

CHAPTER 11

A New Approach in Environmental Education: Eco-Pedagogy

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Introduction

21st century competencies, which have recently attracted great interest in the world and Turkey, are integrated into the education system and shed light on individuals' social perspectives and global orientations. Based on the view that competent individuals can be raised as a result of the interrelation of different disciplines, the education system in line with 21st century skills emphasizes the capacity of individuals to play a decisive role in certain issues. These issues are diversified such as financial literacy, civic literacy, health literacy, environmental literacy, and even today, additions are being made to these topics. Ecological literacy, which emerged during these additions and occupies an important place for global awareness, is a phenomenon that can reveal the relations of living things with environmental factors and integrate this into the individual's mindset under the title of education. Based on this phenomenon, the concepts of "ecology" and "pedagogy" intertwine over time and reveal a new phenomenal concept.

Ecology

The concept of environment, in which living and non-living beings sustain their lives, is classified at certain levels by dividing it into different titles. With these classifications, the examination of all phenomena that have an important place in terms of environmental science under certain patterns facilitates the work of the society and contributes to continuity within the systemic framework. The concept of ecology, which is one of the classifications and derived from the Greek concept of "Oikos" and whose foundations

date back to Charles Darwin's studies on the development of humanity (Özkalp, 1992), was first used in 1869 by German scientist Ernest Haeckel in a study on plant systematics (Marshall, 1999). The concept of ecology, which was introduced to the literature based on Haeckel's studies and shaped over time by incorporating the reflections of different perspectives, is a phenomenon that reveals the distribution of living things in an environment, their quantities and their relationships with other living or non-living things in their environment (Stauffer, 1957).

The concept of ecology has brought along many currents of thought since it first began to take shape as a result of the studies on it. With different perspectives on the concept, it has been interpreted in various ways and factual foundations that will continue for centuries have emerged. It is possible to mention that there are different views on the concept of ecology, such as eco-socialism, eco-feminism, as well as environment-oriented studies. However, it has been clearly demonstrated that this difference is not only shaped according to the perspectives, but also according to the solutions offered to the ecological problems that arise according to the returns of time or according to the characteristics of human and society (Görmez, 2010).

When it is observed that today's orientation towards the concept of ecology shows an environment-oriented approach, the question "How was the relationship between ecology and environment established in ancient times?" comes to mind. In fact, the answer to the question is clear. The differences of opinion that emerged as a result of the differentiation of perspectives developed towards the environment and environmental problems led to the emergence of ecological philosophical movements as a result of the coming together of certain ways of thinking. The most prominent of these movements is radical environmentalism. The movement adopts respect for nature and natural life as the main goal by making certain inquiries within the framework of national policies. In short, the movement is based on the idea that the human-environment relationship should be regulated at this level by opposing the depletion of natural resources. The ecocentrism movement is an approach that argues that people in industrial cities should respect nature and greenery (Yıldırım, 2017). The universal ecological thought synthesized based on these approaches includes many currents and ideas that contain different views.

Since its emergence in ancient times, the idea of ecology has often been confused by scientists with the idea of protecting the environment, and no clear orientation can be stated on this issue. However, although they both include environment-oriented studies, they are shaped on different factual foundations. While environmental conservation thinking is a natural environmental living environment based on the concept of nature, which constitutes the sphere of human use and emerges with passive patterns by bringing together certain objects, ecological thinking is an approach that reveals the holistic relationship between nature and human beings (Bookchin, 2013). As a result

