

Play in natural outdoor spaces as a context for learning and language development

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Natural settings are gaining increasing recognition as important learning environments because of the associated benefits such as health, fitness, and environmentalism. However, this is under theorised as a context for language development. The three concepts of play, language and natural outdoor environments are intertwined. Through play, children adapt to and shape their environments, while the context influences the nature of their play, and their talk. Nature based outdoor environments are dynamic settings, providing multiple clues and meanings for new words to be learnt within that context.

Different environments offer different opportunities and influence on language development. Multi-sensory experiences in natural settings help children to develop the theories necessary for constant intellectual growth, through stimulating imaginations and affording an ideal environment for resourcefulness, inventiveness, and language development. Both in the literature and in my experience, the benefits of play, relative to other strategies, is that children can be more focused, imaginative and innovative which allows for further practice, and to play with newly developing language. When learning a language and playing in the outdoors, children are learning much more than words. They are learning about life itself and how their world works.

Introduction

Over the past four decades I have noticed a marked increase in early childhood centers operating from minimum spaces, alongside a noticeable decrease in the time children spend playing in natural outdoor spaces. We hear much in the media about caged hens, or pigs but there is no outcry about 'caged children.' A major focus of our early childhood education(ECE) - Play and Learn Early Education Centres programs, is self-directed play with connections and regular excursions into community and natural environments.

Waite (2010) identifies that historically, people worldwide grew up learning in the outdoors, so it is odd that we have come to 'do learning' in special buildings.

There have been several reports (Jones, 2014; Van Hees, 2011), over the past few years highlighting increasing numbers of children beginning school with poor language skills. Teachers report (Jones, 2014), that some children, particularly in low socio economic areas, arrive at school unable to speak in sentences and have limited vocabulary. Despite the emphasis on literacy and numeracy within education, many parents and some teachers fail to understand the, important link between deep and meaningful oral language skills, and success at school and in life. Children with poor language skills will often struggle with reading and writing (Van Hees, 2011).

Children adapt and shape their environments through play, and context influences the nature of their talk, while natural environments are dynamic settings which provide clues and meanings for new words to be learnt in context. According to Carr and Claxton (2002), human learning and performance are much more situation specific than is presumed, therefore, context affects the capacity to learn, while Hoff (2006) identifies that different environments offer different opportunities and influences for language development. Additionally, Moore (2014), highlights that multi-sensory experiences in natural settings help children to develop the cognitive theories necessary for constant

intellectual growth, stimulating imaginations and affording an ideal environment for resourcefulness and inventiveness and discussion.

Play

Lester and Russell (2010) suggest that play represents a particular approach to life, it is an urge to be open to and explore possibilities, to perceive and act in a way that denotes optimism and belief in one's own agency. The United Nations (1989) declared that the child has a right to leisure, play, and participation in cultural and artistic activities. Article 31 states that play is not a luxury, but a fundamental human need, the same as food and shelter. As members we should *respect and promote the right of the child to participate fully in cultural and artistic life and shall encourage the provision of appropriate and equal opportunities for cultural, artistic, recreational and leisure activity*. The overarching statement of *Te Whāriki: He Whāriki Mātauranga mō ngā Mokopuna o Aotearoa: Early Childhood Curriculum (Te Whāriki)* (Ministry of Education [MoE], 2017) supports this, stating that: "Competent and confident learners and communicators, healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society." (p. 5). Similarly, *Te Whāriki* advises, "In Māori tradition children are seen to be inherently competent, capable and rich, complete and gifted no matter what their age or ability" (MoE, 2017, p. 12).

Some findings from research studies see play as a providing a strong foundation for intellectual, physical and emotional growth, creativity and problem solving. Gray (2015) identifies that play in humans serves many valuable purposes, advocating that play supports the development of physical, intellectual, emotional, social, and moral capacities while creating and preserving friendships. However, Sutton-Smith (2003) argues that the uncritical assumption that play is a tool for learning and development is a romanticised view that glosses over some of the more disturbing ways of playing such as teasing and bullying. Being playful does not mean no negative or neutral emotions as, Zosh, Hopkins, Jensen, Liu, Neale, Hirsh-Pasek and Whitebread (2017) identify that frustration with a problem is necessary in order to feel joy, and sense of achievement when we overcome problems.

