

Evaluating the demand for nature education in Northern Cyprus

Gulizar Eroglu^{a1}, Eastern Mediterranean University, Ismet Inonu boulevard, Salamis road, Famagusta, North Cyprus, Turkey gulizar.eroglu@emu.edu.tr

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Abstract

Nature is a dynamic and interconnected system composed of living and non-living elements, continuously evolving through natural mechanisms. Nature education fosters an understanding of these complexities by enhancing individuals' awareness, attitudes, and behaviors toward nature. However, urbanization, technological advancements, and education systems that lack environmental sensitivity have contributed to an increasing disconnection from nature. While nature education has gained global recognition, its implementation remains limited in certain regions. This study examines the need for nature education through a qualitative content analysis approach. Data were collected from students, teachers, parents, literature, and curriculum analysis. Findings indicate that current educational programs primarily address nature education within interdisciplinary subjects, yet they emphasize cognitive aspects over experiential learning. Focus group interviews reveal that students perceive nature primarily as a habitat for plants and animals or a resource for human needs, while teachers and parents recognize a lack of environmental awareness. Participants unanimously highlight the necessity of integrating experiential, outdoor-based nature education into early childhood curricula. The study underscores the importance of structured nature education programs that incorporate sensory experiences, exploration, and direct engagement with natural environments. These findings emphasize the need for curriculum reforms to cultivate a deeper and more sustainable connection between individuals and nature.

Keywords: Environmental awareness; experiential learning; nature education; qualitative analysis; curriculum development

* ADDRESS FOR CORRESPONDENCE: Gulizar Eroglu, Eastern Mediterranean University, Ismet Inonu boulevard, Salamis road, Famagusta, North Cyprus, Turkey.

E-mail address: gulizar.eroglu@emu.edu.tr

1. INTRODUCTION

Nature is commonly defined as an open system, characterized by a diverse range of living and non-living elements. It is dynamic, with constant processes of change and modification, and operates according to its mechanisms and laws. Nature exists independently of human influence, exhibiting continual renewal and formation (Savari et al., 2022). Its boundaries are not fixed, encompassing various elements, interactions, relations, and processes (Atasoy, 2006). Nature education is understood as a holistic approach to recognizing nature, wherein individuals gain awareness through interaction and association with their natural surroundings. This form of education encourages awareness, fosters attitudes, and promotes behavioral changes toward nature and environmental issues (Erdoğan & Özsoy, 2007; Liang et al., 2022). It is also defined as the study of the language of nature (Ozaner, 2004), engaging in learning within natural environments, and exploring nature as an educational subject, material, and tool (Keleş et al., 2010).

The significance individuals place on their species, other living beings, and nature's protection stems from their relationship with the environment. Individuals who do not engage with or observe nature are less likely to understand its interconnectedness or appreciate its role in sustaining life. However, technological advancements, urbanization, and educational systems detached from nature contribute to the growing alienation of individuals from their natural surroundings. Thus, the need for more comprehensive studies on nature education is critical (Kahyaoğlu, 2016).

Nature education, a globally recognized initiative, was first implemented in Turkey in 1999 by the Scientific and Technological Research Council (TÜBİTAK) as part of ecologically based nature education programs. The Ministry of National Education, the Ministry of Environment and Forestry, and several non-governmental organizations, including the Nature Association and the Environmental Protection and Research Foundation, have also promoted nature and environmental education through various projects. However, in the Turkish Republic of Northern Cyprus (TRNC), nature education initiatives have been limited, with the only notable effort being a program by the Karpaz Friends Association in 2011.

