

*Back to the Garden: Ontario
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Back to the *Garten*: Ontario kindergarteners learn and grow through schoolyard pedagogy

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Abstract Grounded in the new sociology of childhood and thus valuing the perspectives of young children, this study examined how outdoor, inquiry-based schoolyard pedagogy is experienced by kindergarten students. The study explored two primary research questions: (1) what do students report about their experiences in an outdoor, inquiry-based classroom setting?; and (2) what do teachers report about their observations of children's experiences in an outdoor, inquiry-based classroom setting? The study employed a phenomenographic methodology consisting of interviews and inductive analysis. Three major themes emerged: 1) student-led experiences in the outdoor classroom, 2) lessons experienced in the outdoor classroom, and 3) boundaries to learning in the outdoor classroom. Subthemes included learning through play, interpersonal learning, connecting with nature, inquiry-based curriculum, and resources. These themes provide insights regarding the structures of learning spaces, the roles of teachers, and the linkages between schoolyard pedagogy and emancipatory knowledge.

Keywords New sociology of childhood · Transdisciplinary outdoor/inquiry-based learning · Kindergarten students · Phenomenography

Introduction

The new sociology of childhood recognizes children as social actors who are capable of decision-making and as individuals who possess common sense and agency (Mason and Hood 2010; Meynert 2014). This new sociology reinforces the notion that the

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voices of adults should not be privileged over those of young people, particularly in regard to decisions that ultimately affect their young lives. According to Meynert (2014), this view of childhood and children portrays an emerging, dynamic child, located in a multiplicity of domains, co-constructing her world. By virtue of these characteristics, pedagogical practices and new sensibilities in educational research emerge.

The authors of this paper adopt this outlook on childhood and embrace the possibilities of a transdisciplinary educational praxis alongside a critical view of formal public education generally, compelling us to query the ways in which public schools do (and do not) engage children in the larger social, environmental, cultural, and learning environments. In keeping with this new sociology and ideological bent, this current research endeavour is inspired by a utopian vision in which children are able to direct their own learning and act as advocates, agents, and authorities of their own lives.

This past year, the authors of this paper have been involved in a range of community ecological initiatives. The first author engages with communal food growing and local environmental restoration projects, as well as projects aimed at enhancing children's learning through child-centered gardens. The second author has continuing involvement in a "greening Niagara's Schoolyards" initiative, which builds community academic partnerships with schools (principals, parents, teachers, post-secondary students and school children) and the regional university. These interests and inquiries led us to the purpose of this present study which was to explore kindergarteners' experiences in an outdoor inquiry-based classroom by investigating the following questions: (a) What do students report about their experiences in an outdoor, inquiry-based classroom setting?; and (b) What do teachers report about their observations of children's experiences in an outdoor, inquiry-based classroom setting?

Experiential learning as outdoor inquiry

The section that follows consists of a review of relevant literature, providing a conceptual structure – one that theoretically frames the study. Theories are developed by scholarly readings and research both with/in discipline and outside it (Anfara and Mertz 2015). Theory is also formed through intuition, experience, observation, reasoning, and practice – actually putting the theory to the test – according to McLean (2011). Ozer (2006) asserts that theoretical framing of how school garden programs exert their effects is important for informing practice and for the development of a coherent research and evaluation literature. The literature review that follows is informed by the above considerations and relates to the study key concepts and thus includes an overview of: transdisciplinary experiential education, outdoor experiential education, inquiry-based learning and the new sociology of childhood.

Transdisciplinary experiential education

Experiential education is often oversimplified as "learning by doing" (Breunig 2008; Roberts 2011). John Dewey is often regarded as one of the "founders" of experiential education. Dewey believed that subject matter should not be learned in isolation and emphasized the important role of the local community and out-of-classroom

experiences as educational resources. Dewey believed that the main aim of education was the preparation of individuals to participate in social change (Dewey 1904, 1938). This view of experiential education is one that promotes critical, holistic, and transdisciplinary approaches to teaching and learning as well as advocating for social justice (Breunig 2014; Itin 1999; Knapp 1992; Warren 2005; Warren et al. 2014).

Leavy (2011) defines transdisciplinary scholarship as teaching and research that spans two or more disciplines with “high levels of integration between the disciplinary sets of knowledge” (p. 9). Experiential education is often cited as one example of such a transdisciplinary, liberatory practice, as it incites students to actively question “the nature of the intersection between individual(s), situation, social relationships, and knowing,” as well as impelling educators to question what kind of role they should take in student-centered learning practices (Fenwick 2001, p. 13). Experiential education occurs across a variety of disciplines and contexts and is often closely tied to nature and outdoor settings (Blair 2009; Desmond et al. 2002; Fenwick 2001; Samarapungavan et al., 2011). With its focus on natural life processes, learning in outdoor settings provides cross-curricular and transdisciplinary opportunities relevant to reading, writing, art, health, drama, and social studies (Blair 2009; Dymont 2005), while promoting pro-environmental literacy (Skelly and Bradley 2007; Waliczek and Zajicek 1999; Williams and Dixon 2013).

