Abstract: Using a qualitative case-study approach, this small-scale pilot study explores the potential challenges and opportunities faced by Early Childhood Educators in their first year of implementing a dedicated Outdoor Learning Environment (OLE) at their school. Participants include two Kindergarten teachers working at a large international school in Singapore. Key findings reveal the ways in which students and teachers act as co-designers of learning in OLEs, and the ways in which OLEs can provide a unique learning context for supporting learner curiosity and developing resilience in children. The role that collaboration plays amongst teachers, students and families, in co-designing learning engagements and mitigating challenges associated with implementing an OLE, is explored. Knowledge and insights gained through conventional content analysis, and links to the ways in which OLEs have the potential to facilitate the development of 21st century competencies in young children, is discussed.
Introduction

Singapore’s Early Year’s curriculum framework, entitled *Nurturing Early Learners: A Curriculum Framework for Kindergartens in Singapore* (MOE, 2012), identifies “Discovery of the World” as one of the key learning areas for young children, stating that they must “engage all their senses and use a range of tools, equipment and resources to find out about their environment” (p. 72). Outdoor Learning Environments (OLEs) provide opportunities for such hands-on, experimental learning in real-life environments and the development of environmental awareness (Palavan, Cicek & Ataby, 2016). OLEs can provide “multi-sensory, movement-based, holistic and stimulating experiences” (White, 2011, p. 7), can enhance the levels of creativity children use in their play (Fjortoft, 2000) and have the potential to contribute to the well-being, health and development of young children (Cooper, 2015). In addition, the OLE is an often ignored learning environment for the cultivation of 21st century skills. Allvin (2016) and Chai, Deng, Tsai, Koh and Tsai (2015) have articulated that 21st century learning practices should cultivate collaborative and self-directed learning amongst learners who are engaged in critical and creative problem solving. Despite the potential benefits of learning outdoors, OLEs are rarely referenced in early childhood policy documents (Cooper, 2015) and many children have limited access to outdoor play and OLEs through their Early Childhood Education (ECE) programmes (McClintic & Petty, 2015). Current discussions of 21st century learning has focused much on computer-based learning and barely considered the potential of OLEs, which could easily be enhanced through mobile technologies.

This paper outlines the results of a small-scale pilot study exploring the challenges and opportunities associated with the implementation of an OLE at an
international school Kindergarten located in Singapore. In 2015, the Kindergarten in this study opened a new purpose-built OLE in an attempt to integrate increased opportunities for students, ages 3 – 6 years old, to participate in learning that takes place outdoors and in ways that supports engagement with nature. The design and implementation of this OLE was in response to a growing recognition of the opportunities outdoor learning may provide young children in regards to sensory exploration, gross motor development, and nurturing an understanding and appreciation of nature.

Literature Review

For the purpose of this paper, an Outdoor Learning Environment (OLE) is more than an outdoor playground. Instead, it is an outdoor learning space that includes intentional interactions with elements of nature (e.g. plants, animals, rocks, dirt, water, etc.). Research on teachers’ use and implementation of OLEs reveals that most early childhood educators agree with the importance of experiences in nature for children’s physical, socio-emotional and cognitive development and young children’s appreciation for the environment (Ernst, 2014; Ernst & Tornabene, 2012; Norodahl & Johannesson, 2016). OLEs provide children with the opportunity to explore, be active, and engage in sensory experiences that simply cannot be replicated inside. Outdoors, children are free to run, be loud, engage in rough and tumble play, and take calculated risks. As a result, outdoor learning can lead to increased confidence, enhanced gross motor skills, creativity and improved collaborative skills (Cooper, 2015). Despite a general appreciation of the value of OLEs, many early childhood educators face barriers, both perceived and real, to implementing learning outdoors.
**Teacher Beliefs**

