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# Nature and its Influence on Children's Outdoor Play

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## Abstract

A growing body of literature indicates that humans need contact with nature for their wellbeing, however at the same time young children are becoming increasingly separated from the natural world as their access to the outdoors diminishes. The importance of school and prior-to-school settings in connecting children with nature has been acknowledged. This study sought to find out how opportunities to engage with nature would influence children's play and social behaviours. Two early childhood centres with contrasting outdoor environments were selected for the study, and twelve focus participants were observed over a twelve-week period in concert with interviews and field notes. The findings suggest that natural environments support children's imaginative play, the development of positive relationships and allows for the environment to become a place of learning. The authors conclude that in order to make effective use of the outdoors, early childhood centres need to provide children with access to the natural environment and teachers who support children in developing a relationship with nature.

**Keywords:** children, nature, environmental learning, play behaviours, social interactions

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## Introduction

I [Kellie] was observing children playing when a girl came over to me and tried to put a cape over her head and mine. I moved out from underneath the cape and she told me that it was raining and I needed to get underneath. I replied that I like the rain and asked her whether she likes the rain. She said no. Chris aged four was watching us and I asked him if he likes to go out in the rain. He says, "No... you have to have an umbrella" (Observation, 15/4/10).

Based on the premise that nature and outdoor play have a significant impact on a young child's health and well-being (Gleave, 2009; O'Brien & Murray, 2006), this paper explores the effect of natural play environments in early childcare centres. Two urban preschool centres, Kids Kindy and Garden Grove (pseudonym provided for anonymity), were chosen due to their markedly different physical and aesthetic appearance and contrasting play environments. The first early childcare centre, Kids Kindy, was a renovated warehouse in an urban setting with no outdoor play area. The second urban centre, Garden Grove, had a sustainable education program and natural playground. Through behaviour mapping techniques, interviews with teachers and children, and observations of children's play and social behaviours, the key question investigated in this study was: How are children's play behaviours and social interactions influenced by the opportunities and materials present in their outdoor play environment?

## Human-nature connection

Despite the wealth of research indicating the importance of nature for children's wellbeing, current outdoor trends in early childhood education demonstrate that these environments are becoming increasingly devoid of opportunities to access nature. Theorists such as biologist Edward O. Wilson (1984) have proposed ways to explore the human-nature connection. Wilson's biophilia theory emphasised the desire for humans to interact with nature and the positive impacts of such interactions. He argued that being alienated from nature could affect human development and what it means to be "human". As humans separate themselves from nature, this innate desire is not adapting to changing environments, but rather atrophying as each generation becomes more separate from nature (Kellert, 2005; Kellert & Wilson, 1993; Plotkin, 2008).

The cognitive benefits of contact with nature have been identified by various studies and indicate that nature improves awareness, reasoning, observation skills, creativity, concentration and imagination (White, 2004a & 2004b). Research has linked nature with physical benefits, including improved co-ordination, balance and agility (Fjortoft, 2001) and health benefits such as reduced sickness and a speedier recovery (White, 2004b).

## Child-nature disconnection

Louv (2005) espouses that a child in nature is increasingly becoming an endangered species. Evans (2000,) referred to how "children are less involved in outdoor play today because their traditional playgrounds – the backyards, streets and vacant spaces – are now less accessible" (p. 35). This begs the

questions: Why has childhood play and adventure been increasingly edited out of the modern-day experience? And, what are the consequences of this if evidence reveals that nature has an innate restorative capacity for adults and particularly for children? (Kaplan & Kaplan 1989; Taylor, Kuo & Sullivan, 2001).

The development of cities has limited children's access to nature. A number of other factors have also been attributed to this decline. Fear and safety issues have been highlighted as a major factor, particularly parental fears about traffic and stranger danger (Charles, Louv, Bodner & Guns, 2008; Gill, 2007; Kellert, 2005; Malone & Tranter, 2003a; White, 2004a). These fears have arisen as parents are often working longer hours and are unable to supervise their children, therefore confining children to the home where they are less likely to come to harm (White, 2004a). Even in children's backyards, access to nature has diminished due to the decrease in backyard size and the transformation of open grass spaces to formal entertaining areas (Elliot, 2008). The loss of play spaces has consequently impacted upon children's opportunities for play.

