

# ENVIRONMENTAL PEDAGOGY

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**ENVIRONMENTAL PEDAGOGY**

MA Thesis

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**OKOLIŠNA PEDAGOGIJA**

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## **Summary**

We are currently experiencing a period of swift progress and transformation in our society. Our daily lives are intertwined with modernization, deforestation, pollution, and rapid industrialization, which have significant impacts on nature and our surroundings. The signs of environmental degradation are evident, manifested through climate change, ozone depletion, soil and water pollution, and global warming. Unfortunately, as the world continues to develop, the environment continues to suffer, and there seems to be no immediate solution in sight. Consequently, there is a growing need for environmental preservation and education programs to address this issue. Education plays a vital role in cultivating individuals who are conscious of the environment and who are committed to protecting it. Many studies have highlighted that education is essential in fostering behavioural changes and providing critical skills that enable individuals to achieve environmental consciousness. Various fields of environmental education can contribute significantly to the development of environmentally responsible individuals.

**Key words:** environmental education, sustainable development, ecopedagogy, environmental citizenship

## **Sažetak**

Trenutno prolazimo kroz razdoblje brzog napretka i transformacije u našem društvu. Naši se svakodnevni životi isprepliću s modernizacijom, krčenjem šuma, zagađenjem i brзом industrijalizacijom, koje imaju značajan utjecaj na prirodu i našu okolinu. Znakovi degradacije okoliša vidljivi su u klimatskim promjenama, smanjenju ozonskog omotača, onečišćenju tla i vode te globalnom zatopljenju. Nažalost, kako svijet nastavlja s razvojem, okoliš nastavlja patiti, a rješenje se ne čini vidljivim. Stoga postoji sve veća potreba za programima za zaštitu okoliša i edukacijom kako bi se riješio taj problem. Obrazovanje ima važnu ulogu u stvaranju pojedinaca koji su svjesni okoliša i posvećeni njegovoj zaštiti. Mnoga istraživanja ističu da je obrazovanje ključno u poticanju promjena u ponašanju i pružanju ključnih vještina koje omogućuju pojedincima postizanje ekološke svijesti. Različita područja ekološkog obrazovanja mogu značajno doprinijeti razvoju pojedinaca odgovornih prema okolišu.

**Ključne riječi:** ekološko obrazovanje, održivi razvoj, ekopedagogija, ekološko građanstvo

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## 1. Introduction

At present, we are situated in the epoch of Anthropocene, which refers to a proposed geological era indicating the time in Earth's history where human activities have had a significant impact on the planet's geology and ecosystems. The term "Anthropocene" is rooted in the Greek word "*Anthropos*", signifying "human" and "*cene*", denoting "new". This epoch highlights the radical changes that humans have caused to the planet, such as the emission of massive amounts of greenhouse gases, deforestation, and the extinction of numerous plant and animal species. The notion of Anthropocene stemmed from the realization that humans have taken over the dominant role in shaping the Earth's environment, exceeding natural processes. The increase in the global population has limited human needs and caused a harmful impact on the environment, endangering the preservation of natural resources such as land and water. The uncontrolled and unplanned exploitation of these resources by humans has resulted in their depletion. Modernization, deforestation, pollution, and rapid industrialization have worsened this situation. (Nykia, Mwema, 2021). The increasing signs of environmental degradation such as climate change, ozone depletion, soil and water pollution, and global warming have created a demand for environmental preservation and education programs dedicated to this subject. People have become more conscious of the need to behave responsibly towards nature, both as individuals and as a society (Nykia, Mwema, 2021). As climate change and environmental issues become increasingly pressing concerns for society, it is more important than ever for individuals to be informed and engaged in efforts to protect the environment. Those who support the Anthropocene concept claim that it reflects the profound transformations caused by human activity, such as the loss of biodiversity, ocean acidification, and climate change. A study published in the journal *Nature* argues that human actions have resulted in changes to the planet's systems that are unparalleled in the past few thousand years. The authors of the study, Steffen et al. (2015), contend that the explosive growth of human activity since the mid-20th century has destabilized the Holocene epoch, which had been relatively stable for 11,700 years, and that a new geological epoch, the Anthropocene, should be proposed. Nonetheless, some scholars assert that the Anthropocene term disregards capitalism's role in fuelling environmental destruction. They suggest that the term Capitalocene would be more accurate, emphasizing how capitalism has shaped the earth's ecosystems and generated environmental crises. Advocates of the Capitalocene position contend that it brings into focus the structural forces behind environmental degradation, such as the quest for financial gain and the exploitation of natural resources for economic purposes. In his work, Moore asserts that the

current geological epoch should be interpreted as the Capitalocene, as it reflects the underlying economic framework of capitalism that is driving environmental degradation and intensifying social disparity. According to Moore, the Capitalocene is a new era in which capitalism has become a dominant force in shaping the natural world. He argues that capitalism is characterized by the pursuit of profit by exploiting nature, labour, and money, which has resulted in the depletion of natural resources, the devastation of ecosystems, and the accumulation of waste (Moore, 2017). Moore has pinpointed various critical aspects of the Capitalocene, which include the emergence of a world-ecology system, where the exploitation of nature is ingrained into global economic processes; the development of a new type of nature-society interaction, in which nature is increasingly treated as a commodity to be traded; and the production of novel environmental crises, such as climate change, ocean acidification, and soil depletion (Moore, 2017). Moore contends that the Capitalocene represents a significant shift in the relationship between humans and the environment, necessitating new perspectives on nature, society, and the economy. He proposes that we need to transcend the constraints of the Anthropocene concept, which mainly concentrates on human influence on the environment, and formulate a more comprehensive understanding of the social and economic systems that are fuelling environmental destruction (Moore, 2017).

According to the Intergovernmental Panel on Climate Change (IPCC) most recent report, which was released in 2021, climate change is becoming more severe, and human actions are the primary cause of it. The report emphasizes the immediate need for ambitious action to reduce greenhouse gas emissions and restrict global warming to 1.5°C above pre-industrial levels, as outlined in the Paris Agreement. The report underscores the urgency of significant reductions in emissions and the widespread deployment of renewable energy, as well as the necessity of addressing the root causes of emissions, such as unsustainable consumption patterns and reliance on fossil fuels (IPCC, 2021). There are numerous ecological problems that the world is currently facing, many of which have been highlighted in the most recent IPCC reports:

- Climate change – the Earth's climate is rapidly warming, leading to increased temperatures, rising sea levels, more frequent and intense heatwaves, and more severe natural disasters. The report warns that widespread and rapid changes are occurring in the Earth's climate, and human activities are the primary driver behind these changes. (IPCC, 2021).

