

Embracing risk in the Canadian woodlands: Four children's risky play and risk-taking experiences in a Canadian Forest Kindergarten

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Heather A Coe

Queen's University, Canada

Abstract

Children are born with an intrinsic drive and natural curiosity to explore the world around them. Just as young children are attracted to the natural world, they too are enticed by the physical challenges and risk-taking experiences that such environments provide. Based on research conducted at one of Canada's first Forest Kindergartens and using Sandseter's conceptualization of risk, this article aims to explore the safe risk-taking and risky play experiences of four children at a nature-based early years programme in rural Ontario. Not only does this research add to the growing body of empirical evidence surrounding risk and nature-based learning in the early years but also provides a unique Canadian perspective not often discussed in the literature. An incidental outcome of this work is exposing researchers and practitioners to the types of safe risk-taking and risky play experiences that may occur within an early years Canadian context.

Keywords

Canada, early childhood, Forest Kindergarten, nature-based learning, risky play, risk-taking

Introduction

Children are born with an intrinsic drive and natural curiosity to explore the world around them (Louv, 2008 [2005]). They grow physically, emotionally and mentally through hands-on interactions with people and place (Smith, 2002). Just as young children are attracted to the natural world, they too are enticed by the physical challenges and risk-taking experiences that such environments provide. Young children will often test the possibilities of their actions and push physical and mental boundaries through play and other hands-on experiences (Stephenson, 2003). A forest landscape provides a unique and welcoming setting for children to engage with the world in a physical way. The diverse backdrop of trees, rocks, hills and other natural structures present an ideal environment in which children's risk-taking and risky play experiences can flourish and thrive.

Corresponding author:

Heather A Coe, Faculty of Education, Queen's University, Duncan McArthur Hall, 511 Union Street, Room B189, Kingston, ON K7M 5R7, Canada.

Email: heather.coe@queensu.ca

Based on research conducted at one of Canada's first Forest Kindergartens and using Sandseter's (2007a, 2007b, 2009a) conceptualization of risk, this article aims to explore the risk-taking and risky play experiences of four children at the nature-based early years programme in rural Ontario. Not only does this research add to the growing body of empirical evidence surrounding nature-based learning in the early years but also provides a unique Canadian perspective not often discussed in the literature. An incidental outcome of this work is exposing researchers and practitioners to the types of risk-taking and risky play experiences that may occur within a Canadian early years context. In addition, this research provides support and evidence that winter outdoor programming is possible in cold and snowy weather conditions. Furthermore, this work may deliver well-needed support for practitioners and administrators both in Canada and abroad hoping to implement new outdoor early childhood programmes in a variety of terrains.

Nature, risk and outdoor play

Children's early experiences play a critical role in their development. In this respect, the early years can be viewed as an important time for children to interact and connect with the natural world (Johnson, 2007; Sweatman and Warner, 2009). The widespread benefits of developing a relationship with nature and engaging in outdoor play are well documented. These benefits not only include social, emotional, cognitive and physical development but also encompass the encouragement and nurturance of overall health and wellness (e.g. Barton and Pretty, 2010; Kuo and Taylor, 2004; Taylor and Kuo, 2009; Wells, 2000). Natural environments and green schoolyards that provide a diversity of landscaping and design features encourage outdoor free play and create opportunities for children to take risks and to be physically active (Dyment and Bell, 2008; Grigsby-Toussaint et al., 2011; Waters and Maynard, 2010). Access to such environments promotes the development of gross and fine motor skills (Fjortoft, 2001; Fjortoft and Sageie, 2000) and has been linked to decreased obesity and lowered body mass index in children (Bell et al., 2008; McCurdy et al., 2010).

Just as interactions with nature and outdoor play contribute to children's health and well-being, risk-taking and risky play experiences are essential for holistic growth and development (Little and Wyver, 2008; Schweizer, 2009). Physical challenges and risk-taking experiences help children to develop co-ordination and physical control (Schweizer, 2009), promote motor development (e.g. Fjortoft, 2001) and help children avoid accidents and prepare for future challenges (Schweizer, 2009). Mastery of challenging experiences may help children overcome fears and anxiety while simultaneously fostering self-efficacy and a deep understanding of what it means to be safe (Moyles, 2012). Moreover, learning to manage risk has important cognitive benefits, such as the development of team working skills, motivation, concentration and perseverance (Knight, 2011). In addition, these experiences encourage creativity and problem solving among children (Moyles, 2012). While engagement in physical challenges provides children with a range of emotions (from pure exhilaration to fear), they will often seek risks and thrills that result in rewarding positive emotions such as joy and excitement (Sandseter, 2009a, 2009c, 2010). In this regard, there is a sense in which engagement in risk-taking and risky play experiences supports not only children's physical development but also their social and emotional health and well-being.

