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Anaokulu Dış Ortamı ve Doğa Bilgisinin Geliştirilmesinde Kullanımı*

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ÖZET

Anaokulu ortamı çocuklar için ilginç, sürprizlerle, sırlarla ve yeni keşiflerle dolu olmalıdır. Çevreyi anlamak zor olduğundan çevre coğrafi bir alan olarak parçalara bölünmekte ve incelenmektedir. Bu durum bir çocuğun öğretmenin yardımıyla onu özümsediği ve kavrayacağı anlamına gelmekte ve bir çocuk için yer, özgürlük, güvenlik ve faaliyet ile ilişkili olmaktadır. Çocuk çevrenin dinamiklerini fark etmektedir. Doğa çevrenin önemli bir parçasıdır. Veriler anaokulu açık hava eğitim alanları ziyaret edilerek ve eğitimcilerle yapılan görüşmeler sırasında toplanmıştır. Otantik bilgiler bireysel vakalar ve deneyimler analiz edilmiştir. Her açık alan çeşitli şekillerde kullanılmıştır: 1) çocukların doğal nesnelerle tanıştığı bir doğa sınıfı olarak, 2) sakin, iletişim kurması iyi ve başkalarıyla oynaması rahat bir ev olarak ve 3) gizemler ve bilmecelerle dolu bir dünya olarak. Yaşa bağlı olarak çocuklar mekânı farklı şekilde tanırlar. Küçük olanlar (0-2 yaş) dünyayı hareketler ve beş duyu yoluyla bilinmektedir. 2-5 yaşındakiler için dünya ağırlıklı olarak "sihirli" düşünme ve motor becerilerin gelişimi ile karakterizedir. Çevre bilgisi ve yer duygusu doğal nesnelerle tanışmak ve onları keşfetmekle gerçekleşir. 5 yaşındaki çocuklarda mantık, empati, planlama becerileri ve dikkat gelişir. Farklı eğitimcilerin farklı dış mekânlardaki deneyimleri ve iç görüleri onlara bir çocuğun doğa ile diyalog kurmasına nasıl yardımcı olduğuna dair bir fikir sağlamaktadır.

Keywords: Anaokulu dış ortamı, eğitim alanları, doğa bilgisi, erken çocukluk eğitimi.

Makale Türü: Araştırma Makalesi

Kindergarten Outdoor Environment and Its Use in Developing Knowledge of Nature

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ABSTRACT

The kindergarten environment should be interesting, full of surprises, secrets, and new discoveries for children. It is difficult to cognise the environment, so as a geographical space it is divided and studied in parts. In that case, space becomes a place. This means that a child absorbs and cognises it with the help of the teacher. A place for a child is associated with freedom, security, and activity. The child notices the dynamics of the environment. Nature is an important part of the environment. The data were collected in kindergarten outdoor educational spaces and during the interviews with educators. Authentic information, individual cases, and experiences were analysed. Each outdoor space was used in several ways: 1) as a nature class where the children were introduced to natural objects, 2) as a home which is calm, good to communicate, and comfortable to play with others, and 3) as a world full of mysteries and riddles. Depending on the age, children cognise the space differently. The younger ones (0-2 years of age) know the world through movements and five senses. The 2-5-year-olds are predominantly characterised by "magical" thinking and the development of motor skills. The knowledge of the environment and the sense of place occur by getting acquainted with natural objects and exploring them. Logic, empathy, planning skills, and attention are developed in children aged 5. The experiences and insights of different educators in different outdoor spaces provide an idea of how educators help a child establish a dialogue with nature.

Keywords: Kindergarten outdoor environment, educational spaces, knowledge of nature, early childhood education.