of the inferences shaped around all these intellectual patterns, it has been revealed that the concept of ecology is an approach based on the balance and harmony in human and nature relations, and it has become a field of study, especially by biologists. However, the ecological crisis that has emerged in recent years as a result of temporal conditions has brought to the agenda the necessity for many scientists to carry out more studies in this field, leading to an increase in trends towards this field and an increase in interest in phenomena such as technology, industrialization and common environment. As a result of the increase in the number of studies and researchers interested in this field, the subject contents that have been examined more deeply have also led to the emergence of a number of new concepts, and environmental-oriented ecological thinking has begun to expand. These concepts have been introduced to the literature by characterizing them as population, which refers to organisms living in a certain environment in relation to each other, community, which refers to areas where various species live together within the population, ecosystem, which is the intersection area of community and environment, and ecosphere, which emerges as a result of the interconnection of regional ecosystems on the world (Özkalp, 1992). When we look at the main purpose of the concepts revealed as a result of all these studies and researches, we see that there should be a certain order and interdependence in nature. It is observed that some common views have been put forward for ecological thought to be shaped in this direction in order to create a healthy nature-based society. These views are; (a) perceiving nature as a whole and revealing the interconnection of environmental relations with each other, (b) being against growth-oriented economic studies that may harm nature, (c) being careful and cautious against technological developments brought by the age (Kılıç, 2006).

Based on these characterizations, even if the importance and place of the concept of ecology for human history is clearly revealed, the emergence of ecological destruction as a result of some environmental factors is an inevitable problem. Human life, which is shaped around the benefits of the age we live in, is beginning to have a high level of relationship with industrial and technological developments. Although the positive results of these effects cannot be ignored, it is an undeniable fact that they have negative consequences for the environment and ecological order. Environmental pollution and excessive consumption of natural resources, which are the most prominent of the emerging problems, are clearly evident that the natural balance in the ecosystem has started to deteriorate over time, as it shows its effects in many areas from the living spaces of living creatures living in the ecological order to their nutritional opportunities. So can we prevent these problems? Can social awareness be raised against environmental pollution or unconscious use of natural resources? At what age range and at what level can environmental awareness activities be given? The answer to all these questions lies in raising awareness of the individual and reveals the importance of its place in the education system. Because, as Miller (2012) mentions, awareness is the first step

towards change. At this point, the concept of ecological balance (Lummis, 2002), which is shaped by environment-oriented teaching, comes to the fore. It is an undeniable fact that the most important awareness opportunity for ensuring and protecting ecological balance is education.

The concept of literacy, which reveals the level of competence of individuals in certain areas and is based on the idea that individuals should have questioning views towards the phenomena in their lives by creating changes in their way of thinking, has an important place in the field of ecology. An ecologically literate individual should have the ability to synthesize nature and human relations with his/her own thoughts, pay attention to natural processes and resources, produce solutions by approaching issues such as climate change with a critical point of view, and exhibit a nature-friendly approach, and these characteristics should become one of the life goals of the individual. Thus, with the educational activities shaped on the basis of these themes, it can be aimed to create an individual and then a social consciousness and awareness as a result of contributing to environmental literacy rates by ensuring that individuals are primarily ecologically literate (Aydin et al., 2016).

Ecopedagology

Human beings are in constant and balanced interaction with their environment. In some cases, this interaction can be environmentally or socially beneficial, while in others it can be harmful. What are these situations of benefit or harm? Who is responsible in case of damage to the environment and ecological order as a result of human actions? How can the individual be made aware in terms of revealing the damages? The answers to all these questions are examined under two headings in order to offer a different perspective on environmental education. Thus, the questions are stated as not knowing what the consequences or returns of the behaviors that have been done or have been done and accepting continuity by being conscious of one's actions (Misiaszek, 2020). In order to prevent these negative attitudes, the necessity of a synthesis that will reveal the continuity between education and the environment was emphasized.

The concept of ecopedagogy, which emerged with the integration of environmental awareness into the education system as a result of synthesizing studies, is a philosophical approach that advocates respect for human beings, nature, social life and human-environment relationship as a result of the ideas revealed with a critical perspective developed against the environment and ecological education (Gronemeyer, 1987; Morrow & Torres, 2002; Kahn, 2010). Studies have revealed that this approach, which aims to reveal the relations between nature and human beings, has three main components. These are classified as natural, social and holistic ecology.