Experiential education embraces transdisciplinary learning experiences to create and recreate knowledge as part of the educative process. Transdisciplinary experiential education extends beyond the commonplace reference to “hands on” learning activities (i.e. field trips or internships) to include problem-based learning, project-based learning, inquiry-based learning, community-academic partnerships, and student-directed learning, among other transdisciplinary pedagogies (Breunig 2017).

At its core, experiential education is critical pedagogy with the shared educational aim of promoting a more socially and environmentally just world (Warren et al. 2014). Transdisciplinary experiential pedagogies hold the potential to work towards critically informed teaching methods, emancipating students from the limitations of traditional models, and presenting the opportunity for children to become actors in their own lives. Valley et al. (2017) provide one example with a food security curriculum that is theoretically cross-disciplinary involving community engaged/reflexive praxis. The encouragement of critical thinking and questioning within this educational model serves as a tool for freedom (Duncan-Andrade and Morrell 2008). This can be particularly important for kindergarten age students, who at such a young age are very rarely consulted by adults in regard to the matters that directly affect their lives (Dewey 1927; Hickey-Moody 2016; Meynert 2014).

Outdoor experiential education

Distinctive for its emphasis on the child’s natural inquisitiveness, encouragement of learning for everyday life, and promotion of a connection between children and their natural environments, outdoor experiential education can encourage children to learn in, through, and about nature in outdoor spaces and on the schoolgrounds (Moore and Cosco 2014). The schoolgrounds themselves can serve as sites that are nature responsive and in constant growth flux, allowing children the opportunity to make meaning and connections through their experiences in their own schoolyard surroundings

(Kellert 2002). This further impels students to draw deeper connections to nature, furthering their pro-environmental knowledge while inspiring a strong desire to learn (particularly when compared to formal learning environments (Breunig 2014; Wake 2008).

Not only does outdoor schoolyard learning hold the potential to contribute to children's connections with nature and curricular subject matter, it provides them with an opportunity to connect that learning to knowledge about the community in which they live, including the larger political, historical, and social factors that influence their family's lives. In providing children with an opportunity to reflect on their experiences as political, historical, and social beings, outdoor experiential education, when practiced purposefully, can create a platform for addressing social inequalities, and address the disconnection between theory and practice that has been identified in some forms of experiential education (Warren et al. 2014).

Inquiry-based learning and the new sociology of childhood

One transdisciplinary, classroom-based platform for student-centred experiential education that acknowledges the relationship between individuals and their social and natural environments is inquiry-based learning (Gordon 2009; Savery 2006). Inquiry-based learning specifically involves the open-ended investigation into students' intuitive queries with teachers serving as provocateurs in moving students forward in their own inquiries (Ontario Ministry of Education 2013). In viewing children as knowledge-possessing and capable of critical engagement in their own lives, inquiry-based learning places a focus on children's own questions, observations and interpretations of the world around them as a primary method of instruction (Fielding 2012; Savery 2006).

Inquiry-based learning in Ontario kindergarten classes

One common application of inquiry-based learning is in the kindergarten classroom. Inquiry-based learning has become a comprehensive component of kindergarten educational initiatives, as the innate curiosity of young children and their intrinsic interest in the world around them makes them ideal candidates for this experiential style of learning (Michalopoulou 2014; Smith and Landry 2013). As noted by Michalopoulou (2014), inquiry-based learning is very appropriate for younger students, as they have a unique way of exploring their environments, including observing shapes and colours, movements, events and natural phenomena, grouping and comparing, listening, sampling, touching and smelling. Kindergarten children are at an age where they begin to see themselves as learners, and learning for them is instinctively transdisciplinary. If they are encouraged to reflect on their learning experiences at this age, kindergarten students are more inclined to become engaged and active in their learning endeavours and to make cross-disciplinary connections (Alvestad 2011; Buchanan et al. 2016). Noting that educators have long struggled to effectively engage students in the learning process, the Ontario Ministry of Education calls for a transformation of educational practices through methods that will support students "to become thoughtful, motivated, collaborative and innovative learners capable of engaging in their own inquiries and thriving in a world of constant change" (Ontario Ministry of Education 2013, p. 1).

While public education is evolving to embrace various models of outdoor experiential education, there is limited research examining young students' experiences in schoolground learning. Too few studies have examined K-3 grade students' experiences in outdoor schoolgrounds learning generally (Fisher-Maltese and Zimmerman 2015).

New sociology of childhood

As aforementioned, the new sociology of childhood recognizes children as social actors who are capable of decision-making and as individuals who possess common sense and agency (Mason and Hood 2010; Meynert 2014). This research thus takes up this particular sociological view challenging the assumption that the views, opinions, and voices of adults should not be privileged over those of children, particularly when it pertains to children's lives (Matthews 2007).

The purpose of this study, which was to explore kindergarteners' experiences in an outdoor inquiry-based classroom, is informed by the new sociology of childhood. As such, it provided an opportunity for the young participants to be active creators of their own knowledge through encouragement to develop understandings about their own experiences with the phenomenon under investigation (Anfara and Mertz 2015). This sociological approach empowered both students and teachers to conduct research, integrate theory and practice, co-create knowledge, and apply skills, consistent with the goals of transdisciplinary scholarship (Leavy 2011; Walker et al. 2015).

