

Phenomenological Approach in Determining Responses of Hospitalised Children Experiencing a Garden

Ismail Said¹, Mohd Sarofil Abu Bakar¹

¹Department of Landscape Architecture, Faculty of Built Environment
Universiti Teknologi Malaysia, 81310, Sekudai, Johor, Malaysia
b-ismail@utm.my

Abstract

This study presents and describes a phenomenological approach of an experiment conducted on 31 middle childhood paediatric patients experiencing a hospital garden. The approach is a measure to collect behavioural data of the patients by examining the situated actions of patients in the garden context. As such the approach views the patient-in-garden as the unit of analysis. As a context, the garden is a play space where an individual patient interacts through play with physical elements as well as transacts with peers and caregivers. His behavioural responses are his actions and words suggesting his perceptual judgments towards the garden as a context. This study conducts an affective procedure to elicit the perceptual judgments and movement of the patients in their situated actions. The procedure ensures cooperation from the children without disrupting their play or intimating their moods. The study measures patients' increased cognitive, physical and social functioning as restorative outcomes.

Introduction

Empirical study on children-environment relationship is best conducted by observing the children's situated action in their context (Graue and Walsh 1995). Hart (1979) and Moore (1986) utilised such method in investigating environmental knowledge and exploration of children in their living environments. Hart (1979) found that the affordances, functional meanings, of the environment are more meaningful psychologically to the children than its forms. This finding is in consonant with a review by Fjortoft and Sageie (2000) on Gibson's concept of affordance that adults perceive the landscape as forms, whereas children interpret the landscape and the terrain as functions. Thus children perceive the functions of the environment and use them for play (Gibson 1979). To give an example, a child perceives a steep rocky wall affording jumping off, sliding and climbing (Fjortoft 2004). Children experience with the landscape is a phenomenon (Hart 1979) and its technique of investigation is a phenomenological approach (Patton 2002). Inasmuch, phenomenology is a study on the exploration and description of an experience of human beings with the environmental setting (Seamon 2000). It focuses on the children-environment relations on the context and its meanings that is the experiential meanings of places, distances, times, and relations (Graumann 2002).

Studying children's situated actions as environmental experience in an outdoor or indoor setting can elicit direct responses from the children (Graue and Walsh 1995). In paediatric psychology, such responses would supersede the responses from surrogate respondents such as teachers, parents and other caretakers or caregivers (Holmbeck et al. 2002). The phenomenological approach collects the data of behavioural responses from the children following the tempo and mood of their actions and perceptions. This is necessary because researchers are adults, and children always judge them as outsider that may interfere their setting (Graue and Walsh 1995).

This study examines a phenomenological approach to elicit the behavioural responses of paediatric patients, aged 6-12, whom are experiencing a hospital garden. The approach was conducted at a paediatric ward's garden of Batu Pahat Hospital in state of Johor, Malaysia. Thus this paper explains the phenomenological approach in order to collect reliable data on paediatric patients' physical and social interactions in the garden.

Impact of Hospitalisation

Children view hospitalisation as a threat. Studies in paediatric nursing and paediatric psychology found that many factors cause the threat including regulated medication, confined space, loss of habitual control due to clinical treatment, alien smells, staying with strangers, difficult way-finding, and unfamiliar hospital setting (Lindheim et al. 1972; Zahr 1998; Lau 2002). Hence, hospitalisation often erodes the feelings of toddlers and young children causing stress resulting to

regressive behaviours such as reduced cognitive performance, helplessness, restlessness, crying, anxiety and elevated blood pressure (Lindheim et al. 1972; Lau 2002).

Landscape architects and child psychologists introduced healing or therapeutic garden to enhance the restorative process of children as part of holistic medicine. Such garden has been evolving for more than fifty years in the United States, Europe and Australia (Moore 1999). Among the successful practice of restorative impact of garden or playground to hospitalised children was at the Karolinska Paediatric Clinic of Stockholm by Ivonny Lindquist in 1973 (Moore 1999). Two positive results were generated: (i) the play therapy, with parents' cooperation, reduced length of stay in hospital, and (ii) the program result a positive effect on children's mental health (Lindquist, 1977 in Moore, 1999). Currently, several children hospitals in North America and Europe are equipped with healing gardens to cater the children's psychological as well as physiological well-beings (Moore 1996; Copper-Marcus and Barnes 1999; Moore 1999).

However, there are a few empirical studies investigating how to evaluate garden as an environmental intervention on children in hospital setting (Rubin et al. 1998; Whitehouse et al. 2001). There are no explicit assessments of how garden might influence indices of paediatric patients healthcare preference and satisfaction, such as assessments of garden's spatial quality, effects of garden features including play equipment, vegetation, animals and micro-climatic factors. More important is to investigate what approach is appropriate to elicit the cognitive and physical responses of the patients when experiencing the garden.

Three questions arise in elicitation of paediatric patient behavioural responses in a hospital garden: (i) How can a researcher elicit the behaviour changes in the children without interrupting their rhythm of movement and mood? (ii) What are data measurement strategies to elicit their behavioural responses? and (iii) Is participatory approach is a suitable method to elicit the responses? This study aims to give some insight to answer these questions.