- Loss of biodiversity – the Earth is currently experiencing an unprecedented loss of biodiversity as a result of climate change, pollution, overexploitation, and habitat destruction. This loss not only affects ecological systems but also has negative impacts on human society, such as reduced access to food and medicine (IPCC, 2019).
- Land degradation – human activities including deforestation, overgrazing, and intensive agriculture are among the causes of land degradation. Such activities can cause a decline in soil fertility, and the loss of essential ecosystem services like carbon storage and water filtration (IPCC, 2019).
- Water scarcity – widespread across various regions of the world and is further intensified by the impact of climate change, leading to alterations in precipitation patterns and greater evaporation rates. According to the latest IPCC report in 2021, water scarcity is expected to worsen in several areas, especially in arid and semi-arid regions (IPCC, 2021).
- Ocean acidification – caused by absorption of carbon dioxide by the ocean, which has detrimental effects on marine life, including the reduced ability of certain organisms to form their shells or skeletons. Additionally, it can have negative consequences for human society, such as reduced access to seafood. The latest IPCC reports state that ocean acidification is happening at a pace that has not been witnessed in at least 66 million years. (IPCC, 2019).

The world is currently confronted with various ecological issues, and many of them are being worsened by human activities. To prevent further harm to the environment and secure a sustainable future for everyone, it is crucial that we take prompt action to tackle these problems.

Environmental pedagogy aims to equip students with the knowledge, skills, and attitudes needed to become responsible and environmentally conscious citizens. It plays a crucial role in addressing environmental challenges, as it seeks to develop effective strategies for educating individuals about environmental issues, fostering positive attitudes towards the environment, and promoting sustainable practices. However, Fraser (2019) proposes that resolving the environmental crisis calls for a profound shift in our social and economic systems. She claims that we must transcend capitalism's exploitative approach and develop alternative models of economic organization that prioritize the welfare of both humanity and the environment. This change would not only require transformation of our economic structures but also our political and cultural institutions, which presently reflect the principles of



capitalistic accumulation. This suggests that environmental problems cannot be resolved solely through education. This Master's thesis aims to explore and analyse the various approaches and fields of environmental pedagogy and the role of educators in shaping students' attitudes and behaviours towards the environment, with a particular focus on environmental pedagogy in English classroom. The final chapter addresses challenges related to teaching about the environment and offers a personal perspective on the subject.

## **2. Education**

Education has been present in some form since the beginning of human civilization. Initially, only informal education existed as children learned from their families and society. According to Mijatović (2002, cited in Ham and Štimac, 2012), education is generally thought to require upbringing effects in order to be effective. Education primarily involves the systematic improvement of cognitive skills and individual learning, and it is a distinct but complementary process to upbringing. Education provides more foundational assumptions for the success of upbringing (Mijatović, 2002, cited in Ham and Štimac, 2012). “Education is the process of helping people to acquire knowledge, skills, values and perceptions that are considered useful to them and their society” (Timothy, Obiekezie, 2019, p.37). With the development of humankind, education also started developing and becoming more and more structural. Today, the majority of people have the opportunity and ability to pursue formal education up to a certain level, which typically takes place in a school setting. It is important to note the growing significance of lifelong education, in addition to pre-school, primary, secondary, and university education. In an era marked by rapid technological advancements and economic growth that places greater emphasis on conceptual thinking rather than material production, academic degrees and diplomas are no longer a sure way for individuals or society to achieve success. Therefore, it is critical to establish educational and lifelong learning programs that cater to the needs of the entire population (Ham and Štimac, 2012). Education has the potential to empower both children and adults to actively participate in transforming their societies (Bahtić, Višnjić Jetvić, 2020). From preschool to high school, educational institutions have always played a significant role in helping young people develop their moral values, perspectives, and goals for the future. With the world becoming increasingly complex, it is more evident than ever that young people must be equipped to adapt to changes throughout their formal education and their careers, with lifelong learning, non-formal education, and informal education playing important roles (Ham and Štimac, 2012). In today's society, non-formal and informal education, such as learning through personal work, communication, skill

acquisition, and other similar activities, are more widely available and accessible (Ham and Štimac, 2012). Learning occurs continuously in places like businesses, stores, farms, the media, factories, courts, and offices (Scott, Vare, 2018).

As noted by Sharma and Pandya (2015, cited in Timothy and Obiekezie, 2019), schools play a vital role not just in imparting knowledge but also in shaping attitudes. There are many definitions of attitude. An attitude refers to "...an evaluation of an object of thought" (Bohner & Dickel, 2011, p.392, quoted in Timothy, Obiekezie, 2019). It is also defined as the "psychological tendency, expressed by evaluating a particular entity with some degree of favour or disfavour" (Bohner & Dickel, 2011, quoted in Timothy, Obiekezie, 2019). Schwarz (2007, quoted in Timothy, Obiekezie, 2019) defines attitudes as "evaluative judgments, formed when needed, rather than enduring personal dispositions". Attitudes are formable and malleable.

Furthermore, every formal education has some goal and objective. The goals answer the question of what the school expects, aspires to, and believes is possible and desirable in terms of education (Dorđević, 2014, cited in Vukić et al., 2021). The goal of the educational process is for students to develop their knowledge, skills, and other personality attributes. Objectives, on the other hand, are described as statements that discuss what a student needs to understand, know, and be able to do following the learning process (Mikanović, 2014, cited in Vukić et al., 2021). Objectives refer to "behavioural repertoires that the student acquires through learning; they are predicted at the beginning of the learning process, they are guided by expectations, and later in the course of learning they gradually develop, shape and become real, lasting student achievements" (Bjekić et al., 2012, p.150, quoted in Vukić et al., 2021). A well-educated person should be able to ask oneself questions like: "Who made this decision? On what basis? What are the immediate goals? Were the long-terms effects evaluated?". He or she should be in a position to understand the reasoning behind choices and the set of principles that guided them (Leite, 2021).

Taking everything in the consideration, it is not surprising to assume that education plays a major role in creating individuals who are aware of the environment and develop care for its protection. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has acknowledged that education serves as a basis for promoting sustainable development, peace, and stability both within and between nations (*Action plan for education for sustainable development*, 2011). Along with environmental issues, the UN Decade of

Education for Sustainable Development from 2005 to 2014 and the UNECE *Strategy for Education for Sustainable Development* have highlighted the significance of education as a vital instrument in realizing more sustainable economic and social development. The EU *Strategy for Sustainable Development* emphasizes that education is crucial for instilling behavioural changes and providing critical competencies that enable all individuals to achieve sustainable development (*Action plan for education for sustainable development*, 2011). Given the fact that formal education has played a part in the unsustainable development of human society, there is scepticism that the school system can be transformed enough to reverse this trend. Moreover, it is challenging to envision how the formal education system could lead such social transformation, considering that schools tend to mirror the prevailing social and economic ideas (Scott, Vare, 2018).

While school systems often concentrate on measurable outcomes that are limited in scope, focusing on working with very young children can highlight the importance of cultivating the complete individual and fostering a deeper understanding of the world (Scott, Vare, 2018). A solid foundation in childhood provides the basis for acquiring the competencies and information that are necessary for contributing to a more sustainable future. The Harvard University Center on the Developing Child (2016, cited in Bahtić, Višnjić Jetvić, 2020) noted that early experiences and interactions have an impact on the future intellectual, social, emotional, and physical development of children. Interactions with others that are reciprocal and dynamic are crucial for healthy development and “...literally shape the architecture of the developing brain.” (Center on the Developing Child at Harvard University 2016, p.8, quoted in Bahtić, Višnjić Jetvić, 2020).