Investigating schoolyard experiences Phenomenographically

Qualitative research adopts an interpretive approach to understanding the meanings which people attach to phenomena within their social worlds, seeking to illuminate the descriptions that emerge surrounding individuals' unique experiences with the understandings they construct (Akerlind 2012; Creswell 2013). This study sought to investigate and understand, through an interpretive approach, factors that may influence experiences of a specific phenomenon: kindergarteners' experiences in the outdoor classroom at one Ontario elementary school. For this reason, phenomenography was the particular interpretive approach applied in this study.

Phenomenography examines socially transformative phenomena and aims to describe people's perceptions and experiences of phenomena within the social world, rather than aiming to describe the phenomenon itself (Marton 1981; Sharma et al. 2006). Largely employed in educational studies, this methodology has been described as one that "seeks to identify the qualitatively different ways in which individuals experience such aspects of their world as teaching, learning, or the meaning of disciplinary concepts" (Ashworth and Lucas 2000, p. 295). This is done through the process of describing, examining, and explaining various phenomena through a participant's representation of their daily, lived experiences (Marton 1981). In phenomenographic research it is important to recognize that each participant has a different interpretation of the phenomenon in question, and it is therefore beneficial to draw from the experiences of those who are directly involved.

Study site and participants

The research site was Fowler School (pseudonym), one of three schools located in Fonthill, a historical community within the town of Pelham located in the Niagara Region, Southern Ontario, Canada (Hugh 1994). This site was identified as ideal for this particular project because there are three all day inquiry-based kindergarten classrooms at the school. This research study made use of the schoolyard as a site for investigating the experiences of these full-day classrooms. The schoolyard itself is a public access large green space with open fields for free play and built play equipment near the schoolyard entrance, making it additionally appealing for the “greening” project. One portion of the schoolyard was purposefully dedicated to and designed for outdoor learning. This area includes a set of horseshoe-shaped stone seats for children and a small wooden platform for the teacher. Despite little shade, there is a small row of trees providing a natural border between the built playground and open field space and that of the outdoor classroom. There are willow arches that lead the young students into the outdoor classroom space. There is a small permanent weather station and a bin storing other teaching and learning resources.

The participant sample was comprised of students enrolled in the three kindergarten classes at Fowler School in the 2014/2015 school year (ages 4 & 5) and their teachers. Fifteen research participants were recruited for the study, twelve kindergarten students (four from each of the three kindergarten classes) and three teachers (one from each class). In keeping with norms of phenomenographic practice, convenience sampling was employed, identifying participants on a first come-first served basis, from a population of individuals who have direct experience with the phenomenon in question (Creswell 2013). Participants for this study were recruited through formal invitations and informed consent letters, seeking teacher and kindergarten student/parent permission for participation.

Data collection via interviews

Data collection in phenomenographic research commonly involves interviewing as a primary method (Akerlind 2012; Ashworth and Lucas 2000; Creswell 2013). We thus conducted interviews with both teacher and kindergarten participants. The interview method employed involved the researcher being responsible for creating a climate in which research participants feel personally invested in the project, allowing them to answer comprehensively and honestly (Akerlind 2012; Marton 1981). This is most often achieved through informal, open-ended interview discussions in which experiences are illuminated through vivid descriptions (Akerlind 2012; Marton 1981). The interview technique employed in this study was interactive and semi-structured, in that pre-designed interview questions were shifted, altered, and sometimes omitted, as participants provided accounts of their experiences in the outdoor classroom and discussed what was most important to them.

Interviews with the kindergarten students consisted of a student-guided tour of the outdoor classroom and schoolyard, where students pointed out aspects of the space to highlight their experiences while questions were posed (congruent with previous phenomenographic studies with children: see Ashworth and Lucas 2000; Kalvaitis and Monhardt 2012). Interviews were semi-structured and student-led, consisting of a

series of open-ended questions about what aspects of the classroom were meaningful to them and what activities they engaged in. The research questions were piloted with three kindergarten age children from a different location who, at the time, were involved in gardening initiatives and were therefore participants in a form of outdoor learning. I (first author) used students' insights from the pilot to guide the interviews for this study; for example, those kindergarteners involved in the pilot spoke about the social aspects of their outdoor classroom alongside nature-based discoveries, informing the refinement of the study questionnaire.

Each individual interview began by asking the kindergartener participant what (s)he spent most of the time doing in the outdoor classroom. This initial question garnered a variety of responses such as: run, look around, play, hide in the rocks, run on the rocks, play soccer, play tag, play pretend, make up games, and play on the paths. These responses led to asking more about these activities in order to delve deeper into each child's experiences. While some of the kindergarteners were more eager than others to conduct tours around the outdoor classroom, leaving the questions open ended and participant-centered allowed an opportunity for all twelve kindergartener participants to speak about their own experiences in a way that was meaningful to them. Each interview with a kindergartener lasted between 7 and 20 min, aligned with the amount of time that they were able to focus on the discussion (Kirk 2007). While these young participants were often eager to begin the interviews, some had less to say near the end of the allocated time and were ready to go back to their peers and join in the class activities.

