the affordances of the deck were walk-on-able, run-on-able and jump-from-able. The latter was the words of the children heard or gathered during behavioural observation or interview. For example, when a child called a peer, "Come down and jump into the water" suggests the children are going to perform several activities which may include swimming, jumping and diving. Therefore, the water would afford swim-in-able, jump-into-able and dive-in-able.

On the onset, the research applied a phenomenological approach to elicit the overt and covert responses from the children. The approach explores and describes children experiences in their situated actions, that is, in the lifeworld of the children (Seamon, 2000). In other words, the approach seeks to grasp and elucidate the meaning, structure, and essence of the lived experience of a child phenomenon especially playing with peers (Patton, 2002). Two methods were used to gather the behavioural responses of the children: observation and open-ended interview.

Over a three-week period, 72 hours of observations were collected at various times of the day and locations including on the deck and jetty, at the house compound (sideyard and frontyard), in the water, on the mudflat and sandy beach. The researcher observed the overt responses of the children by participating with them in their play. The children activities were recorded in a coding sheet of environmental qualities of affordances (adapted from Heft (1999) and Kytta (2002)), and the location of the activities were noted on a schematic plan of the village. Information from the three sources was gathered into a table of taxonomy of affordances (Heft, 1999; Kytta, 2003) of the village.

During the observation, 32 children were interviewed on their perceptual judgements (covert responses) and experiences with landscape and architectural elements of the

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fishing village. The interviews were conducted in a group of three to five children for a short period, 8 to 12 minutes per location. The locations of the interview were on deck and jetty, in a boat, on beach and mudflat, and on house sideyards. That is, the interviews followed the situated actions of the children. The conversations were recorded in a tape recorder, and the meanings of the functional experience were interpreted and added to the table of taxonomy of affordances.

Results

Positive and Negative Affordances

As can be seen in Table 1, the natural landscape and architectural features of the village offered 78 positive and only two negative affordances. The result shows that the affordances of the natural elements (water, mudflats and animals) and architectural features (deck, jetty and boat) of the village were effectively perceived by the children through physical and sensual encounters. The interactions involved perception and movement, which the children practiced during their play activities such as catching, shrimps using net and search shellfish in the mud. The positive affordances overwhelmed the negative ones suggest that the children of the fishing village have strong bond with the outdoor environment. Their length of participation with the outdoor lasted as short as 20 minutes such as sling shooting mudskippers during low tide or long as three hours such as trapping fish with net during high tide.

Table 1. Affordances of the natural landscape and architecture of the fishing village

<i>Types of affordances</i>	<i>Quantity</i>
Positive	78
Negative	2

Categories of Environmental Qualities

The aggregate data on the categories of environmental qualities afforded by the fishing village is shown in Figure 2. In the positive terms, all the categories offered the children with as few as two affordances and as many as 20. As can be seen, it is clear that two categories, graspable/detached objects and water afforded the most number of functional properties to the children, 20 and 15, respectively. On the other hand, only two categories, water (n=1) and affordances of sociality (n=1) provided negative affordances.