Ernst (2014) found that whilst teacher beliefs regarding one’s relationship with nature shows a positive correlation with the frequency of use of OLEs, it did not have a significant influence on use in relation to other belief variables. Ernst (2014) found that the most significant predictor of outdoor use are beliefs regarding perceived difficulties in using OLEs. Both real and perceived barriers can include a lack of walking access, lack of time, weather, safety concerns and lack of extra supervision. Consistent with these findings, McClintic & Petty (2015) found that both teacher perceptions on the value of outdoor play, coupled with logistical constraints, influence the use of OLEs in teaching and learning. In addition, McClintic & Petty (2015) found that teachers’ “minimal knowledge and skills of outdoor play environments, coupled with teachers’ perceptions that indoor classroom learning is more important than outdoor learning” (p. 38) contributed to a disconnect between teachers’ appreciation of the value of outdoor learning and their actual practice as teachers.

**Limited Use of OLEs**

In a study exploring Kindergarten teachers’ views on children’s outdoor play environments in Oman, Ihmedieh and Al-Qaryouti (2016) found that, whilst teachers recognize the importance of outdoor play in children’s learning and development, they do not always act in ways aligned with their beliefs. They found that while 93% of the teachers included a period of outdoor play in their daily routine, 70% indicated that this time outdoors was short (15 – 30 minutes a day). In a similar study done in Turkey (Palavan, Cicek & Ataby, 2016), two thirds of teachers interviewed said they had never heard of outdoor education before and had a list of reasons why they did not regularly engage in outdoor learning with students. These reasons included
concerns over safety, curriculum deadlines, difficulty in access, a perceived lack of
parent support and even laziness (Palavan et al., 2016).

Benefits of OLEs

In his book Last Child in the Woods: Saving our Children from Nature-Deficit Disorder (2005), Richard Louv provides several anecdotes highlighting the reasons why children may benefit from interactions with nature as a means of nurturing creativity and restoring well-being. In cultures and areas of the world where teachers are familiar with utilizing OLEs, and have support in successfully implementing them, the benefits to children’s learning is perceived by educators to be great. In a study exploring Icelandic teachers’ views of using the outdoors in young children’s learning, teachers shared that they felt that OLEs support student investigations, their health, well-being and overall self confidence (Norodahl & Johannesson, 2016). Icelandic teachers commented on the ways in which OLEs support students in their ability to tackle risk and build courage. Outdoors, students challenge themselves to try new things such as climbing rocks, and learn to interact with one another to solve problems (Norodahl & Johannesson, 2016).

Declining Opportunities for Children to Engage with OLEs

Increased demands on working parents means that young children are spending more time in child care and more time engaging with digital technology (McCIntic & Petty, 2014) resulting in declining opportunities for young children to engage in outdoor play at home (Nedovic & Morrissey, 2013). Thus, children having the opportunity to engage with OLEs at school is becoming of increased importance and classroom teachers are usually the ones to determine whether or not learning takes place outdoors. Overall, there is limited research on the challenges and
opportunities associated with successfully implementing OLEs in early childhood programmes, especially in tropical climates such as Singapore.

Methodology

The researchers adopted a single site, qualitative case study to understand the challenges and opportunities faced by Kindergarten teachers in designing and implementing learning opportunities in a designated OLE at an international school Kindergarten in Singapore. Qualitative research was deemed appropriate for this research study because it enables the researchers to develop an in-depth understanding of the case through interpreting the individual’s experiences in his/her natural setting (Creswell, 2013; Merriam & Tisdell, 2016). The research study was premised on the epistemological perspective of constructionism and the position of interpretivism, enabling the researchers to construct meaning and knowledge instead of discovering known facts.