The push for developing young children's skills in preparation for university and job prospects has also seen the reduction of children's free play in favour of children's participation in extra-curricular activities and the completion of school obligations such as homework (White, 2004a). The increasing reliance on technology has also impacted upon children's free time, as many children choose electronic games over time spent outside (Charles et al., 2008). Even in the cases where children have the opportunity to go outside, governments have restricted access to open spaces for safety reasons and the threat of liability (Staempfli, 2009).

A myriad of reasons underlie the decline in access to the outdoors, a phenomenon that has been referred to as the de-naturing of childhood and nature-deficit disorder (Louv, 2005), and labelled more forcefully as 'childhood of imprisonment' (Francis, 1991, as cited in White, 2004b; White & Stoecklin, 1998). "As one scientist puts it, we can now assume that just as children need good nutrition and adequate sleep, they may very well need contact with nature" (Louv, 2005, p. 3). The effects of a childhood without contact with nature include diminished senses, attention difficulties and a disassociation from nature (Louv, 2005). Children are not the only victims of this disassociation from nature; White (2004a) highlights the effects on the environment by the continual isolation of children from the outdoors:

## **Children's play**

Play is a key right, often overlooked in the convention on the rights of the child. Article 31 of the convention highlights that authorities should recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child (UNICEF, 1990). Play is any activity that is freely chosen by the participant for a particular purpose. Attitudes towards children's play have changed over the years and numerous theories have aided in the progression of more accepting views towards play; however there are still misunderstandings regarding the value of play. It is still often considered a misuse of children's time that could be better spent engaged in formal learning. In this way "play is being displaced by a single-minded focus on teaching academic skills through direct instruction" (Nicolopoulou, 2010, p. 1). This attitude has filtered from primary schools into prior-to-school settings and has been influenced by research showing "the extent to which the preschool years are critical in laying the foundations for later learning and development" (p. 1).

Elliot and Emmett (1997) state that outdoor environments are beneficial for young children's play due to the complexity, plasticity and manipulability of the materials that cater for diverse play behaviour. The outdoors provides open-ended opportunities for play, learning, problem solving and developing social competence that are at times unpredictable and risky (Greenfield, 2004). Aversion to risk taking behaviours is predominant in today's society, yet authors like Little and Wyver (2008) and Greenfield (2004), highlight how such behaviours are necessary in allowing children to reach their potential. Greenfield (2004) states that eliminating risk from playgrounds entirely often leads to inappropriate risk-taking in a fearless and destructive manner in an attempt to make play more exciting. Imposing such limits on children's play also denies them the opportunity to learn about risks and risk management in the real world. The disadvantages of excluding risk taking include compromised development, decreased physical exercise, increased risk of obesity and limited play opportunities (Little & Wyver, 2008).

## **School grounds and nature learning**

Despite the wealth of research indicating the benefits of interacting with the natural environment, and a climate and environment that is user friendly, outdoor play appears to be diminishing in Australia (Walsh, 2008). Evans (1997) remarked that "it is ironic that, just when we are beginning to understand the importance of recess in the school life of children, we unearth evidence that some schools are reducing these breaks" (p. 20).

Natural outdoor environments have the potential to provide educational opportunities, however these factors are often overlooked in favour of large open spaces that are easy to maintain (White, 2004a; 2004b). These 'barren' spaces with little shade, shelter or opportunity for interaction with nature do not provide stimulation for children (Dyment & Bell, 2008; Malone & Tranter, 2003a). As children's access to nature in their homes and community has diminished, childcare and schools, where children spend a significant period of time, have been identified as 'the last opportunity' to reconnect children with nature (Malone & Tranter, 2003b; White, 2004b; Wilson, 1997). This has led to the implementation of "schoolyard greening," (Broda, 2007; Grant & Littlejohn 2001) a term used to describe the changes being made to school environments to restore the natural habitats. This includes planting trees, vegetable gardens and bringing nature back to the school or centre. Schoolyard greening is occurring in Canada, Australia, the United Kingdom, the United States of America, Scandinavia, New Zealand and South Africa. Notably, "school ground greening is a growing international movement that focuses primarily on the design, use and culture of school grounds, with a view to improving the quality of children's play and learning experiences" (Dyment & Bell, 2008, p. 16).