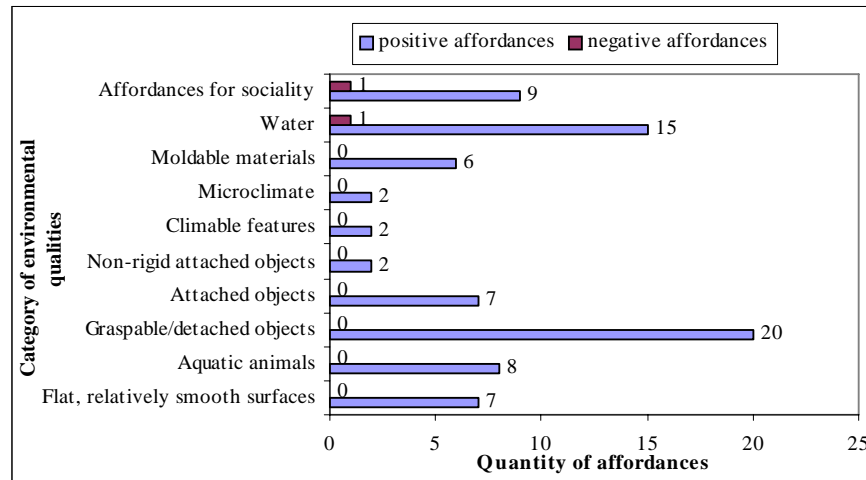


Figure 2. Taxonomy of affordances of coastal community landscape for children

Categories of Activities

A distribution of activities of the children in the fishing village can be seen in Table 2. As can be seen the largest percentage of the children activities were performatory. These were play activities that children performed in the water, on the mudflats, on the sideyards and frontyard of the house compound, and on the deck. During the performatory activities the children were making use of already known properties of the environmental elements that were available. Examples of the activity were shooting mudskippers with a slingshot, scooping shrimps with net and playing kites on the beach or deck. These were routine activities practiced by the children almost daily at the village landscape. Some of the performatory activities were initiated by exploratory or productive activities. To give an example, scooping shrimps was possible after two children, aged 9 and 12, made a scoop from used mosquito net—a productive activity. The scoop was made by tying the net around their necks and lowered the net into the water, and scooped the shrimps (Figure 3). That is, the children were transforming the net into a scoop; creating a structure suitable for a functional property, catching shrimps. Scanning the creature in the seawater, which was an exploratory activity, preceded the action of catching the shrimps.

Table 2. Category of activities of children in the coastal village

<i>Category</i>	<i>Quantity</i>	<i>Percentage</i>
Performatory	55	70
Exploratory	11	14
Productive	13	16



Figure 3. Two boys are using a suit to catch shrimps

Discussion

The first research question of the study was the nature of children's interactions with the natural landscape and architecture of the fishing village. And, the second question was the elements of the village that afford the children to interact. From the analysis, it was notable that most of the interactions of the children with the man-made elements were in relation to the natural elements, mudflats and aquatic animals, and to the natural forces, water, tide, wave and wind. As such the interactions involved both the sensual and motoric actions. Most of the interactions were in the water and at the mudflats. And, all of the children's sensory and physical performances were done with peers, two to five members. In short, traversing the spaces in the village and encountering and constructing its elements either as alone or being with peers, were the functioning of the children in the coastal setting.

Activities in water, on jetty and mudflats

As mentioned earlier, graspable and detached objects such as canoe, inner tube, fishing net, oars, basin, fishing line and hook, and plastic bags provided the highest number of affordances (n=20). Moreover, the functional properties of the man-made features are interrelated to the properties of the natural ones particularly water and aquatic animals. Playing with inner tube as float, scooping shrimps with a self-made net, fishing catfish from the deck, and searching and collecting shellfish were some of the performatory activities associated with the water and animals. To give an

example, the inner tube afforded floating on water, wading using hands, drifting due to waves and tide, and sharing space with peer (Figure 4).



Figure 4. Play activity of two on an inner tube near the deck of their house

Floating on the inner tube was the act of balancing oneself and not falling into the water. More balancing act was required when a peer shared the tube or when a strong wave hit it. It seems clear that the interactions of the children with the man-made feature and the water were both sensual and motoric actions; affording five performatory activities. That is, floating, wading, drifting, balancing and sharing. Thus, during the play, a child perceived the water and inner tube as a context that afforded him to behave according to movement of the water surface, the inner tube and actions of his peer. That is, the context was shaped by the presence of the children, so were the children behaviours were shaped by their context (Graue and Walsh, 1995).

The children's activities with the inner tube were related to a jetty. The jetty afforded the children to jump into the water, to hold against the force of waves, to push peers into the water, to climb onto from the water and to watch peers playing. Hence, the jetty was also a context for the children to enjoy their daily routine. The play activities at the jetty were carried out during high tide, that is, when the water was deep. Among the interesting actions were jumping into the sea from the jetty and held their body into the shape of a ball. The impact on the water surface was a splash that cheered up the onlookers. The play was known by the children as 'playing bomb'; indicated by the compact and round shape of the body and the splash. The motoric action was possible because the children were able to swim, most probably learnt from assimilating the action of older peers. The children, therefore, recognised the affordances of deep water that offered them to dive, to swim, to float and to socialise with friends. It means the children understand the relationship of their play with the jetty, tide and water. This mental concept is known as structure (Khan, 2002), which the children developed it through repetitive encounters with the natural and man-made features (Olds, 1987). From the interview, it was found that playing at the jetty and swimming in the sea were routine activities of the village's children. During the high tide, the children also played under the decks; the activities were holding and climbing posts. In summary, sensual and motoric actions on the jetty, under the deck and in the water have enabled the children to make meanings of their home environment. Therefore, direct experience with the man-made and natural features at the fishing village have a definite bearing on the quality of behaviour of the children. Another interesting interaction in the water was trapping fish using net, which was performed by boys in a group of two to five. The process began by a boy, who was in