Positivism Process versus Constructivism Process

Healthcare inquiry of paediatric patient's interaction with garden content can be viewed in two processes: positivism and constructivism (Shi, 1997). Both processes view that there exists a persistent pattern or regularity that hospitalised children reacted progressively after experiencing a garden in the hospital setting (Moore 1999). In positivism process the garden, as independent variable, is the cause in generating progressive behavioural changes on the paediatric patients, as dependent variable. The unit of the analysis is the patient. Two data collection methods are commonly used to elicit the patients' responses with healthcare setting, behaviour observation and mapping, and open-ended interview (Schor 1998). Construct validity of the findings is generalized by correlating with theories of restoration (e.g. Attention Restoration Theory (Wells 2000)), cognitive development (Taylor 2001), concepts of affordances (Korpela et al. 2002; Kytta 2003), and childhood development (West 1992). In other words, it is a deductive process which emphasises theory or concept as guidance for research (Shi 1997; Greig and Taylor 1999). Inasmuch, such study sees the garden as a place (Seamon 2000) or context (Graue & Walsh, 1995) where verifiable patterns of patients' behaviours can be observed and predicted (Patton 2002). Therefore, positivism inquiry takes the interactional view that the patient and the garden as separate entities.

On the other hand, constructivism process views the patient and garden as one entity; as the unit of analysis. This is because the interaction of patient with garden elements and transaction with peers or caregivers shaped his behaviours through positive stimulations, feedbacks and affordances (Heft 1999; Kytta 2003). Moreover, his relationship with the peers is dynamic across individual, context and time (Greig and Taylor 1999). The interactions are full with meanings which only understood by him and his peers in *situated actions* in the garden. The actions are the patient's play particularly social play (Ladd and Coleman 1993). Playing in groups involves a specific culture that excites, fascinates and satisfies them to participate in the garden activities. Using verbal language and physical actions a child causes other to assimilate his actions. Thus his behaviours are changing or shaping others in conceptualised social phenomena (Greig & Taylor, 1999). Therefore, in constructivism process actions, thoughts, intentions and meanings cannot be conveyed in an analogous way with numbers, but need a more qualitative handling of data (Patton, 2002). In contrast to the positivist view, constructivist see the patient and garden as unifying process (Werner and Altman 2000). Thus the restorative effect of garden is induced by interpreting changes in the patient's behavioural responses (Koot 2001). With respect to child healthcare, a child attains restoration when his behaviours change from regressive (e.g. restlessness) to progressive ones (e.g. cheerful) (Rubin 2003). Thus constructivism process is a social phenomenon inquiry which is what phenomenological approach is doing (Graue and Walsh 1995; Seamon 2000; Graumann 2002).

Phenomenological approach

In children-environment study, phenomenological approach is observing the experience of a child in a place (Patton 2002). It focuses on the “meanings and experiences of places via a descriptive, qualitative discovery of things in their own terms” (Manzo 2003). It is a naturalistic approach to acquire information on children’s experience of a place through observations, interviews and questionnaires (Hart 1979; Patton 2002). It assesses the interaction of the children with the physical features as well as social interaction with others (Graue & Walsh, 1995). It operates by eliciting the children behavioural responses experiencing the physical landscape through play and movement particularly in social play (Graue and Walsh, 1995; Moore and Young, 1978; Olds, 1989). In short, it captures the phenomenon of patient’s participation in the ward-garden context, and obtaining their behavioural responses.

In perspective of restorative garden, the researcher observes and describes the situated actions (Graue and Walsh 1995) or lifeworld (Seamon 2000) of a paediatric patient playing in the ward’s garden. Lifeworld means the world as it is experienced and acted upon (Graumann 2002) in which the patients perceive and play (move) in the garden. Hart (1979) posits the garden as a phenomenal landscape, thus the observation of the children’s behaviours reveals the garden as it evolves through a patient’s transaction with it. In other words, the patient’s activity is analysed in terms of its spatiality, and “spatiality of experience precedes and makes possible the experience of space” (Graumann 2002). Therefore, phenomenological approach illustrates the dynamic relationship of the children with the garden contents: physical factors, climatic forces and people. With respect to ecological perceptual psychology, the approach views the perception and mobility of the patients in the garden as interrelated (Kytta 2003). The approach accounts on children’s movement, rest and encounter, and interrelationship among them in the garden and describes relationships to place as dialectic processes (Manzo 2003). It aims to elicit the core meanings perceived by the patient participating with the garden content. The meanings are bracketed, analysed, and compared to identify the essences of the phenomenon (Denzin 2001). The garden is a physical environment, a *place*. It affords the patient to explore his cognitive, physical and social abilities and skills. Thus the patient may gain cognitive, affective and evaluative development (Kellert 2002). Simultaneously, the experience develop their motor and social skills (Gallahue 1993; Ladd 1999; Moore 1999).

Place for children direct experience with the environment is termed as setting by Proshansky and Fabian (1987), context by Graue and Walsh (1995), place by Seamon (2000), favourite place by Korpela et al. (2002), and playscape by Fjortoft (2004). In short, a place is a repository and context within which interpersonal, community, and cultural relationships occur and those social relationships in the place that children are attached (Low and Altman 1992). A setting is an environment for children to make physical play or movement and social interaction with peers in which the children recognize its identity (Proshansky and Fabian 1987). Thus is a garden the children’s senses are stimulated by the physical and climatic factors. The stimulation is generated by feedback and affordance of the setting (Wohlwill and Heft 1987; Heft 1999). Playground, for example, is a common source for children to get stimulation, feedback and affordance (Hartle and Johnson 1993). Likewise, Herrington and Studtmann (1998) found that play yards afford these three factors for kindergarten children. More specific to restoration, Whitehouse et al. (2001) found hospital garden stimulates young patients to play and socialize outside the ward. And in a recent Post-Occupancy Evaluation study, Sherman et al. (2005) discovered hospitalised children feel less emotional distress while in garden than in ward. The garden is a setting providing satisfaction and affording reduction of stress to the children though play and movement. In restoration perspective, Korpela et al. (2002) found young children experience with favourite places involve changes in emotion and support self-regulation. Linking this finding with ideas of (Francis 1998), Olds (1989) and Ulrich (1999), it is clear that direct experience with physical setting is effective to generate the feeling of being relaxed, calm and comfort for the children. These positive emotional feelings are considered by (Korpela 2002) as qualities of restorative place.