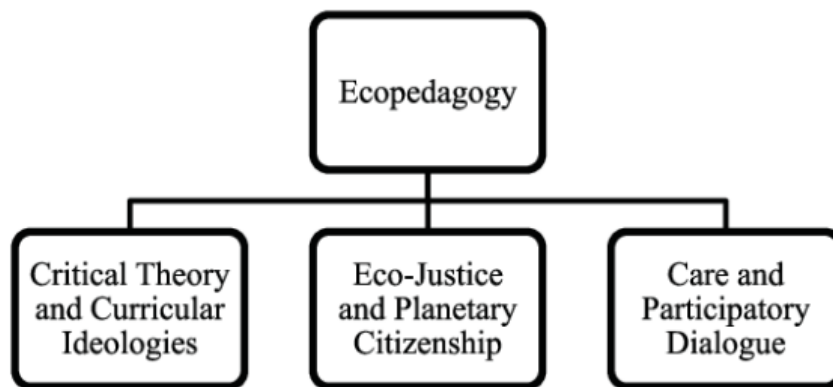
1. Natural Ecology: It is aimed to protect nature and ensure its continuity (Kahn 2010).

2.Social Ecology: It is aimed to reveal the impact of human beings, one of the main components of the environment, on nature and the natural process (Kahn, 2010).

3.Holistic Ecology: In accordance with 21st century competencies and opportunities, it is aimed to present an ecological perspective on civilization studies through economic, social and cultural structure (Kahn, 2010).

However, Zocher and Hougham (2020) examined the concept of ecopedagogy in three sub-dimensions: critical theory and curriculum ideologies, eco-justice and planetary citizenship, care and participatory dialogue (Figure 1).

Figure 1.
Ecopedagogy Themes (Zocher & Hougham 2020)



The “Our Common Future” report published by the World Commission on Environment and Development (WCED) in 1987 was a pioneering work that ushered in a new era in the field of environment, while the idea of sustainable development aimed to prevent the destruction of natural resources and prevent environmental damage. In line with these objectives, the themes addressed by updating the studies have started to change shape and the importance given to social awareness-raising activities has increased. Based on the view that education systems are the best way to raise the level of awareness in society, the concept of ecopedagogy, which incorporates the concepts of “ecology” and “pedagogy” and clearly synthesizes these two concepts, found its place in the literature in 1992. In a study by Gadotti (2008), the term ecopedagogy is characterized as an approach that can reveal the atrophied sustainable development pedagogy in society and emphasizes the importance of a critical perspective.

It is observed that the foundations of the concept of ecopedagogy, which is shaped in line with the objectives, emerged in the works of Paulo Freire (1999) when it is characterized as a philosophical view. In 1999, Paulo Freire and his advisor Moacir Gadotti introduced the concept of ecopedagogy, which became an educational perspective that began to be followed at the First International Earth Charter Symposium organized by the Earth Council and UNESCO (Khan, 2008). Over time, the perspective

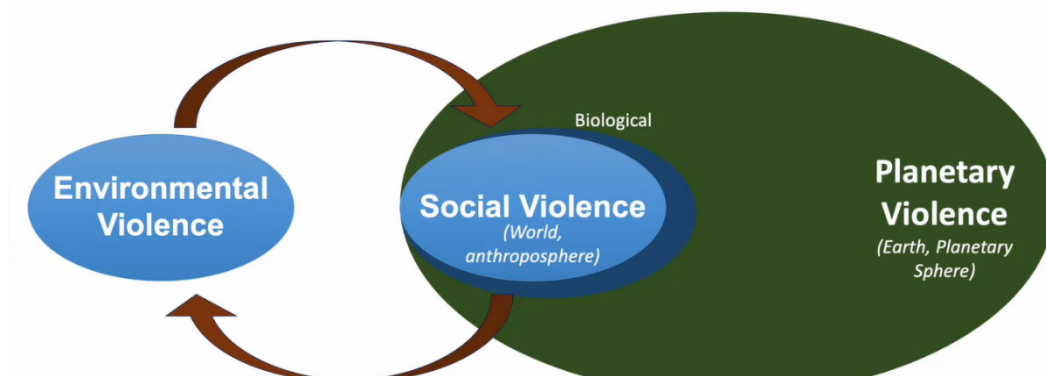
on the concept has expanded and the concept of ecopedagogy has been introduced to the literature by Paulo Freire, as well as world-renowned pedagogues and educators such as Moacir Gadotti, Francisco Gutierrez, Cruz Prado, Patricia Abuhab, Guilherme Blauth, Richard V. Kahn, Stefan K. Grigorov, who have carried out many studies in the field and made efforts to develop the theory under thematic headings (Grigorov, 2012).