Other research studies highlight the health and physical benefits of play. Regular physical activity can help prevent chronic diseases while supporting children's health and motor skills (Alton, Adab & Roberts, 2007; Ekeland, Heian & Hagen, 2005). Donnelly, Hillman, Castell, Etnier, Lee, Tomporowski, Lambourne and Szabo-Reed (2016) suggest that neuroscience has linked physical activity to cognitive development. In addition, physical health is intimately connected to mental health, and both are also connected to features in the social and physical environment (Diamond 2007; Dietz, 2001).

Sutton-Smith (2003) highlights that play is the space where children can experiment with each other, with the world, with ideas and with language. I observed children playing with guttering. They were rolling vehicles down the guttering and discovering that when they lift the guttering the vehicles go faster. They tried balls, and experimented with lifting the guttering up onto a railing. "I did it, and I did it". "See when you put it up higher it goes faster" they say with great excitement, almost yelling to everyone around. The benefit of play, is that it offers opportunities to repeat and practice new language or behaviour, these can be more innovative and allow for further practice (Pellegrini, Dupuis, & Smith, 2007).

Johnson, Miller Singley, Peckham, Johnson and Bunge (2014) suggest a correlation between active engagement, memory development and information retrieval, indicating this context may enhance word knowledge and meaning. In pretend play children also acquire social skills and scripts, use language comically, and negotiate rules and meaning, involving sophisticated language constructions and, understanding what others intend. Smith and Pellegrini (2008) also identify there are many opportunities to extend vocabulary from pretend play. When children are

empowered to play, they practice conversations throughout the day, developing social skills and scripts, using humorous language, and negotiating rules and meaning. Importantly these interactions involve understanding what others intend, together with sophisticated language constructions, and novel and intricate story lines.

Children also play with language through silly jokes, and create their own imaginative languages. Weisberg, Zosh, Hirsh-Pasek, and Golinkoff (2013) conclude that play exposes children to the socially interactive and cognitive features known to enhance language skills. Play is essential for children's health and development, wellbeing and learning creativity; however, Lester and Russell (2010) remind us that this should be kept in context, remembering that play is an activity in itself, for its own sake. A key theme I have found emerging from this study is that play is an emotional exercise providing multiple opportunities to practice and develop language. Play induces emotions such as joy, happiness, frustration, sadness, fear, ecstasy, and it appears to be designed for us to experience, practice, ponder and enjoy life in our world.

Nature based outdoor environments

In New Zealand, the early childhood curriculum *Te Whāriki*, supports the use of curriculum in the outdoors (Ministry of Education, 2017). From a Māori perspective, Pere (1991) discusses the outdoors as an appropriate place to learn and use language, "the mountains, hills, valleys, plains, rivers, lakes, creeks, beaches, the sea provide a source of energy for the child to explore and experiment with sound patterns ... the landscapes, the seasons and the cycles of life, to connect with it" (p. 9). While Ritchie (2012) identifies children are "richly responsive to the landscape, the physical, tangible, sensory world in which they are situated" (p.89).

Forest or nature schools are developing rapidly throughout the world, including Aotearoa New Zealand. Nature programs are an ideal context to explore and experiment with the world and with language. The principle aims of these programs are the development of self-confidence and self-esteem; behavioural, social, emotional wellbeing; physical health and awareness through play, along with respect for and understanding of the natural environment (Waite, Bølling & Bentsen 2016). There are a limited number of nature based ECE programs operating in Aotearoa New Zealand. Some factors hindering this are the Education Regulations (Ministry of Education, 2009), this identifies that all licensed programs require a building which meets full licensing standards. The few programs that do operate, do so as an excursion, making them expensive to operate. There are also very few pre service teacher training providers offering instruction in nature based programs. There are some professional development providers, however most do not have ECE backgrounds, or these are imported from overseas and not based on an Aotearoa New Zealand context. Parental anxieties, or perceived anxieties about risk, danger and weather also contribute, with many parents (and teachers) unaware of the unique education possibilities outdoor programs may provide.

We begin with the recognition that everything that happens indoors in early childhood setting can also happen outdoors, however the reverse is not true.

Reggio Emilia stress the importance of the environment as the third teacher with an image of the child who "experiences the world, feels part of the world; full of curiosities, desire to live and communicate, fully capable of creating maps for personal, social, cognitive, affective and symbolic orientation" (Edwards, Gandini & Forman, 1998, p. 48). Natural outdoor environments are uniquely placed to support this view of the child, however we would posit that the natural outdoor environment Papatūānuku is the first teacher.