Self-confidence, willingness to study, friendship capacity, and conflict resolution abilities are all important adaptive skills developed by positive early experiences. Such skills influence the development of values and information that children can use to function well as grownups. These adaptive skills are vital not only for academic performance, but also for making responsible and successful contributions to society later in life (Bahtić, Višnjić Jetvić, 2020). For that reason, love for nature should be brought up from early childhood. Children should be taken outside more frequently so that they can observe their natural sky, trees, flowers, and animals. All of this remains in the child's soul, filled with joy, and will establish the groundwork for appreciation of nature (Ivanchuk et al., 2021). According to Ivanchuk et al. (2021), experts in psychology and education believe that the preschool years are critical for

establishing the foundation of civic virtues, as this is the time when primary personal qualities are formed. While public education is important, the family also plays a significant role in environmental education. The responsibility of creating environmentally conscious individuals should not be placed solely on the school system. Instead, the family should instil an ecological value system in children through activities such as storytelling, myths, and games that develop cognitive abilities and familiarize them with the fundamental connections between animate and inanimate nature, as well as the impact of humans on the environment. This can inspire a desire to connect with nature. Novak (2020) suggests that different activities at home, such as separate waste collection or recycling, can also serve as tools for promoting environmentally conscious behaviour. Practical learning through play is how children acquire essential qualities, such as developing attitudes, finding solutions to problems, and expressing their interests and desires. Children take an active role in constructing their own knowledge by interacting with peers and adults (Novaković, 2015). Children can be powerful agents of change who can influence those closest to them with their ideas. Therefore, it is evident that early childhood education plays a critical role in long-term development and serves as a foundation for lifelong learning. The report by UNESCO (2012, cited in Bahtić, Višnić Jetvić, 2020), suggests that education has a reciprocal relationship with sustainable development and societal transformation. Education can provide practical experiences of sustainability that help children grasp abstract and challenging concepts. It is recommended that environmental education should start from the preschool level and extend through all stages of education, with each level having specific objectives, tasks, and methods tailored to the age characteristics of the learners (SOBEL, 2016, cited in Ivanchuk et al., 2021).

As mentioned before, through education, children form attitudes. According to research, various elements such as the source of attitude change information, message design, and the recipient's mood all contribute to attitude change and stability (Crano & Gardikiotis, 2015, cited in Timothy, Obiekezie, 2019). The goal of environmental education is to transform positive attitudes about the environment into behaviour (Gašparović, Šulc, 2019). An attitude response is how people react to their surroundings. People's responses to their environment may change if their attitudes toward environmental management change. This, however, may or may not result in a change in behaviour (Velasco & Harder, 2014, cited in Timothy, Obiekezie, 2019). It is possible, however, for long-held attitudes to become fossilised. That is why ecologically sustainable views should be instilled in children at a young age, as they are more impressionable and adaptable than adults. In other words, environmental sustainability should be instilled early

in life through formal education. As Zhang and Zhang (2009, p.202, quoted in Timothy, Obiekezie, 2019) state “Teachers’ mission is to help children develop a connection to the environment, through both learning and experience.”

Through education, children also should develop care for the environment. As Noddings (1984, cited in Quigley, Lyons, 2017) argues in *Caring: A Feminist Approach to Ethics and Moral Education*, the goal of educators should be to develop competent and caring people. Noddings contends that the goals of our educational system have been misdirected when we prioritize material and the range of subjects that a child can learn over cultivating empathetic individuals. Caring necessitates an emotional understanding of a matter, as well as the ability and emotional dedication to take action towards improving the welfare of the object of concern. A comprehensive understanding of a subject should include both emotional and intellectual processes. By creating internal motivators for participation, an emotional sensitivity to topics amplifies engagement. The students' emotional engagement will impact their focus, and therefore, their learning (Quigley, Lyons, 2017). Caring cannot be learned through a set of external rules, as it involves emotional learning and the development of empathy towards others. Environmental education aims to create individuals who are environmentally literate and motivated to take action to preserve the environment (Quigley & Lyons, 2017). Environmental literacy can begin in elementary school and should be incorporated throughout the entire educational curriculum, from elementary school to university. (Timothy, Obiekezie, 2019). To create environmentally conscious individuals, it is not enough to simply provide them with knowledge and experience, but it is also important to involve their emotional connection and motivation towards caring for the environment. Genuine care and emotional connection towards environmental issues are intrinsic motivators that can result in deeper learning, which in turn can shape future actions and foster an engaged citizenry (Quigley, Lyons, 2017). As Tanner (1974, quoted in Quigley, Lyons, 2017) said: “Loving, caring and acting are intertwined.” To encourage individuals to act for the betterment of the environment, they need to have a strong emotional attachment to it. Before urging students to take steps towards sustainability, it's essential for environmental educators to develop a sense of responsibility and care for the environment within them (Quigley, Lyons, 2017). Noddings (2002, cited in Quigley, Lyons, 2017) suggests that engaging students in activities that are relevant to their interests can foster emotional connection and motivation. Punishment and fear tactics may also be used to motivate children to care for the environment, but Noddings (2013, cited in Quigley, Lyons, 2017) argues that creating fear regarding distant, hypothetical future events is unlikely

to result in care among children. This fear of ecological problems, also known as ecophobia, involves issues that students have little control over. If students perceive environmental concerns as distant issues beyond their control, their motivation to care and act will be impacted.

Developing an ethic of care for the environment is more effective when children can connect caring for nature to their daily lives through personal or local settings. Children tend to find academic, global, and abstract concepts irrelevant. Hence, local issues that affect their immediate surroundings are more valuable. By focusing on local issues, children can understand the impact of environmental care on their own well-being. When students feel obliged to act on a distant environmental concern, their obligation decreases if they perceive no response or are unable to see any response from the entity they are caring for. However, if students concentrate on actual concerns in their local communities, they can witness the influence of their efforts on their own wellness. Generally, students are more motivated to care about and act on issues that touch them, their families, and their own spaces than on seemingly distant issues. The reason for this is that local concerns affect the well-being of themselves and those they care about (Quigley, Lyons, 2017). According to Marshall and Jang (2019), it is important to educate children to be aware of the wider forces and conditions that affect their immediate surroundings, just as they are taught about their role in the school environment. To achieve this, environmental educators should provide students with opportunities to engage with their local environment and understand the connection between their own activities, community issues, and the environment. Rather than just learning about environmental ethics, students must develop a personal environmental ethic through caring for others and nonhuman nature. This emotional connection to environmental issues can be strengthened by spending time experiencing nature first hand (Quigley, Lyons, 2017).