Ecopedagogy, described as an innovative and popular educational movement in Latin America, is a critical view that seeks to reveal the benefits and harms of human behavior to the environment as a result of social orientations, as well as an environmental pedagogy approach that aims to achieve a balance of social and environmental justice by using the opportunities brought by education (Misiaszek, 2016). Based on all these definitions, the ultimate goal of an ecopedagogical education is to strive to shape the perspectives between the social order and the environment in order to ensure the continuity of the living environment and to ensure the continuation of the universal balance. It is clearly demonstrated that the effects of pedagogical studies to be carried out in line with the objectives will be shaped positively both individually and socially.

The main orientation of the concept of ecopedagology is to draw attention to the concepts of environmental, social and planetary bullying that arise as a result of negative situations by revealing the ecological balance between the environment, society and the world, and the idea that this unjust order should be criticized and corrected. While environmental bullying means the loss of the continuity of the ecological balance as a result of human behavior, it is revealed that it is closely related to social and planetary bullying (Misiaszek, 2020). Because the reason for the emergence of environmental bullying phenomena is due to the imbalance in society-environment relations.

Figure 2.

Environmental, Social and Planetary Bullying Relationships (Misiaszek, 2020)



The problem situations that ecopedagogical studies focus on are stated as revealing the relational dimension of environmental and social bullying (unconscious behaviors). Thus, the relational dimensions of the concepts help us to reveal whether teaching is being done or not and its deficiencies, thus enabling us to make inferences

with better quality and ecological principles. The importance of the continuous relationship between these two concepts in terms of the world is also revealed with the planetary bullying relationships, and it is aimed that individual responsibilities and rules gain a universal value, while ecological pedagogy education developed on the basis of these views is frequently used not only in environmental education but also in many subject areas such as social, cultural, historical, religious, etc. (Gronemeyer, 1987; Kahn, 2010). The most important element in these trainings is that individuals reveal their own ecological identities as a result of questioning and critical perspectives without being exposed to stereotypical limitations such as right or wrong (Irwin, 2010). Thus, it is aimed to associate the concept with different disciplines and to develop attitudes that can exhibit a holistic approach to the connection between the environment and human beings.

In short, as Angela Antunes and Moacir Gadotti mention, “Ecopedagogy is a life-centered pedagogy and its aim is to create new eco-pedagogical relationships in the lives of people who can be the creators of a new and more beautiful world so that they can raise awareness of themselves and those around them” (Grigorov, 2012). Thus, it is clearly observed in the studies that this critical approach is a victory for both the education system and environmental awareness, and that it can be useful for protecting the natural life in the world and creating a cleaner future for new generations.

Ecopedagogical Literacy

The environment, which constitutes the living spaces of living and non-living beings, is exposed to certain effects over time and destructions occur. Environmental education, which is included in the education system in order to prevent these damages and to initiate improvement efforts, aims to raise individuals who adopt nature-friendly and sustainable development awareness. For this purpose, the ecopedagogy approach, which came into our lives as a result of the integration of the term ecology, which is one of the subheadings of the concept of environment, and the education system, adopts the philosophy of ensuring that the individual plays an active role in all processes related to nature and ensuring a continuity that will continue until future generations (Freire, 1970). Undoubtedly, this philosophy is based on the individual being competent in the subject area. Despite the ecopedagogy approach, it will be able to appropriately fulfill the requirements of another approach that adopts competencies, critical thinking, and research-inquiry based thinking.