Green school yards have been associated with enriching the quality of play as they encourage more active, imaginative and constructive play, promote more courteous behaviour and strengthen the link between play and learning. It has also been identified that green playgrounds promote physical, social and cognitive health simultaneously (Dyment & Bell, 2008). Nature based learning also provides children with the opportunity to learn about nature and discover who they are in relation to the natural world (Phenice & Griffore, 2003). There are three components of nature learning within school grounds that Davis (2010), highlights. They include: education in the environment which is about providing children with opportunities to have contact with nature to foster wonder, empathy and love for the outdoors; education about the environment which involves learning the scientific knowledge behind the process occurring in the environment; and education for the environment which refers to taking action to care for the environment (Davis, 2010). Wilson (2008) argues that to develop a love of the environment children require frequent positive experiences with nature and an adult to who shares their interest in the environment.

## **The Study**

### **Participants**

The participants in this study were children between the ages of two and six, with an emphasis

on children aged four and five. Six children from each centre were chosen as focus participants with an equal number of each gender. Both early childhood centres were visited six times (fortnightly) over the twelve weeks and one child was observed each visit. The participating children were systematically observed and mapped in a half hour period, and then interviewed about their play behaviours and interactions with nature. Field notes, photographs and an interview with the centre directors were also used to collect supporting data. The rationale for this study centred around examining whether the presence or absence of nature impacted upon children's play and learning within the two centres under investigation.

### **The Sites**

Two early childhood centres were purposively selected to provide a marked contrast of the extremes rather than to represent a sample of the early childhood centres in the Sydney Metropolitan area. Data collection was undertaken from April to July in 2010 over a twelve-week period.

#### *Kids Kindy*

The first urban centre, Kids Kindy (pseudonyms provided to protect anonymity) was selected due to its unusual environment, being located within a warehouse with a completely artificial internal "outdoor" environment. The outdoor play environment is fully enclosed within the confines of the warehouse, with only louvered windows and air conditioning to provide circulating air. The ground surface is covered in softfall and as there are no fixed structures. The floor design is varied weekly to keep the children engaged. The artificial "outdoor program" provided children with the bike track (Figure 1) that was separated from the rest of the activities for safety reasons. The home corner was located beneath the stairs (Figure 2) and provided the children with a house and various plastic food props. A path created from stepping stones led to the climbing castles that were set up against the back wall (Figure 3).

Curtains hanging from the ceiling separated the quiet play area from the rest of the environment, offering the children a quiet place to lie down and look through books (Figure 4). The sandpit, which is surrounded by a fence at the back of the room (Figure 5) contained trucks and ramps, although on other occasions it contained a cubby house and cooking materials. An obstacle course was created from climbing frames next to the sandpit (Figure 6).





Figure 1: The bike Track

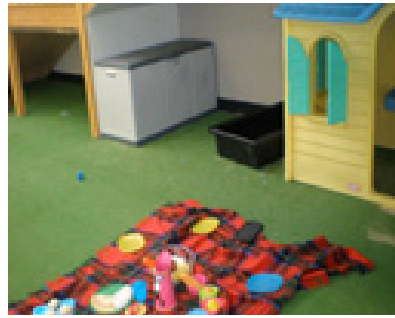


Figure 2: Home Corner



Figure 3: Climbing Castles



Figure 4: Quiet Play



Figure 5: The Sandpit



Figure 6: The Obstacle Course

### Garden Grove

The second urban centre, Garden Grove (pseudonym also provided) was chosen due to its emphasis on nature and sustainable education. The outdoor environment is four times the size necessary for the number of children present at the centre, allowing children ample space to play. The activities provided for the children vary each. The two separate sandpits (Figure 7) contained the tepee and a variety of logs, but at other times contained a campfire or a mixture of cooking implements. The fairy garden (Figure 8) was set up with cushions and a selection of books for quiet reading that children often engaged in with a teacher.

The play equipment (Figure 9) and the surrounding area was left bare which encouraged children to bring their own ideas to the space. The grass area (Figure 10) had space hoppers sometimes and at other times was left empty for children to run around, or used for teacher-led activities such as limbo. The play area also includes a campfire, frog ponds, a worm farm and a vegetable garden (Figure 11).