The role of emotions in the development of critical environmental behaviour is essential during the educational process. Direct interactions with the environment have profound emotional implications for human behaviour and nature. The development of environmental emotions and ideas to preserve the environment is more important than establishing laws and regulations. Without environmental emotions, individuals cannot engage in good environmental behaviours. Consequently, environmental education in educational institutions should incorporate environmental emotions, instead of relying on traditional teaching methods (Tokur, Akgun, 2021). Carmi et al. (2015, cited in Tokur, Akgun, 2021) define environmental emotions as emotions that reflect a sense of connection to nature. The development of

environmental emotions is crucial for individuals to transform their environmental knowledge into action. These emotions have three subdimensions: closeness with nature, biospheric environmental concern, and dedication to the natural environment.

Table 1. Sub-dimensions and properties of environmental emotion (Carmi et al., 2015, cited in Tokur, Akgun, 2021).

Connectedness with nature	<ul style="list-style-type: none"> <li>• Reflects the integrity of the individual with nature.</li> <li>• It is associated with the integration of the individual with the nature.</li> <li>• It is intrinsic.</li> <li>• It develops outside of the cognitive awareness of the individual.</li> </ul>
Biospheric environmental concern	<ul style="list-style-type: none"> <li>• It is the level of individual concern about the biosphere.</li> <li>• It includes concern for all nonhuman living beings</li> <li>• It is associated with beliefs concern about environmental problems that affect all living beings except humans.</li> <li>• It includes the negative impact of environmental problems (on birds, ocean life, plants, etc.).</li> </ul>
Commitment to the natural environment	<ul style="list-style-type: none"> <li>• The strong feeling of connectedness with the environment.</li> <li>• It is associated with the consideration of the effects of daily life decisions on the environment.</li> <li>• The well-being of the natural environment is the indicator of the well-being of the individual.</li> <li>• Individual is self-sensitive about the consideration of the best choice that would promote the environment.</li> </ul>

The concept of inclusion, as described by Schultz (2002, cited in Tokur, Akgun, 2021), is a psychological perspective that examines how individuals perceive their role in nature, their attitudes towards nature, and the impact of their actions on the natural environment. Inclusion with nature includes three main components, which are connectedness, concern and commitment (Schultz, 2002, cited in Tokur, Akgun, 2021):

- *Connectedness with nature* – looking at it from a philosophical and sociological perspective, the concept of "connectedness" refers to the relationship between individuals and their environment, highlighting the extent to which an individual perceives themselves as being an integral part of nature. This perception determines the level of connection between the individual and nature. Those who

view themselves as an inseparable part of nature tend to have thought processes that are in harmony with nature.

- *Caring for nature* – the second dimension of inclusion with nature is the affective dimension. This dimension is associated with an individual's level of concern or care for nature, which represents their sense of intimacy towards it. The emotional connection with nature is related to a sense of sharing and a high level of knowledge, and it can lead to self-discovery and sensitivity towards other living organisms and nature. Developing a positive and enjoyable connection with nature can have a significant impact on promoting responsible environmental behaviour. Therefore, our relationship with nature can be viewed as a social relationship, where spending more time together can lead to a more intimate connection.
- *Commitment to protect nature* – the third dimension of connectedness to nature is behavioural. When individuals have a connection to nature and value it, they are more likely to engage in environmentally responsible behaviour. In interpersonal relationships, dedication is demonstrated through a commitment to sustaining the relationship and investing time and resources into it.

Teaching with an ethic of caring involves several components: modelling, dialogue, practice, and confirmation. Teachers can model an ethic of caring by showing their students what responsible citizenship looks like in practice and by promoting accountable self-affirmation. When students observe their teachers actively caring for the environment, they are more likely to feel a sense of obligation to do the same when faced with similar situations. In terms of dialogue, it should be open, meaning that teachers should not have the final say, but instead, teachers and students should work collaboratively to arrive at a better understanding of the issues and determine what responsible choices should be made. Dialogues that encourage critical thinking and application of learned principles to decision-making will contribute to the development of a critical environmental consciousness (Quigley, Lyons, 2017). To promote caring for the environment, students should have opportunities to practice and work towards its well-being. This will help nurture care-based techniques and encourage students to participate in environmental work. Teachers should be proactive in developing activities that foster environmental responsibility, according to Quigley and Lyons (2017). In terms of confirmation, students should be presented with an ideal image of themselves as ethical and caring individuals. This will allow them to see themselves in a positive light and reinforce their



commitment to caring for the environment. “In education, what we reveal to a student about himself as an ethical and intellectual being has the power to nurture the ethical ideal or to destroy it” (Noddings 1984, p. 193, quoted in Quigley, Lyons, 2017). Confirmation is an important part of developing an ethic of care because it gives students a picture of what caring looks like and allows them to perceive themselves as a part of that picture (Quigley, Lyons, 2017). Other authors (Simonenkova et al., 2021, p. 4) state that there are several directions in working with students: “First, the development of interest in the relationship between man and nature. Secondly, the formation of ecological perception - the ability to hear, see, smell, touch nature in all its harmonious natural and aesthetic integrity. Third, the formation of a philosophical understanding of the importance of ecology for humans. Fourth, the development of socially valuable motives of students' personal attitude to nature. Fifth, the involvement of students in direct work on the protection of nature and the environment. Sixth, the implementation of environmental interior design of classrooms, classrooms, corridors: placement of indoor plants, plant compositions, aquariums, posters and photo stands on environmental topics, the use of phytodesign”.

Early childhood education for environmental preservation is crucial and should be sustained throughout primary school, higher education, and beyond, providing a foundation for lifelong learning. This type of education is comprehensive and far-reaching, addressing learning objectives, teaching methods, and the learning environment. Consequently, the roles of primary and preschool teachers are shifting towards action-oriented transformative pedagogy that encourages autonomous learning, collaboration, problem-solving, interdisciplinary and transdisciplinary approaches, and integration of formal and informal learning, as opposed to traditional lecture-based teaching methods. (Anđić, Ćurić, 2020). Preschool and primary school teachers are responsible for preparing children for future labour and social realities. As a result, they have a crucial role in empowering children to change their behaviour and contribute to a sustainable future that ensures the survival of the planet and human beings. Since teachers often serve as role models for their students, they can lay a strong foundation for the development of environmental knowledge, attitudes, and behaviours in the future through their work practices. Therefore, teachers can build a stronger connection between their students and nature, which is essential for fostering environmental consciousness (Anđić and Ćurić, 2020; Anđić and Šuperina, 2021). According to various research, teachers' teaching style, attitudes, skills, and personality traits, including their emotions, are closely linked to their general approach toward teaching and students. Their views and attitudes about the environment, as well as their pro-

environmental behaviour, are strongly influenced by their emotional and personality traits. This suggests that teachers' emotional connection and experience with nature are necessary for fostering pro-environmental attitudes and actions. (Anđić, Šuperina, 2021). As a teacher's level of professional competence increases, their ability to influence their surroundings, including their students, parents, and the environment, also increases. This is a result of their expanding knowledge, experience, professional responsibilities, and enhanced abilities. (Ivanchuk et al., 2021). Effective teaching methods are crucial, and some successful approaches involve students engaging in outdoor activities and learning how to tackle problems within their community (Scott, Vare, 2018). For preschool teachers in particular, it is necessary to develop new educational procedures that take into account the natural ways children communicate and the intricate dynamics of their activities. This is essential for fostering high-quality and mutual communication among all participants in the educational process.