Conceptualizing risk in early childhood education

Several definitions and conceptualizations of risk-taking and risky play have been presented within early childhood education literature. Risk has been described as a challenging and adventurous physical activity and a thrilling and exciting form of play (Sandseter, 2007a, 2007b, 2009a; Stephenson, 2003). These voluntary experiences involve the weighing of benefits against

undesirable consequences as children push their own mental boundaries and physical limitations, often to attempt something they have never done before (Moyles, 2012; Stephenson, 2003). Additionally, risk-taking and risky play experiences involve a borderline feeling of being out of control and a sense that one is overcoming fear (Stephenson, 2003). Moreover, risk-taking and risky play involve exposing oneself to hazards and the possibility of physical harm (Sandseter, 2007a, 2007b, 2009a, 2009b), with a perceived uncertainty regarding the outcome of the risky behaviour (Jones, 2012; Little, 2006; Sandseter, 2010).

To contribute to the growing dialogue surrounding the definition and operationalization of risk in early childhood education, Sandseter (2007a) examined the risky play experiences of 38 children (aged 3–5 years) at two Norwegian preschools. Through observations of children's play and interviews with children and preschool staff, Sandseter identified six categories of risky play based on the physical activity and risk involved. These six categories of risky play were then validated and confirmed in a follow-up study (Sandseter, 2007b). First, *play with great heights* – such as climbing, jumping down, hanging/dangling and balancing – involves the possibility of injury from falling. Second, *play with high speed* – such as sliding, running and swinging – involves the risk of uncontrolled speed that could lead to a collision with something or someone. Third, *play with harmful or dangerous tools* – such as using a knife for whittling or a saw for cutting wood – involves using instruments that could potentially cause physical harm. Fourth, *play near dangerous elements* – such as on top of a cliff or near deep water – involves the risk of falling into or from something. Fifth, *rough-and-tumble play* – such as play fighting, fencing with sticks or wrestling – involves the possibility that children could physically hurt or harm each other. Sixth, *play where the children can 'disappear'/get lost* – such as exploring unknown areas or walking alone – involves a danger of getting lost. This systematic categorization of risky play aids in the conceptualization of risk in early childhood education and serves as a reminder that children have a strong desire to engage in various forms of risk-taking.

Further adding to how risk is conceptualized in early childhood education, Sandseter (2009a) identified two types of risk characteristics in children's play. First, *environmental characteristics* are features of the environment, such as the height or steepness of a hill, that increase the chance of a child's possible injury as a result of play. The amount of supervision by teachers and staff is considered an environmental characteristic. Second, *individual characteristics* are features of how play is carried out by the child, such as the height a child climbs, concentration or body control. Therefore, when examining children's risk-taking and risky play experiences, it is essential to consider the types of activities they are engaging in, alongside the environmental and individual characteristics of those endeavours. Likewise, it is important to consider the individual differences with which children approach and engage in risk-taking and risky play experiences.

Methodology: Stepping into the forest

This article draws on research conducted at one of Canada's first Forest Kindergartens. To respect the privacy of those individuals involved in the study, pseudonyms have been assigned to all participants and the name of the school has been changed (Basit, 2010; Patton, 2002).

Participants

Participants for this study were recruited from a unique nature-based early years programme located in a small town in Eastern Ontario. Participants included one teacher (Teacher Jane) and four students (Jasper, Bella, Oscar and Marianne). The teacher was the primary educator of the

Kindergarten programme and accredited by the Ontario College of Teachers. Once on location, four children (aged 4 and 5 years) attending the Kindergarten programme were recruited. Using emergent sampling (Patton, 2002) and with the assistance of the teacher, two boys and two girls were selected. These children were chosen to best represent the variety of experiences encompassed by the children at the school.

Data collection

The purpose of the study was to gain an in-depth understanding of four children's experiences at a nature-based early years programme. Data were collected using qualitative methodology and took place over a 5-week period in the winter school term. Data were collected using observations, photographs, semi-structured interviews (students and teacher) and photo elicitation (students). The data were analysed using conventional qualitative means, through open coding and identifying categories and overarching themes (Creswell, 2007).

Using place-based education as a theoretical guide (e.g. Smith, 2002; Woodhouse and Knapp, 2000), data were reduced into three main themes: (a) lived experience; (b) connections to place and to community; and (c) learning, growth and development. While the themes of *connections to place and to community* and *learning, growth and development* were not reduced into further categories, five categories emerged within the theme of *lived experience*: full body engagement; interactions with nature; active learning; curricular connections; and acts of caring, respect and appreciation (Table 1). For the purpose of this article, data from this study were revisited through the lens of Sandseter's categories and description of risky play.