Individual interviews with the kindergarten teachers were conducted to supplement and complement the kindergarten student insights. Phenomenographic data collection often involves interviews with multiple contextual groups with a focus on individual description of understanding (Bowden 2005). The teacher interviews were 20–30 min in duration, semi-structured, open-ended, and took place indoors, sitting at one of the kindergartener-sized round tables in that teacher's classroom.

When answering the interview questions, the teachers would reflect back on happenings they observed while the kindergarteners were learning in the outdoor, inquiry-based classroom. Open-ended interviews provided a forum for teachers' comments to further supplement the student reports.

Ethical considerations and limitations

There are ethical considerations when conducting social research, particularly when conducting research with very young people in an outdoor environment. The potential disconnect between a researcher and very young research participants can lead to an imbalance of power, the main cause for ethical concern regarding qualitative research with young children (Kirk 2007; Nairn and Clarke 2012; Palaiologou 2014). According to Palaiologou (2014), adults typically serve as children's interpreters and thus inevitably hold more power. This imbalance in power may result in a variety of problems in research with children's voices potentially being unequal to adult voices (Kirk 2007). For instance, a child may agree to participate in research without being fully aware of what this entails. It is therefore necessary that the entire research process – from research design, to obtaining each child's informed assent, to the interview procedure – be conducted in such a way that it is comprehensible and constructed in the interests of the participants. It is also important not to patronize or undermine the abilities or

thoughts of young people and to trust their responses to interview questions just as one would an adult (Greene and Hogan 2005).

With this in mind, we attempted to conduct the consent process and interviews in a manner that helped the kindergartner participants to understand the research goals and to feel comfortable to respond openly and honestly to interview questions (Alvestad 2011). Even with the above in mind, it was evident that participants in this study had varied levels of engagement with the interview process from one day to the next. We tried to adhere to Nairn and Clarke's (2012) advice, which suggests that "we need to be attuned to the fact that social shifts will also impact children's sensitivities and that ethics is an ongoing process rather than a static set of rules" (p. 195).

Another limitation to this study relates to conducting research outdoors. At times there was wind and other noise obstructing the kindergarteners' statements. The impact of outside noises (such as wind) was managed by asking the kindergarteners to clarify some of the statements made outdoors during their interview, further increasing the reliability of their reports.

Phenomenographic analysis

Phenomenographic data analysis is inductive, identifying emergent themes through a process of transcript coding (Akerlind 2012). It is focused on understanding those participant experiences that elucidate the research questions (Marton 1981). For open-ended interviews, coding is the process of labeling ideas expressed in the transcripts in an effort to produce an index (Akerlind 2012; Patton, 1990; Sharma et al. 2006).

After transcribing the interview reports verbatim, key ideas were inductively identified through a process of coding individual participant responses. As Akerlind (2012) indicates, during this process "utterances found to be of interest for the question being investigated are selected and marked" (p. 118), here designated as preliminary codes. For this study, codes were initially defined based on the recurrence of particular words in each individual interview. For instance, the words "play" and "pretend" were reported multiple times in many of the conversations with the kindergarteners, leading us to identify both of these as code-worthy. In this initial coding process it became obvious that there were concepts for which the kindergarteners did not have a predefined vocabulary. The transcripts were subsequently read with the aim of determining additional phrases and ideas that could be assigned to these initial topics so as to code these inductively generated categories, as recommended by Creswell (2013). For example, while none of the kindergarteners specifically used the word "space" in the interviews, many of them referred to navigation of the space, the size of the space, and the rules of the outdoor classroom space, leading to identification of these utterances using the code "the space." This process of establishing codes was largely inferential, but as Akerlind (2012) explains, while some meaning may come directly from the utterances in an interview transcript, in phenomenographic research interpretation of the codes must be made based on the study context. To support this process, the utterances and the interpretations were substantiated by both researchers.

The main concepts that emerged from analysis of the kindergarteners' interview transcripts were used to deductively code the transcripts of the teacher interviews. Deductive coding begins with predetermined significant words or statements that provide an understanding of how additional participants experience a phenomenon

(Creswell 2013). Many of the concepts initially identified in the kindergarteners' interview transcripts were also present in the interview transcripts of the teacher participants. Codes were grouped into sub-themes and then further distilled into three primary themes, in accordance with the study purpose and norms of phenomenographic practice (Marton 1981).

Learning in the schoolyard as outdoor inquiry-based classroom

The list of codes that emerged from analysis of the kindergarteners' interview transcripts included: engagement with inquiry, learning through play and imagination, learning through others, intrapersonal learning, interpersonal learning, connecting with nature in the schoolyard space, weather, and resources and supplies. Many of these codes resonated with those generated via the interviews with teachers. These included: learning curriculum in the outdoor classroom, and teachers' roles in the outdoor classroom. These codes were grouped as subthemes into three major themes which were: 1) student-led experiences in the outdoor classroom, 2) lessons experienced in the outdoor classroom, and 3) boundaries to learning in the outdoor classroom. The following figure (Fig. 1) illustrates the ten subthemes and the way they fit into the three overarching themes of the study.