Unfortunately, climate and environmental preservation are rarely, if ever, taught in kindergartens, primary and secondary schools. Across the globe, there are numerous subjects that touch upon this topic, but the teaching is still not structured nor effective enough. Research done by Simonenkova et al. (2021) shows following results:

1. Students do not have a firm understanding of ecology as a science (75.3%). Most students identify ecology with pollution, environmental relationships, or solely anthropogenic activity. Providing answer is difficult for 12.5% of kids.
2. The majority of students (76.8%) were unable to define and name the key terms in ecology. Warming, ozone holes, biocenosis, environmental factor, and pollution are the most frequently used terms. These terms are frequently used in the media and in specialised fields.
3. The study of students' cognitive interests revealed a wide range of interests in the field of ecology (global, regional, social, industrial, and urban ecology, for example), indicating the need and possibility of developing different trajectories of in-depth study of ecology, using a variable approach.
4. In the field of ecology, there are issues with multidisciplinary relationships. Students emphasised the connection between ecology and natural sciences, including physics, chemistry, mathematics (19.6%), and biological sciences (69.8%). Inter-subject connections were challenging for 13.2% of students.

5. According to the survey results, students are interested in regional (11.2%), industrial (0.8%), global (35.6%), and urban ecology (74.1%) ecology, however there is a lack of knowledge in the questions in these sections.
6. Students' motivation for developing environmental education is unrelated to future professional activity. They were concerned about their personal health and healthy lifestyle (58.3%).
7. Students get the majority of their information, knowledge, and problems about the environment from the media (42.5%) and Internet resources (88.4%). The proportion of knowledge derived from scientific literature (0.9%), journals (1.4%), and educational institutions (5.6%) is minimal.

Moreover, according to Novak (2020), following perceptual errors are found among students:

- Stereotypes and categorizations – nuclear power plants and nuclear power energy is green; hybrid cars are environmentally friendly;
- Halo effect – a small car is of low consumption;
- Negative distortion – diesel powered cars are all very polluting;
- Projection – green organizations (e.g. Greenpeace) are violent;
- Selective perception – I'm not interested in whaling, it does not concern me, does not reach my consciousness;
- Causality and correlation – global warming has nothing to do with human activities, what's more, there is no global warming;
- Causality – environmental protection is expensive and endangers the workplace.

At the start of the 1900s, many methods and forms of teaching were introduced in pedagogy to develop students' cognitive, practical, and ecological skills to protect the environment. Measures were taken to enhance the quality of studying nature and promote a rational approach toward it. Environmental education and youth education have gained significant importance globally in the mid-1900s. Additionally, many countries have introduced environmental regulation (Simonenkova et al., 2021). Some of the approaches to learning of environment perseverance will be discussed in the following chapter.

### 3. Fields of environmental pedagogy

#### 3.1. Environmental education

Early pioneers of education reform in Europe, such as Humboldt, Goethe, Pestalozzi, Rousseau, and Comenius, recognized the importance of environmental education even before it was integrated into mainstream education. (Rosaleen, 2012, cited in Nykia, Mwema, 2021). But, it was not until a meeting on environmental education held in the United States in the 1970s that a definition for environmental education was established. The definition characterized environmental education as a process of developing values, understanding concepts, and cultivating attitudes and skills that are essential for appreciating the interrelationships among humans, their culture, and biophysical features. Following this development, the United Nations (UN) in a conference on human environment held at Stockholm recognized environmental education formally (UNESCO, 1972, cited in Nykia, Mwema, 2021). The conference led to the conceptualisation of environmental education and this concept served, *“to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones”* (Hollweg, 2011, p.2, quoted in Nykia, Mwema, 2021). Furthermore, The Tbilisi Declaration states that environmental education aims *“to create new patterns of behaviour of individuals, groups, and society as a whole towards the environment”* (UNESCO-UNEP 1978, p. 3, quoted in Ferreira, 2000). During the 1990s, there was a surge in global awareness about environmental issues caused by the depletion of the ozone layer, air pollution, and acid rain. As a result, environmental education gained global recognition, and its integration into affective, psychomotor, and cognitive learning aspects was formalized (De Kock et al., 2004, cited in Nykia, Mwema, 2021). For example, in Chapter 36 of Agenda 21 from the United Nations Conference on Environment and Development, it is stated that *“Education can give people the environmental and ethical awareness, values and attitudes, skills and behaviour needed for sustainable development”* (Keating 1993, p. 57, quoted in Ferreira, 2000). Most statements in these documents outlining the purposes and goals of environmental education refer to the need to change ‘attitudes’ and ‘behaviour’.

The goal of environmental education is to form a critical attitude to nature. Environmental education includes the assimilation, systematization of knowledge about the environment, the acquisition of skills and skills in nature protection activities and the formation of an entire eco-culture. Zverev (1990, quoted in Simonenkova et al, 2021) considers environmental education as “a continuous process of training, education and development of the individual, aimed at the formation of a system of knowledge and skills, value orientations, moral, ethical and aesthetic relations that ensure the environmental responsibility of the individual for the state and improvement of the socio-natural environment”. Environmental education is the process of developing a person's understanding of the environment and understanding the appropriate use of it. According to Thomas (2005, cited in Nykia, Mwema, 2021), environmental education involves the acquisition of knowledge aimed at behavioural and action modification and is skewed to wise use of environmental resources at individual and group level. Kollmuss & Agyeman (2010, cited in Nykia, Mwema, 2021) believe that although pro-environmental behaviour cannot be acquired through environmental education, emotional involvement and pro-environmental consciousness can be enhanced. A research by Choudhary et al. (2019, cited in Nykia, Mwema, 2021) indicated that environmental education is an opportunity to acquire skills, attitudes and knowledge essential in ecological improvement. Environmental education “resonates with the model which refers to the environment in a holistic, human-oriented approach as interacting biophysical (organisms and life support systems), social (people living together), economic (livelihood, money and services) and political (power, policy and decisions) dimensions” (Goldman et al., 2013, p.517, quoted in Nykia, Mwema, 2021). Simonenkova et al (2021) claim that there are different components of environmental education, such as the cognitive component (the relationship between nature and society, issues of global environmental problems), the value component (value orientations on the importance of nature for humanity), the normative component (moral and legal norms of nature management) and the activity component (types, methods, actions aimed at the formation of cognitive and practical activities in the field of environmental protection). Novak (2020) differentiates following objectives and tasks of environmental education: dissemination of knowledge (nature, geography, wildlife, biology); shaping and development of skills (striving for harmony, problem-solving thinking, development of decision-making); consciousness-shaping (ecological view and a sense of beauty, holistic approach) and transfer of values (with the most important principle that the Earth remains a magnificent place for the next generations, too). According to Hollweg et al. (2011, cited in Nykia, Mwema, 2021), there are different components and sub-components of the environmental education domain:

Table 2. Components and sub-components of the EE domain according to Hollweg et al. (2011, cited in Nykia, Mwema, 2021)

Domain Components	Sub-components
<p>Knowledge What do you know?</p>	<ul style="list-style-type: none"> <li>❖ Ecological and physical systems</li> <li>❖ Political, cultural and social systems</li> <li>❖ Environmental issues</li> <li>❖ Action strategies and citizen participation</li> <li>❖ Many solutions to environmental problems</li> </ul>
<p>Dispositions How do you respond to environmental problems?</p>	<ul style="list-style-type: none"> <li>❖ Concerns and attitudes to the environment</li> <li>❖ Sensitivity</li> <li>❖ Personal responsibility assumption</li> <li>❖ Concerns and attitudes to the environment</li> <li>❖ Self-efficacy</li> <li>❖ Intent and motivation to take action</li> </ul>
<p>Competencies What skills and abilities do you possess? When and how do you apply them?</p>	<ul style="list-style-type: none"> <li>❖ Identify environmental problems</li> <li>❖ Question about environmental problems under different environmental conditions</li> <li>❖ Analyse environmental problems</li> <li>❖ Use primary and secondary sources to investigate the science and social aspects of environmental problems</li> <li>❖ Assess and make judgements on environmental problems considering the sociopolitical systems</li> <li>❖ Use evidence and knowledge-based facts to propose solutions to the problems</li> <li>❖ Monitor and evaluate plans to solve environmental problems at various levels and scales</li> </ul>
<p>Responsible behaviour towards the environment</p>	<p>Participate in habitual and deliberate behaviours at individual and group level to solve current environmental problems sustainably and prevent re-emergence of new ones.</p>

- Knowledge – researchers on environmental education identified these sub-domains of knowledge way back in 1960s and 70s (Disinger, 1983; Hart, 1981; Harvey, 1977, cited in Nykia, Mwema, 2021). Documents issued by NAAEE (2004) and UNESCO (1978) included these as some of the objectives of environmental education explicitly.

Understanding of physical and ecological systems pertains to earth sciences, atmospheric, oceanic, and geological systems that are significant for environmental literacy. These systems are interconnected and relate the environment to human beings as the primary variables of the earth system and ecosystems. (Coyle, 2005, cited in Nykia, Mwema, 2021). Active participation of citizens in diverse environmental issues is crucial for collaborative solution seeking through efficient political action and communication strategies. There are numerous technical, scientific, educational, and regulatory initiatives currently in progress or that have been implemented to tackle different environmental issues, and these efforts are integral components of environmental education. Understanding the environmental issues that arise from human conflicts and biophysical changes of the natural world is essential for environmental literacy (Nykia, Mwema, 2021).

- Dispositions – dispositions are determinants of behaviours towards the environment, which can be either positive or negative. These determinants of behaviour have an impact on the willingness of students in environmental education to recognize and adapt to various values while resolving environmental problems. (Sharma, 2016, cited in Nykia, Mwema, 2021). The motivation to participate and act during problem resolution forms part of the predispositions. According to Dada et al. (2017, cited in Nykia, Mwema, 2021), affective dispositions focus on learners' sensitivity, attitudes, locus-of-control, worldview, values, and personal responsibility concerning environmental issues. Dispositions influence competencies on environmental issues and are also influenced by levels of environmental knowledge (Igbokwe, 2016, cited in Nykia, Mwema, 2021).
- Competencies – competencies refer to a set of skills and abilities that are necessary and expressed in relation to a particular environmental issue. They help learners to improve their ability to recognize, examine, explore, challenge and assess environmental problems based on critical thinking and research evidence, ultimately enabling them to form opinions (Hollweg et al., 2011, cited in Nykia, Mwema, 2021). Environmental education, therefore, aims to develop competencies that improve the ability to address environmental issues in real-life situations (Roczen et al., 2014, cited in Nykia, Mwema, 2021). Pro-environmental competencies are a combination of cultural values, environmental perspectives, personal motivations, and skills that support ecological matters. These competencies enable learners to take responsibility for addressing

environmental issues and working towards improving their communities (Sharma, 2016, cited in Nykia, Mwema, 2021).

- Responsible Behaviour to the Environment – this is an expression of competencies, dispositions, and knowledge related to environmental issues. By being responsible, environmental education learners actively participate in solving issues related to the environment (Nykia, Mwema, 2021).

Environmental education is a crucial and relevant issue today, because it is the ecological worldview, the eco-culture of today's youth that can correct the situation of the ecological disaster that their ancestors created. United Nations Organization for Culture, Science and Education (UNESCO) recognizes the urgent need for environmental education to be integrated into all levels of general education, including preschool, primary, secondary, and higher education. As stated by the UN Director, “our survival, the protection of the environment can only be abstract concepts if we do not instil in everyone a simple and convincing idea: people are part of nature”. Environmental education is necessary for the development of a harmonious personality of students (Simonenkova et al, 2021). Well-organized and periodic environmental education, taught by teachers with an ecological background, can impact students’ knowledge, abilities, and skills. It should be a unified learning process that integrates the acquisition and systematization of environmental knowledge, the acquisition of nature conservation skills and knowledge, and the development of a whole eco-culture. The goal of environmental education is to develop a critical attitude on nature. Today, environmental education is a persistent and ongoing process of training, education and development of a student that aims to build an ecological culture and cultivate a positive emotional connection to the environment and the world around us. It also instils a sense of responsibility towards health and the state of the environment, while promoting moral norms and value orientations that contribute to the sustainable development of society and a harmonious relationship between humans and nature. Given the current environmental situation, it is crucial for individuals to shift their behaviour and values (Simonenkova et al, 2021). Environmental education becomes complete (holistic) by expanding in to the field of mental health, and the educational opportunities in psychic balance and harmony. With a forward-looking approach, environmental education prepares for future challenges in the midst of present difficulties (Novak, 2020). At the moment, environmental education is oriented towards the future of the planet, and therefore, it should incorporate concepts of the harmony between nature and humans, the preservation of the biosphere, and the challenging of certain societal stereotypes,



especially those related to the exploitative attitude towards nature. These ideas should be instilled in the formation of a morally and spiritually developed, environmentally conscious individual, as they determine the state of development and social stability of society (Simonenkova et al, 2021).