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a canoe, released the net gradually while another boy tied an end of the net to a footbridge's post (Figure 5).



Figure 5: A boy orienting a boat to spread fishing net into the water

The canoe was rowed away from the deck until the whole net was spread into the water. While waiting for the water to recede and to get the catch, the children enjoyed themselves swimming and playing the canoe. Occasionally, they rowed the canoe to the net to check for the catch. Once the water receded to level that the children can recognise that there would be no more catch, they pulled the net into the canoe. In sum, the water, canoe and fishing net afforded the children with three performatory activities (rowing canoe, spreading net into water, observing the catch), and an exploratory activity (removing the fish from the net).

Related to trapping the fish was scooping shrimps in shallow water using special equipment called *siut* (Figure 6). The *siut* was a net tied to two bamboo poles. The activities associated to the *siut* were scanning for shrimps, wading in shallow water, scooping the shrimps, picking the catch and depositing it into a basin. Thus the *siut*, shrimps and the sea afforded five performatory activities.



Figure 6: Scooping shrimps in shallow using *siut*

Social plays at the jetty, trapping fish using the net and scooping shrimps with *siut* were physical and cognitive interactions, both spatial and temporal. Spatially, the children recognised the openness of the sea affording unlimited space for swimming, floating on inner tube, setting fishing net, wading in water, and scooping shrimps. At the same time, the children recognised the role of the architectural features—jetty, deck and boat—as stations for play and rest. Additionally, the features were utilized by the children as points for orienting their positions in relation to the sea. For example, knowing to swim back to the jetty or boat after a dive. Temporally, the

children knew that the performatory activities could only be done during the high tide. Therefore, the children understood that the changing of sea level directly influenced their play activities.

The activities of the village children with animal were not only practiced at their home, but also extended to mudflats where the children searched and collected shellfish known as *tudai* for food (Figure 7). These social activities, two to four members, were both performatory and exploratory. The activities were assimilated from their parents or older siblings. In contrast to their actions in the water, searching and collecting the shellfish were done during low tide, that is, when the mudflats were exposed. The search began by walking barefooted and scanning the mudflats for puddles that may contain the crustacean. The walking left footprint and the children felt the softness of the mud or the hardness of the sea pebbles. It was a tactile cognition enabling the children to know the textures of the mudflats. And, the scanning was a visual cognition; an innate gestalt-making power of children to perceive the natural environment and to move about (Cobb, 1969).



Figure 7. A typical scene of children searching for shellfish on mudflat during low tide

Upon finding the potential puddles, the children stuck their hands into the mud and searched the shellfish. This was a tactile cognition, that is, the faculty of knowing (Yates, 2002) that enabled the children to get the shellfish as a reward. During the search, the children sometimes shifted pebbles in order to get to the mud for the creature. The shifting was a productive activity because it changed the property of the mudflat, which was originally formed by the sea. Plenty of words were exchanged between the children during the search. The conversation was focused on where to find the shellfish and to inform peers when a creature was attained. The shellfish were collected in basin, and were later brought to the water edge to be washed before heading for home.

From the explanation, it is clear that the mudflats afforded four physical tasks (walking, searching and collecting shellfish with hands and washing the creature), one cognitive performance (scanning) and two social performances (communicating with peer and sharing the shellfish). Therefore, experiencing the mudflats generated all three functioning of the children, physical, cognitive and social. This finding suggests that the children also perceived the mudflat as a context to find shellfish, to play and enjoy. It means the mudflat, as a natural setting, was transformed into a context by the actions of the children, and reciprocally the children behaviours were shaped by the context.