In the next section we provide select participant quotes and paraphrases to highlight each theme alongside consideration of how these interpretations add to the body of knowledge relevant to kindergarten, inquiry-based outdoor classroom pedagogy. We commence each section with anonymized direct quotes and paraphrases followed by interpretation and the reintegration of literature.

First theme: Student-led experiences in the outdoor classroom

A more democratic pedagogy

The most prominent theme that emerged from analysis was the sentiment that the kindergarten students are guiding their own experiences in the outdoor classroom. This

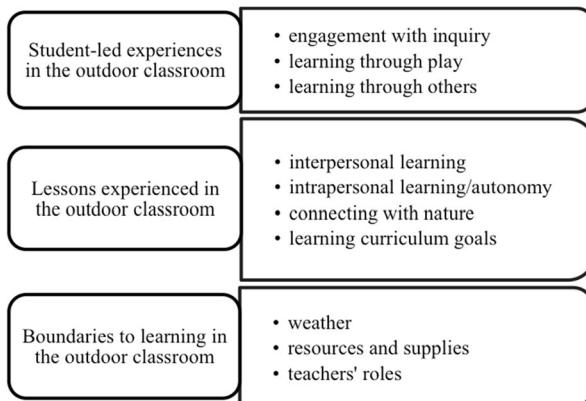


Fig. 1 Study themes and sub-themes

theme encapsulated the sub-themes of engagement with inquiry, learning through play, and learning through others.

All twelve kindergarteners spoke about the activities that they participated in when learning in the outdoor classroom, indicating that the space is loosely structured and student-led. When asked about how she spent time in the outdoor classroom, Chelsea reported that, “me and my friend, we just like go look around in the [willow] arches.” Likewise, Aneka shared how, through her explorations, she “found out that in the winter time when it’s like deep snow like this you can go in the arch and [with] the snow, it’s not so deep.” Penny was pleased to show a rock collection that she had gathered in the outdoor classroom and Robert described details about a bug that he found there. Becky talked about the signs of new growth that she observed in the outdoor classroom: “if you see little green stuff where it grows here, up there you’ll see some because I think there’s some starting to grow and it’s a flower arch too ‘cause there’s little fuzzy flowers.” These findings derived from student-led experiences dominated the conversations with kindergarteners.

All three teachers also referred to the space as open to multiple possibilities and explained that outdoor activities were guided by the students’ interests, providing for “organic” engagement via inquiry-based learning. For example, Mrs. Casey described the outdoor classroom as a space that “draws out inquiry all the time. [The students] are so full of questions and curiosity that I would say it definitely lends itself to just naturally bringing that out in kids and developing those skills or helping to develop those skills.” When describing how the students spent most of their time in the outdoor classroom, Mrs. Treadwell pointed out that the teachers generally “try to encourage their [student] interests in nature, like a bug or stick they find, or a leaf or a rock. We then bring other students into that learning to see what we can do with it and how we can further that discovery or that investigation.” When Mrs. Treadwell was asked to compare learning outside to learning inside, she explained:

I think it [inquiry] happens really naturally outside. It’s usually their discoveries that guide the learning, where inside the classroom we try our best to also listen to their inquiries and go off of what they’re doing. But outside it seems to lend [itself] really naturally to what they find interesting and their discoveries.

These results resonate with outdoor experiential pedagogies, wherein learning is an interactive process: a learner constructs new meaning through interactions with his or her environment (Itin 1999). They further suggest that young people may benefit from less structure in their space/environment, providing them with the opportunity to direct some of their own learning. Stan and Humberstone (2012) demonstrated that when teachers overly control outdoor learning they may unintentionally disempower children, which has serious implications for learning. In another recent study, Harris (2015) concluded that learning in the outdoor environment is kinaesthetic, sensory and experiential, and that teachers are most effective in the outdoor environment when they serve as activators of learning rather than preserving their traditional teacher roles.

These less structured spaces and fluid teacher demands are typical of experiential, inquiry-based learning, which is student-centered and involves questioning, gathering information, and discussing and reflecting on ideas to generate new knowledge (Breunig 2013; Savery 2006). This description of learning is resonant with our analysis

and interpretation of the interviews conducted in this study, which highlighted a lesser presence of direct teacher instruction. All three teachers revealed that they did not provide students with direct instruction on how students spent their time in the outdoor classroom. “We’ve never done direct instruction,” Mrs. Casey explained, explaining that she sees herself more as a facilitator. “I try and kind of stand back and just see what’s happening out there.” “I try to do that in the classroom as well but ... because of the environment of the outdoor classroom it’s a lot easier to do that out there.”

The way that the students guided their own experiences in the outdoor classroom signified a decentralization of authority in this learning space. Here it could be said that the students felt empowered to be a part of a more democratic learning process (Galt et al. 2013). Progressive educator, John Dewey (1916) notes that democratic learning is student-directed, active, social, focused on problem solving, and contextually relevant.