The researchers worked to purposefully construct a meaningful reality of two Kindergarten teachers' experiences on the use of the OLE for their lessons in their first year of implementation. Two teachers were intentionally selected from a group of Kindergarten teachers who were willing to participate on a volunteer basis through purposeful sampling. Purposeful sampling is useful in qualitative research to ensure rich information is obtained from the data collection process (Creswell, 2012; Merriam & Tisdell, 2016). In the case of this study, the two teachers were purposefully selected based on the apparent success they were experiencing in their implementation of the OLE. Criteria used to identify these teachers as “successful” in their implementation of the OLE included evidence of the heightened amount of time they spent outdoors with their classes in the OLE (as documented in the OLE class schedule), leadership within the school Outdoor Learning Book Club, and the ways in
which they featured student use of the OLE in their weekly parent newsletters. The primary data collection method used in this research study was face-to-face interviews. Interviews were conducted with the two teachers using semi-structured questions, keeping in mind that both the researchers and the research participants benefit from such questions. Semi-structured questions allow researchers to have better control over the kinds of information received, such as emerging worldview of the participants, and new ideas about the subject matter (Creswell, 2012; Merriam & Tisdell, 2016). At the same time, the research participants are not constrained by the questions, describing detailed information freely about the subject matter (Denscombe, 2010). With the consent of research participants, the interviews took place in the teachers’ classrooms where they felt most comfortable and the interviews were audio-taped to facilitate the process of transcription for data analysis.

Conventional content analysis technique was used to analyze the collected data. This technique gains information directly from research participants without imposing preconceived perspectives (Hsieh & Shannon, 2005). It is inductive, enabling the researchers to describe the data using codes first and, then use categorical aggregation subsequently to develop themes (Creswell, 2012). Next, the data was interpreted to establish an in-depth understanding of the subject matter. Eventually, the researchers drew conclusions by identifying recurring themes and presenting an in-depth picture of the case in this report.

Findings

Opportunities for Authentic Learning

The teachers interviewed each provided similar anecdotes of how they initially used the space in the OLE, and were most successful in utilising the OLE, when they worked with students as co-designers of the learning environment as a means to
providing opportunities for authentic learning. Both indicated that, when they first
used the OLE, they felt the need to take time to see how the children responded and
engaged with the space. Teacher A described her first experience in the OLE:

> The first lesson I would say was very free for the kids and for me and to see how they would
use the space. I was not really sure what to expect when they were out there. We picked one
specific area to be free with it and see how they would use the space.

Along a similar thread, Teacher B described her first experience as spending “most of
the time exploring, not a real lesson, except following what the children were doing.”

Both teachers also shared ways in which teachers used the characteristics of
the OLE to extend students’ interests. With increased exploration of the OLE,
opportunities for authentic learning emerged, as it became a teaching space in which
the teachers could give students the freedom and time to learn and construct their own
knowledge through inquiry. Teacher A described the ways in which children’s
interests were piqued by natural events:

> Kids’ interests just kind of flow out there. They see a snail and there is a whole discussion and
we got a group of kids and we were talking about what it is doing and how it is moving.

Teacher B shared a similar example of student-initiated inquiry supported by the
environment provided by the OLE:

> The children decided that they wanted to make apple sauce. So, when they were cutting the
apples, they were all fascinated with the seeds, what do the seeds do, how do they grow. So,
what we have done now with the OLE, is that we have gone down to the OLE, looked at the
soil, looked at different places to plant, and so now we have planted the seeds in the OLE. So,
they are down here in a tray and waiting for the sprouts to come up.

The corroborated accounts accentuate how the OLE stimulates interests of children,
facilitates curricular discussions and provides opportunities for teachers and students
to co-construct the ways in which the learning environment is used. The educators
recognised the value of experiences in natural outdoor settings in terms of fostering
children’s cognitive and social development. Through teacher anecdotes, it became
evident that the OLE served as an authentic learning platform, creating a physical
environment for children to collaborate, process deep thinking and ask critical questions.