In perspective of constructivism, the physical, cognitive and social performances on the mudflat enabled the children to perceive it as a structure. The recognition was due to the functional meanings afforded by the mudflat as a natural place to find shellfish during low tide and favourable weather. It means the children understood the relationship between the mudflat and the tide, between the puddle and the shellfish, and affordances of sociality at the mudflat. The finding is somewhat consistent with the concept that interaction with natural elements and forces encourage the cognitive, physical and social development of children (Herrington and Studtmann, 1998; Kellert, 2002).

Activities at home

At their homes, the children practiced two more interactions with two species of fish, mudskipper and catfish. Firstly, the children were seen shooting mudskippers with self-made slingshot during low tide. Ten to twelve years old boys performed this activity in groups of two or three. The activity began by making the slingshots from guava (a garden tree) branches, elastic bands, and pieces of leather obtained from old shoes. This means the children understood the properties of the branch, band and leather to construct the slingshot. The ability to construct the play tool was a hands-on activity, which suggested that the children were effective in manipulating and establishing bonds with materials available at their homes. The children continued the process of shooting the mudskipper by collecting sizable pebbles from the sandy ground, a performatory activity. From the deck they targeted the fish, and cheered themselves once a hit was attained. In sum, they practiced one productive activity, making a slingshot, and three performatory activities including scanning mudskipper from the deck, targeting at the fish, and slinging the shot to the target. It means that the children perceived the deck, mudskipper, low tide and peer as a context, which influenced their sensual and motoric activities. Therefore, the children were developing a mental schema (Khan, 2002) suggesting interaction with the natural and man-made elements in the village promoted the children's cognitive and physical development.

Secondly, the children also fished catfish using self-made equipment: fishing line bundled on a plastic bottle, a hook and some small fish as bait. Fishing was done during high tide, that is, when the water reached under the deck. Plenty of communications were heard during the making of the fishing equipment, putting bait to the hook and searching for proper spot on the deck. Examples were "Tie the hook like this," "Put a smaller bait," "Pull the line," "This the best spot to catch the fish" and "Careful with its dorsal spine."

Once a catch was obtained, the children cheered themselves and pulled the fish, and then left it on the deck or gave it to their cats. Therefore, the action with the catfish consisted of one productive activity, making the fishing equipment, and four performatory activities including searching for fishing spots, waiting the catch, pulling the catch, and unhooking the fish. Relative to children's performances, the deck which was a context to shoot mudskipper during low tide, has transformed into another context by the rising water for the children to catch catfish. This suggests the children's perception of fishing-village architecture was influenced by the tide. It

means that the context was dynamic relative to the children performances (Graue and Walsh, 1995; Khan, 2002; Olds, 1989). The dynamism of the context was recognised by the children through perception and movement; one was inseparable from the other (Kytta, 2003). Inasmuch, the formation of the context was generated from the children's social play in which the children attained social skills through communication, sharing and turn-taking (Ladd, 1999).

It seems clear that the mudflats, water, aquatic animals and architectural features of the fishing village offered a variety of affordances to the children. Recognition of the affordances was attained by direct contact with the natural elements and man-made features. According to literature of children experiencing the outdoor environment, the recognition, and thus fascination of the children can be viewed in three aspects: scale, texture and structure (Christensen, 2003). In scale, the children perceived that the water and the mudflat were both large elements affording spacious ground for movement. Relative to their home features, that is the deck and jetty, the water and mudflat were larger elements affording different activities such as swimming, diving, floating on inner tube, searching shellfish, scooping shrimps, rowing boats and catching fish with net. Thus the size of a element has a definite bearing on the quality of behaviour of the children (Bechtel, 2000) in the fishing village context. So too the texture of the natural elements such as mud, pebbles and sand were different from the timber structures of the home. The former were soft, loose, flexible and diverse whereas the latter were rigid and monotonous. Finally, the structure of the mudflat was simple and flat which very much influenced by the sea and its tide. In contrast, the home architecture was complex made up many horizontal (e.g. house floor and deck) and vertical (e.g. post) components, and yet it was built in relation to the tide of the sea. In sum, direct contact with the diverse natural landscape and architecture of the fishing village afforded the residing children to perform plenty of cognitive, physical and social functioning.