Article Type: Research Article

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1.INTRODUCTION

The natural environment could be considered as a site for play and physical activities for many children. According to Wan Azlina and Zulkiflee (2012) playing, moving, and acting are very important, and can be associated with one another in young children's lives. Outdoor education may have beneficial effects on different areas of child development. Allowing children to experience the natural and man-made elements in their living environments develops their cognitive abilities, social and physical skills, stimulates motor development. This relationship is not necessarily linear, but moderated by different variables (Agostini et al., 2018). According to Moore and Wong (1997), play in outdoor environments stimulates all aspects of children's development more easily than indoor environments. The authors claim that children who play in nature environment have more positive feelings about each other. Sampson (2016) provides great tips on how to raise a child of nature. According to him, time and experiences in nature are the most necessary part of a child's healthy life. It is obvious that being outside as much as possible and learning in and from nature are crucial in a child's development. Being in nature, getting to know nature are the most important tasks of a harmonious childhood.

Outdoor space of the kindergarten is important as a pedagogical space for children's play, learning, and development. The kindergarten environment should be interesting, full of surprises, secrets, and new discoveries for a child. According to Plungė (2012) it is difficult to cognise the environment, so as a geographical space it is divided and studied in parts. As Brukštutė (2017) notes, space can become a place. This means that a child absorbs and cognises it with the help of the teacher. A place for a child is associated with freedom, security, and activity. The child notices the dynamics of the environment.

Today, the educational content in Lithuania is being updated and the new *Curriculum* (General Programmes) is being prepared. Greater attention is also paid to the early childhood education. Children can start attending kindergarten from the age of 1.5 to 6. In the Lithuanian Government Programme, by the year 2024 it is aimed to develop early childhood education programmes, to strengthen teacher training, to involve as many children as possible in early childhood education, as well as to pay more attention to educational spaces, STEAM, and IT integration into the educational process.

Since 2010 competitions of outdoor environments have been held in Lithuania every two years. They are organised by the Ministry of Education, Science and Sport in cooperation with the Lithuanian Centre for Non-formal Education of Students. Makarskaitė-Petkevičienė (2018) describes the educational environment of schools, including kindergartens, and emphasises new ideas and opportunities for the development of children's science literacy and the development of different skills. This study looks into the impact of the kindergarten outdoor environment and its use on children's development of the knowledge of nature. The paper presents a case study of selected kindergartens.

1.1. Importance of Outdoor Education in Early Childhood Education

In recent years, scientific literature suggests an increasing interest in the study of outdoor education and its implications for children's learning and development both in space or place of the physical environment. Authors seem to agree that cultural and natural environments play an essential role for children's physical, psychological, and psychosocial development, as well as their growth and learning (Mosera & Martinsen, 2010; Plester et al., 2006).

Outdoor education is described differently by scientists. The provided definitions emphasise a strong link between outdoor education and the outdoor environment where the activities take place. Outdoor environment is defined as an area inside the kindergarten area that is affected by human intervention for children to explore it and to cognise the natural environment. Dahlgren and Szczepanski (1998) define outdoor education as an environmentally-oriented approach, characterised by action-centred and thematic learning processes, often linked to outdoor activities. Higgins (1997) refers to outdoor education as education "in", "through", "about" and "for" the natural environment. "In" is defined as outdoor pursuits, "through" as

personal and social education, “about” means environmental education and field studies, and “for” is sustainability (Higgins, 1997, p. 4).
Outdoor education means organised experiential education that takes place in the outdoor environment. Indeed, the positive effects of outdoor education on a child’s development are supported by more general evidence that spending time in the natural environment has many health benefits (Agostini et al., 2018). Children are more physically active when playing outdoors, which in turn improves blood pressure, cholesterol, and bone density (Copeland et al., 2012). Besides, physical activity in outdoor places may lead to additional positive effects compared to indoor physical activity. Pesce et al.’s (2016) research results show that specially adapted physical activity games influence children’s cognitive development by improving motor coordination. They particularly influence object management skills that are related to children’s physical activity habits later in life. Outdoor games provide a natural basis for developing physical activity games to take root in children’s minds (Pesce et al., 2016). The studies demonstrate that children enjoy participating in kindergarten outdoor activities, they are excited about learning by discovery, motivated to be part of the outdoor activities, and even about getting “dirty”; children often report the feeling of being proud for their achievement results from the outdoor activities (Faddegon, 2005; Thorp & Townsend, 2001).