Graue and Walsh (1995) and Seamon (2000) emphasise the study of children and environment by observing the children situated actions in a physical and social place called context. Inasmuch, this phenomenological approach applies qualitative-interpretative method to elicit the patients’ responses toward the garden. The domains to be measured are the patient’s actions and their words. The actions are the play movement or locomotion of the patients in the garden space. The words are the perceptual judgments indicating the evaluation of the patients toward the properties and attributes of the garden. Positive judgment means satisfaction which is a restorative outcome in healthcare (Koot 2001).

In doing so, researcher must make the children realise that he is deeply interested in their environment. This situation establishes good and friendly working relationship with the children (Hart

1979). Patton (2002) recognises the step as *epoche* that requires the researcher to see what stands before his eyes. Accordingly, *epoche* enables the researcher to investigate the behavioural responses of the patients from a fresh and open viewpoint without prejudgment or imposing meaning too soon. Inasmuch, it is an ongoing analytical process rather than a single fixed event. The process involves *nomea* and *noesis* (Patton 2002). The *nomea* is the phenomenon, not the properties of ward or the garden, but appearance of the ward or the garden perceived as such by the patients (ibid). The *noesis* is the patient's cognitive, intentional process to the two settings (Reber and Reber, 2001). Thus *noesis* explicates the patient's beliefs toward the ward and the garden (Patton, 2002). With respect to concept of affordance, phenomenological process measures the functional meaning of the ward and garden as what being perceived by the children (Heft 1999; Kytta 2003). *Nomea* and *noesis* are rather similar to the concept of affordance (Heft 1999); a child perceives a feature or setting (*nomea*) on its functional meaning (*noesis*) rather than its form (Fjortoft 2000). Therefore, the phenomenological process measures the accuracy of the actual phenomenon that is by interpreting the aspects of the children lives rather than measuring their responses by scores or numbers (Graue and Walsh 1995). It places greater emphasis on individual feelings, expectations, and interpretations. The interpretation utilises thoughts and actions of children as clues to go beyond what is given in order to understand the meaning (Bricher 2000).

Measurement on Responses

Healthcare research on paediatric patient uses functional status and psychological functioning as indicator of healthy or well-being (Koot 2001). Functional status means physical agility or movement whereas psychological functioning includes increase in positive perceptual judgment. The movement is explicit action of the patient indicated by the patient's locomotion in the garden space. The perceptual judgment is intrinsic value such as preference from the patients suggesting their fascination and satisfaction to the garden activities and elements (Wohlwill and Heft 1987). Both physical and psychological functioning can be elicited during or after children participation with the garden activities (Schor 1998).

Patient participation with the garden activities is a physical as well as social phenomenon. Physical phenomenon means stimulation and feedback that the children gain from interacting with garden elements including play and rest (Wohlwill and Heft 1987; Olds 1989). The interaction involves locomotion that is movement of body in different position and postures (Olds, 1989). In play the children explore their physical capabilities, attain control and create their own boundaries. These are cognitive and physical benefits that fascinate them which result to satisfaction. In paediatric psychology the satisfaction is considered as a clinical outcome (La Greca and Lemanek 1996; Rubin et al. 1998).

Social phenomenon is the transaction of children with their peers and caregivers. In childhood healthcare improvement in peer relationship through social play is a healthy development (Schor 1998). Peer relationship involves communication, negotiation, turn-taking and learning to reduce conflicts are social skills in children development (Ladd 1999).

Paediatric-ward Garden as a Context

The phenomenological approach is applied at a paediatric-ward garden on 31 acutely ill paediatric patients administered at Batu Pahat Hospital. The 879m² garden was designed and built by the first author. Its design was based on restorative garden design guidelines proposed by Robin C. Moore (1999) and design philosophy described by (Barnes and Copper Marcus 1999) (See Figure 1.0—Master Plan of Children's Garden at Batu Pahat Hospital). Similar to a house garden or school compound the hospital's garden is a micro-system (Matthews 1992) enabling the patients to interact in the course of day-to-day events. It is surrounded on three sides by the two-storey hospital buildings but opened to the surrounding landscape on the southeast side. It is located beside the ward, thus patients are able to view it from their beds through glass-louvered windows. It is easily accessible through two ward's doors via the bathrooms and toilets. Its environment is readily influence by the climatic factors: almost 12 hours of daylight, high amount of rain, warm temperature thought out the year and mild wind. It is a place for the patient to play with peers or simply interact with caregivers within their own controls or choices. In short, it is a context outside the ward where movement, rest and encounter with other patients are happening.

The garden is composed of eight play areas including an alphabetical walk, two multipurpose lawn areas with play equipment, two sand play areas with spring-riders and rope play equipment, a short, lawn bowling pitch, a fishpond with deck, and a patio. There are 25 play equipment laid on lawn

or sand and frame with a variety of tropical trees, palms, shrubs and groundcovers. The play equipment are a set of swing and timber ladder, a balancing bar, eight treasure chests, two rope play structures, an overturned urn for lawn bowling, four spring-riders, a shovel and a trolley, a chatter box, a spiral slide, two bucket swings, a hop-scotch, a frog and a snake sculpture. The garden structures include timber benches, pavilions, alphabetical walks, planting boxes, timber deck, pergola and fishpond. A matured tree and a row of areca palms are also the structure for the patient to take refuge and play with. In addition, the garden is surrounded by a mural wall consisted of large cartooned figures including dinosaurs and other animals, toys, and trees, which are drawn based on 22 children's books. In sum, the garden is a play setting with play equipments, garden accessories and tropical greenery.