Forest and nature based ECE programs are an ideal place for children to practice language through opportunities for conversation, enquiry, wonder, theorising, debate and developing theories. These are dynamic spaces, incorporating emergent, experiential, inquiry-based, play and place-based learning (MacEachren, 2013). Repeated regular visits

promote an intimate knowledge of place, incorporating imaginative storylines and acute observation skills associated with changing environments (Waller, 2007). Play in natural environments also allows for freedom, expression and creativity, allowing children to work together using natural materials to create new things and develop new understandings (Moore, 2014). Similarly, Stephenson (1998) identified that children were engaged in playing for much longer periods in outdoor environments that were more engaging, with extensive opportunities for time and space.

Gibson (1977) describes the features, or effects, of the environment that contain meanings that invite us to assume certain uses - affordance. Outdoor environments offer diverse options for children to decide how to use different elements within the environment. Elements such as a stick and leaves can be used for a number of purposes, such as a doll, or used to build a hut or draw in the sand. There is the feel of different textures such as sand, water, wood, leaves, moss, mud animals and creatures and the weather. It is the affordances in the environment which make this a rich experience. Outdoor environments also offer many opportunities for whole body sensory experiences and include challenging dynamic landscapes with affordances and natural obstacles such as slopes, rocks, vegetation and trees. There are multiple opportunities for play and language development as children discover, theorise, question, wonder, discuss, explain, count, challenge and describe. Waite (2010) highlights how natural outdoor spaces provide many varied and flexible elements, where teachers respond to child-initiated interactions and build on interests. Similarly, Moore (2014), identifies sensory language and scientific learning occurs when damming streams, overturning rocks, observing natural phenomena such as sunlight and leaves, watching ants or smelling the air. There are numerous other opportunities which to practice and deepen language in meaningful ways.

The relationship to place is undertheorised in ECE literature. From a Māori perspective, the ability to understand and articulate connection to place is pivotal to personal identity (Penetito, 2009). Indigenous, environmental and post-humanist perspectives (Duhn, 2012; Ritchie, 2012; Taylor & Giugni, 2012) also relate to our intrinsic connections to the more than human world and the ethics of children's relations of living on earth. For Māori there are deep connections between humans and the natural world. This connection is expressed through kaitiakitanga or guardianship, this includes caring for life in all its forms and interconnections (Duhn, 2012). There is also the concept of mauri, the spiritual life force; permeates and unites all things and beings. Ritchie (2012) identifies how traditional knowledge, histories and stories that have been marginalised by western globalised culture, a monolith where "the felt primacy of place is forgotten, superseded by a new, abstract notion of space" (p. 88). Natural outdoor spaces are important contexts for stories and connection and meaningful discussion about the environment including kaitiakitanga, Papatūānuku, maunga, awa, moana and whenua along with local stories and legends.

Hay and Fielding-Barnsley (2012) highlight the importance of environments where talk is encouraged and respected, as this is the most authentic place to begin to build the vocabulary, concepts, and understanding. Hoff (2006) identifies that human language acquisition requires environments to provide opportunities to experience communicative language and to hear speech. Interaction influences the nature of the talk. Nature based settings offer many opportunities for sustained and shared thinking (Siraj-Blatchford & Manni, 2007). In the same vein Waters and Bateman (2013) identify that language opportunities were presented when children's interest in the natural world was directly related to their enquiry and interests.

A key aspect of learning in the outdoors is to experience being part of the natural world, effected the landscapes, the seasons and the rhythms of life, to connect with it. In *Te Whāriki* (MoE, 2017) the Relationship/ Ngā hononga strand highlights the importance of relationships with "people, places and things" (p. 21).

Play based, natural outdoor environments provide optimum space for play, learning and language development. Playfulness, curiosity, exploration and imagination drive play in the outdoors. The content - affordance is often nature

itself, water, logs, sticks, stones, the flora and fauna that children are naturally drawn to, elements that can be manipulated, moved around thrown and experimented with just to see what happens. There is space to run, roll, hide, jump, shout out loud and squeal with delight. As part of an excursion with ten children, I observed an expression of delight and joy when Amelia, (not her real name) reached the top of Mangere Mountain and shouted excitedly “I can see the whole world from up here”! These are emotional spaces.