Both teachers shared that, through interactive experiences with the children in the OLE, there were changes over time in how the space was used. Specific areas that initially emerged as places for supporting specific types of learning, became recognised over time as practically inexhaustible in terms of the authentic learning opportunities they presented. A mud path, for example, was not only for walking but became an area for dramatisation and pretend play. As described by Teacher B:

As soon as you walk into the OLE, there is a bike path that goes around the perimeter, there is a mud path, it’s an earthen path with mulch on top of it and that was where most of the millipedes are. There were tons of them and you could not walk down this path without stepping on them. So, some of my students were concerned so they made a millipede hospital, so they would take the leaves and build shelters and take the ones they found were hurt to the hospital and the snails they found under the leaves, so we took them in…

The multi-faceted perspectives that teachers and children held with regard to learning opportunities offered by the OLE shaped change in use of the learning space. The morphing of a muddy walking track into a millipede hospital demonstrated the change of use from walking to identification of a problem to role playing as a means of problem-solving. The facilitative role of the teacher in the OLE increased the productive interaction of children with each other while producing subtle and gradual changes in use. As Teacher A described:

A couple of my girls the last time we were there, we were writing their names in mud with teeny tiny sticks and that is all we could find, we were trying to write, and what else we could write, and we were talking about different sounds…

Over time, the OLE emerged for both teachers interviewed as a space that provided a variety of opportunities for authentic, collaborative, integrated and deep learning. A mud path supporting literacy skills is an example of another change in use, skilfully engineered by the teacher and her students. This fluid change in use to meet learning outcomes in authentic ways was influenced by teachers’ professional knowledge, expertise, increasing familiarity with the OLE, and prior personal experiences.
Opportunities to Nurture Appreciation of Nature

Teachers’ strong beliefs about outdoor learning and appreciation of natural environments were very much influenced by their childhood experiences, their knowledge about early childhood education and how children learn, as well as their own professional development experiences. Both teachers interviewed shared fond childhood experiences of spending time outdoors. Teacher A described herself as an “outdoor kid”, “loving nature and the outdoors” and “feeling very comfortable in that space”. Teacher B recounted spending a lot of time in the woods that were located opposite to her home. She recalled fond childhood memories of spending a week every summer at a camp in the woods, “spending time outdoors, sleeping under the stars and experiencing outdoor cooking.” She felt that the outdoor experiences gave her the confidence to be herself when she was in school. The teachers’ positive outdoor experiences influenced their use of the OLE. Teacher B spoke of how she brings her students out every day during recess and created sensory play opportunities on Wednesdays. Teacher A described bringing her students out to the OLE every day as well, and on certain days the children are in the OLE for one to two hours, learning as they explore and experiment in the natural space.

Knowledge about early childhood education and how young children learn, also influenced the teachers’ use of the OLE. Both teachers emphasized the importance of learning through inquiry and giving children time to explore the OLE in their own way. They would observe the children, what they talked about, and how they used the OLE based on their individual and collective interests. The teachers commented that, though they would have their own plans of what they would like the children to learn, they would intentionally create opportunities and integrate learning aligned to the interests of the children. Teacher A shared an example of how the
children in her class observed that one part of the garden had nothing growing. Helping the children to inquire through questions and observations, the children discovered nutrients the soil needed to grow plants. She then invited the Secondary School children to share with her class about their composting programme. This led her class to start their own composting project to support growing plants in the garden. She exclaimed that, “It has been amazing to see how this unit has unpacked as it is all hands-on experiences with the kids uncovering as we go and I guided a little bit of it…My kids are flying with it and everybody is just talking about it at home.”

Argyris and Schon (1974) found that a teacher’s theory in use influences his or her teaching actions. Both teachers had consistent exposure to outdoor learning during their childhood and held philosophies that favour outdoor learning. Equipped with a large degree of optimism about the outdoors in relation to learning in the OLE, both teachers appeared inspired to advocate for the productive use of this space with the children. These positive beliefs about the value of OLEs motivated them to scaffold how children perceive the OLE, and nature, in a positive manner.