Ecopedagogical literacy is basically defined as literacy education for reading and rereading human actions related to environmental violence (Misiaszek, 2020). An ecopedagogical literate individual is expected to produce effective solutions to problem situations encountered in nature while being required to read and research at certain levels in the field of ecology (Khan, 2010). However, ecopedagogical literacy involves seeking

world balance instead of ending something in nature (Misiaszek, 2021). Thus, over time, it will become easier and possible to prevent negative attitudes such as globalization and insensitivity to social problems and to protect the natural balance.

Ecopedagogy in the World and Turkey

The concept of ecopedagogy, which tries to draw attention to the importance of respecting nature by synthesizing ecology and education, is a form of approach that has been studied by scientists since its emergence in order to expand its meaning and allow it to be universally accepted (Grigorov, 2012).

The concept, the foundations of which were laid by Paulo Freire in 1992, was introduced to the literature as “ecopedagogy” by Gronemeyer in 1987 (Okur et al., 2015). Subsequently, the concept, which has diversified studies on the subject area in the world and in Turkey, has been handled by researchers with different dimensions. Lummis (2002), one of these researchers, revealed the perspective on the concept of ecopedagogy within Australia’s educational reform movements. According to the findings of the study, the country’s ecopedagogical thought has been updated as structuralist and it is emphasized that priority should be given to creating an environment where teachers can question in economic, social and political areas in the programs prepared.

In the study conducted by Walter (2009), the philosophical approaches on which environmental education in North America is based are classified as liberal, progressive, behaviorist, humanistic and radical, and it is aimed to adopt contemporary learning methods suitable for ecopedagogy. Walter argues that the balance between the environment and human beings can be preserved and the concept of sustainability can be realized in the strongest way when the purpose of the education examined within the framework of ecology and education is updated in liberal philosophy with a focus on emotions, progressive philosophy with a focus on social norms, behavioral philosophy with a focus on generation continuity, humanistic philosophy with a focus on self-development and radical philosophy with a focus on eco-justice.

Thomashow (1998), who adopted the concept of self-identity based on Walter’s humanistic philosophy in the field of ecopedagogy, stated that each individual will adopt a certain ecological identity by creating their own philosophy. Thus, people will be able to reveal their pros and cons by questioning, criticizing and synthesizing the inferences obtained in line with their own knowledge and skills, and will be able to take responsibility for leaving a clean world for future generations (Okur, 2012).

In addition to the studies conducted in the world, when the equivalent of the concept of ecopedagogy in the Turkish literature is examined, Eryaman et al. (2010) investigated the effect of ecopedagogical trainings based on social foundations on various data collection groups. According to the findings of the study, as a result of the

trainings, it was seen that teachers had a good understanding of the relationship between sustainability, ecology and education and were willing to transfer information about nature activities and the importance of protecting natural resources.

Based on all the researches, it will be possible to say that the concept of ecopedagogy is effectively integrated into the education system in the world and in Turkey and that incentive studies are carried out in order to raise solution-oriented individuals against the environmental problems that are emerging day by day.

Conclusion

Although the concept of ecology, which is shaped within the framework of the concept of education, includes various field studies, it clearly emphasizes the relationship between the concept of education and ecology by aiming to raise environmental awareness in terms of the philosophy it is based on. At the same time, since the first times when the concepts of ecology and environment were introduced into education, the objectives have always been shaped in this direction and the regulations focused on catching up with the age are based on these philosophically based thoughts.

The approaches taken as a basis within the education system differ in various aspects within a certain periodic framework. While it is generally argued that critical perspectives on the education system adopt a classical teaching style and do not encourage individuals to think about social events (Eisener, 2002), concepts such as ecology and environment have started to approach the system from different angles and as a result of these studies, phenomena such as the concept of eco-pedagogy, which will find a significant place in the literature, have been derived. The ecological pedagogy approach, which emerges as a result of the derived concepts and is put forward in detail based on the forms of approach, emerges as a movement of thought that aims to provide the individual with intellectual thinking skills as well as being important in the education system. Thus, this approach, which was seen only as a philosophical thought in the first times it was put forward, enables individuals to reveal their environmental attitudes shaped by their own thoughts without being stuck in the factual patterns of right and wrong (Irwin, 2010).