Figure 7: The Sandpits



Figure 8: The Fairy Garden



Figure 9: Play Equipment



Play 10: Grass Area



Figure 10: Vegetable Garden

### Gathering the data

Play behaviours were recorded using the behaviour mapping schedule (see Figures 12 and 13). This instrument was adapted from Malone and Tranter's (2003b) study Children's Environments. The various play behaviours were categorised into four different groups: social activities, cognitive activities, physical and motor skill activities and other activities based on the types of play noted in relation to child development physically, socially and cognitively (Countryside Commission for Scotland/Forestry Commission, 1984, as cited in Uzzell, 1988). To complete the behaviour mapping schedule each child was observed individually as they moved around freely in the outdoor space. Every 10 seconds an observation based on social interaction and play behaviour was recorded. Any comments to further explicate the activities and interactions were included on the schedule. Once all the observations were made for each child at each centre they were then tallied up. Table 1 provides a summary of the data collected through behaviour observations comparing the differences in children's play behaviour and social interaction in the two centres.

| Behaviour Mapping Schedule |   |  |        | Participants Code: ____ |  |
|----------------------------|---|--|--------|-------------------------|--|
| School                     |   | Child name   | Gender | Physical Conditions     |  |
| Play Period                | Date  | Time   | Grade  | Age                     |  |
| Ref                        | Social Interaction (SP, PP, AP, CP, TP, SG, LG) | Play Behaviour (SF, PI, OO, VI, CO, IE, EE, IA, FE, FS, TG, OP, ML, CA, O) |        | Place Description       |  |
| 1                          |   |  |        |                         |  |
| 2                          |   |  |        |                         |  |
| 3                          |   |  |        |                         |  |
| 4                          |   |  |        |                         |  |
| 5                          |   |  |        |                         |  |
| Reference                  |   | Notes on observed behaviour or occurrence                                  |        |                         |  |
|                            |   |  |        |                         |  |

Figure 12: Behaviour Mapping Schedule

|                    |   |
|--------------------|---|
| Social Interaction |   |
| SP                 | Solitary Play – plays alone no reference to others  |
| PP                 | Parallel Play – alongside others, uses available materials, no influence on other children                          |
| AP                 | Associated Play – plays with others engaged in similar activity.  |
| CP                 | Communication and materials exchanged no overall goal to activity   |
|                    | Co-operative Play – group of children organise themselves with a specific goal in mind ie. team game, drama         |
| TP                 | Two people  |
| SG                 | Small group (3-6 approx.)   |
| LG                 | Large group (7+ children)   |
| Play Behaviour     |   |
| SF                 | <i>Social activity</i><br>Self- focused (not interacting with other children, not playing ie. daydreaming, reading) |
| OP                 | Observing participant (waiting to have a turn during a team game)   |
| OO                 | Observing others (adopts role of onlooker- not interacting with other children)                                     |
| VI                 | Verbally interacting with others (talking with one or more children)  |
| CO                 | <i>Cognitive activity</i>   |
| IE                 | Constructing activity (building or making objects from loose materials)   |
| EE                 | Close interaction with the natural environment (located in & using nature ie. insect hunt, make daisy chains)       |
| EA                 | Exploring environment (moving in, through and engaging with natural environment ie. climbing trees)                 |
| IA                 | Imaginative activity (children engage in role play/drama, pretend, make believe, fantasy)                           |
| FE                 | <i>Physical and motor skill activity</i>  |
| FS                 | Playing free equipment (using bats, balls not a game - ie. bouncing ball against wall)                              |
| TG                 | Playing on fixed structure (using designed and constructed fixed playgrounds)                                       |
| CI                 | Participating in a structured team game (games with negotiated rules and roles, ie. football, basketball)           |
|                    | Child initiated game (games such as tip and hide and seek)  |
| IP                 | <i>Other</i>  |
| QP                 | Inside physical environment (goes into school building)   |
| ML                 | Quiet play (play with minimal movement or noise)  |
| CA                 | Moving between locations (not engaged in a structured play activity - define movement ie. running, walking)         |
| OE                 | Changing activity (where no play activity is yet evident)   |
| O                  | Over-enthusiastic play (fighting or risk taking behaviours)   |
|                    | Other (include short description)   |

Figure. 13 Behaviour mapping definitions

## Exploring the Data

### Play Behaviour and social interaction: patterns across the two centres

The most common types of play behaviours recorded across both centres included imaginative activity (IA) and verbal interactions (VI). At Garden Grove imaginative activities were recorded the most frequently (20%), followed by interactions with the environment (19%), and verbal interactions (13%). Observations of verbal interactions were highest at Kids Kindy (19%), followed by imaginative activity (14%) and play on fixed structures (13%). It was also noted that play with free equipment (FE) and self focused

behaviours (SF) were more common at Garden Grove while games initiated by children (CI), changing activities (CA) quiet play (QP) and over-enthusiastic play (OE) were recorded more frequently at Kids Kindy. At Kids Kindy associated play was the most frequently observed (29%), followed by small group play (24%) and solitary play (17%). In comparison small group play was the most common at Garden Grove (37%), followed by solitary play (17%) and associated play (16%). By comparing the observations of both centres the findings indicate that solitary play, parallel play, co-operative play, play involving two people and large groups were all similar. Large group play (LG) and parallel play (PP) were the least common types of play across both settings.