The school and natural learning environment

Established in 2008, the Forest Kindergarten is recognized as one of the first of its kind in Canada. At the time of research, the school catered to preschool and Kindergarten children aged 3–6 years. On a daily basis, a total of five or six children attended the Kindergarten programme. Because most children came to the school only 1 or 2 days a week, the students in the class varied depending on the day. Emphasizing health-, environmental- and community-conscious core principles, the school embraced the development of the whole child through its outdoor-based programming. Learning at the Forest Kindergarten was child-directed and achieved through hands-on experiences and emergent interactions with the natural world. While the children had the opportunity to engage in a plethora of hands-on experiences with nature, the teacher played an active role in extending children's learning by promoting engagement, exploration and critical thought. This relationship was almost symbiotic, where a reciprocal interaction among the children, the environment and the teacher was observed.

The learning environment at the Forest Kindergarten consisted of 190 acres of woodland, with two canvas tents providing an indoor retreat and learning environment for the preschool and Kindergarten children. Typically, children spent the majority of the school day outside in the Canadian woodland, retreating indoors for lunch each day and when children required refuge from the cold or dangerous weather (e.g. hail, torrential downpour). The natural outdoor space provided a unique learning environment, consisting of trees, hills, cliffs, boulders and open areas. In addition, numerous wetland areas were scattered throughout the forest, providing children with access to several lakes, creeks and marshlands. At the time of data collection, the forest was covered with a thick layer of snow, with frigid temperatures ranging from -27°C to -10°C .

Table 1. Emergent codes, categories and themes.

Themes	Categories	Codes
Lived experience	<i>Full body engagement</i>	Climbing
		Sliding/rolling
		Snow angels
		Digging
		Misc. (gross motor movement)
	<i>Interactions with nature</i>	Risk-taking
		Pushing physical limits
		Investigating nature
		Sensory explorations
		Passive observing of nature
	<i>Active learning</i>	Critical thinking and discussion
		Experimenting
		Fantasy and role play
	<i>Curricular connections</i>	Building and creating (large- and small-scale)
		Games
Language		
Mathematics		
Personal and social development		
Science and technology		
Healthy and physical activity		
<i>Acts of caring, respect and appreciation</i>	The arts	
	Caring for others	
	Caring for nature	
	Caring for place	
	Connections to place	
Connections to place and to community		Connections to community
Learning, growth and development		Independence/interdependence
		Developing notions of self
		Knowledge and skill development
		Safety and self-care

Findings and discussion: Risk-taking and risky play in a Forest Kindergarten

The Kindergarten children run towards the large snow-covered tree lying horizontal in the forest. It is obvious that this old tree has not been standing for many years; a stick shelter leans against the branches that once stood high above the forest floor. Instinctively, Oscar and Marianne climb onto the trunk of the tree and begin to make their way up towards the shelter. While the two children move confidently along the tree trunk, Bella shyly inches towards it, feet still securely on the ground. ‘Bella, come on!’ Oscar shouts after reaching the shelter. ‘Come into my ship!’ Bella moves closer to the tree, but still does not climb onto it. ‘Come on!’ Oscar shouts once again.

Looking to the tree then to her teacher then to her friends, Bella grabs onto a branch sticking up out of the tree trunk. Cautiously, she pulls herself to a seated position. Once again looking to the tree then to her

teacher then to her friends, Bella calls out for help. 'Can someone help me? I don't know how to do this'. Although she has almost reached the shelter, Marianne turns around. 'Just follow me. Look how I'm doing it. I hold onto the branches like this'. With this verbal reassurance and scaffolding, Bella clambers to her feet and slowly begins to walk up the trunk of the tree, holding onto the branches for support along the way. With each step, Bella appears more poised and comfortable with the task at hand. 'Come on!' Oscar calls out once again. This time, Bella replies. 'I'm coming! We're coming!'

Moments later, Bella too has reached the stick shelter. A smile washes across her face as she climbs down off the tree trunk and into the refuge below. While Oscar and Marianne play in the shelter, Bella sneaks out of a hole in the side. Independently and with a smile still on her face, she walks back over to the place where she had guardedly climbed onto the tree trunk minutes ago. This time, however, she does not hesitate. Holding onto the same branches as before, Bella pulls herself onto the tree trunk and makes her way up towards the shelter once again. Arriving at the wooden destination for a second time, Bella announces to the world, 'I did it!'