1.2 The Use of Outdoor Environment in Developing Knowledge of Nature

Children are naturally curious about exploring and seeking for information about everyday situations and about the natural world. The children’s first-hand experiences provide them with information about how something feels or looks like, and to some extent, how things function or work (Skalstad & Munkebye, 2021). Studies show that planned field trips to forests, national parks or botanical gardens help children learn both cognitively and emotionally (Rennie & McClafferty, 1996). Such experiences may facilitate children’s active participation. They tend to ask more questions during such trips than they do in the indoor environment (Skalstad & Munkebye, 2021). Gardening activities such as planting seeds, watering plants or tending to beetles, caterpillars, ants or other animals foster environmental awareness and positive attitudes toward the environment (Blair, 2009). Studies of preschool children exploring in an outdoor environment show that children’s findings of elements and objects e.g. insects, animals, plants or rocks, i.e. nature elements, seem to interest and engage them (Skalstad & Munkebye, 2021; Waters & Maynard, 2010).
The kindergarten outdoor environment could be considered as a bridge between the indoor environment and real life. Effective kindergarten outdoor education aims at supporting children’s development cognitively, emotionally, socially and physically, providing them with opportunities to observe, to learn from specific experiences and use a variety of sensory systems. It fosters children’s understanding of their surroundings, develops imagination, as well as problem solving, critical thinking, creative thinking, and communication skills (Erdem, 2018).
Such cognitive skills as naming, classification, and recalling information are grouped under the first domain of Bloom’s Taxonomy. In addition, such activities as planning, combining, testing, using evidence to support ideas, problem solving and evaluating according to a given criterion foster higher-order thinking skills (Kellert, 2002). By illustrating how nature operates (i.e. observing life cycles of frogs or butterflies), kindergarten outdoor experiences foster children’s achievements in science (Dirks & Orvis, 2005; Smith & Motsenbocker, 2005) and support skills such as observation, designing, measuring area, conducting experiments, problem solving, and finding creative solutions (Faddegon, 2005; Moore & Wong 1997) which are essential skills for achievement in both science and other subject area courses.
Realisation of these objectives depends on the quality and richness of the stimulant environment and how well-structured the educational experience is (Erdem, 2018). Kindergarten outdoor spaces are more than places where children spend their free time during the recess. Instead, they are considered and utilised as educational areas. If properly designed and organised, outdoor areas can provide valuable educational experiences that can support every developmental area of children. Studies have shown that teachers can use plants or animals grown in the kindergarten outdoor spaces in teaching complex math subjects. Students may measure, make charts or graphs of the growth of plants, and calculate weekly or monthly changes in them (Erdem, 2018).
Children notice the dynamics of the environment. Nature is an important part of the environment. The same place is different at different times of the year. It is different when it rains or the sun shines. How can a child find a dialogue with it? This means that a child absorbs and cognises it with the help of the teacher. (Brukštutė, 2017). Moreover, kindergarten outdoor activities carried out with peer groups, parents or individually, also have significant positive affective impacts. Some studies emphasise that parental involvement in kindergarten outdoor activities promotes children’s achievement, has a positive effect on their well-being, becomes an

important predictor of positive attitudes, behaviour, and values in adulthood, increases self-esteem, supports teamwork, peer collaboration, and thus strengthens bonds between children (Erdem, 2018; Faddegon, 2005; Henderson & Mapp, 2002).
The aim is to determine how different outdoor spaces are adapted for children's education by educators, and what nature cognition activities dominate in them at different times of the year.