Table 1: Behaviour mapping analysis summary table.

| Play Behaviour | Kids Kindy |     | Garden Grove |     | Total |     |
|----------------|------------|-----|--------------|-----|-------|-----|
|                |            | %   |              | %   |       | %   |
| SF             | 4          | 3   | 10           | 8   | 14    | 6   |
| OP             | 0          | 0   | 0            | 0   | 0     | 0   |
| OO             | 5          | 4   | 8            | 6   | 13    | 5   |
| VI             | 24         | 19  | 17           | 13  | 41    | 16  |
| CO             | 6          | 5   | 7            | 5   | 13    | 5   |
| IE             | 7          | 5   | 24           | 19  | 31    | 12  |
| EE             | 0          | 0   | 3            | 2   | 3     | 1   |
| IA             | 18         | 14  | 25           | 20  | 43    | 17  |
| FE             | 7          | 5   | 12           | 9   | 19    | 7   |
| FS             | 16         | 13  | 4            | 3   | 20    | 8   |
| TG             | 0          | 0   | 1            | 1   | 1     | 1   |
| CI             | 8          | 6   | 0            | 0   | 8     | 3   |
| IP             | 0          | 0   | 6            | 5   | 6     | 2   |
| ML             | 6          | 5   | 5            | 4   | 11    | 4   |
| CA             | 9          | 7   | 1            | 1   | 10    | 4   |
| OE             | 8          | 6   | 2            | 2   | 10    | 4   |
| QP             | 7          | 5   | 0            | 0   | 7     | 3   |
| O              | 4          | 3   | 2            | 2   | 6     | 2   |
| Total          | 129        | 100 | 127          | 100 | 256   | 100 |

| Social Interaction | Kids Kindy |     | Garden Grove |     | Total |     |
|--------------------|------------|-----|--------------|-----|-------|-----|
|                    |            | %   |              | %   |       | %   |
| SP                 | 19         | 17  | 16           | 17  | 35    | 17  |
| PP                 | 9          | 8   | 4            | 4   | 13    | 7   |
| AP                 | 32         | 29  | 15           | 16  | 47    | 23  |
| CP                 | 9          | 8   | 10           | 11  | 19    | 9   |
| TP                 | 14         | 13  | 11           | 12  | 25    | 12  |
| SG                 | 27         | 24  | 34           | 37  | 61    | 30  |
| LG                 | 1          | 1   | 3            | 3   | 4     | 2   |
| Total              | 111        | 100 | 93           | 100 | 204   | 100 |

The observations of the children’s play highlighted some common themes across both settings including quiet play, active play, imaginative play, over-enthusiastic play (which included examples of behaviour management), social play and play involving nature. Findings within these categories are briefly explored below with a more detailed analysis provided in the original report from the study (Dowdell, 2010).

*Quiet play*

Both centres provided areas for children to engage in quiet play. At Kids Kindy cots and cushions were provided for children to lie on while reading books. At Garden Grove, quiet play was most obvious in the fairy garden where children sat on the wooden bench surrounded by pillows and read stories with other children, or often with a teacher.

*Active play*

While both centres encouraged and provided children with opportunities for active play, there were some differences in the types of play children could engage in due to space restrictions and safety. As a large number of children were sharing the artificial outdoor environment at Kids Kindy, the places provided for activity were usually sectioned off to limit this type of play to certain areas. A range of climbing frames were available to encourage active play and various items including the basketball hoop, bikes, golf clubs and stilts were provided over the twelve week period to develop children’s physical skills. The design of the outdoor environment at Garden Grove limited the types of active play available to the children, however physical activity was supported through the provision of equipment including hula hoops, hopping balls and sacks for sack races. The teachers at Kids Kindy did not participate in much of children’s active play, while the teachers at Garden Grove frequently joined in with the children.

*Imaginative play*

Imaginative play was provided for at Kids Kindy through the creation of dramatic play areas which changed weekly. However the observations of children’s imaginative play most frequently recorded involved children pretending that the equipment they were standing in was a boat or car. The large plastic table, when turned upside down was popular due to its potential as both a car and a boat.