From hiding in shelters made of sticks to climbing branches in the trees, sliding down hills in the forest to crawling through tunnels made of snow and jumping off logs and boulders to digging in the slush with shovels and garden spades, the children at the Forest Kindergarten were constantly interacting with the natural world in a physical way. Having the opportunity to be actively engaged and fully immersed in the natural environment was crucial for children within this school setting. In fact, the physical environment in which these children learned seemed to act as a catalyst for spontaneous risk-taking and risky place experiences. Trees with strong low-lying branches encouraged children to hang and climb, and snow-covered hills beckoned children to slide and roll.

The children at the Forest Kindergarten engaged in various forms of risk-taking and risky play experiences throughout the day. These physical challenges mirrored the six categories of risky play outlined by Sandseter (2007a, 2007b): play with great heights, play with high speed, play with harmful and dangerous tools, play near dangerous elements, rough-and-tumble play and play where the children can 'disappear'/get lost. While some of these activities could undoubtedly be seen throughout the school year, other endeavours reflected the unique challenges presented by winter in the Canadian forest. There is a sense in which the added element of snow and ice may have increased environmental risk for activities such as balancing or walking on a log. Similarly, the snow itself may have slowed children's movements, decreasing their individual risk (Sandseter, 2009a).

Forms of Forest Kindergarten Play

Play with great heights. As with Sandseter's (2007a) study, climbing was found to be a favourite risky activity among the children at the Forest Kindergarten. Whether it was ascending the branches of a tree, scrambling up a large boulder or scaling the face of a steep hill, the children engaged in climbing whenever possible. Several children were observed mounting large snowballs or snow structures, as well as climbing onto large fallen tree trunks and logs. Having climbed onto these structures, children would choose to play on top of them, navigate along them, balance or jump down from the raised level. If children did not feel comfortable jumping down from a height, they would often choose to carefully slide or climb down.

The phenomenon of being at a great height and being able to observe the world from above appeared to be an attractive notion to the children. On several occasions, students were observed sitting, lying or dangling on branches; on top of large rocks; or on fallen trees. In addition, when given the choice as to where to eat snack, the children would often request a location that allowed them to be above ground level, such as on top of a large rock or on the top of a hill overlooking the tree-covered valley. Considering the features of risky play, this seemingly passive engagement with objects at great heights greatly reduced the individual characteristics associated with such

play, as children's speed was reduced to a standstill (Sandseter, 2009a). However, it is possible that the idea of observing the world from an unknown angle or engaging with the learning environment from above contributed to children's perceptions of thrill and excitement, concepts associated with Sandseter's (2009a) definition of risky play.

Play with high speed. Just as the children at the Forest Kindergarten enjoyed observing the world from above, students also relished any opportunity to move at a quick pace. The children appeared to enjoy chasing one another and often chose to run through the forest when on short hikes or when on their way to a nearby destination. On one occasion, two children were observed running quickly down a large hill, almost losing control of their bodies and laughing loudly as they moved. This instance illuminates how characteristics of the learning environment can act to mitigate some of the risks involved in an activity. In this case, a child's lack of body control increases the individual risk associated with the physical endeavour. However, in doing so within an environment covered with a large layer of powdery snow, the environmental characteristics of the landscape slowed children's movements and provided a more forgiving surface to land on if a child was to fall (Sandseter, 2009a).

Sliding and rolling emerged as another favourite risky play activity. Children were observed sliding off large snow-covered rocks and on icy surfaces. Similarly, children were frequently seen sliding and rolling down hills and cliffs, often adapting the individual characteristics of the experience by experimenting with the shape or positioning of their body (e.g. sliding on knees or head first). Because the children were dressed in snowsuits and the forest was covered with a layer of snow and ice, the children would often gain great speed and distance when engaged in such activities. This additional speed and distance may have increased the appeal of the activity among children, possibly due to a perceived loss of physical control or positive emotional responses to the rush of action (Sandseter, 2009a, 2010; Stephenson, 2003).

Play with harmful or dangerous tools. During the time of observation, the children at the Forest Kindergarten did not have access to dangerous tools, such as knives or saws. However, they were not isolated from such potentially hazardous instruments. Before lunch each day, Teacher Jane would light a candle and place it in the middle of the lunch table. Although the children did not light the candle themselves, they were always within close proximity to the flame and learned how to light the candle using a match. Similarly, during one observed snack time, children were shown how to safely open and close a sharp camping knife, and how to use this potentially harmful tool to carefully cut an apple.

While the children did not have the opportunity to use dangerous tools, they did have access to instruments and materials that could be considered harmful. On several occasions, the children were observed digging in the snow and slush with metal trowels and shovels. Children also had free access to various types and lengths of rope. Sandseter (2007a) observed children using knives and axes under strict supervision. However, the possible fear of injury from such tools may have proved too great for the educator at the Forest Kindergarten. Instead, Teacher Jane chose to allow children the use of tools and objects perceived to be less harmful.