“Environment” is a term that refers to all components of the natural or artificial space in which an organism (e.g. a human, animal or plant) lives. The environment affects many different factors, such as human health, the economy and social well-being. Therefore, environmental protection and sustainability are important to improve the quality of people’s lives. The main source of future adverse situations that may arise as a result of human and environmental interactions is closely related to the resilience and productivity of natural systems, and this relationship is being threatened day by day (Orr, 1991). People’s perspectives on social awareness, education and culture levels, which are one of the factors that reveal this situation, highly affect their level of awareness about

the environment and the natural system. Because education is not only a system in which individuals learn conceptual facts, but also enables them to grow up as well-equipped individuals with critical and questioning perspectives.

Environment and ecology are also areas that occupy a large place in education systems and that individuals should attach great importance to in order to leave a clean world for future generations. The term eco-pedagogy, developed through the concept of ecology, which draws attention to the interactions of living beings with each other and their environment, is a subject area that has gained a place in the literature with its critical perspective that defends the idea that living beings should be able to protect their living spaces and respect all phenomena within the system, and many studies have been carried out to raise awareness of individuals in this direction. “Eco-pedagogy” or “Ecopedagogy” is an educational approach that focuses on ecological sustainability. This approach aims to sensitize students to the environment and make them aware of sustainability issues. Ecopedagogy is an approach to which teachers and educators from many different disciplines contribute. This approach is seen as an important tool for raising environmental awareness in the education system and society at large.

Along with the concept of ecopedagogy, the concept of ecopedagogical literacy emerges. This type of literacy includes topics such as raising awareness about the effects of human activities on the natural environment, exhibiting conscious consumer behavior regarding the use of natural resources, promoting environmentally friendly practices and encouraging sustainable development. At the same time, this literacy encourages individuals to take responsibility for their own lives and the environment, helping to work towards a more sustainable and healthy future.

References

- Aydın, M., Dünder, R., & Korkut, Ş. (2016). Teacher views upon ecological literacy education in Turkey. *Abant İzzet Baysal University Journal of Faculty of Education*, 16, 1160-1172.
- Bookchin, M. (2013). *The Ecology of Freedom (The Emergence and Dissolution of Hierarchy)*, Çev. M. K. Coşkun. Sümer Yayıncılık.
- Eisner, E. W. (2002). *The educational imagination: on the design and evaluation of school programs*. Merrill Prentice Hall.
- Eryaman, M., Yalçın Ş., Okur E., Çetinkaya, Z., & Uygün, S. (2010). A participatory action research study of nature education in nature: *Towards Community-Based Eco-Pedagogy*, *International Journal of Progressive Education*, 6(3), 26-37. <https://dergipark.org.tr/en/pub/ijpe/issue/26310/277297>
- Freire, P. (1970). *Pedagogy of the oppressed*. (Trans. M. B. Ramos). Seabury
- Gadotti, M. (2008). Education for Sustainability: A Critical Contribution to the Decade of Education for Sustainable Development. In *Green Theory & Praxis: The Journal of Ecopedagogy*, 4(1). <http://gadotti.org.br/handle/123456789/420>
- Görmez, K. (2010). *Çevre sorunları*. Nobel Yayın Dağıtım.
- Grigorov, S. (2012). *International Handbook of Ecopedagogy for Students, Educators and Parents. A Project for a New Eco-Sustainable Civilization*. BCSLDE, Sofia.