Environmental education, when implemented in schools, can enhance the environmental awareness of young learners, enabling them to grasp the knowledge and skills needed to tackle the environmental issues they face daily. Such education also fosters the development of responsible behaviour and scientific thinking (Edsand & Broich, 2020, cited in Nykia, Mwema, 2021). Experts from Stanford University (2013, cited in Nykia, Mwema, 2021) have documented the effects of environmental education and found that it goes beyond increasing awareness of the environment. In fact, environmental education has been shown to have several positive impacts, such as improving academic performance, enhancing critical thinking and reasoning skills, fostering personal growth and life skills development. Furthermore, environmental education helps learners become better civic engagers with good environmental behaviours. A review study by Ardoin et al. (2018, cited in Nykia, Mwema, 2021) provided evidence suggesting that environmental education can be a transformative learning opportunity for promoting environmental sustainability. In a similar vein, Stern et al. (2014, cited in Nykia, Mwema, 2021) showed that environmental education fosters confidence, skills, behaviour, motivation, and improved academic performance among learners in relation to sustainable environmental practices. Stern et al. (2011, cited in Nykia, Mwema, 2021) found that environmental education sparks interest and enthusiasm in solving environmental problems, which is essential for environmental sustainability. Learners who have acquired environmental education skills are more likely to participate in community clean-ups, waste recycling, and water reuse activities, as opposed to those who do not possess these skills (Harness & Drossman, 2011, cited in Nykia, Mwema, 2021). Besides imparting knowledge to learners on how to tackle environmental problems, environmental education allows them to analyse complex information, make decisions, and think critically, making them life-long problem solvers and active community participants (Ernst & Monroe, 2004, cited in Nykia, Mwema, 2021). Moreover, it inspires learners to take personal responsibility and motivates them to tackle environmental issues such as water management (Stern et al., 2011, cited in Nykia, Mwema, 2021) pollution and climate change (Jennings et al., 2005, cited in Nykia, Mwema, 2021).

Environmental education faces various challenges, with one of the most frequent ones being related to the lack of professionalism, whether it is implicit or explicit. To address this issue, experts recommend that environmental education programs should be designed and executed effectively, with specialized pedagogy expertise, and that programming and professional development of the program should be improved by evidence-based research (Marcinkowski, 2009, cited in Nykia, Mwema, 2021). Environmental education has been criticized by the Independent Commission on Environmental Education (ICEE, 1997, cited in Nykia, Mwema, 2021) for not adequately preparing learners with the necessary skills to understand trade-offs involved in addressing controversial environmental issues. The criticism also highlighted that environmental education lacked depth in economics and science. To address these issues, groups of experts, including the NAAEE, Environmental Education and Training Partnership (EETAP), and US Environmental Protection Agency (EPA), collaborated to develop guidelines for environmental education programs (NAAEE, 2004, cited in Nykia, Mwema, 2021). However, these guidelines remain controversial and have not been updated to reconcile different perspectives within the field (Zsoka, 2013, cited in Nykia, Mwema, 2021). The second challenge in environmental education is the complex relationship it has with education for sustainable development. The initial guidelines for environmental education included sustainability and economics as content areas. However, education for sustainable development is complex and encompasses technological, economic, social, and environmental issues, making it challenging to reconcile with environmental education. The involvement of experts from various disciplines has also made it difficult to agree on a way forward in reconciling these concepts. The NAAEE's recognition of a document titled "Environmental education for sustainable societies and global responsibility" resulted in an emphasis on sustainability within UN (UNESCO) rather than environmental education (Marcinkowski, 2009, cited in Nykia, Mwema, 2021). This has created an imbalance, making it challenging to relate environmental education to education for sustainable development. Environmental education has a longer history than education for sustainable development, but the latter has a wider scope that includes social, economic, and technological goals, unlike environmental education, which is restricted to environmental issues (Marcinkowski, 2009, cited in Nykia, Mwema, 2021). Consequently, linking the two has posed several challenges, which can be summarized as follows: Firstly, how much does environmental education conform to the education for sustainable development approach and tackle issues like basic literacy, healthcare, and poverty. Secondly, how much do proponents of each approach believe that their approach is superior to the other. Lastly, to what extent do advocates of education for sustainable

development agree that their approach is more comprehensive and better addresses issues such as biodiversity, environmental quality, and natural resource conservation than environmental education (Nykia, Mwema, 2021).

### 3.1.1. Examples

The *Earthkeepers* program by the Institute for Earth Education (van Matre and Johnson, 1987, cited in Ferreira, 2000) serves as an example of an environmental education program that encourages the development of a student's relationship with oneself through self-reflection, self-knowledge, and self-examination. Several elements of the *Earthkeepers* program align with Foucault's four methods for creating and sustaining the self. Foucault (1985, cited in Ferreira, 2000) proposed four mechanisms for developing oneself as an ethical subject. Foucault's first mechanism for forming the self as an ethical subject involves *determination of one's ethical substance*, which can manifest as a strict observance of obligations or as the mastery of desires, such as the desire to consume beyond one's needs. In the context of environmentalism, the second mechanism is the *mode of subjection*, which occurs when individuals identify themselves as environmentalists and accept obligations, such as living sustainably or reducing their ecological footprint, as part of their identity. According to Foucault's theory, the third mechanism for forming the self as an ethical subject is that of the *ascetic practices of the self*. For instance, a person can acquire the habit of being "environmentally friendly" by regularly monitoring their behaviour to ensure that they adhere to the environmentalist code. This self-monitoring process involves viewing oneself as something that can be worked on. The fourth mechanism is *moral teleology*, which pertains to the individual's moral responses and the type of person to whom the moral actions are aimed. In this sense, every environmental action serves as an opportunity to identify oneself as an environmentalist and to commit oneself to being an environmentalist.

Students who participate in the *Earthkeepers* program are provided with their own diary, which serves as a means of documenting their moral conduct. In this program, the diary serves as a tool for individuals to reconnect with their true and environmentally conscious selves. It acts as an example of an ideal way of life by providing guidance, advice, and rules. Thus, the *Earthkeepers* diary can be viewed as a technique for self-awareness, or as a device for conscientization. The diary is subtitled "a record of my relationship with the earth," and the introductory pages instruct students to write at least once each season about the natural places they have visited and the new plants and animals they have encountered (van Matre and