Play near dangerous elements. The creek located beside the Kindergarten tent was a favourite place for the children to play. Depending on the winter weather, this small body of water would change from smooth ice to slush and water. Because the state of the creek was not consistent, it added an element of environmental risk to children's play. Similarly, snow and stick shelters were favourite places for children to hide. Due to the possibility of collapse, these sheltered areas may have had an increased environmental risk as well (Sandseter, 2009a). When playing in these areas, children adhered to pre-established rules. Before stepping on the creek, children worked together with the teacher to check the strength of the ice. Likewise, when playing in the stick shelters, children were

reminded not to remove twigs or add pressure to the structure when children were inside. While the students were all aware of safety concerns, they sometimes needed small reminders from the educator of how to safely engage with the possible hazards within the learning environment. In Sandseter's (2007a) original study, a young girl explained that she and her classmates had been instructed not to run close to the fire pit due to potential hazards. Taken in account with the current research findings, it is clear that establishing safety rules is an integral part of managing and allowing children to take physical risks.

Rough-and-tumble play. Rough-and-tumble play was only witnessed on one occasion during the data collection period. At this time, three children were observed wrestling and piling their bodies on top of one another. Similar to Sandseter (2007a, 2007b), Teacher Jane was aware of the 'fine balance between play and real fighting' (p. 246). When the risky play activity appeared to get too rough, she joined the children's play to redirect the rough-and-tumble experience in a safer direction, rather than stopping it completely. Teacher Jane explained,

We do a lot of, in our rough and tumble play, talking about how animals use their physical bodies with their siblings ... And we can practice that in a really safe, fun, friendly way. But the concern for me is where that line is that it becomes not safe anymore.

Play where the children can 'disappear' or 'get lost'. Similar to the students in Sandseter's (2007a, 2007b) study, the children at the Forest Kindergarten enjoyed playing in areas where they could 'disappear' or get lost. Children were often observed climbing into tunnels or shelters, as well as hiding behind trees or large natural objects. When on hikes through the forest, children were allowed to walk ahead or straggle behind, sometimes losing sight of the teacher or group. The children also appeared to enjoy games where they could get lost within the landscape of the forest; hide-and-seek type games were particularly popular among the children. The fact that children were permitted to hide and disappear within the forest landscape reflected the notion that a fair amount of trust was put in the children's ability to manage the risk. Children were permitted to explore areas independently and escape the gaze of their peers and teacher.

Individual experiences

Although the children at the Forest Kindergarten engaged in similar risk-taking and risky play experiences, not all children were attracted to the same activities. Similarly, each child approached the forest in a unique and personalized way. As witnessed in Bella's vignette, children differed in their eagerness and confidence with which they approached risk-taking or risky play experiences.

Jasper. At the time of data collection, Jasper (aged 4 years) was the newest child in the Kindergarten programme and was still acclimatizing to life in the forest: 'He's become a lot more comfortable here. I think it took a little while for him to just get used to being outside' (Teacher Jane). Teacher Jane described Jasper as a physical learner: 'he is intense and full on in everything he does'. This passion was evident in his approach to the learning environment, where his strong desire to play and be physically active was obvious to any observer. For Jasper, the creek was a beloved place in the forest as it provided him with a dynamic landscape and the space to be physically active and challenged:

He's so happy at the creek because there is so much space to roam and so many different things to do there. Climbing up the rock or sliding down the hill. Or sliding on the ice at the creek or play in the water, when there's water there.

Similar to other children in the Kindergarten programme, interactions with the physical environment and the natural elements of the forest both challenged and inspired Jasper to use his body as a vehicle for active learning. On several occasions, Jasper was observed engaging in activities that allowed him to move with high speeds, such as running, rolling and sliding. In addition, Jasper appeared to be drawn to experiences that allowed him to play near dangerous elements (e.g. close to the frozen creek) or use tools that could be considered harmful (e.g. using shovels and trowels in the snow). Based on the frequency of engagement in such activities, it is clear that Jasper's 'natural urge for risky play' (Sandseter, 2009a: 17) involved experiences involving an element of danger, coupled with feelings of excitement and a loss of bodily control (Sandseter, 2007a).