As noted by Novak (2010), learning that is contextualized and based on students’ interests can be potentially more meaningful for a student, promoting the connection of “new information to ideas the learner already knows” (p. 23). Contextualized knowledge created in informal learning spaces is “constructed from a union of our actions, feelings, and thought” which provides “a sense of ownership and control” over that knowledge (Novak 2010, p. 23). Prompted by the chance to lead the choice and direction of activities in the outdoor classroom, the kindergarteners experienced a more democratic pedagogy (Roberts 2011). “The kids are using it how they want to, we’re not structuring it,” Mrs. Treadwell highlighted, referring to how the students experience and work within the outdoor classroom. “They’ll all have an opportunity to do all of those different things outside, but some of them are more drawn to different aspects of our classroom.” This process empowers students to pursue their own inquiries through different learning styles in a way that “creates a better self-understanding ... of motivations and values” (Galt et al. 2013, p.131).

Imagination, play, and social engagements

Student-led learning was also exemplified in the way the students explored their inquiries through imagination and play, engaging in numerous social interactions with one another in the outdoor classroom. Many of the students described in detail the different imaginary or pretend games that they would enact here. For example, Kenny explained that he liked to “act like doggies” when climbing on the rocks. Jenny said that she and her friends liked to “play house” in the outdoor classroom and to “make trains.” And Chelsea described a time when she and a friend “played house and the willow arches were the shops and our house.”

All three teachers talked about the value of the imaginary play that they observed in the outdoor classroom. Mrs. Green explained how the kindergarteners used the outdoor classroom space for their pretend games. “In the winter they find cozy nooks out there or they’ve been pretending like the willow branches are like a house.” Mrs. Casey reported that, “a lot of the time they make up little games out there.”

This form of imaginary play, occurring in an outdoor classroom, often serves as a springboard for deeper social and curricular learnings (Miller et al. 2013). Miller, Tichota and White argued that in this context children were more likely to engage in reciprocal conversations with peers and teachers, listening to one another and responding appropriately, asking and answering questions in a more focused way.

The kindergartners also demonstrated signs of transferring that imaginary play and learning back to the indoor classroom. Mrs. Treadwell spoke about how the outdoor classroom facilitates this connection between indoor and outdoor learning. She noticed that bringing inquiries from the schoolyard into the indoor classroom is very common. This resonates with previous studies that identify outdoor learning environments as effective venues for learners to develop their knowledge and skills in ways that add value to their everyday experiences in indoor classrooms (Dillon et al. 2006; Jacobi-Vessels 2013), including transdisciplinary knowledge acquisition (Buchanan et al. 2016) and increases in student achievement (Ghent et al. 2014).

All three teachers discussed free play as an activity that frequently occurs in the outdoor classroom. "We can play whatever we want!" young Robert exclaimed when asked how he spent his time in the outdoor classroom. The free play activities that the kindergartners cited most often included: running, digging, working with the sand and snow, climbing, throwing snow, sliding down hills, jumping, imaginary games, and structured games such as tag and soccer. Mrs. Casey described games that she had observed, which were primarily "low organizational games of tag or going for walks and just talking with friends." "We see them [the kindergartners] often coming up with different games outside where they're negotiating the rules to a game," Mrs. Treadwell observed. She also explained that some kindergartners are quieter than others: "We have some students who are using it for more of like a quiet time ..., they're sitting there with a few friends talking, sometimes they're role playing house but they're doing more quiet activities in the outdoor classroom."

The Toronto District School Board and Evergreen (2013) promote outdoor play in schoolyards because they believe it connects kindergarten students to nature in ways that are meaningful and relevant to them and their learning. This is supported by Galt et al. 2013, p. 131), who assert that, "better learning results from interactive social settings where learners of varying developmental levels work and play together," as contended, "These settings are crucial because they allow for experiencing and deliberating upon varying perspectives emerging from open discussion" (p. 131).

"Free play" and child-initiated inquiry in the outdoor classroom may be the strongest catalyst for learning with the acquisition of corollary knowledge, connecting transdisciplinary subjects (Blair 2009; Fenwick 2001; Maynard et al. 2013; Samarapungavan et al., 2011).

Second theme: Lessons experienced in the outdoor classroom

Fostering independence

Lessons experienced in the outdoor classroom exemplified the sub-themes of interpersonal learning, intrapersonal learning/autonomy, connecting with nature, and learning curriculum goals. This supports previous research indicating that outdoor learning spaces can provide students with an opportunity to develop both personally and interpersonally (Blair 2009; Childs 2011; Dymont 2005; Jacobi-Vessels 2013; Kiewra et al. 2011; Samborski 2010). Mrs. Green described one example of witnessing positive and collaborative interpersonal engagements when a large group of students cooperated in fixing the willow arches, some of which had become detached. This goal-directed effort provided the kindergarten students with an opportunity to further develop their

communication skills and to experience the benefits of cooperation and collaboration. Dymont (2005) suggests that developing an enhanced sense of empathy, responsibility to others, and communication, can lead to more engaged citizenship amongst young people, encouraging them to be involved in their communities and in the larger social systems that govern and impact their lives. The impacts of these collaborative experiences are further highlighted by Roberts (2011), who emphasizes that resolving challenges in social environments is a fundamental aspect of students' moral and democratic learning.