In one example, four boys were sitting inside the upside down table. Another boy hopped in beside them and sat down. Three of the boys jumped out and one of them said,

“Quick get off the boat! The boats sinking!” The other two boys jumped out and the five of them ran off across the room (Observation, 10/6/10).

Other types of imaginative play included children adopting various roles. At times this occurred using the dress ups, for instance one of the boys asked me to tie a cape around his neck so he could pretend to be Batman. At Garden Grove, imaginative play involved children adopting characters or using natural materials imaginatively. One instance where children



engaged in adopting characters was observed where the children engaged in a dramatic play sequence involving escaping a bear using the large bark boats. A small group of children came running across the playground towards me screaming

“There’s a bear!”

One of the children said “Bill’s the bear” and they turned around looking for Bill.

“Let’s row away” another child said. The children all hopped inside the boats and picked up the thick sticks pretending to row away from the bear (Observation, 20/5/10).

Nature was also used in children’s imaginative play on numerous occasions. Cooking in particular was an example where natural elements were used in children’s play. Cooking experiences at Garden Grove usually involved the use of metal pots and pans in the sandpit or over the pretend campfire. However children often collected rocks, woodchips, sand and other natural elements in the pots to create ‘dishes’ as was evident in the example below.

Nathan, aged five, collected a handful of woodchips from near the play equipment in a metal pot and swirled them around. When I asked what he was doing he told me he was making spaghetti. He went over the grass area and pulled up some strands of grass adding them to the pot for flavour. Then he brought the pot back to me and poured some into a large pan for me to taste (Observation, 17/6/10).

#### *Over-enthusiastic play*

At Kids Kindy, examples of over-enthusiastic play were evident where children engaged in risky behaviours, had disagreements over toys, or engaged in rough play. Often this type of play involved behaviour management by the teachers, although at times it occurred unnoticed. Where children engaged in disputes over toys, the teachers often chose to remove the toy as a means of solving the problem. Another example was when children misused equipment during play. The children at Garden Grove were not observed engaging in over-enthusiastic play. When teacher intervention was required to sort out children’s play behaviours, they often guided children in sorting out their own play difficulties and made suggestions as to more appropriate choices of play. Play disagreements between children were more common at Garden Grove and often involved children getting upset and moving away from the other children.

#### *Social play*

In regards to children’s social interactions at Kids Kindy, teamwork was often established through activities with building blocks.. Children also engaged in small groups and pairs in activities such as bike riding and reading books, and in large groups in imaginative play experiences and games such as hide and seek. At Garden Grove, children usually engaged in play in small groups. The teachers were also influential in creating activities in which children could engage together, such as building a turtle in the sandpit, taking part in sack races and planting seeds.

#### *Play involving nature*

Play experiences that included nature were limited at Kids Kindy as they did not have access to the outdoors. However the sandpit was one means through which children connected with nature. The children engaged in making mountains and volcanoes in the sandpit although the children also noted that building sandcastles was difficult as the sand was too dry. On the final week of observations a cage containing a variety of stick insects had been introduced to the centre. During the morning play period one of the teachers started spraying the plants inside with water and the children crowded around to watch but were not permitted to have any contact with the insects. The children still included animals in their play, as was evident when two girls dressed in silk scarves danced around the room saying “we’re being butterflies... rainbow butterflies” (Observation, 10/6/10).

In contrast, the outdoor environment at Garden Grove provided the children with many hands-on opportunities for interacting with nature including grass, sand, mulch and dirt. Children had opportunities to roll in leaves, dig for ‘fossils’ in the sandpit and get their hands dirty. The sandpit was one of the places where natural play occurred, for example, when the children, assisted by a teacher, created a turtle in the sandpit. The children also had opportunities for contact with plants, as was evident when one of the girls noticed that the seeds which had been left out for the birds had started sprouting in the tree stump.

There were a variety of animals within the natural environment as some possums and numerous birds had made homes within the nesting boxes in the trees. The worm farm at Garden Grove always attracted a crowd when opened, and many discoveries were made by the children, including ladybugs, a seedpod with a tiny bug inside, leaf curling spiders, a huntsman, a slug leaving a trail along the inside of the bark boat, a cocoon hanging from the plants, tadpoles swimming in the pond and a queen ant. In these instances, the

teachers supported the children's learning, asking them questions about what they know about tadpoles, slugs and spiders, for example..

The outdoor environment also provided the children with the opportunity to engage with a variety of weather conditions. The children learnt to dress appropriately for the weather and to make use of the various opportunities that different weather provided, such as trying to fly a kite in the wind and being able to create different things in the sandpit when it was wet. The close interaction with nature throughout the year also provided the children with an understanding of the seasons and how the environment changed.