1.1. Literature review

Nature is a comprehensive system composed of both living and non-living elements, including animals, plants, humans, air, water, and soil. However, various factors such as unregulated urbanization, the decline in parks and natural habitats, increased reliance on technology (e.g., internet, computers, mobile phones), migration from rural to urban areas, and exam-focused education systems have led to individuals becoming increasingly disconnected from nature. This disconnection impedes the ability to perceive key aspects of nature, including its significance, functions, diversity, aesthetic qualities, and interrelations. It is widely acknowledged that individuals who understand the ecosystem and its functions are more likely to recognize the need to protect it. Research indicates that students' knowledge and awareness of the living organisms in their surroundings significantly influence their attitudes and behaviors towards conservation (Bizerril, 2004; Erten, 2004; Nates et al., 2010; Kılıç & Dervişoğlu, 2013). Nature education can be defined as the process through which individuals develop a holistic understanding of nature by making various associations. Kutru (2012) emphasize that an individual's relationship with nature is influenced by their recognition of their role within the ecosystem. Sakarya et al., (2023) defines nature sensitivity as a person's willingness to behave positively to environmental issues.

Leading psychologists such as Freud, Piaget, and Erikson suggest that traits developed between the ages of 0-12 have a profound impact on an individual's future personality. In a meta-analysis of 152 longitudinal studies, Roberts and DelVecchio (2000) found that characteristics such as task orientation, extroversion, and emotional regulation during childhood are moderately correlated with adult personality traits. Consequently, children must engage with nature from an early age to foster a deep appreciation and emotional connection to the natural world (Birinci, 2007; Di Paola et al., 2023). This entails that parents and Teachers have a great role in instilling nature awareness in children while growing (Hartman et al., 2023). Direct interaction with nature in childhood is essential for establishing a meaningful bond with the environment and fostering positive attitudes toward nature. In this context, applied education that emphasizes learning through experience, engagement, and reflection should be prioritized (Sarıkaya, 2007).

Primary education plays a critical role in shaping students' foundational personality and character traits, making learning experiences during this phase particularly significant (Aydın, 2007). In terms of environmental education, primary education holds unique importance, as it contributes significantly to the development of both cognitive and affective dimensions of environmental awareness, which are essential for lifelong environmental consciousness (Cutter & Smith, 2001). However, studies across different countries reveal that primary school students' environmental knowledge and awareness are often insufficient (Stanisic & Maksic, 2014; Öner Armağan, 2006).

Curriculum design is central to the education process, guiding students' learning experiences and shaping educational outcomes (Ertürk, 2013; Oliva, 2005). Gülersoy (2013) argues that current curricula do not adequately address the need for nature education. Erdoğan and Özsoy (2007) conducted a critical analysis of environmental education studies at the primary level in Turkey, revealing that many studies focus predominantly on theoretical knowledge rather than practical application. Özdemir (2010) also highlights the theoretical nature of current curricula, suggesting the need for a more application-oriented approach that integrates classroom learning with real-world nature observation.

In the science and technology curriculum, which is central to nature education, topics such as biodiversity, ecological relationships, and environmental issues are addressed within the "Living Things and Life" learning area (Feyzioğlu et al., 2012). Despite these efforts, the limitations of formal education in fostering nature-environment awareness remain evident (Oğurlu et al., 2013). Doğan (2010) noted that "field trips," which provide essential observational learning opportunities, are often hindered by logistical constraints. Similarly, Küçüköner (2011) identified inadequacies in student workbooks as a barrier to effective nature education. Artun and Özsevgi (2018) argued that the excessive theoretical content in the science curriculum undermines students' engagement and suggested the development of an activity-based environmental education program that aligns with students' learning speeds and interests.

Studies have shown that primary school students have limited environmental knowledge, such as recognizing only a few plant and animal species, and the content of the primary school curriculum needs to be more interactive and practical (Gökdere, 2005). Additionally, while students recognize nature as a living space, they often fail to include the human element in their perceptions, viewing nature in a fragmented rather than holistic manner (Köşker, 2013). This limited understanding underscores the importance of an interdisciplinary approach to nature education, integrating both classroom and out-of-class activities to foster a more comprehensive understanding of ecological interrelationships (Köşker, 2013).