Apart from interacting with the sea creatures, the children also performed at least seven home games including playing pictured cards, marbles, hopscotch, kites, and local games of *ajab*, *panggut* and *piato*. In terms of children's sensual and motoric actions, the plays were games-with-rule type (Piaget and Inhelder, 1969) allowing the children to practice social skills. As such the social skill is the understanding to rules of play, which affords communication, turn taking, cooperation and sharing (Hartle and Johnson, 1993). Furthermore, except the hopscotch, all the plays involved manipulables that required a full range of perceptual judgement and movement.

Playing the pictured cards, marbles, hopscotch and kites were conventional games for many rural children in Malaysia. At the fishing village, the activities were conducted on the deck and sandy ground. Some of the social activities included hitting and collecting pictured cards, rolling and targeting marbles, hopping on one leg to play hopscotch, scratching the ground with a stick to mark the hopscotch, and flying kites. All were performatory activities involving gross-motor and few fine motor actions, thus, suggesting the children's functioning was directly influenced by the play tools, architecture, flat ground, climatic factors as well as peers.

Notwithstanding, the children of the fishing village favoured three social games: the *ajab*—kicking and balancing a self-made ball in a group of four to five, the *panggut*—hitting a stack of tin cans with slippers or shoes and guarding the cans from being

knocked down by the opponent, and the *piato*—hitting a stack of slippers with a slipper and then chasing the person who make the hit. These games were performed at the sideyards or frontyards of the houses. The performatory activities were collecting, hitting and protecting tin cans or slippers, kicking, balancing, running and chasing peers. The productive activities were staking cans or slippers and making *ajab*—a tennis-size ball made from fresh leaves tightly bounded by string or elastic bands. From the observation and interview, the *ajab* was a fun game which begun by making the ball. The virtue of the game was to attain as many kicks as possible without dropping the *ajab*. The person who dropped it will become the 'slave' whom has to pick the ball wherever it dropped. Lots of laughter were heard when the *ajab* was dropped to the ground because a new slave was created.

From the interview, it was found that *panggut* was the favourite games because, firstly, it accommodated bigger group, secondly, it offered more motoric activities, and thirdly, it afforded more negotiation and intellectual strategies than the *ajab* and *piato*. *Panggut* means the loser who had to miserably guard the cans from the winner who had the fun to knock down the cans. Therefore, social interactions were vibrant and rigorous; hence, the children preferred the *panggut*.

In summary, it seems clear that the children perceived the deck as well as the sideyard and frontyard of the house as a context affording them a range of body control, object control and control of self in the outdoor spaces. Notwithstanding, the favourable warm and windy climate of the tropical environment permitted the children to social in the outdoor. It appears that the children's home setting afforded a variety of sensual and motoric activities for effective, social functioning through perceptual judgement and movement.

Conclusion

The findings suggest that the natural elements and architecture of the fishing village were sensorially rich and varied. In other words, the village environment was complex and diverse, which afforded a variety of play activities, namely, performatory, exploratory and productive. Visual and tactile contacts with the natural elements and architecture features as well as social interaction with peers afforded the children to behave effectively in all functioning, cognitive, physical and social. It means that the physical environment and social activities were directly influencing the children's actions and choices. These experiences provided wealth of opportunities to the children for generating autonomy, independent and self-sufficiency. Thus it appeared that the children were shaped by the village environment, and so do the environment was influenced by their sensual and motoric actions. As such the children perceived the village as a playspace for them to explore, discover and adventure. From their perception and play, the playspace was a structure composed of natural elements of water, mudflat and sandy ground as well as the stilt architecture that stood above the highest tide. Moreover, all types of activities were social play, perhaps, due to strong acquaintanceship with peers. The social skill was a positive value for children development in a community (Hartle and Johnson, 1993). Notwithstanding, the richest source of information about one's actions comes from interaction with other individuals (Gibson, 1979).

In sum, the children of fishing village took particular delight to engage those affordances that gave clear evidence of their efforts. As such the village landscape was rich in information that offered in response to a child's engagement.

The findings of the study implicate that development of fishing village should consider the behavioural responses of the children in terms of their physical and social play and development.

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