The opportunities for natural play in each of the centres were very different. While the children at Kids Kindy did not have access to natural materials they still incorporated some elements of natural play. However, the teachers did not support this play with connections to the natural environment. At Garden Grove, the natural environment provided children with numerous opportunities for discovery that was further enhanced by the teachers who helped the children make sense of their interactions within the environment.

### **Implications of the findings**

The evidence from this brief overview of the main findings, indicated that a number of factors were important for creating an outdoor environment conducive for children's play. The findings demonstrated that children played in both environments; however the quality and quantity of play experiences varied markedly. The development of positive relationships between children was a significant factor in supporting children's play and verbal interactions, with verbal interactions slightly higher in the Kids Kindy centre in contrast to the Garden Grove centre (19% and 13% respectively). The higher imaginative play at Garden Grove is consistent with Lester and Maudsley's (2007) finding that natural environments provide a rich setting for children's imagination and fantasy. Exploration and discovery of nature was a significant part of children's play in the outdoors at Garden Grove and their discoveries often put a hold on their play and drew a crowd of interested admirers. Wilson (1997) highlighted that "not all environments are equal in terms of inviting and encouraging children to become actively engaged" (p. 191). This research project sought to understand whether the contrasting environments of the two centres were or weren't inviting and encouraging for children. The results indicate that although an attempt was made by staff at Kids Kindy to replicate nature in the artificial surroundings the children did respond in ways typical of children in low natured environments, such as attention difficulties.

Unquestionably, the environment at Garden Grove provided a stimulating environment for young children that supported their play, fostered learning and aroused their curiosity. Children at Kids Kindy changed play activities more frequently than the children at Garden Grove (7% in comparison to 1% respectively) perhaps indicating that the environment was not providing enough stimulation. In contrast, the children at Garden Grove showed more sustained interest in particular play activities that allowed for richer and deeper play experiences to develop. This supports Herrington and Studmann's (1998) findings, who noted that children's socialisation and fantasy play lasts for longer durations in natural environments. Wilson (2008,) acknowledges that "children crave choice, challenge, and the opportunity to exercise their imagination. On playgrounds that offer only simple fixed play units, children have a tendency to add risk and challenge in order to cope with the limited choices afforded by the equipment" (p. 19). This was witnessed with the fixed structures at Kids Kindy that made up 13% of children's play linked to risk taking behaviours.

Wilson (2008) identified two factors that are important in influencing children's social and natural play interactions: 1) access to the environment; and 2) a supportive adult. Both these aspects will now be explored in more depth.

### **Access to the environment**

The first factor identified by Wilson (2008) is frequent positive experiences in nature. The children at Garden Grove were provided with plentiful exposure to the natural environment during their outdoor playtime, whilst in direct contrast, the Kids Kindy children only had access to the sandpit. Natural environments provide loose parts for play which due to their open-ended nature prompt children's creativity and imagination (Davis, 2010). Children's enjoyment in interacting with the natural environment at Garden Grove was evident where such play behaviours were the second most popular (with a total of 19%) of all interactions.

Davis (2010,) referred to the way in which nature is ever-changing, where "there is always something new for children to discover" (p. 64). These opportunities were evident at Garden Grove on numerous occasions over the observation period. Discoveries were often instigated by the children such as when they found a huntsman spider underneath the play equipment. Additionally, the teachers were vigilant for new and exciting sightings such as the presence of tadpoles in the ponds or the leaf curling spiders. Wilson (2008) suggests that "unless influenced otherwise, young children are fascinated by the natural world. They're drawn to other living things, especially animals" (p. 5). This fascination with nature was evident at Garden Grove as the children were keen to

share their discoveries with the teachers. The teacher's interest and enjoyment in the children's findings was always reflected in the time they took to stop and share this moment with the children. Carson (1956) saw childhood engagement with nature as purely a 'sense of wonder,' identified that the "clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood" (p. 42). It is important that experiences of fascination with nature are encouraged and supported as children spend time in the outdoors, to ensure that these moments of fascination continue into adulthood.