Ayaydın et al., (2018) conducted a pretest-posttest study on nature education for primary school children and found that, while students initially believed they were sensitive to environmental issues, their increased awareness led them to realize the need for more effort to protect the environment. Nature-based education in outdoor learning environments was particularly effective in engaging students and making learning enjoyable. Similarly, Yücel and Özkan (2014) emphasized the importance of helping students perceive nature as a unified system, where disturbances in one area affect the entire system.

The effectiveness of environmental education is enhanced by the use of the constructivist approach, which emphasizes learning through experience and engagement in nature-based activities (Akay, 2013). Researchers such as Otto and Pensini (2017) and Roczen et al., (2014) found that nature-related knowledge and relationships had a modest but significant impact on students' ecological behaviors. Ultimately, nature education should be more than the transmission of factual knowledge; it should aim to ignite curiosity, encourage critical thinking, and foster lifelong environmental stewardship (Oğurlu et al., 2013; Tekbiyik et al., 2013).

1.2. Purpose of the study

The purpose of this study is to assess the need for nature education in Northern Cyprus, examining the potential for incorporating nature-based learning programs into the region's educational framework. The following questions guided the investigation into the necessity for nature education:

- What is the nature of children's relationship with the environment?
- What factors influence or determine this relationship?
- Is there a need for nature education among children?
- What specific aspects of nature education are required for children?

2. METHOD AND MATERIALS

2.1. Research design

A qualitative approach was employed in this study, utilizing content analysis to assess the need for nature education in Northern Cyprus.

2.2. Participants

The study drew on a variety of sources to gather relevant data, including input from students, teachers, parents, the existing literature, and the current educational curriculum.

2.3. Data collection instrument

The data collection instruments used in this study included semi-structured interviews and written compositions. Semi-structured interviews were conducted with teachers and parents using an interview guide developed by the researcher, which incorporated expert opinions to ensure comprehensiveness. These interviews were audio-recorded with participants' consent and later analyzed using content analysis to identify key themes and insights. Additionally, students were asked to write compositions expressing their feelings and thoughts about nature, allowing for a qualitative assessment of their perceptions. A theme-code analysis was performed on these compositions to identify recurring themes and patterns related to students' understanding and relationship with nature.

2.4. Data analysis technique

The data analysis methods employed in this study included content analysis and theme-code analysis. The semi-structured interviews with teachers and parents were transcribed and analyzed using content analysis to identify key themes, patterns, and insights regarding participants' views on nature education. The interview responses were systematically categorized to assess commonalities and differences in perspectives. For the student compositions, a theme-code analysis was conducted, where recurring themes related to the students' perceptions of nature, human-nature interactions, and environmental awareness were identified and coded. Both analysis methods allowed for an in-depth understanding of the need for nature education and the factors influencing individuals' relationships with nature.

3. RESULTS

3.1. Findings obtained as a result of evaluating the reports

Throughout history, humans have maintained a complex relationship with nature, characterized by protection, utilization, and preservation. In their ongoing struggle for survival, humans have organized their environment to sustain their lives, often attempting to transcend the limitations imposed by nature by creating artificial spaces. In doing so, they have distanced themselves from nature, perceiving it as separate from their existence. This mindset has led to the exploitation and degradation of the natural world in an attempt to meet human needs. However, as humans exploit and damage nature, they have inadvertently become a threat to their survival, as evidenced by the environmental pollution they create.

The World Health Organization's (WHO) January 2017 report highlights the critical connection between environmental pollution and human health, underscoring the urgent need to clean the global environment. According to the report, 12.6 million people die annually from diseases caused by environmental pollution,

accounting for a quarter of all global deaths. The report emphasizes that "A dirty environment is a deadly environment," calling attention to the severe consequences of continued environmental degradation.