Plant selection is based on the effect of stimulation to children senses including (i) foliage shrubs as background for colourful shrubs, (ii) fragrance and bright flowering shrubs for olfactory stimulation and as accent vegetative features, (iii) lawn as flat, soft textural surface for tactile recuperative effect, (iv) matured trees and tall palms as features to provide shade or indicate boundary and landmark, (v) small fruit trees such as banana and hog plums for edible fruit, and (vi) climbers with large flowers laden with nectar to attract insects and birds. Furthermore, common garden species in Malaysia landscape such as alpinias, bananas, gingers, jasmines, periwinkles, and hog plums (Ismail 2001) are selected to give the feelings or impression of a home-like environment to the patients. Green environment is created because children have sense of attachment and familiarization to home landscape affording them to respond positively (Chawla 1992).

The garden offers 30 to 50m² of play space for each patient per period of play—the paediatric maximum capacity is 24 beds. This is much more than the ward space, only 8 to 10m² per child. Thus the garden affords the patients plenty of play space for them to have their own control. The available play space in the garden is much larger than suggested by some play space standards, for example, Greenham (*cf.* Striniste and Moore 1989) proposed about 9 m² per child and Frost (*cf.* Hartle and Johnson 1993) recommended 8 to 9 m² per child. The choice of play features in the garden including the play equipment and vegetation is 5 to 6 choices per child when 5 children occupied the garden per time. This is more or less with the number recommended by (Prescott 1987) which is 4 to 5 choices per child for childcare setting.

As a context, the garden is shaped by physical and climatic resources as well as the actions of the children, their peers and caregivers. And through play actions the garden shapes the children. It is localized, fluid and dynamic place in the hospital setting where it constantly reconstructing itself within the children's activities. The garden is a context because it is inherently social and framing interaction between children and resources, as well as transaction between the children and others (Olds 1987; Graue and Walsh 1995). It can afford stimulation, feedbacks and affordances to the patients that may increase their cognitive, physical and social functioning.

Unit of Analysis

This study considers patient-in-garden as the unit of analysis (Wapner and Demick 2002). The patients are assumed to interact with the garden context in three levels: physical (locomotion), psychological (e.g. preference, satisfaction, affiliation), and social (e.g. role, communication, turn-taking, negotiation) (Wapner and Demick, 2000). The study views the overt and covert actions of patients are generated out of physical interaction with garden features and social transaction with peers and caregivers and the meanings they create (Graue and Walsh, 1995). These interactions and transactions are physical and social phenomena. These phenomena trigger the patients' cognitive, physical and social responses (Olds 1989; Gallahue 1993; Yates 2002). Observing and interviewing the patients' interactions in the garden elicit their behavioural responses.

Method

This phenomenological study is a process of observing the patients' behavioural responses in the garden and interviewing them toward the garden. The patients behavioural responses are elicited in a process of four stages: (i) viewing garden from their beds through ward's windows, (ii) access to the garden through ward's doors, (iii) playing or resting in the garden, and (iv) return to the ward and revisit the garden.

Stage 1: Viewing garden from ward

According to the Attention Restoration Theory by Kaplan and Kaplan (1989) the restoration begins when the patients view the garden. Observing the garden stimulates the patient visual capability. In addition, animal sounds and voices of participating patients can stimulate his audio sense that draws

attention (Relf 1998; Kellert 2002). This passive action brings away the attention of a child from the ward to the garden. It is an effortless attention that permits recovery from mental fatigue being in the ward (Kaplan et al. 1998). The study postulates that the content of the garden as a place space is coherence and compatible to the cognitive capabilities of the patient. The cognitive interaction is anticipated to fascinate the child that triggers him to go out to experience the garden. This is a passive interaction mode that helps to increase the child's cognitive functioning. From the theory, when a child mentions he wants to go or play in the garden indicates he is fascinated.

Stage 2: Access to the garden

Knowing how to get to the garden is facilitated by information from nurses, parents and other patients. This is vital for first-time patients. Easy wayfinding welcomes the patients into the garden (Moore 1999). Two doors of the ward provide access for the patients to enter the garden. Once a child opens a door he steps first on a granolithic pavement with 26 alphabets cast in it. Walking, for example, is both cognitive and physical experience. Knowing the door after the first visit indicates increased cognitive performance. Mobility of a child to walk or run to the door suggests an improved performance task (Gallahue 1993).

Stage 3: Playing or resting in garden

Direct experience with the garden triggers the faculty of knowing for each individual child (Yates 2002). This cognitive capability generates his ability to choose or select the garden features to play and recall or remember the familiar features that he used to experience or attach. Willingness to participate in the garden activities suggests a child feels the garden as a secure place and sense of control (Ulrich 1999). Playing with the garden features and moving from one feature to another, and moving from one play zone to another suggest improvement in cognitive and physical functioning. Length of play in the garden, number of features being played, and average length of play with a feature indicate the mobility (locomotion) and perceptual judgment of a child. High locomotion suggests increased performance task as well as high fascination and satisfaction to the contents of the garden (Koot 2001). Mobility is a physical development (McDevitt and Ormrod 2002) and health recovery (Ulrich 1999). Comparing to the health of the patient in the ward, more movement in the garden may suggest the physical and mental state of the patient are increasing to well-being (Levi and Drotar 1998).

Repetitive play on a feature shows sense of affiliation of a child to it (Hartle and Johnson 1993). Other cognitive capabilities that can be observed are the act of assimilation and accommodation of individual child suggesting cognitive development (McDevitt and Ormrod 2002). Following a peer to climb a rope play equipment is an act of assimilation. Then when he climbs the equipment in a different approach or posture, he is accommodating his behaviour due to improvement in cognitive functioning.