2.METHODOLOGY

The research design is free and unstructured. The focus of the present paper is on the use of different kindergarten educational environments for children's education. The data were collected in the natural environment, i.e. visiting kindergarten outdoor educational spaces, taking photos of them, and during interviews with teachers. As educators shared their experiences, they were asked additional questions for deeper and more detailed information. Thus, individual cases were analyzed, authentic information was collected about what children do in one or another space, what educational content is implemented in them, and what the role of the teacher and his/her experience in educational activities is. Outdoor spaces were analysed and grouped according to the themes of educational spaces: 1. "A Mysterious Garden"; 2. "The Maze"; 3. "The House of Birds"; 4. "The Charm of the Swamp"; 5. "Hay"; 6. "The Insect Kingdom" and "An Anthill".

3.FINDINGS

3.1. Educational Space "A Mysterious Garden"

This space is used for growing, caring for, and discovering plants. Many Lithuanian kindergartens raise beds and greenhouses in their outdoor spaces. Kids love these spaces if they have something to do. For example, they prepare the soil themselves, sow seeds, and wait for sprouting plants. Later, they take care of the germinated plants, uproot the weeds, and put them in a compost bin. The plants are watered with collected rainwater (See Figure 1).

<table>
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<td>Noreikiškės nursery-kindergarten (n/k) "Ąžuolėlis"</td>
<td colspan="2">Panevėžys n/k "Puriena"</td>
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Kaunas n/k “Šaltinėlis”

Vilnius n/k “Justinukas”

Vilnius n/k “Jurginėlis”

Figure 1. Ideas for the activities in the educational space “A Mysterious Garden”

It can just be a garden, or it can be a mysterious garden. It depends on how we adapt the space for education. That secret is created by us, adults. Where are those discoveries? For example, some tomatoes of the same variety are grown in a greenhouse and others in a bed. Children observe the differences in their growth and development, measure and compare the plants. Children watch for insects that visit flowering plants, explain that bees find nectar in the flowers of plants and then produces honey from it. It is fun to plant large plants in a bed, for example, corn, sunflower, and then children can measure their height with the plant. Children are very surprised when the grass overgrows them. Sometimes children do not like one or another vegetable, but when they grow it themselves, they always taste it. When adapting the environment to education, it is very important to prepare labels and explanations – for example, write down the names of plants, indicate with signs which sensory organ will help to recognise one or another plant.
Children can find more information in books and children’s encyclopaedias. A discovery lab nearby is of great benefit. It does not only contain books, photos, and research tools, but research work can be performed here – for instance, to study the colour properties of plants: to draw their leaves and flowers; to study the seeds and find out how they differ, etc.

3.2. Educational Space “The Maze”

The maze is a trail with turns, sometimes with stops, leading to the centre. The maze is like a yoga – it is both therapy and meditation. Scientific studies show that walking in a maze harmonises the left and right hemispheres of the brain. Labyrinths help to develop spatial thinking and orientation skills (See Figure 2).
The maze can also be made of various plants, such as willow, lavender or spiraea. If aromatic plants are planted in the maze, being here is also aromatherapy. Children can go through the maze and just experience how the plants smell, or they can make tea from the leaves and flowers of aromatic plants. Then, children drink tea made in the outdoor tea room.

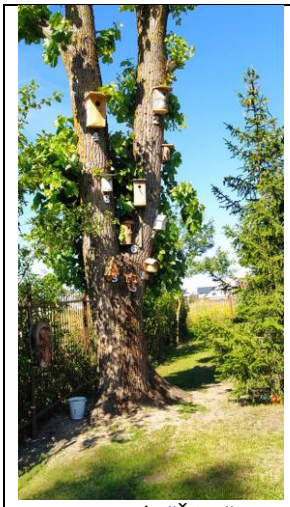
Kaunas Waldorf kindergarten "Šilelis" **Noreikiškės n/k "Ažuolėlis"**

Figure 2. Diversity of plant mazes

If we plant one type of shrub, the maze will be different at different times of the year: it will bloom, the fruit will ripen, and the leaves will change colour in autumn. Children can observe insects that visit plant flowers in the maze, or look for a spider. And when they find it, look through a magnifying glass. When plants bloom in different colours, children learn to cognise the colours. When blooming with flowers of different sizes – the concepts *large and small* are introduced. Nearby plans should be provided. Children learn to use plans next to the maze. In particular, they help treasure hunters.
In winter, the maze is also attractive. If we crush or dig up the snow, we will have tracks. When it thaws, children roll snowballs on the maze trail themselves. This is a great opportunity to discuss the kind of a snowball (big, small, hard, soft, heavy, light), and the properties of snow (if cold - snow does not stick).