At this juncture, mere protection efforts are insufficient. People must recognize their integral role in nature and strive to live in harmony with it. As environmental challenges such as pollution, climate change, and over-consumption intensify, the essential services provided by nature, including the ability of oceans and forests to store greenhouse gases, the crucial role of soil and water resources in food production, and biodiversity, which is a fundamental indicator of ecosystem health, demand that we make more informed and sustainable choices.

In response to these threats, nature education plays a pivotal role in fostering awareness, understanding, and protection of the natural world. Initiating this educational process at an early age is particularly effective, as it helps individuals develop a lifelong connection with nature (Akyüz, 1979; Louv, 2010). This principle was central to the "Connecting People to Nature" initiative, which has been celebrated since 1974, and was emphasized in 2017. The program encourages individuals to explore the beauty of nature, reflect on their interconnectedness with it, and commit to its protection, fostering a collective responsibility for preserving the shared world we all inhabit.

3.2. Findings from the review of the current program

Educational experiences in nature during preschool and primary school play a crucial role in fostering early awareness and developing a meaningful, lifelong connection with the environment. In the current curriculum, nature or environmental education outcomes in primary school are primarily incorporated into subjects such as Life Sciences, Social Studies, and Science and Technology. However, there is no dedicated unit on nature education or environmental education within these subjects. Instead, nature education is integrated into various thematic units across these courses. This reflects the interdisciplinary nature of nature education. Based on the literature, it can be concluded that the existing program is insufficient, with a focus primarily on cognitive development, conceptual knowledge, and in-class activities that are centered on learning by doing and living but lacking a robust, experiential approach.

3.3. Findings from focus group interviews

Data was collected from students, teachers, and parents through a trilogy study aimed at understanding their perspectives on nature education. Semi-structured interviews were conducted with teachers and parents, using an interview form developed by the researcher, which also incorporated input from five experts. The interviews were audio-recorded with permission and analyzed using content analysis. Additionally, students were asked to write compositions expressing their thoughts and feelings about nature, and a theme-code analysis was performed on these compositions.

The findings revealed that over half of the students perceive nature as a habitat for plants and animals, while a significant portion also view it as a source of oxygen, clean air, food, and water. In their compositions, students also listed activities they associate with nature, including picnics, barbecues, and collecting mushrooms for economic or food purposes. While the nature-human relationship was addressed in the students' writings, it was often framed negatively. More than half of the students expressed that humans harm nature by destroying forests and causing environmental damage.

Teachers, except one, held negative views regarding students' relationships with nature. They emphasized that students lack sufficient knowledge and awareness of nature. According to the teachers, the primary factors influencing students' perceptions of nature include family attitudes, lifestyles, children's preference for technology, and the education they receive. All teachers agreed that nature education is necessary. Regarding the approach to nature education, many suggested that lessons should be held outside the classroom in natural settings, incorporating games, exploration, and sensory activities. While a significant number of teachers advocated for nature education to begin in the first grade, there was also a considerable number who recommended starting at ages 4-5 or in the fourth and fifth grades. Teachers generally agreed that the main outcomes of a nature education program should involve recognizing local plants and animals and promoting environmental protection. They emphasized that sensory-based activities (e.g., smelling, tasting, and touching) should be incorporated into lessons conducted in nature.

Parents reported that their children generally enjoy nature but lack opportunities to engage with it due to technological distractions and other factors. They indicated that their children's lack of awareness and knowledge of nature, coupled with limited exposure, is a key barrier. The majority of parents, however, acknowledged the need for nature education, and most believed that nature education should involve lessons conducted in natural environments.

4. DISCUSSION

Humans, who utilize nature according to their own needs and often exploit it, have inadvertently become a threat to their own lives through the environmental pollution they create. The World Health Organization (WHO) report from January 2017 emphasizes the relationship between environmental pollution and human health. It stresses the urgent need to clean the global environment, providing compelling reasons for action. The report highlights that 12.6 million people die annually from diseases caused by environmental pollution, which accounts for a quarter of all deaths worldwide. It further underscores that "a polluted environment is a deadly environment." These statistics make it clear that addressing environmental pollution is not merely about protecting nature, but also about safeguarding human health.