Cognitive and physical movement also suggest the degree of stimulation, feedback and affordance that a child gains from the direct experience, either in play (active) or rest (passive). Experiencing the garden in passive mode such as resting and observing indicate a positive shift in mood relative to the passive action in the ward. The willingness to be in the garden is an increased cognitive performance (Yates 2002). Selecting resting spots in various play zones in the garden is a positive cognitive performance. When a patient moves to get into the garden is an improved performance task.

Apart from individual actions, playing with peers (patient or sibling) is social interaction suggesting increased social functioning including communication, turn-taking, negotiation and perhaps, reduced conflicts (Ladd 1999). Being a play space, the garden affords such social play that fascination is gained not only by interaction with the physical features but also by transaction with peers.

In summary, this stage is an action- and attributes-oriented functioning that may increase the psychological and physiological well-being of the patients. This is because attributes-oriented approach allows the patients to explore and manipulate the garden features (Zimring and Barnes 1987). Most of the patients' behavioural responses are derived from this stage.

Stage 4: Return to the ward and revisit the garden

Moving back to the ward is an intention, a cognitive capability, suggesting the patient understands the ward and garden is interrelated as a context, perhaps, the ward for restoration and the garden for play (Yates 2002). Moreover, intention to come back to the garden for more or repeat play shows a positive shift in mood; stronger cognitive functioning. This positive behaviour suggests other perceptual judgments including preference, affiliation, attachment, or bonding to the garden content. Revisit the garden by a patient indicates that he is fascinated to the garden and affiliated and attached to

the garden. When the patient does the revisit on his own suggests he has sense of control, good wayfinding (Olds 1989; Moore 1999) and affection (Kellert 2002) to the garden. In addition, asking the patients for improvement on the garden content would elicit more affiliation, attachment and satisfaction (Whitehouse et al. 2001).

Approach of Observation and Interview

This study measures the behavioural responses of the patients from their actions and words. The quality of data depends on relationship developed between the researcher and patients. The data are elicited through behaviour observation and open-ended interview. Patients' movements are noted in A-4 size garden plan and the verbal responses are sound recorded in tape. The approach taken by the researcher in eliciting the patients' behavioural responses is as follows:

1. Introduce himself to the patient.
2. Negotiate a relationship before interviewing the patient. For instance, play together with the patient such as picking flowers or fruits from a tree or help them to climb the slide's ladder.
3. Invest long periods of time with children on the children's term. The goal is to help children incorporate the investigator into their own world of activity.
4. Before the interview, the investigator begins by gardening activities such pruning, weeding, fertilizing with organic fertilizers, refilling seeds in birdfeeders, watering, wiping rainwater or dew on play equipment, and clearing debris. These actions prepare the garden for the children to safe and comfortable to play. This may trigger the children to think that the investigator plays a meaningful role in their playscape. The actions also help to establish personal relationships with children.
5. The investigator always remind himself that he is in the children's context; not his own (Graue and Walsh 1995). His action should not intervene or control the children's activities.
6. During interview the researcher observes the following factors:
 - Do not assume children are too young to think conceptually or to have the language necessary to be able to express their ideas.
 - Put forward the question in a conversation manner rather than interrogation. It is important to note that a good interview is to discover what question to ask (cf. Graue and Walsh 1995).
 - Leave room for children to teach us what we need to know.
 - Relax the children and win their trust before the interview.
 - Only questions that the children can answer are asked. And all answers are accepted.
 - The patients are allowed to touch or hold the interview instruments tape recorder, digital camera, thermometer and A-4 size garden plan to elicit the responses. And the investigator often point out to the garden space or elements to explain a question. Furthermore, the patient is allowed to hold the tape recorder and occasionally the tape is played for him to listen to his recorded voice. This is a break for him when he got bored with the interview.
 - There are two additional breaks to compensate the children's short attention span. First is to allow them to play with the play equipment while the interview continues during his actions. The tape recorder is placed in his pocket or on his lap for wheel-chaired patient. To those whom have not play with the chatterbox are astonished to hear their peer voice travels through a pipe of the play equipment. Allowing the patients to play, to listen to the tape recorder, and giving the garden plan are interviewing tools to trigger them to have their own controls in the garden context. Secondly, the patients are free to go back into the ward to see their mothers or to have a drink after a play, and the researcher resumes the interview when they get back to the garden.
 - The patients are mostly interviewed in pairs or small groups because young children are much more relaxed when they were asked questions with a friend (Graue and Walsh 1995). In the group situation they tend to keep each other on track and truthful. Group interviews capitalize on social interaction, using it as a context to generate information for the researcher. Group interviews allow children more room to set both the level and content of the discussions.

Some Findings and Discussion

As anticipated, the phenomenological approach observed by the study has successfully elicited behavioural changes of the paediatric patients at the garden of Batu Pahat Hospital. Some of the findings are summarised as follow in two restorative benefits, physical agility and social skills, and perceptual judgments (see Table 1.0).

Physical agility and social skills

During the interview 74% of the patients were happy to attend the session because they held the tape-recorder and watched their images in the digit camera. All patients giggled when they heard their recorded voices from the tape-recorder. Most were curious reading the garden plan. It served as a visual aid to stimulate the patient's participation. Surprisingly, three patients asked the researcher for a copy of the plan for them to take home. They mentioned they would like to describe the ward's garden to their friends or siblings using the plan. Therefore, the interviewing instruments were tools to capture the patients' attention and fascination that helped the children to cooperate during the interview.