3.3. Educational Space "The House of Birds"

The spring months March, April, May are named after birds in Lithuanian. March 10th is celebrated as the Birds' Day. At that time, many birds are returning from warm lands. People raise nesting-boxes for birds after winter. And the nesting-boxes are different for different birds. Some kindergartens involve parents to cognise the birds and lead education for them. Then, together with the children they make nesting-boxes (See Figure 3). The tree with many nests is just a demonstration. Birds love more remote places.


Lentvaris n/k "Šilas"


Vilnius n/k "Justinukas"

	 Panevėžys n/k “Puriena”	 Vilnius n/k “Justinukas”

Figure 3. Ideas for better cognition of birds and their life

In kindergartens there are spaces where children talk about birds. In winter, birds are fed in feeders. It is especially important when it is cold and there is heavy snow. Feeders are hung, children watch the ones who visit them through the windows of the kindergarten, make photos, and feed food to the birds. The feeders are produced differently in different kindergartens: of fir or pine cones, of wood - together with their parents, of cartons, etc. In summer, children add drinking vessels for birds to drink. Children are very happy when birds settle in the nesting-boxes and hatch chicks, or when they find a bird’s feather while running outside. They always want to know more about that bird (the structure of the feather, what bird it belongs to, etc.). Outdoor environments offer so many ideas that the teacher has to focus on them in a hurry, as most of the time they do not know what secrets they will have to come up with the kids.

3.4. Educational Space “The Charm of the Swamp”

A swamp is an area of excess moisture on land overgrown with specific vegetation. In one of the observed kindergartens, there was a damp area, it was deepened to make more water and overplanted with plants that are typical for wetlands. In Lithuania, tales and stories are created about swamps, fairies, and cities lost in swamps. Indeed, there is a lot of mystique, mystery, and magic in such spaces. In the kindergarten, there are stone paths, where children can walk. There is a wooden path – it is a secret road paved with wood logs through the swamp below its surface. Children walk on the narrow wooden and stone paths. Such paths are very suitable for developing balance and coordination. Thus, a lot of creativity is put by educators in creating this educational environment and preparing scenarios for educational activities (See Figure 4). In winter, this area of water is covered by ice. It is an opportunity for children to get to know the properties of ice (hard, smooth, slippery) in the immediate environment, and understand why you need to be careful on it (you may slip, break).

Vilnius n/k “Žilvinėlis”

Figure 4. A small swamp as an attractive space for nature cognition

The places with water attract frogs in spring. These animals also bring a lot of joy for children. It is a great discovery for a child to understand how a frog develops or to experience how a tadpole becomes a frog. This is already a new object for observation.

3.5. Educational Space “Hay”

Hay is cut, dried, and collected grass to feed animals, such as goats, sheep and cows. Rabbits and guinea pigs are also fed on hay. Sometimes children from cities do not know what hay is and what it is needed for. Moreover, they are unfamiliar with the mentioned animals. Videos and photos are used for this purpose. Children can play, jump, roll in this area, as well as look for the longest or the shortest dried grass. Children make bouquets from hay, three-dimensional letters, etc. Rolls brought to this space become a place for physical activity (See Figure 5).

Vilnius n/k “Žilvinėlis”

Kaunas kindergarten “Šaltinėlis”

Figure 5. A possibility to better cognise hay and meadow plants

According to the educators, children feel very good here. They smell hay and experience that dried grass is completely different from growing. Some kindergartens raise rabbits, which are fed by the children themselves. The ones that do not have rabbits visit the farmer who raises them.
Haystacks / snags are like chat rooms. By choosing from a wide variety of plants and constructing machines, it is possible to "weave" a carpet of plants.