**Opportunities to Model and Support Calculated Risk**

Both teachers asserted that teacher modelling was a tool they used in supporting the children to become more comfortable within the OLE, as at first many students were hesitant. They commented on that fact that some children exhibited real anxiety and fear of the OLE due to a lack of experience in natural outdoor environments. Teacher modelling as a pedagogical intervention, ameliorated their negative emotions and assisted them in adapting to an unfamiliar learning context. With consistent modelling and support, the children were able to engage with all elements of the OLE with increased confidence.
The teachers described opportunities the OLE provided in terms of engaging children in calculated risk-taking behaviours that are meaningful for their holistic development and developing resilience. Teacher A recalled:

I had a girl who was terrified about going out there. She was terrified about getting dirty, she did not want to touch bugs, she was terrified about the bugs and even when she sees them, she would jump, run away and only stay on the outside path...so that got me more interested in how I could get this to be a comfort zone for her and make it a positive experience for her. This year...there were times when she got upset if she went out of her comfort zone, but she has come a long way. That is the positive and one of the things that I love about it.

This effective facilitation of reducing levels of discomfort and fears the children experienced when first engaging with a natural learning environment, was a salient feature of how the OLE provided teachers with a platform for supporting an understanding of, and engagement with, taking calculated risks. Teacher B said:

So, one boy, he had never dressed for mud play before...so I told him let’s just do three steps. One, bring your clothes. Two, change and three, let’s just sit. That is all we will do...today is his first day and other children were playing in the mud... and they were getting mud all over. He stops breathing for a bit...the anxiety is very real...today he did it.

The teachers acknowledged the value of teaching adaptability and resilience, and the ways in which they used the OLE as a medium to support calculated risk-taking behaviours in the children to build their self-confidence.

Both teachers spoke of how some of the parents of these children were apprehensive about learning occurring in the OLE and how garnering parent support for use of an OLE was a genuine challenge. Perceptions of it being unsafe, too hot, and concerns over children getting dirty were parent issues that the teachers had to find ways to manage and negotiate. Teacher B shared how:

Some parents don’t bring in changes of clothes for the children. So, we have spare clothes for the children in the class that I make them put on. If they get down there and they feel that they can get dirty, they can make that choice.

In this way, access to a change of clothes enabled children to engage in mud play without the worry of ruining a uniform. In order to further allay parental uncertainties and doubts about the value of time spent in the OLE, Teacher B consistently uploads research articles that support outdoor learning. She shared:
The other thing that I do is that I go online and I look for articles and research that show why children should be outdoors, why they should be barefoot, why it is important for them to walk on different level surfaces, why it is important to get a few bumps and scratches on their legs and hands, why it is important to crawl on the ground, so that it is not me saying it but here the New York Times has published this article; and Psychology Today has published this article.

She intentionally shared these articles to inform and educate parents on the benefits of outdoor play and education, with the hopes of making them partners in supporting this area of her programme. Via the advocacy for high quality use of the OLE, teachers were able to describe increased understanding on the part of parents in terms of the value and significance of outdoor play for children as they began to see confidence in their children grow.

**Collaboration as a Means of Mitigating Challenges**

Both teachers highlighted the ways in which they collaborated with other teachers to overcome challenges they faced in implementing the OLE as part of their early childhood programme. Collaborative professional development experiences, in particular a Kindergarten Book Club, and conversations with other teachers were important influences on their use of the OLE. At the Book Club, Kindergarten teachers met weekly to discuss two books on outdoor education, namely *Dirty Teaching* (Robertson, 2014) and *Last Child in the Woods* (Louv, 2005). Both teachers found these discussions very meaningful as the books were based on research. Teacher A commented that the Book Club has contributed to her professional development and use of the OLE as:

…we have a once a week chat to give new ideas. We talk about what everyone is doing at the moment…or how they use the same space differently…or the ideas from the book and it has been very helpful to have a weekly reminder of something new or something exciting to do out there.