The mean length of participation (LOP) in the garden is relatively long, 52 minutes. LOP is the duration of play and interview. In paediatric nursing, it is found that ill children have short attention span (La Greca and Lemanek 1996). Twenty-six percent of the patient participated longer than the mean LOP, as long as 106 minutes. This is because the researcher followed the will of the patients; allowing them to have short and frequent break to play and later continued the interview. To give an example, a seven-year-old asthmatic girl participated with 17 features including playing with 10 types of equipment, gardening with a peer, and colouring line drawings and eating fruits with a four-year old sibling. She contented with the drawings while observed her sibling and answered the questions posed by the researcher. Some patients (n=7) played 20 or more equipment in rapid play interval of 2 minutes per equipment and covered more than 80% of the garden area. Therefore, the garden generates progressive physical and cognitive functioning to the patients. Two reasons why the patients behaved progressively, firstly, the garden affords stimulation, feedbacks, and affordances since the its green setting possesses many familiar features like the ones at their homes or neighbourhoods. And secondly, the patients have no fear when interviewed by the researcher because he was behaving more like a gardener than as outsider. Therefore, following the rhythm of their play and respecting their mood to play enables the researcher to elicit the patients' behavioural responses.

Allowing the patients to play at their own control and pace had generated lots of social play. Fifty-eight percent of them played in groups either with other patients or siblings. And 35% played with other patients without introduction but simply joined in the play, for example, taking turn to go down the slide (cooperative play) or riding a similar spring-rider (parallel play). In short, they practice assimilation and accommodation (McDevitt and Ormrod, 2002), and peer acquaintanceship (Ladd 1999; McDevitt and Ormrod 2002) during the social play. Assimilation is generally shown in associative and parallel plays, for example, a patient played with a bucket swing and another followed him on another swing. Another unexpected transaction demonstrated by two asthmatic boys. The researcher showed a 10-year old boy a hog plum tree and plucked two fruits from the tree. The researcher ate one fruit and gave the other to the boy. Immediately, the boy threw the fruit away and said, "It was sour and I do not like it." However, during a group interview, with his peer, an eight-year old, the researcher showed the same tree and gave each of them a fruit and ordered them to wash the fruit at a nearby standpipe. The younger boy knew the fruit very well because he has similar tree at his home. Both of them washed the fruits and the younger boy ate it first. Without any hesitation, the older boy followed his peer and consumed the whole fruit. The transactions involved cognitive functioning, seeing and copying action of the peer, and physical functioning, walking to wash fruit and eating the fruit. Thus allowing the patient to assimilate his peer freely in his own control and choice generates genuine behavioural responses in the context that he feels free to express his feelings. Therefore, the older boy is more affected by the action of a peer than as an adult. This means assimilation and accommodation should be in the lifeworld of the children rather than in a setting organised by adult (Seamon, 2000). It seems clear that the phenomenological approach is the investigation of children transaction as situated actions in a context as perceived by them (Hart, 1979; Graue and Walsh, 1993).

Therefore, the garden is an environmental platform for the patients to gain social skills and increase their social functioning as what they generally did at their home setting (Chawla 1992). Having opportunity to attain the social skill, the researcher conducted most of the interviews in groups of two to four patients. Sometimes, the interview begun with a patient in a pavilion and later another patient joined the session because of curiosity or persuasion by the former patient. For example, during an interview for more than 20 minutes, a 10-year-old asthmatic boy saw a younger asthmatic boy, whom he had acquainted in the ward, coming into the garden and he persuaded him to join the interview. He showed the younger peer how to operate the tape recorder and to take picture with the digital camera. And, both of them described their experience with the garden for another 38 minutes of

interview and play. Like the previous example, assimilation and accommodation were happening during the transaction that is situated action in the children's lifeworld.

Perceptual judgments

More than 80% of patients perceived the garden with positive feelings. Their words denoting positive feelings are that the garden is a best place to play, having comfort and fun in it, a beautiful place with refreshing atmosphere, an open space and a playground, not a boring place to be in it, and a place with flowers and play equipment. For instance, 52% (n=16) mentioned the word 'best' towards the garden suggesting their preference and satisfaction to the garden features. To them, the garden afforded a variety of equipment for play, garden structures for rest and assist movement, and vegetation for shade, fruit and beauty, and habitat for animals. The phenomenological approach did not disturb the flow of play or control the mood of patients to experience the ward. The patients experience the garden on their own choices. Thus 84% (n=26) perceived the play equipment were more significant the vegetation. For example, an 11-year old boy came to the garden because he heard the sound of the shovel, in his own words 'kutek, kutek.' Thus he was expressing his own perception in his own term (Patton, 2002). Then he played the shovel and excavated the sand and dumped it in a trolley. Therefore most patients perceived the garden as a playground similar to normal play perception of healthy children (Hartle and Johnson 1993). However, 52% perceived that the garden was not completed without the vegetations. This was because they perceive the plants provide beauty, shade and coolness to the garden. This finding was in consonant with the one of the principles of horticulture therapy that children have aesthetic preference to greenery (Relf 1998) and affiliation to vegetation (Ulrich, 1993). These positive behavioural responses suggest that the cognitive functioning of the patients is relatively restored like healthy children.

The patients also showed positive response to animals. All patients perceived the presence of animals such as birds, jumping spiders, snails, butterflies, bumblebees, and cats in the garden. A 10-year-old nephritic syndrome boy accurately identified the sound of a robin even though he did not see it but recognised the sound similar the bird found in his home. This is another assimilative behaviour suggesting affective cognitive functioning performed by the patient.

It is clear that the preliminary findings of this study suggest affective behavioural responses are attained when the patients are experiencing the garden as a context. And the researcher approaches the patients by participating in their activities. This means data of patients' interaction with the physical objects as well as transaction with peers are collected without interfering the children's flow of experiencing. The data are words or phrases and movement of patients that indicate the children behavioural changes when they the garden context.