Bella. Having attended the Forest Kindergarten 1 day a week for five consecutive months, Bella (aged 4 years) had ample time to adjust to life in the forest by the time of data collection. Although she enjoyed hiking, climbing and playing in the outdoors, Bella was cautious about her physical interactions with the forest: 'She's not a real risk taker. But she knows her physical limitations. But [she] will try things if she sees the other children trying them and if she thinks that they're safe' (Teacher Jane). As seen in her vignette, this cautiousness often led Bella to question her physical abilities before engaging in a risk-taking activity. When playing in and around a snow shelter, Bella announced, 'I don't know if I can climb on the top. It's going to be hard to climb to the top'. Because of her guarded approach to the outdoor environment and risk-taking experiences more generally, Bella often chose to engage in activities that presented minimal risk. For example, on several occasions she was observed lying in the snow making snow angels with her body while her classmates engaged in more vigorous and risky endeavours. While she appeared to prefer low-risk activities, interactions with friends and the diverse make-up of the outdoor learning environment inspired Bella to occasionally push her physical limits. An example of this phenomenon is presented in the vignette, where Bella struggles with her own fears to walk along a fallen tree.

Although Bella did not appear to be overly comfortable playing at great heights or with great speed, she did display interest and confidence in the idea of getting lost in the forest (Sandseter, 2007a, 2007b). Similar to other children at the Forest Kindergarten, Bella enjoyed the opportunity to engage in formal games that allowed her to hide and disappear in the forest landscape. In her interview, Bella described her favourite hiding game, Fox and Rabbit:

Bella: ... I was hiding behind the tree and counting. And when I was ready, and I heard no noise, I was going to find Teacher Jane.

Oscar. Having started as a preschool student the previous year, Oscar (aged 4 years) had 1 year and 5 months of experience at the nature-based school before data collection. In addition, Oscar's family home was located within 200 m of the Kindergarten tent. Due to his close proximity, Oscar was well acquainted with the forest and had spent many hours outside of school playing among the trees. At the time, he was the only student to attend the outdoor school 5 days a week.

Oscar was a very energetic child and took a physical approach to the learning environment:

He loves running, being fast. He's loud ... He just loves screeching and being large animals and dinosaurs and dragons and things that are vicious ... He loves being first and best at things. Which I can't say that everyone wouldn't really love to do in their own heart. But it's right at the forefront with him. And so a lot of our activities that involve physical movement, especially if it's from one place to another or a longer journey, he's really happy with.

Oscar's desire to be physically active was reflected in how he interacted and engaged with his learning environment. In relation to Sandseter's (2007a, 2007b) framework of risky play, Oscar appeared to be most drawn to experiences that allowed him to play at great heights and with high speeds. For Oscar, an old tree with large, low-lying branches – named the 'Porcupine Tree' – was a favourite place in the forest. This area of the woodlands not only allowed Oscar the freedom to move and be physically challenged but also encouraged imaginative free play:

- Oscar: I love behind the yurt because behind the yurt is the Porcupine Tree and I love the Porcupine Tree!
- Researcher: Why do you love the Porcupine Tree?
- Oscar: Because I like to climb up it and it's kind of like an animal. It's kind of like I'm riding something.

Teacher Jane further described this special area of the forest and how Oscar engaged with the physical landscape:

The limbs are really quite big so there's a lot of space to climb on it, to crawl on it. It requires balance, which is really fun. [Oscar] loves balancing and testing himself on that kind of thing.

Another area of the forest that held special meaning to Oscar was the Climbing Tree: 'It's big. It's tall. And I love to climb on it' (Oscar). This tree not only presented a physical challenge as it involved playing at great heights (Sandseter, 2007a) but also provided Oscar with a space to showcase his strength in climbing. These risk-taking experiences appeared to impact Oscar on an emotional and affective level:

...In the fall he started climbing. He figured out a way that he could climb really quite high up in the tree and every single time we went to the climbing tree, would be the first one there and would just whip up as fast as he could up to this spot. And there's no other child in the Kindergarten who climbs nearly that high and he just love, love, loved it. And I think it gave him partly an adrenaline rush and partly a real confidence boost. Especially to hear the other children every single day say, 'Wow! How did Oscar get up there? How did you climb there, Oscar? What's it like up there? How far can you see?' I think that really resonated with him and made him proud of what he was doing. (Teacher Jane)

Marianne. At the time of data collection, Marianne (aged 5 years) had been at the school for 2 years and 5 months, the longest of any student at the school (1 year preschool; 1 year 5 months Kindergarten). She attended the nature-based programme twice a week in addition to a Senior Kindergarten programme in the public school system. After over 2 years of learning in and among the natural elements of the forest, Marianne moved through the woodland with confidence and poise, displaying a deep-rooted sense of familiarity:

I like to go to the forest and have lots of hikes. And play in the snow on the hike. And go in the shelters. And check out trees. And paint on bark. And draw on bark. And painting leaves. And going to the creek. And sliding. And I like to go to the creek where you can slide and fish. And the climbing rock. I like to climb on it and I like to build houses with it. (Marianne)

In describing her favourite forest activities, Marianne touches on four of the six categories of risky play outlined by Sandseter (2007a) – play at great heights, with high speeds, near dangerous elements and in places she could get lost. For Marianne, the creek beside the Kindergarten tent was a favourite place. In the winter, this location allowed for several risky experiences not available to children in warmer months:

- Researcher: What do you like about the creek?
Marianne: It's really fun and you get to slide on it. That's what I like to do.
Researcher: That sounds like a lot of fun.
Marianne: It is! You get to slide on it.