Teacher B found that the book *Dirty Teaching* (Robertson, 2014), in particular, has helped the teachers and herself be more confident in the use of the space, and how to develop essential agreements with the children so that they become responsible when
they use the space. While both teachers described certain logistical challenges (e.g., managing learning materials, hot weather and scheduling) with implementing use of the OLE, they also shared the ways in which ongoing professional development, more experience with using the space, and collaborative opportunities with other teachers, helped to mitigate these challenges through creative problem-solving.

Resource and logistical planning provided challenges for the teachers. Sharing the space and supervision duty with other teachers was a challenge and required a certain level of planning. The teachers ended up collaborating and using technology as well as teamwork to mitigate any challenges provided by logistical barriers.

Teacher A shared:

> We have a new scheduling system, it is on our Google calendar and people can sign up and say what space they will be in and that has helped a lot. Scheduling was a challenge but it is going on very well now.

Another similar challenge identified by both teachers drew the attention to the logistical planning associated with how best to manage the use of space and learning materials. Teacher B provided an example of this with the ‘mud kitchen’:

> The mud kitchen is bit overwhelming. It’s quite large in size and I feel that because of its size, it is too open and there is not a lot of direction for the children to take when they are in that space.

Teacher A shared similar concerns about this space. Teacher B outlined how they could help children engage with the space more meaningfully by adding, “things like tables and chairs, and maybe a platform so they could pretend it is a stove.”

Consistently throughout the interviews, both teachers provided evidence of an ongoing commitment to collaboration with other teachers, students and families in support of mitigating any challenges in order to more successfully use the OLE in their programmes.
Discussion

In earlier research on challenges and opportunities associated with implementing OLEs, access to outdoor settings for teaching and learning emerged as a barrier to use (Ernst, 2014). In this study, access was not a barrier as the OLE was located on-site, was purposefully designed for use by teachers and students, and was easily accessible. Thus, challenges associated with access were removed allowing the researchers to focus on other factors that influence use. In this way, clear themes emerged in terms of the potential for engaging students as co-designers of their learning environment, the influence of teacher beliefs and experiences, the confidence and resilience developed in students as they took calculated risks and grew in comfort within the OLE, and the power of collaborative relationships in relation to mitigating barriers.

The Need for Time

A key theme to emerge from this study was the need for time to explore and develop new understandings of how the OLE space can be used, in collaboration with the students as co-constructors of the learning environment. McClintic and Petty (2015) found that minimal knowledge of and skills with outdoor play environments influences use. This study supports these findings in that both teachers were able to describe how potential uses for the OLEs to support curriculum and student learning emerged and changed over time with increased exposure to and experience with the setting. The more the teachers and students came to understand the space, and address logistical challenges in using the space, the better they became at recognising the learning potential of the OLE as a space for addressing child development and curricular outcomes. This suggests that it cannot be assumed that teachers and students can simply be put in an OLE and know how best to use it to support teaching.
and learning. Development in understanding of OLEs as a powerful tool for teaching young children takes time, experience, support and ongoing professional development.

*The Role of Positive Beliefs*

A positive correlation between beliefs and experiences with natural settings and the frequency with which they use OLEs emerged in earlier research (Ernst, 2014; McClintic & Petty, 2015) and is supported by this study. Both Teacher A and Teacher B consistently shared positive feelings and attitudes toward using an OLE in their practice and the benefits that it has for children. These experiences and beliefs allowed them to face challenges directly with solutions-oriented approaches, scaffold and model student comfort in outdoor settings, and reflect carefully on the potential uses of the outdoor spaces. McClintic & Petty (2015) found that teachers that perceive indoor learning as more important than outdoor learning will not implement OLEs with much consistency. The flip side to this was found to be true in this study in that the teachers evidenced high value for outdoor learning and consistent dedication to the implementation of the OLE in their pedagogy. Teacher beliefs and positive experiences of learning in natural settings influenced their use of the OLE and supported them in mitigating challenges associated with hot weather, materials management, supervision, and the use of space. This point highlights the importance of raising children comfortable with being outdoors, and supporting teachers in taking children outdoors, as a mindset that appreciates nature appears essential to engaging meaningfully with it.
The Role of Collaboration