Summary

Research on restorative process of hospitalised children in hospital's garden demands a phenomenological approach. The approach is a qualitative-interpretative method that examines the essence of children interaction and transaction in garden as a context. It elicits the core meanings of children experiencing a place either as individual or with peers. In this perspective, a researcher should not concern on what to ask the children but rather what the children would tell him what to ask. This approach is consistent with the canon of scientific inquiry because empirical research investigates "what is" rather than "what it should be" (Shi 1997). Since landscape architecture is a discipline that design place for children to live, rest, play or recuperate, the phenomenological approach is a tool to elicit reliable responses from the children. Thus this approach would lead to valid findings and, consequently, to more sensitive design for the children's restorative environment in hospital setting.

Acknowledgements

This study is sponsored by Research Management Centre, Universiti Teknologi Malaysia. The authors thank the many children, families and ward staff who have participated in their research.

References

- Barnes, M. and C. Cooper Marcus (1999). Design Philosophy. Healing Gardens: therapeutic Benefits and Design Recommendations. C. Cooper-Marcus and M. Barnes. New York, John Wileys & Sons: 87-114.
- Chawla, L. (1992). Childhood Place Attachments. Place Attachment. I. Altman and S. M. Low. New York and London, Plenum Press: 63-86.

- Copper-Marcus, C. and M. Barnes (1999). Introduction: Historical and Cultural Perspective on Healing Gardens. Healing Gardens: Therapeutic Benefits and Design Recommendations. C. Copper-Marcus and M. Barnes. New York, John Wiley & Sons.
- Denzin, N. K. (2001). Interpretive Interactionism. Thousand Oaks, SAGE Publications.
- Francis, C., (1998). Child Care Outdoor Spaces. People Places: Design Guidelines for Urban Open Spaces. C. Copper Marcus and C. Francis. New York, Van Nostrand Reinhold: 259-307.
- Gallahue, D. L. (1993). Motor development and movement skill acquisition in early childhood education. Handbook of Research on the Education of Young Children. B. Spodek. New York, Macmillan: 24-41.
- Graue, M. E. and D. J. Walsh (1995). Children in context: Interpreting the here and now of children's lives. Qualitative Research in Early Childhood Settings. J. A. Hatch. Westport, Praeger Publishers: 135-154.
- Graue, M. E. and D. J. Walsh (1995). Children in Context: interpreting the Here and Now of Children's Lives. Qualitative Research in Early Childhood. A. J. Hatch. Westport, Praeger.
- Graumann, C. F. (2002). The Phenomenological Approach to People-Environment Studies. Handbook of Environmental Psychology. R. B. Bechtel and A. Churchman. New York, John Wiley and Sons: 95-113.
- Greig, A. and J. Taylor (1999). Doing Research with Children. London, SAGE Publications.
- Hart, R. A. (1979). Children's Experience of Place. New York, Irvington's Publishers.
- Hartle, L. and J. E. Johnson (1993). Historical and Contemporary Influences of Outdoor Play Environments. Children on Playgrounds: Research Perspectives and Applications. C. H. Hart. Albany, State University of New York Press: 14-42.
- Heft, H. (1999). Affordances of Children's Environments: A Functional Approach to Environmental Description. Directions in Person-Environment Research and Practice. J. J. Nassar and W. F. E. Preiser. Aldershot, Ashgate: 44-69.
- Holmbeck, G. N., S. T. Li, J. V. Schurman, D. Friedman and R. M. Coakley (2002). "Collecting and Managing Multisource and Multimethod Data in Studies of Pediatric Populations." *Journal of Pediatric Psychology* **27**(1): 5-18.
- Ismail, S. (2001). "Pluralism in Terrace Housing Community Through Ethnic Garden." *Jurnal Teknologi, Universiti Teknologi Malaysia* **35B**(Dec.): 41-53.
- Kaplan, R., S. Kaplan and R. L. Ryan (1998). With People in Mind: Design and Management of Everyday Nature. Washington DC, Island Press.
- Kellert, S. R. (2002). Experiencing Nature: Affective, Cognitive, and Evaluative Development in Children. Children and Nature. P. H. J. Khan and S. R. Kellert, Massachusetts Institute of Technology: 117-151.
- Koot, H. M. (2001). The Study of Quality of Life: Concepts and Methods. In Quality of Life in Child and Adolescent Illness: Concepts, Methods and Findings. H. M. Koots and J. L. Wallander. New York, Taylor & Francis: 3-17.
- Korpela, K. (2002). Children's Environment. Handbook of Environmental Psychology. R. B. Bechtel and A. Churchman. New York, John Wiley & Sons: 363-373.
- Korpela, K., M. Kytta and T. Hartig (2002). "Restorative Experience, self-regulation, and children's place preferences." *Journal of Environmental Psychology* **22**: 387-398.
- Kytta, M. (2003). Children in Outdoor Contexts: Affordances and Independent Mobility in the Assessment of Environment Child Friendliness. *Centre for Urban and Regional Studies*. Helsinki, Helsinki University of Technology: 118.
- La Greca, A. M. and K. L. Lemanek (1996). "Editorial: Assessment as a Process in Pediatric Psychology." *Journal of Pediatric Psychology* **21**(2): 137-151.
- Ladd, G. W. (1999). "Peer Relationships and Social Competence During Early and Middle Childhood." *Annual Reviews Psychology* **50**: 333-359.
- Ladd, G. W. and C. C. Coleman (1993). Young Children's Peer Relationships: Forms, Features, and Functions. Handbook of Research on the Education of Young Children. B. Spodek. New York, Macmillan: 57-76.
- Lau (2002). "Stress in children: can nurses help?" *Pediatric Nursing* **28**(1): 13-20.
- Levi, R. and D. Drotar (1998). Critical issues and needs in health-related quality of life assessment of children and adolescents with chronic health conditions. Measuring health-related quality of life in children and adolescents. D. Drotar, LEA Publishers: 3-24.
- Lindheim, R., H. H. Glaser and C. Coffin (1972). Changing Hospital Environments for Children. Massachusetts, Harvard University Press.