The results of this study illustrate that when lessons are experienced in the outdoor classroom, the kindergarten students direct their own activities in a way that promotes independence and underscores self-understanding, including recognizing their likes and dislikes and embracing their own personal learning styles. This was demonstrated by Brandon who shared how he often preferred to work alone in the sandbox, saying that he liked to spend his time building in the sand. Unlike many of the other kindergarten student participants, Brandon said that he liked to spend his time "a little bit alone" when he was outside, and demonstrated learning through his experiences working and playing in the sandpit. Brandon also concluded that he thought it was interesting that in winter, "the outside is frozen but the inside of the sand is way, way softer." Additional student reports focused on their being able to choose how (and with whom) they spend their time. Chelsea described her enjoyment at being able to choose activities with her friends, describing how she and a friend "played house and the arches were all the like, shops and our house." Mrs. Corey affirmed these student conclusions, explaining how she observed clusters of students engaged in "low organizational games, so little games of tag or going for walks and just talking with friends." The self-determination of students regarding who their time is spent with in the outdoor classroom demonstrates their independence in this learning space. This form of empowerment is a hallmark of transdisciplinary scholarship (Leavy 2011).

Childs (2011) describes learning through personal interests as a motivating factor for students, and as such, "schools that encourage discovery and exploratory courses help students develop more positive attitudes about their education in a supportive environment" (p. 23). Childs goes on to suggest that these attitudes can lead to increased self-knowledge and self-efficacy in learning environments, traits which are referred to as core aspects of developing an intrinsic desire to learn (Novak 2010), and consistent with results from a study by Williams and Dixon (2013) which suggested that outdoor learning can teach self-concept, self-esteem, and motivation.

Learning curriculum goals

As briefly mentioned above, the results from our study confirm previous findings that inquiry-based, experiential education can promote the goals of formalized public education through transdisciplinary connections to curriculum goals (Blair 2009; Ghent et al. 2014; Samborski 2010). In reference to this study, this came most often in the form of corollary learning. Students indirectly referred to experiences in the outdoor classroom that were relevant to different disciplinary areas of the curriculum as outlined by the District School Board of Niagara (DSBN). For example, students demonstrated engagement relevant to the science curriculum when they described the

behaviours that they had observed from the ant colonies. They hypothesized how the ants might get food and drinks in and out of the ant holes.

Becky talked about the artwork they did, explaining, "In Spring there was rocks out here to sit on and we got to colour some things out here." Shane touched on math concepts describing how he looked at the trees from varying distances and considered how the dimensions of the trees changed as he walked further away. Resonant with Lloyd and Gray (2014) learning is happening all the time in the outdoor classroom, it just might not always be discreetly identifiable.

All three teachers noted that the outdoor classroom provided an environment for the kindergarten students to learn the requisite curriculum. Mrs. Treadwell reported that the curriculum emerges naturally in the outdoor classroom, stating that "I think we can find math outside, you know we can count things, we can talk about different attributes that you know leaves have, we can find ways to sort them." Mrs. Treadwell also discussed students' engagement with language and arts curriculum and explained that "sometimes we'll bring out clipboards to write about what they're seeing, and do art; they're drawing what they see outside." Mrs. Casey broke down the subject areas even further when she explained that,

On any given day, depending on what they [the kindergarteners] are doing, you can look at kind of what's happening there and you can see elements of like personal and social development, health and physical activity, science, there's literacy, sometimes there's math if they're talking about like patterns that they see.

Mrs. Casey went on to discuss how interacting with nature and with one another in the outdoor classroom gave the kindergarteners an opportunity to practice gross motor skills, science, and literacy and oral language skills through "the fact that they're just out there going for walks and talking about what they see and you know, questioning one another."

This study supports previous findings that have shown how outdoor learning can promote students' connection to nature and to their natural environment (Chawla 2009; Gill 2011; Skelly and Bradley 2007; Williams and Dixon 2013). Both the kindergarteners and their teachers described the ways in which the students engaged with nature when using the outdoor classroom through their intuitive interactions with their surroundings. The majority of kindergarten students kinesthetically demonstrated the ways in which the outdoor classroom connects them with nature during the interviews. Shane talked about how the recently planted trees were being protected: "Like when all the snow's gone, probably they'll take that off (points to a tree with a wrap on it) like when it's warm and hot because I think trees like it hot." Anneka walked around during her interview pointing out trees that were still "baby trees," and when asked if she had learned anything in the outdoor classroom, she stated: "I think that I've learned how plants have to be taken care of." She then continued, explaining how "we water them and we don't pick branches off of the [willow] arches." Emmett dug in the snow during his interview and Rose threw snowballs in the air. Brandon tried to dig in the frozen sand, and Jenny used a stick to scratch the ice off of a rock. Martin and Kenny showed me the anthills that they found.

Mrs. Casey confirmed these situations, pointing out that “they’re careful not to walk through the garden beds and onto the plants and things. They’re kind of into checking out ... what’s growing there and just different things that they’re noticing, whether it’s wildlife or leaves on the plants and things that are changing.” And Mrs. Green talked about the changes that the students had been observing in the outdoor classroom over different seasons: “We’ve been talking about the natural changes that we notice outside.”