3.6. Educational Spaces "The Insect Kingdom" and "An Anthill"

With the help of foresters, many Lithuanian kindergartens set up an anthill in their environment. In Lithuanian, it is said "*hardworking as an ant*". In one Lithuanian kindergarten, an outdoor area with a large, twig-stacked anthill was observed. It was stacked by children, their parents, teachers, and environmental workers. Twig by twig, they built it as ants. Children were interested in the natural environment, inspected, explored the anthill, learned to respect and conserve nature and the environment rather than destroy anthills (See Figure 6). Children could not only see what an anthill looks like from the outside, but also explored the life of ants underground. Children tried to be quiet near the insects, so as not to disturb them from working. They learned that there were three sizes of ants in the family: one is very large – a mother, a medium – a soldier, and many small workers. Children also learned that ants feed on insects, various seeds and grains. Children also discovered that ants protect forests from pests that attack weak or damaged trees.
Kindergarten teachers notice that children want to cognise the world of insects. They quickly remember that insects have six legs and recognise a spider that has arrived at an insect hotel and they notice that it has more (eight) legs. The educators note they have already learned to attract more insects to the kindergarten area by planting more flowering plants. The butter-fly bush is particularly suitable for this. Often, the kindergartens leave a few square meters unmoved. In such a natural meadow, there are many flowering herbs that are visited by insects.

Vilnius n/k. "Jurginėlis"

Lentvaris n/k "Šilas"

Veisiejai n/k "Ąžuoliukas"

Figure 6. Insect-cognition areas in the kindergarten spaces

On the other hand, children notice differences in cultivated lawns and natural meadows in terms of biodiversity. In addition, they develop understanding that plants are both food and shelter for animals.

4. RESULTS, DISCUSSION AND RECOMMENDATIONS

The experiences and insights of different educators in different outdoor spaces provide an idea of how educators help a child establish a dialogue with nature. As cognition of nature takes place in different spaces, the place is cognised by movements, perceptions, experiences, and social activities, i.e. acting together with others. The spaces under analysis are perceived by children as inhabited (they live, explore, and play here). Depending on the age, children cognise the space differently:

- The younger ones (0-2 years) cognise the world through movements and five senses. Therefore, activities are focused on these aspects.
- The 2-5-year-olds are predominantly characterised by "magical" thinking and the development of motor skills, and can do more. Therefore, the knowledge of the environment and the sense of place occur by getting acquainted with natural objects and exploring them.
- Logic, empathy, planning skills, and attention are developed in children aged 5. Therefore, when establishing a relationship with nature, the message conveyed by educators is important, and it does not matter what form it takes: a hint, focus of attention, or an enthusiastic invitation to observe.

Three of the six spaces discussed are also widely used in winter. Meanwhile, a different content is discovered. Sometimes cognition and discoveries in these spaces are replaced by physical education of activity and creativity.

Natural science literacy is very important and sufficient for early childhood educators. The creation of educational environments motivates educators and encourages them to work together. They cooperate, share experiences, and become open to other kindergartens. This also greatly affects the application of outdoor spaces for education.

Research and Publication Ethics Statement

This manuscript named "Kindergarten Outdoor Environment and Its Use in Developing Knowledge of Nature." was presented as a paper at the International Congress of Early Childhood Outdoor Practices. The permissions for the research were obtained from the institution where the research was conducted.

Contribution Rates of Authors to the Article

The authors contributed equally to the manuscript.

Statement of Interest

There will be no conflict of interest as the current manuscript is prepared and written by a single author.