- Manzo, L. C. (2003). "Beyond house and haven: toward a revisioning of emotional relationships with places." *Journal of Environmental Psychology* **23**: 47-61.
- Matthews, M. H. (1992). Making Sense of Place: Children's understanding of large-scale environments. Maryland, Barnes & Noble Books.
- McDevitt, T. M. and J. E. Ormrod (2002). Child Development and Education. Columbus, Merrill Prentice Hall.
- Moore, R. C. (1996). "Compact Nature - The Role of Playing and Learning Gardens on Children's Lives." *Journal of Therapeutic Horticulture* **3**: 72-82.
- Moore, R. C. (1999). Healing Gardens for Children. Healing Gardens: Therapeutic Benefits and Design Recommendations. C. Copper-Marcus and B. Marni. New York, John Wiley and Sons: 323-384.
- Olds, A. R. (1987). Designing Settings for Infants and Toddlers. Spaces for Children: The Built Environment and Child Development. C. S. Weinstein and T. G. David. New York, Plenum Press: 117-138.
- Olds, A. R. (1989). "Psychological and Physiological Harmony in Child Care Center Design." *Children's Environments Quarterly* **6**(4): 8-16.
- Patton, M. Q. (2002). Qualitative Research & Evaluation Methods. California, Sage.
- Prescott, E. (1987). The physical environment and cognitive development in child-care centres. Spaces for Children. C. S. Weinstein and T. G. David. New York, Plenum Press: 73-87.
- Relf, D. P. (1998). People-Plant Relationship. Horticulture as Therapy: Principles and Practice. S. P. Simson and M. C. Straus. New York, The Food Product Press: 21-42.
- Rubin, H. R. (2003). Clinical Outcomes for Pediatric Patients Participating in Garden Activities. P. patients. Baltimore, The Johns Hopkins University.
- Rubin, H. R., A. J. Owens and G. Golden (1998). Status Report (1998): An Investigation to Determine Whether the Built Environment Affect Patients' Medical Outcomes, The Center For Health Design.
- Schor, E. L. (1998). Children's Health and the Assessment of Health-Related Quality of Life. Measuring Health-Related Quality of Life in Children and Adolescents. D. Drotar, Lawrence Erlbaum: 25-37.
- Seamon, D. (2000). A Way of Seeing People and Place. Theoretical Perspectives in Environment-Behavior Research: Underlying Assumptions, Research, and Methodologies. S. Wapner, J. Demick, T. Yamamoto and M. H. New York, Kluwer Academic/Plenum Publishers.: 157-178.
- Shi, L. (1997). Health Services Research Methods. New York, Delmar Publishers.
- Striniste, N. A. and R. C. Moore (1989). "Early Childhood Outdoors: A literature Review Related to the Design of Childcare Environments." *Children's Environment Quarterly* **6**(4): 25-31.
- Taylor, A. F. (2001). "Coping with ADD: The Surprising Connection to Free Play Settings." *Environment and Behavior* **33**(1): 54-77.
- Ulrich, R. (1999). Effects of gardens on Health Outcomes: Theory and Research. Healing Gardens. C. Copper-Marcus and B. Marni. New York, John Wiley & Sons: 27-86.
- Wapner, S. and J. Demick (2002). The Increasing Contexts of Context in the Study of Environment Behavior Relations. Handbook of Environmental Psychology. R. B. Bechtel and A. Churchman. New York, John Wiley & Sons: 3-14.
- Wells, N. M. (2000). "At home with nature: Effects of "greenness" on children's cognitive functioning." *Environment and Behavior* **32**(6): 775-795.
- Werner, C. M. and I. Altman (2000). Humans and Nature: Insights from a Transactional View. Theoretical Perspectives in Environment-Behavior Research: Underlying Assumptions, Research, and Methodologies. S. Wapner, J. Demick, T. Yamamoto and H. Minami. New York, Kluwer Academic/Plenum Publishers.: 21-37.
- West, J. (1992). Child-centered Play Therapy. London, Edward Arnold.
- Whitehouse, S., J. W. Varni, M. Seid, C. Copper-Marcus, M. J. Ensberg, J. R. Jacobs and R. S. Mehlenbeck (2001). "Evaluating A Children's Hospital Garden Environment: Utilization and Consumer Satisfaction." *Journal of Environment Psychology*(21): 301-314.
- Wohlwill, J., F. and H. Heft (1987). The Physical Environment and the Development of the Child. Handbook of Environmental Psychology. D. Stokols and I. Altman. New York, Wiley. **1**: 281-328.
- Yates, T. (2002). Theories of Cognitive Development. Child and Adolescent Psychiatry. M. Lewis. Philadelphia, Lippincott Williams & Wilkins: 172-196.
- Zahr, L. K. (1998). "Therapeutic play for hospitalized preschoolers in Lebanon." *Pediatric Nursing* **24**(5): 449-505.

Zimring, C. and R. D. Barnes (1987). Children's Environments: Implications for Design and Design Research. Space for Children. C. S. Weinstein and T. G. David. New York, Plenum: 309-319.

Table 1.0: Responses of patients (n=31) in the garden

Characteristics of play and behavioural responses	Results
Happy to be interviewed	74%
Nature of play: Group	58%
: Individual	42%
Group play without introduction	35%
Mean length of participation (LOP)	52 minutes
Patient having LOS greater than the mean	26%
Patient having LOS less than the mean	74%
Patient responded positive feeling to garden	81%
Patient mentioned the word 'best' towards the garden	52%
Patient perceived play equipment more significant than the vegetation	84%
Patient perceived that the garden is incomplete without the vegetation	52%
Patient perceived the presence of animals in the garden	100%