Third theme: Boundaries to learning

Weather, resources and supplies, and teachers’ roles all emerged as boundaries to learning in the outdoor classroom as reported by both kindergarten students and teachers. Every student participant except Jenny talked about weather as a physical boundary to participating in various experiences in the outdoor classroom, and she perhaps didn’t mention it because her reports were primarily focused on the physical space. A number of students explicitly stated that they didn’t like being outside when it was cold. Becky acknowledged the seasons, observing that: “We come out a lot when it’s not that much cold.” When Anneka was asked if she spent a lot of time in the outdoor classroom in the winter time she said “no”; but then added: “Sometimes we come out in the morning time and don’t come out in the afternoon.” Rose explicitly stated that, during winter, “we don’t learn outside, we learn everything inside the school where it’s warm.” This was confirmed by Mrs. Treadwell, who noted that there were times when the class was restricted from using the outdoor space in the winter months. Mrs. Green described the winter weather as a limitation to the use of the outdoor classroom: “When we were outside there were so many wonderings and questions but then when winter came and we had two weeks where we were stuck inside.” Interestingly, during these weeks she noticed the change this created in her pedagogy: “We felt like we had to provoke the children more to engage in inquiries whereas when we were outside they would just come more naturally.”

Both students and teachers raised the lack of resources and supplies as being limiting to outdoor classroom learning. Robert and Chelsea talked about there being fewer toys in the outdoor classroom as compared to the indoor one. Robert concluded that it made him “feel like I want to go inside.” Other students mentioned that there was no carpet. Other students cited physical structures they would like to have. Brandon mentioned a treehouse and a telescope and another student suggested that “a playground would be nice.”

The role of the teacher in the outdoor classroom emerged as an important topic. Chelsea talked about how some of the willow arches got broken suggesting that her special friend would come back to tell them what to do. The special friend that she referred to was a volunteer from outside of the school who was highly involved in the initial construction of the outdoor classroom space. At the time of this interview the role of this volunteer in the outdoor classroom had ended, although Chelsea still anticipated that person coming back again that Spring.

Rose referred to the same volunteer when asked if she would be doing any spring maintenance: “I think [insert name] will.” Becky also highlighted the roles played by the teachers in the outdoor classroom when she explained that some of the teachers were concerned about the students’ safety on the rocks. Additionally, when Becky was

asked if the students would do any more planting in the spring she further emphasized the importance of the roles of the teachers in the outdoor classroom: “Yeah probably, but I don’t know yet.” In these instances, the kindergarteners were indicating the significance of the teachers’ roles in guiding the experiences in the outdoor classroom. The teachers also discussed these roles during the interviews. Mrs. Casey noted that “they’re [the kindergarteners] still at an age where they need a teacher to intervene and kind of help them to negotiate things.”

As Dymont (2005) identified in one Ontario-based mixed methods study that investigated 45 schoolground greening initiatives, teacher experience and confidence in teaching outdoors, school curricula requirements, and educational policies can detract from teachers choosing to use the outdoor classroom as a site for learning. This position is supported by Feille (2013). In studies conducted by Scott et al. (2013) and Dillon and Dickie (2012), teachers who were inexperienced in teaching outdoors (as was the case with the majority of most teachers from the elementary schools involved in our study), expressed concerns that their students would behave poorly outdoors and felt anxiety about their teaching competence. A recommendation supplied by Fägerstam (2014) is for teachers to develop a community of practice to create momentum and to share both resources and knowledge transfer between the outdoor and indoor classrooms.

Conclusion

Grounded in the new sociology of childhood with its focus on valuing the perspectives of young children, this study examined how outdoor, inquiry-based schoolyard pedagogy is experienced by kindergarten students. The study explored two primary research questions: (1) what do students report about their experiences in an outdoor, inquiry-based classroom setting?; and (2) what do teachers report about their observations of children’s experiences in an outdoor, inquiry-based classroom setting? The study employed a phenomenographic methodology consisting of interviews and inductive analysis. The major themes that emerged included 1) student-led experiences in the outdoor classroom, 2) lessons experienced in the outdoor classroom, and 3) boundaries to learning in the outdoor classroom. Subthemes included learning through play, interpersonal learning, connecting with nature, inquiry-based curriculum, and resources.

Several insights emerged as a result of analysis adding to the body of relevant scholarship. As indicated in the Discussion, taking part in kindergarten, inquiry-based outdoor classroom pedagogy provides a platform for students to engage with their learning in a way that is personally meaningful to them. By directing their time in less formalized learning spaces, students are able to build transdisciplinary connections between their surroundings and their learning experiences, as well as between one another. Encouraging the autonomy of young people in their learning environments promotes empowerment through the democratization of education, allowing students to learn from their decisions and to grow from their interactions with their peers. Learning to listen to oneself as well as to others is one way for young people to begin to relate to the world around them. As societal notions of childhood evolve, outdoor, schoolground learning is increasingly recognized as one way for young people to become co-constructors of their own learning and to begin to have their voices heard. There is a need for more research to be conducted as these praxes evolve and expand.

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