There are key health and cognitive benefits from play in natural environments. Dadvand, Pujol, Macia, Martínez-Vilavella, Blanco-Hinojo, Mortamais and Sunyer (2018) found children raised in greener neighbourhoods showed better working memory and attentiveness, suggesting beneficial effects on brain development and cognitive functioning. Similarly, other studies found indications of differences between green and built outdoor environments which had an impact on learning (Taylor, Kuo & Sullivan, 2001).

In *Te Whāriki*, the Kotahitanga/Holistic development strand (MoE, 2017), states that children develop holistically. The value of adventurous and risky play is under theorised and undervalued in *Te Whāriki* and does not seem to be recognised in our culture of risk aversion and mitigation. I would theorise that keeping children physically safe, is at the detriment of the mental health aspects of holistic development. The opportunity for risk taking improves children’s competencies in risk management and risk perception. In addition, language and social skills may be enhanced through opportunities for collaboration with peers, as children collectively decide and learn how to manage risk. (Bundy, Lockett, Tranter, Naughton, Wyver, Ragen & Spies, 2009).

When we give children time to play in natural environments, we promote and value their freedom, independence and choice. Gill (2007) comments that children are disappearing from the outdoors at a rate that would be at the top of any list of endangered species. In research from Aotearoa New Zealand, Kelly, White, Dekker, Donald, Hart, McKay, McMillan, Mitchell-King and Wright (2013) suggest that engagement with the outdoors is a basic component of our heritage, identity and culture. This concept is also explored in a broader sense by Brownlee (2007) who suggests that young children need to grow their sense of belonging as a citizen of this planet.

There are indications that learning is affected by the outdoor context, but Davis Rea and Waite (2006) question if being in the outdoors intuitively changes the pedagogy to one allowing greater choice and enjoyment for learners. In nature-based experiences teacher’s showed heightened awareness of dispositions, skills, traits and qualities. They recognised more about children (Kelly et al., 2013).

Language Development

The Education Review Office (2017), highlight there is significant literature supporting oral language as a foundation for learning. However, despite the emphasis on literacy and numeracy within education, many parents (and some teachers) fail to understand the, important link between deep and meaningful oral language skills and success at school and in life. Children with poor language skills will often struggle with reading and writing (Van Hees, 2011).

Piaget believed that children construct their knowledge through action and lived experience, whereas Vygotsky (1978) saw language development as a social process, assimilating and mastering new words. Language development is a rational process, gathering and making sense, processing the information from the environment, then replicating this as the ability to construct and comprehend language (Hoff, 2006). This process identifies the importance in the environment for language learning. It is also affected by the properties and affordances and elements in the environment.

A study by Hart and Risley (1995), found that by the age of three there are dramatic differences in vocabulary in children from differing socioeconomic backgrounds which they coined the term 30-million-word gap. Since then considerable study has focused on this gap, however others, Teale, Paciga and Hoffman (2007) argue that while vocabulary is a critical factor, a more holistic approach, in line with Vygotsky's (1978) theory that interpersonal conversations with more capable peers provides a context for development and language. Carr, Smith, Duncan, Jones, Lee, and Marshall (2009) found that shared language opens up endless opportunities for play and learning. Similarly, Clark (2007) discussed how children's perspectives on the outdoors become the focus for shared discussion and meaning between children, teacher and families.

I observed a group of children lying on the forest floor looking up watching birds and discussing the *enormous* trees. On the way home we were passed by a long truck to which an 18 month old very excitedly called out, *look, an enormous truck*. Research by Erk, Kiefer, Grothe, Wunderlich, Spitzer and Walter (2003) highlight that words stored in a positive emotional contexts were remembered better than those in neutral or negative contexts.