A new idea to emerge from this study was the power of collaborative relationships in supporting the implementation and use of OLEs. The teachers were able to take on a solutions-oriented stance to mitigating challenges not only because they felt the use of the OLE was important for the learning of their students, but also because they had support in doing so. Both teachers commented on collaborative tools, such as Google docs, in facilitating collaboration with other teachers in terms of sharing and supervising the space in the OLE. Both teachers commented on the need to incorporate the interests and abilities of the students in planning successful learning experiences in the OLE. Both teachers commented on the need for developing partnerships with parents in terms of garnering support for the use of the OLE. Both teachers highlighted the power of their weekly Book Club as a collaborative professional development opportunity in which they were able to work with other teachers to develop improved understanding and support in using OLEs. These examples highlight the ways in which collaborative relationships amongst teachers, students and families may impact the frequency of use of OLEs in early childhood settings and can support the implementation of new curricular initiatives. Almost all of the learning experiences in the OLE, described by both teachers, also involved some level of collaboration amongst the students themselves.

The Development of 21st Century Learner Competencies

This study also reveals the potential for OLEs to provide opportunities for students and teachers to engage in self-directed learning, critical thinking, problem-solving, calculated risk-taking, creativity, collaboration and environmental education – all of which support the development of 21st century learner competencies (Allvin, 2016; Chai et al., 2014) – as both teachers were able to provide multiple examples of
these learning practices in action within the OLE. Allvin (2016) argues that the play young children engage in outdoors in the sandbox, building, and playing with water are developing the 21st century competencies that are essential to success in school and in life. She further argues that the field of early childhood education, with its focus on the science of child development and learning, is ready to take on a leadership role in conversations surrounding the development of 21st century skills (Allvin, 2016). One might argue that this potential connection between the use of OLEs in early learning, and the ways in which OLEs may be used to facilitate the development of 21st century learner competencies in children, is worth further exploration.

Limitations

Limitations of this study are most strongly associated with the small sample size of two teachers, both experienced with outdoor learning, at a well-resourced international school that eliminated access as a potential barrier to the use of an OLE. Most early childhood teachers would not have easy access to an OLE like the one referred to in this study. There is also a lack of secondary data collection such as participant observation and document review. Thus, the researchers are unable to identify the non-verbal cues and behaviour of the participants and there is a lack of triangulation of data to enhance the trustworthiness of this research. This study was exploratory in nature and thus the results may be valuable only in that they reveal potential for further research.

Conclusion

Despite limitations, this study highlights the potential for OLEs to provide rich learning opportunities for young children and the facilitation of authentic inquiry. It highlights the importance of teacher experience with natural settings, positive attitudes towards outdoor learning and the need for collaboration in mitigating
challenges, in order to successfully implement an OLE. Whilst most schools would not have daily access to the type of OLE referenced in this study, there is the potential for the transfer of findings regarding how teachers teach and embed curriculum into OLEs that are accessed via school camps or day trips. In addition, understanding the ways in which collaboration amongst teachers, parents and students can be used in successfully mitigating challenges associated with the implementation of new curriculum initiatives, and new ways for learning, might possibly be applied to other areas of teaching and learning.

The literature review reveals limited research in the area of use of OLEs with young children, suggesting the need for further studies exploring the ways in which schools are accessing OLEs and integrating outdoor learning experiences into early childhood pedagogy and practice, and possibly as a means to developing 21st century learner competencies that include students as co-designers of their learning. In addition to the benefits associated with learning outdoors, some argue that an important 21st century learner competency includes environmental and conservation literacy (Allvin, 2016). It is important to note that we cannot expect our students to grow up as leaders who understand and are willing to care for our natural environment, if they don’t first learn how to interact with it and appreciate it.
References