Given these threats, it is evident that protection efforts alone will not suffice. People must remember that they are part of nature and should live in harmony with it. Nature education plays a key role in recognizing, protecting, and raising awareness of nature's importance. To achieve this, it is vital to start nature education early, particularly with children. Establishing a relationship with nature from a young age enables individuals to develop a lifelong commitment to it (Akyüz, 1979; Louv, 2010).

In this regard, the United Nations Environment Programme designated the theme "Connecting People to Nature" for World Environment Day in 2017, a day celebrated annually since 1974. The theme encourages individuals to explore the beauty of nature, reflect on their connection to it, and take action to protect the shared world. Nature is a holistic entity, encompassing living and non-living elements such as animals, plants, humans, air, water, and soil. However, numerous factors contribute to individuals distancing themselves from nature, including irregular and unplanned urbanization, the decline in parks and natural habitats, addiction to technology (such as the internet, computers, and mobile phones), migration from rural to urban areas, and an exam-oriented education system. These factors hinder individuals' ability to perceive the meaning, importance, functions, and aesthetic qualities of nature.

It is widely accepted that individuals who understand the ecosystems and systems in their environment are more likely to protect these systems. Research supports the idea that knowledge and awareness about living things and their environments significantly influence individuals' behaviors toward environmental protection (Bizerril, 2004; Erten, 2004). Primary education holds particular significance in shaping attitudes toward nature, as it is during these early years that fundamental personality traits and behaviors are formed (Aydın, 2007). The importance of children's early experiences with nature cannot be overstated, as they lay the foundation for future environmental awareness (Birinci, 2007). Studies have shown that the cognitive and affective dimensions of nature education, particularly environmental awareness, develop significantly during primary school years (Cutter and Smith, 2001). Despite the importance of this education, studies indicate that primary school students' environmental knowledge and awareness are often insufficient (Stanisic and Maksic, 2014; Atasoy and Ertürk, 2008; Sülün and Kozcu, 2005; Öner Armağan, 2006).

In their study, Otto and Pensini (2017) explored the effect of environmental knowledge and nature-relatedness on children's ecological behaviors. The study, conducted with 255 students in Germany (grades 4, 5, and 6), found a weak but significant relationship between environmental knowledge and nature-relatedness ($r=0.13$). Moreover, the study found that environmental knowledge accounted for only 2% of the variance in ecological behavior, whereas nature-relatedness explained 69% of the variance. These results suggest that while children may have sufficient knowledge about the environment, they often fail to see themselves as part of nature, which limits their ecological behavior. This implies that current educational approaches are insufficient for fostering ideal ecological awareness. A fragmented view of nature, one that treats nature as a collection of isolated parts rather than as an interconnected whole, prevents the development of a deeper ecological self-awareness. Nature protection, therefore, should be internalized through socialization,

particularly during childhood when individuals' awareness and attitudes are still malleable. By cultivating an ecological self-awareness, children can come to see themselves as integral parts of the natural world, fostering a more holistic understanding of nature as a complex system that includes both organic and cultural vitality.

Nature education plays a vital role in fostering an understanding of the environment and encouraging sustainable behaviors. Educational approaches that engage children directly with nature, through field studies, sensory exploration, and hands-on activities are more effective than traditional methods that focus primarily on knowledge acquisition. Such educational experiences have been shown to increase environmental awareness, foster positive attitudes toward nature, and promote pro-environmental behaviors (Erten, 2004; Güler, 2010). The integration of nature education into various subjects, such as Life Sciences, Social Studies, and Science, is essential, but there is a clear need for dedicated programs focused on environmental issues.