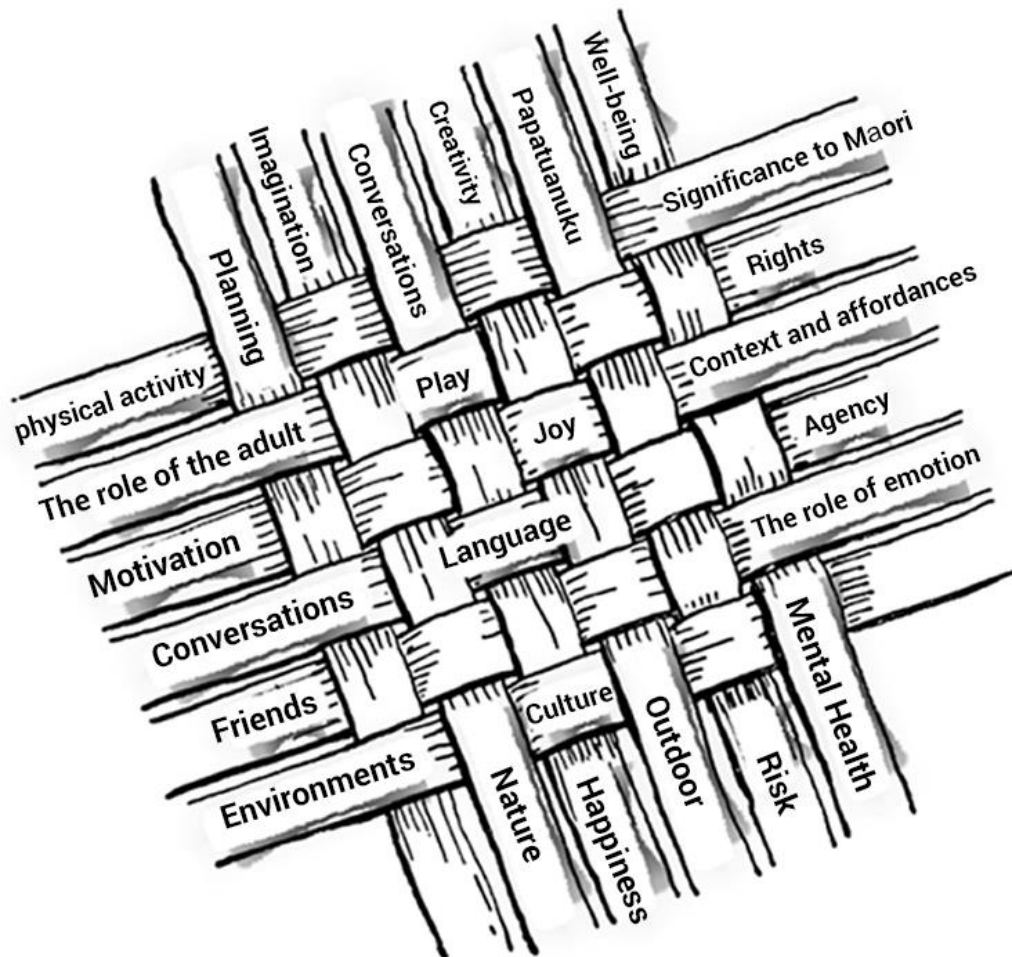
Tomasello, Dweck, Silk, Skyrms and Spelke (2009) emphasises the importance of environmental conditions for learning language, how the expansive use of words and utterances contribute to the construction of structure in the acquisition of language. Additionally, ERO (2017) discuss the links between physical exploration and language development. Children who engaged in more extensive hands-on exploration are the ones who learn more words, particularly words for actions, forces, and physical objects. As children's understandings of words grows, their use improves, and so does their ability to reason.

A number of authors comment on behaviours in the outdoors which support language learning. When playing in the outdoor environment, children are often engaged for much longer periods of time than they are indoors (Warden, 2010). Engagement is important for learning, as Katz and Chard (2000) highlight, when engaged, children develop language and higher level thinking skills such as analysing, hypothesising predicting and problem solving. There is also the concept of sustained shared thinking where practitioners co-construct knowledge with a group of children. Sylva, Melhuish, Sammons and Siraj-Blatchford (2003) identified that outdoor spaces are ideal contexts to engage in sustained shared thinking.

In te ao Māori, the concept of ako means both to teach and to learn, recognising that both teachers and children bring knowledge and ideas, acknowledging understandings and grow from shared experiences (Alton-Lee, 2003). In a similar vein Clark and Moss (2005) observe that in the outdoors, the teacher becomes the learner and the learner becomes the teacher (ako).

Social talk helps to provide meaning, and opportunities to apply the words in situations that require more reasoning. Blank (2002) suggests teachers can improve young children's language reasoning by enhancing their own dialogue, questioning and talk with children. I have observed teachers on an excursion in discussion with children about discoveries, this was an ideal context to introduce new words such as speckled, shiny, bumpy, spongy, thorny, jagged, and scaly. They also included spatial language, and relationships into directions such as above, below, between, inside, straight, curved, tiny, huge, thin, thick, edge, and side and describe movements, such as twist, float, and sink, current, and flow. All this enhances children's opportunities to develop their language.