In addition to enjoying physical experiences, Marianne also displayed great comfort and relaxation when pausing at great heights. On several occasions, Marianne was observed climbing onto fallen logs or low-lying tree branches simply to rest.

Similar to Bella, Marianne displayed an awareness of her physical capabilities in relation to the experiences offered by the woodland environment. Unlike Bella, however, Marianne eagerly took on challenges that pushed her physical and mental boundaries. According to Teacher Jane, these experiences helped Marianne to develop greater body co-ordination and physical control:

She likes to climb. Whatever it is. Rocks, trees. She likes to challenge herself but is very, very conscious of and is very aware of her body and her limitations. She's a risk-taker in a safe manner.

...

Since I've seen her for the past year and a half, I've seen her physically become much stronger and much more coordinated. She was always coordinated, just growing into her own body and her own strength. And challenging herself every day. I can see huge changes.

Reducing hazards and managing risk

At the Forest Kindergarten, children's natural inclination to engage with the obstacles in the forest and desire to push physical limits was apparent. Students were frequently involved in activities that could be viewed as 'too risky' within a traditional school environment (e.g. tree climbing or sliding on ice). Recognizing the possible safety concerns of such endeavours while also acknowledging the potential for student growth and development, Teacher Jane emphasized, 'We like to remove the hazard and not the risk'. This statement echoes a similar assertion made by Forest School expert, Sara Knight (2013), who claims that children should learn in a 'safe enough' environment' (p. 19).

Just as there is a symbiotic relationship among the children, environment and teacher at the Forest Kindergarten, creating a hazard-free risk environment appeared to require a similar connection among these elements. Teacher attentiveness, self-awareness, peer attentiveness and environmental safety checks helped to reduce potential hazards and increase safety by addressing both environmental and personal characteristics of risk (Sandseter, 2009a, 2009c). First, Teacher Jane was attentive to the safety needs of her students. Not only did she pay close attention to her students and their actions at all times but took into account the possible hazards presented by the forest landscape: 'Because these are young children, learning their own boundaries, learning about their own bodies. Sometimes they're fully aware of what's around them in the forest and sometimes not so much' (Teacher Jane). While a low teacher to student ratio (no more than 1:6) allowed Teacher Jane to observe and monitor the students carefully, she provided the necessary space and support for children to self-monitor and take responsibility for their own safety. To support students' independence, Teacher Jane modelled safe behaviour, provided subtle safety prompts and reminders and scaffolded techniques for reducing hazard and managing risk. An example of this type of budding safety awareness among the children was evident in an interview with Jasper:

- Researcher: What are you doing here?
 Jasper: Rolling down ... the snow on the hill.
 Researcher: How can you make sure you're being safe when you're doing that?
 Jasper: Just roll in the middle.
 Researcher: Do you have to look out for your friends?
 Jasper: Yeah, see if it's clear ... To see if somebody is not in the way.
 Researcher: Do you say something?
 Jasper: Watch out! Here I come!

Second, children at the Forest Kindergarten were learning to self-monitor their safety behaviours and to be aware of possible hazards and safety concerns in the forest. An example of how children monitored their own safety was seen when children would walk ahead or straggle behind the group when hiking through the forest. While free to move at their own pace, the children were aware of the many safety check points along the trails. At these points in the forest, the children had learned to stop and wait for the entire group before continuing. In addition, if a child was not comfortable with losing contact with the group, they would signal the other children and teacher using a loud wolf call. In response, the other children and teacher would return the call, stop and wait for the 'lost' child to reconnect with the group.

Third, the children at the Forest Kindergarten were encouraged to be attentive to not only their own safety needs but also the safety needs of their peers. Teacher Jane provided an excellent example of what this action would look like in the warmer months:

We have quite a lot of ticks here. [The children] had to learn about how to keep themselves protected from getting tick bites ... Tucking in pants into socks and tucking in our shirts into our pants and making sure that when we see one of our friends that has their shirt out, remind them or help them to tuck theirs back in. Just taking care of ourselves and taking care of each other throughout the year is something that I emphasis quite a lot.