- Gronemeyer, M. (1987). Ecological education a failing practice? or Is the ecological movement an educational movement? in Walter Leirman & Linda Kulich (Ed.) *Adult Education and the Challenges of the 1990s.*, Chapter 5, p. 70-83, Croom Helm.
- Irwin, D. (2010). Weaving the threads of education for sustainability and outdoor education [Unpublished doctoral dissertation]. New Zealand.
- Khan, R. (2008). From education for sustainable development to ecopedagogy: Sustaining capitalism or sustaining life? *Green Theory & Praxis: The Journal of Ecopedagogy* 4(1), 1941-0948. <https://doi.org/10.3903/gtp.2008.1.2>
- Kahn, R. (2010). Critical pedagogy, ecoliteracy, & planetary crisis. Peter Lang Publishing, Inc.
- Kılıç, S. (2006). An ecological approach to modern society. *Kocaeli University Journal of Institute of Social Sciences*, 12, 108-127. <http://kosbed.kocaeli.edu.tr/sayil2/kilic.pdf>
- Lummis, G. (2002). Globalisation: Building a partnership ethic for an ecopedagogy in Western Australia. *Australian Journal of Teacher Education*, 27(1), 9-18. <https://doi.org/10.14221/ajte.2002v27n1.2>
- Marshall, G. (1999). Sosyoloji Sözlüğü. Ankara: Bilim ve Sanat Yayınları.
- Miller-Rushing, A., Primack, R., & Bonney, R. (2012). The history of public participation in ecological research. *Frontiers in Ecology and the Environment*, 10(6), 285-290. <https://doi.org/10.1890/110278>
- Misiaszek, W. G. (2020). Ecopedagogy: Teaching critical literacies of ‘development’, ‘sustainability’, and ‘sustainable development’, *Teaching in Higher Education*, 25(5), 615-632, <https://doi.org/10.1080/13562517.2019.1586668>
- Misiaszek, G. W. (2020). *Ecopedagogy: Critical environmental teaching for planetary justice and global sustainable development*. Bloomsbury Publishing.
- Misiaszek, G. W. (2016). Ecopedagogy as an element of citizenship education: The dialectic of global/local spheres of citizenship and critical environmental pedagogies. *International Review of Education*, 62, 587-607.
- Misiaszek, W. G. (2021). Ecopedagogical literacy of a pandemic: Teaching to critically read the politics of COVID-19 with environmental issues. *The Journal of Environmental Education*, 52(5), 358-369. <https://doi.org/10.1080/00958964.2021.1981206>
- Morrow, R. A., & Torres, C. A. (2002). Reading Freire and Habermas: *Critical pedagogy and transformative social change*. Teachers College Press.
- Lummis, G. (2002). Globalisation: Building a Partnership Ethic for a Ecopedagogy in Western Australia. *Australian Journal of Teacher Education*, 27(1), 1-11. <https://doi.org/10.14221/ajte.2002v27n1.2>
- Okur, E. (2012). Sınıf dışı deneyimsel öğretim: ekoloji uygulaması [Unpublished doctoral dissertation]. Çanakkale.
- Orr, D. (1991). What is Education For? Six myths about the foundations of modern education, and six new principles to replace them. *The Learning Revolution (IC#27)*. <https://www.context.org/iclib/ic27/orr/>
- Özkalp, E. (1992). Technology and environment. *Journal of Anadolu University Faculty of Economics and Administrative Sciences*, 10(1), 381-417. <https://dergipark.org.tr/tr/pub/anadoluibfd/issue/48366/614087>
- Stauffer, R. C. (1957). Haeckel, Darwin, and ecology. *The Quarterly Review of Biology*, 32(2), 138-144. <https://doi.org/10.1086/401754>

- Thomashow, M. (1998). *Ecological Identity: Becoming a Reflective Environmentalist (3rd Edition)*, MIT Press, Massachusetts.
- Türk Dil Kurumu (2023). Current Turkish dictionary. <https://sozluk.gov.tr/>
- Yıldırım, C. (2017). The understanding of human and society in ecological thought..*Journal of Human and Social Sciences Research*, 6(1), 289-308. <https://dergipark.org.tr/tr/pub/itobiad/issue/27443/288281>
- Zocher, J. L., & Hougham, R. J. (2020). Implementing ecopedagogy as an experiential approach to decolonizing science education. *Journal of Experiential Education*, 43(3), 232-247.
- Walter, P. (2009). Philosophies of adult environmental education, *Adult Education Quarterly*, 60(1), 3- 25. <https://doi.org/10.1177/074171360933610>
- World Commission on Environment and Development (WCED) (1987). *Our Common Future Brundtland Report*. Oxford University Press.

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