Figure 1. The intersection of play, outdoors and the development and extension of language.



This study has found that language, play and natural outdoor environments are similar to the whāriki in Figure 1, they are all interwoven to provide an optimal context for language development. The curriculum *Te Whāriki* identifies how expert weavers will examine the foundations for planning and technique, representing the understanding of how children learn language. While the upper side of a whāriki displays the weaver’s artistry, it is the underside that reveals their mastery, I have identified that “confident, competent children” (MoE, 2017, p 7) underpins language development. If these are sound, the quality will be seen on the face up side, children will be confident to question, converse, ask, try and take risks and theorise, in order to develop a good understanding of language. A weaver weaves in new strands of harakeke as their whāriki expands, representing the adults who will provide the context and environments for language development.

In Aotearoa New Zealand we have an ideal environment to learn through nature. Nature based programs provide many opportunities for inquiry, theorising, questioning and conversation. Adults appear to slow down in this space which allows for time for language opportunities, conversation and sustained shared thinking. There is also space for children to develop private talk or create their own language. Many authors (Hoff 2006; Maynard, 2007; Waters, 2011; Wells & Lekies, 2007) found that children are more likely to raise enquiries about the world around them when

outdoors, than when inside specific learning settings. In outdoor environments children are often engaged for much longer periods of time than they are indoors (Warden, Nugent & MacQuarrie, 2015).

All environments are suitable for language acquisition, however, different environments afford different possibilities. My observations of walks from an ECE centre support this concept. There are constant opportunities for observation and questions for inquiry, suggestion, discussion, role play and developing learning theories. Questions such as why are there cracks here? Why are the flowers closed? Where did the water go? Why is the moon still out? Why are the crabs different on this beach? Both hearing and experiencing words in context are indisputably important in language learning (Hirsh-Pasek, Adamson, Bakeman, Tresch Owen, Golinkoff, Pace, Yust & Suma 2015). In the same vein, Hoff (2013) found that asking questions increased the grammatical complexity of children's syntactic development. *Te Whāraiki Online* (Ministry of Education, n.d.) advises that questions provide ideal opportunities to discuss and ponder theories of how the world works, working theories that are developed through our experiences and interactions with the world. There are ideal opportunities to introduce and incorporate new language in meaningful ways. Moore (2014) identifies the benefits of play, relative to other strategies, is behaviours generated through playing can be more innovative and allow for further practice of newly developed language.

Conclusion

Humans learn language when they have a reason to use it, while the most authentic place to begin to build the vocabulary concepts and understanding, were environments where talk is encouraged and respected (Hay & Fielding-Barnsley, 2012). We should empower children by listening to their voice, their views and ideas, by genuinely consulting them. Listening to children means taking them seriously and acting on their voices. These are genuine ways to offer opportunities to develop and extend language.

If children have opportunities to investigate, theorise and solve problems, their conversations and thinking become deeper, richer and more complex. In natural outdoor environments adults have the time to interact in a collaborative way, helping to support and guide children's thinking rather than simply providing immediate answers to children's questions as they support language learning. They jointly create shared knowledge, history and culture of meanings, relationships, collective rituals and routines. Paavola, Lipponen and Hakkarainen (2004) identify that knowledge and knowing cannot be separated from environments where they occur.

The importance of talk and conversation for language development cannot be underestimated, and should be highlighted in all literature.

Cognition and meaning are connected with people and their environments, meaning that learning is situated through involvement in these relationships. Davis, Rea and Waite (2006) found that language occurs most often during periods of free play, suggesting the outdoors afforded opportunities for stimulating talk, sharing and recording experiences.

Together, these studies above outlined that natural outdoor environments do provide a context for language development. There are enormous opportunities for wondering, questioning, enquiry, discussion, debate theorising group and one-to-one interactions. This topic is currently under theorised with a paucity of information, about how regular experiences in outdoor settings can positively affect young children's acquisition of language.

We have access to outstanding natural spaces, few dangerous wild or poisonous animals and minimal extreme weather. Other countries such as Scandinavia, U.K., Europe, U.S., Canada, and Australia, where these programs

flourish have to contend with these barriers and other physical barriers. Colleagues from overseas are stunned when they hear that outdoor programs are not mainstream here.

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