Evidence of these lessons and attentiveness to the safety needs of others was observed on several occasions in the winter. In the vignette, Marianne displayed care and consideration to the physical needs of her classmate Bella. In a different situation, Oscar and Jasper displayed their developing awareness of safety while pretending to build a bonfire using twigs, bark and leaves:

- Oscar: We need some leaves to burn.
 Jasper: We're burning'.
 Oscar: Watch out guys because it's burning!

At the end of the play session, the boys displayed further care when they poured imaginary water on top of the fire to ensure that it was safely out.

Fourth, environmental safety checks were a regular part of both the daily routine. Children were taught how to assess potential hazards within the learning environment and how to make responsible safety decisions based on these assessments. Teacher Jane described this practice:

We often, in the Kindergarten, try to perform safety checks when we go to a new site or a site that we haven't been to for a while or a place even that we frequent all the time ... If someone wants to climb a tree, which they're most welcome to do, they make sure that one of the grown ups is near by [and] able to watch ... they also then check all of the ground around for anything they may hurt themselves on. Whether it's small saplings or twigs, branches, rocks. Anything. And then if there are branches low enough down, they try to wiggle them and see if they're going to be strong enough for their weight ... They most often are excellent at performing those kinds of safety checks and deciding for themselves whether it's a good

idea to climb or not ... The safety checks are about checking for hazards, but then the children get to still perform whatever activities they feel like within that safe atmosphere.

Taken together, these four methods for reducing hazards and managing risk – teacher attentiveness, self-monitoring, peer-monitoring and safety checks – supported children's engagement in risk-taking and risky play experiences through the creation of what appeared to be a community of care. Within such a community, thoughtful and deliberate effort is made to care for students and to teach students how to care for themselves and others (Wood, 2015; see also Noddings, 2012a, 2012b).

Conclusion: Stepping out of the forest

It has been theorized that children growing up today may suffer from *nature-deficit disorder* while living a *de-natured childhood* – a childhood with limited outdoor play, a childhood that is becoming increasingly sedentary, a childhood with more interaction with electronic devices than with the natural environment outdoors (Louv, 2008 [2005]). In many places, evidence of a growing global trend towards 'zero tolerance' for children and youth in natural public spaces is evident (Malone, 2001). Moreover, the notion of outdoor risk-taking and risky play is often interpreted with negative connotation, where adults may view risk and hazard as synonymous (Little and Wyver, 2008).

As children spend less of their time outdoors, they are in jeopardy of losing their enchantment with the natural world and the risk-taking experiences that come along with it. Without these challenging endeavours, children may fail to develop the skills necessary to fully engage with the world at large:

The changing environment and climate of fear has meant that many parents are restricting children's movements to such an extent these children will not have the social, psychological, cultural or environmental knowledge and skills to be able to negotiate freely in the environment. That is, by bubble-wrapping their children, many parents are failing to allow children the opportunities to build the resilience and skills critical to be competent and independent environmental users. The irony is that without these skills their children are likely to be at greater risk of falling victim to the dangers that these parents strive to protect their children from. (Malone, 2001: 513–514)

Just as parents may be bubble-wrapping their children, contemporary schools and educators may be failing to provide students with the adequate time and access to environments where safe risk-taking and risky play can occur. While the children at the Forest Kindergarten were able to engage in many risk-taking and risky play experiences on a daily basis, the same cannot be said for students attending more traditional schools (Nebelong, 2012). In many cases, school grounds fail to provide a diverse natural landscape, consisting, instead, of concrete surfaces and manufactured play structures. In addition, educators who do not see the importance of risk-taking and risky play, or who fear the outcomes of it, may not allow students to engage in activities that could potentially result in physical harm or injury (Little and Wyver, 2008; Nebelong, 2012). However, risk cannot and should not be avoided. It is an inescapable part of life and of interacting with the world. Rather than trying to prevent it, children's engagement in safe risk-taking and risky play – as observed at the Forest Kindergarten – should be embraced and supported within all educational environments, not just those in the forest: 'Risk is inevitable; it's a requirement for survival ... A child who climbs may fall. But a child who never climbs is at much greater risk' (Jones, 2012: 50).

Providing children with opportunities to engage in risk-taking and risky play does not mean that safety needs to be ignored. Rather, educators can work with students and parents to reduce potential hazards and to ensure that children are provided with safe enough environments in which they are

able to push their mental and physical boundaries (Little and Wyver, 2008). If children are to live healthy, happy and holistic lives, they must be encouraged to take risks and to push their limits in order to learn and grow. Changing educators' and other adults' perceptions of risk in early childhood education is a good place to start (Bundy et al., 2009). Helping educators to understand the benefits of safe risk-taking and outdoor play, their role in supporting these endeavours, and the symbiotic relationship among themselves, the children and the environment is an even better place to begin.

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