5. CONCLUSION

Teachers and parents alike recognize the importance of nature education, but they also point out that children today are increasingly disconnected from nature. Teachers, in particular, advocate for nature education to begin in early primary school, with outdoor lessons and activities designed to stimulate exploration and engagement. This shift toward experiential learning is supported by research, which shows that children who interact with nature in a meaningful way are more likely to internalize their environmental knowledge and develop a lifelong commitment to environmental protection.

In Northern Cyprus, the current curriculum lacks a specific focus on nature or environmental education. While environmental topics are addressed in subjects such as Life Sciences, Social Studies, and Science, these efforts are often fragmented and insufficient in fostering a deep, integrated understanding of nature. Teachers emphasize that lessons should be more hands-on and conducted in natural settings, where students can learn through exploration and sensory experiences. Such approaches can significantly enhance students' ecological awareness and environmental attitudes.

Ultimately, the goal of nature education is not just to impart knowledge but to cultivate an ecological self-awareness that encourages students to view themselves as part of the natural world. This awareness, if nurtured from a young age, has the potential to transform attitudes toward the environment, resulting in a more sustainable and harmonious relationship between humanity and nature. By fostering this connection, we can ensure that future generations are better equipped to protect and preserve the natural world for the benefit of all living beings.

5. RECOMMENDATIONS

Based on the findings of the study, it is clear that the existing primary school curriculum in Northern Cyprus is insufficient in terms of nature education, and there is a need to integrate nature education into the school system. Both teachers and parents acknowledge this gap, with teachers particularly highlighting that children's relationship with nature is currently weak. According to both teachers and parents, the factors that influence this relationship include family environment and the type of education children receive.

In nature and environmental education, it is crucial not to rely on traditional teaching methods that focus solely on imparting knowledge. Instead, nature education should aim to stimulate children's curiosity and desire to learn, focusing on simple scientific facts and encouraging exploration. A nature education system that only provides conceptual knowledge will not succeed in promoting lasting behavioral change. On the other hand, supplementing education with outdoor activities and field studies offers significant benefits, helping to transform acquired knowledge into action and making it more permanent.

Nature education activities are found to be engaging, enjoyable, and beneficial to participants. These activities facilitate the transformation of knowledge into behavior, help students connect science topics to real-life experiences, and foster a positive attitude toward science. Additionally, nature education increases awareness and sensitivity toward environmental issues, such as pollution and the protection of living species. It can also alter students' perspectives on science, knowledge, and the environment, contributing significantly to their environmental consciousness and attitudes. Furthermore, nature-based learning environments tend

to be more enjoyable and productive, encouraging responsibility toward the environment and sparking interest in environmental challenges.

Based on these insights, the following recommendations for nature education are proposed:

Constructivist Approach: Nature education should be based on constructivist principles, allowing students to actively build their understanding through experiences and exploration.

Outdoor Nature Activities: Engage students in outdoor activities where they can use their senses to discover and connect with nature. These activities should be rooted in hands-on discovery and exploration rather than passive observation.

Holistic View of Nature: Teach students to view nature as a cohesive whole, rather than in isolated parts. This approach will help students understand the interconnectedness of ecosystems and the role of each element in maintaining balance.

Local Environment Awareness: Students should develop awareness of the environment in which they live. This can be achieved by encouraging exploration and learning about local ecosystems, flora, fauna, and environmental issues.

Connection with Nature: Create opportunities for students to form lasting memories and emotional connections with nature. This can be done through regular outdoor experiences that foster a sense of belonging to the natural world.

Avoidance of Rote Learning: Nature education should focus on learning through doing, experiencing, and living, rather than memorizing facts. This approach encourages deeper understanding and long-term retention.

Interactive Learning: Nature education should encourage experiential learning, where students actively participate in activities that reinforce their understanding of nature and environmental concepts.

By implementing these recommendations, nature education can be made more engaging, effective, and impactful, fostering a deeper, lifelong connection between children and the environment.

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