Davis (2010) referred to the way that natural environments "challenge, engage, inspire and provoke" (p. 64). In this manner, natural environments are important for stimulating children and supporting their engagement in diverse and creative play experiences. Without access to such environments, difficulties in children's play can arise. This observation was noted by Frost who stated that "children in well designed, extensively equipped, balanced play environments engage in less unoccupied and onlooker behaviour and are less frequently involved in behaviour problems than children in traditional sterile playgrounds" (1992, as cited in Wilson, 2003, pp. 234-235). While Kids Kindy has created an artificial 'outdoor' environment, children's play behaviours are limited by the largely 'plastic' materials provided and resulted in play more difficulties and more risk taking.

### **A supportive adult**

An adult who shares the child's interest in the environment is the second factor identified by Wilson (2008) as influential in supporting children to enhance their interactions about nature and natural play. The teachers at Garden Grove played a fundamental role in supporting children's interest in the environment. At Garden Grove the teachers joined in children's discoveries of leaves, stones and bugs, but they were also active in creating opportunities that allowed children to experience nature through, for example, planting, or tending to the worm farm. Where possible the teachers encouraged children to get their hands dirty and experience their environment and the changing seasons, including the enjoyment of jumping around in piles of autumn leaves. This hands-on interaction with the environment is important as "young children don't learn by having someone telling them about the world around them. They learn and construct meaning through their own physical and mental activities" (Wilson, 2008, p. 35).

Young children learn more about attitudes and values from their observations of adults' behaviours than they do from what adults say. "It is the teacher's enthusiasm and interest in nature - more than his or her scientific knowledge about the natural world - that will have the greatest impact on arousing children's

curiosity and engagement" (Wilson, 2008, p. 62). Wilson goes on to state that "children have an inborn sense of wonder and a strong desire to explore the world around them, yet they need an interested adult to provide encouragement, support, and guidance to keep their spirit of inquiry alive" (p. 35). The encouragement and interest in interacting with the environment that was evident at Garden Grove and was supported by teachers taking an active role in fostering children's experiences, understanding and enjoyment in nature. In contrast staff at Kids Kindy were less involved in scaffolding children's play or interacting with them, and therefore they were less influential as a stimulus to enhance children's natural play and social interactions.

### **Conclusion**

This paper has shown that access to the natural environment and a supportive teacher provides a richer environment for learning and influences children's opportunities for social interactions and natural play. Wilson (2008) identified that in order to reap the benefits of outdoor play, teachers need to alter their mindset in regards to viewing time outdoors as a break from teaching or "down time." Instead it is important that teachers value the outdoors for the opportunities it provides for interaction and exploration of the environment and hands-on learning about the life cycles of plants, animals, the seasons and the weather. At Kids Kindy, time outdoors appeared to be viewed as a break from teaching, and consequently specific learning moments were not capitalised on by teachers while children were in the outdoor environment. In comparison, at Garden Grove learning through interacting was a large component of being outdoors. While direct teaching was kept to a minimum, opportunities to investigate, and make links between classroom learning and the outdoors were evident.

Outdoor environments have significant potential in school classrooms for encouraging children's engagement in learning. However, researchers such as Malone and Tranter (2003b) and Davies (1996,) indicate that many teachers "have limited perceptions of the potential of the outdoor environment for children's learning" (p. 42). The findings of the research illustrated that a combination of elements are necessary for children's learning to be influenced by an outdoor environment. These include access to nature opportunities to be actively engaged with the space and the elements, and a supportive and interested adult is available to encourage and provide stimulus and feedback. When these aspects are present, children's play and learning is enriched. Further studies examining outdoor learning in early childhood environments to identify how teachers and specific spaces can support formal and informal learning in outdoor play spaces is needed. It is evident



that teaching strategies for engaging children's interest in the outdoor environment could assist in fostering children's love and excitement of nature. The following observation during the research activities at Garden Grove childcare centre, illustrates this final concluding point:

The boys had turned over the bark boats to find a small slug inside. "Be careful!" One of the boys had said as another child stepped over the boat knocking it sideways. They righted the boat and continued to gaze at the slug. The slug started to move along the bark leaving a trail behind. One of the children brought the teacher over to share in their discovery. "It's a leopard slug" the children said excitedly. "It's not a leopard slug" the teacher responded. "It has stripes instead of spots". She pointed to the slug's back and asked them what other type it could be. The children called out, "Lion". "Zebra". The teacher pointed out the respiratory hole and asked what the children remembered about what they had learnt. As the slug continued to move along the bark the teacher talked about the optic nerve and how the slug can't see but was searching for a dark place to sleep. She asked the children what else the slug might be looking for. "Food!" the children shouted excitedly. (Observation, 3/6/10).

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