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6.GENİŞLETİLMİŞ ÖZET

Anaokulları ilginç, sürprizlerle, sırlarla dolu ve bir çocuğun yeni keşiflerine olanak sağlayan bir ortamdır. Plunge (2012) ve Gibson'a (2014) göre çevreyi kavramak zordur, bu nedenle coğrafi bir mekân olarak parçalara bölünerek incelenir. Yi-Fu ve Tuan (2003) ve Brukštutė (2017) belirttiği gibi boşluk bile bir öğrenme mekânı olabilir. Bu, bir çocuğun öğretmenin yardımıyla onu özümsediği ve kavrayacağı anlamına gelir. Bir çocuk için bir mekân özgürlük, güvenlik ve etkinlik ile ilişkilidir. Çocuk, çevrenin dinamiklerini fark eder (Creswell, 2004). Aynı mekân yılın farklı zamanlarında farklı anlam ifade eder. Yağmur yağdığında veya güneş parladığında farklıdır. Doğa, çevrenin önemli bir parçasıdır. Bir çocuk doğayla nasıl diyalog kurabilir? Bu çalışmanın amacı, eğitimciler tarafından farklı açık alanların çocukların eğitimi için nasıl uyarlandığını ve yılın farklı zamanlarında bunlarda hangi doğa biliş etkinliklerinin baskın olduğunu belirlemektir.

Araştırma gözleme dayalı olarak ve görüşme yoluyla gerçekleştirilen nitel bir çalışmadır. Veriler, anaokullarının açık hava eğitim alanları ziyaret edilerek ve eğitimcilerle yapılan görüşmeler sırasında toplanmıştır. Gerçek bilgiler, bireysel vakalar ve deneyimler analiz edilmiştir. Araştırma kapsamında birkaç açık alan incelenmiştir. İncelenen alanlar (1) Bitkileri büyütmek, onlara bakmak ve keşfetmek için bir alan olan “Gizemli Bir Bahçe”; (2) Böcekler açısından zengin bir doğal çayır parçası olan "böcek oteli" ve kelebek çalı denilen "Böcek Krallığı"; (3) içi içme kapları, yuvalar ve yemliklerle donatılmış “Kuşlar Evi”. Her bir açık alan çeşitli şekillerde kullanılabilir: a) çocukların doğal nesnelerle tanıştığı bir doğa sınıfı olarak, b) sakin, iletişim kurması iyi ve başkalarıyla oynaması rahat bir ev olarak ve c) gizem ve bilmecelerle dolu bir dünya olarak.

Analiz edilen mekânlar, çocuklar tarafından yaşam alanı olarak algılanır (burada yaşarlar, keşfederler ve oynarlar). Yaşa bağlı olarak çocuklar mekânı farklı şekilde tanırlar. Küçük olanlar (0-2 yaş) dünyayı hareketler ve beş duyu yoluyla bilirler. Bu nedenle faaliyetler bu yönlere odaklanır. 2-5 yaşındakiler, ağırlıklı olarak “sihirli” düşünme ve motor becerilerin gelişimi ile karakterize edilir ve daha fazlasını yapabilir. Dolayısıyla çevre bilgisi ve yer duygusu, doğal nesnelerle tanışmak ve onları keşfetmekle gerçekleşir. Beş yaşındaki çocuklarda mantık, empati, planlama becerileri ve dikkat gelişir. Bu nedenle, doğa ile bir ilişki kurarken, eğitimcilerin ilettiği mesajlarda biçimden ziyade içerik önemlidir: bir ipucu, dikkat odağı veya gözlemlemek için coşkulu bir davet çok şey ifade eder.

Okul öncesi öğretmenlerinin doğa bilimleri okuryazarlığı çok önemli ve gereklidir. Farklı eğitimcilerin farklı dış mekânlardaki deneyimleri ve iç görüleri, eğitimcilerin bir çocuğun doğayla diyalog kurmasına nasıl yardımcı olduğuna dair bir fikir verir. Doğanın kavranması farklı mekânlarda gerçekleştiğinden mekân, hareket, algılama, deneyim ve sosyal faaliyetlerle yani başkalarıyla birlikte kavranır.