Johnson, 1987, cited in Ferreira, 2000). The purpose of writing in the diary is also clearly outlined: "... [it is] to keep track of how I'm doing as an Earthkeeper. It helps me look at how I'm gaining new knowledge, experiencing the wonders of nature, lessening my impact on the earth, and sharing all of this with my family and friends. After all, an Earthkeeper never stops trying to be a better friend of the earth. ... I think you'll find that it helps you keep in touch with something that's very, very important - your relationship with the earth and all its life" (van Matre and Johnson 1987, p. 2-3, quoted in Ferreira, 2000). The diary provides guidance on what to write and when to write it, and it is intended to help individuals correct any conduct that does not align with the program's model. Similar practices, such as reflective practice, are common in environmental education and can be used to structure one's life until it becomes a natural habit. Foucault's second mechanism for forming the self as an ethical subject is the *mode of subjection*, where individuals recognize their relationship to a rule and feel compelled to follow it. In the *Earthkeepers* program, the use of "magic spots" exemplifies this mechanism. Each student has their own designated spot in nature where they can connect with the nature. The magic spot is intended to be a special place for thinking, watching, listening, or sitting. The teachers' briefing sheet no. 3 says that magic spots "provide the opportunity for each child to develop an easy, quiet relationship with one particular natural place", while the *Earthkeepers* training manual says that "solitude, discovery, observation ... are all ways to experience the natural world" (van Matre and Johnson, 1987, p. 21, quoted in Ferreira, 2000). These practices of nature contemplation can be viewed as techniques for determining one's ethical relationship to nature. The *Earthkeepers* program assumes that developing a sense of connection with nature will lead individuals to feel a strong desire or obligation to live in an environmentally responsible way. As a result, individuals will recognize their relationship to the program's ethical code and feel compelled to follow it. The third mechanism for shaping oneself into an ethical subject are *ascetic practices of the self*, where individuals monitor their behaviour to ensure they are adhering to the moral code. The *Earthkeepers* program incorporates this by including pages in the diary titled "How Am I Doing?" where students can track their progress in developing better habits and a closer relationship with the environment. The diary prompts them to reflect on whether they are maintaining good environmental habits and how their connection with nature is improving through questions such as "Are you keeping up the good environmental habits you picked up?" and "How is your relationship with the earth and its life growing?" (van Matre and Johnson, 1987, p.19, quoted in Ferreira, 2000). These practices allow students to compare their behaviour with the moral code. The diary also offers guidance on additional ascetic practices and defines the type of person (an 'Earthkeeper') that students should

strive to become: *I hope you've continued using your diary. It's an important tool that all Earthkeepers should take with them whenever they visit a natural area. Spending time with the other things that share the earth with us is a big part of being an Earthkeeper, and your diary can help you record those special moments. Don't forget to share the things you've written with your family and friends. It's important that everyone knows how we feel about the earth.* This final passage once again reminds students of their commitment to the moral code (Ferreira, 2000).

### **3.2. Sustainable development**

The concept of sustainable development is a new social paradigm which undoubtedly affects the models and forms of behaviour and thinking at all levels of modern society. It is a political and global concept which at first was primarily related to the problem of environment in less developed countries. The term "sustainable development" was first used by Barbara Ward, a representative and activist of the British Labour Party, during the "Conference on Economic Development" in Washington in 1969 (Ham, Štimac, 2012). This term is also linked to the 1980 World Conservation Strategy, which aimed to balance conservation and development to ensure the survival and well-being of all people. (IUCN, UNEP and WWF, 1980, cited in Vukić, Jovanović, Todorović, 2021). In 1987, the concept of sustainable development was formally introduced in the report "Our Common Future," which defined it as development that meets the present needs without jeopardizing future generations' ability to meet their own needs (WCED, 1987, cited in Vukić, Jovanović, Todorović, 2021). The idea of sustainable development revolves around three core components, namely uniform economic growth, protection and preservation of environment, and respect and improvement of social and human rights. While the initial focus of the concept was primarily on the first two components, over time, greater importance has been placed on strengthening the social aspect. This approach is often referred to as an integral or holistic approach to development. (Ham, Štimac, 2012). Economic sustainability refers to achieving growth, efficiency, and a fair distribution of wealth. Social sustainability involves participation in decision-making, mobility and unity, fulfilment of social identity, and development of institutions, among others. The third component of sustainability is environmental sustainability, which involves preserving the integrity of various ecosystems, their carrying capacity, and protecting natural resources, including biological diversity (Kordej-De Villa 1999, p. 323, quoted in Ham, Štimac, 2012). Claude Martin, who served as the President of the Worldwide Fund for Nature, offered a widely recognized

definition. He says that “the sustainable development means improvement in the quality of life but within the frames of carrying capacity of the eco-system which enables life.” (Udovičić 2004, p. 76, quoted in Ham, Štimac, 2012). But, all definitions of sustainability can be classified in five groups (Elaborated according to Pešić 2002, cited in Ham, Štimac, 2012):

- The state in which neither usefulness nor the level of consumption decreases in the course of time.
- The state in which the resources are utilized in such a way that future production possibilities of mankind remain preserved.
- The state in which the stock of natural capital does not decrease in the course of time.
- The state in which the resources are utilized in such a way that they provide sustainable income or yield.
- The group of definitions based on the concept of stability and balance of ecological populations in the course of time.

In the 1990s, a strong dedication to education for sustainable development emerged. The "Earth Summit," also known as the UN Conference on Environment and Sustainable Development, which took place in Rio de Janeiro in 1992, marked a crucial turning point in the global acceptance of the concept of sustainable development (Ham, Štimac, 2012). At this event, the United Nations Conference on Environment and Development (UNCED) brought the world's attention to the most pressing issues facing the planet and introduced Agenda 21, a worldwide strategy for sustainable development (Cegur Radović, Varičak, Smajla, 2016). Chapter 36 of Agenda 21 addressing education, training and public awareness sets out four general objectives:

- *Promoting and improving the quality of education:* The purpose is to refocus the lifelong learning on acquisition of knowledge, skills and values indispensable to improve people's quality of life;
- *Refocusing curricula:* Education from the preschool to the university level should be reconsidered and reformed so as to become a tool for transmission of knowledge, well-defined patterns and values indispensable for creating a sustainable world;
- *Increasing public awareness of the education for sustainable development concept:* This will help develop an aware, active and responsible community at the local, national and international level;
- *Training workforce:* Continuous technical and vocational education of managers and workforce, especially those employed in trading and industry, will contribute to adoption of

sustainable models of production and consumption (*Action plan for education for sustainable development*, 2011).

83 countries signed the *Declaration of Thessaloniki* in 1997, emphasizing the importance of promoting public awareness and education for sustainable development. *The World Declaration on Higher Education for the Twenty-First Century: Vision and Action* (1998) recognizes the need for specific knowledge and education in order to achieve sustainable development. In addition to promoting ethical values for a sustainable future, the *Earth Charter*, which was adopted by the UN in 2000, also emphasizes the importance of education for sustainable development (Črnjar, 2016, cited in Cegur Radović, Varičak, Smajla, 2016). This is followed by *The Lüneburg Declaration* and a number of other declarations supporting the role of higher education in education for sustainability. The United Nations General Assembly proclaimed the UN Decade of Education for Sustainable Development (2005-2014) under Japan's leadership in 2002. The goal of this decade is to integrate sustainable development principles, values, and practices into all aspects of education to address social, economic, cultural, and ecological issues of the 21st century and encourage behaviour changes that lead to a more secure future based on environmental integrity, economic viability, and a just society (*Action plan for education for sustainable development*, 2011). Since the adoption of the Declaration, there has been a significant increase in theoretical literature on sustainable development that includes information and databases on the role of universities and research in achieving the sustainable development concept (Cegur Radović, Varičak, Smajla, 2016).

Representatives from governments and civil society organizations gathered in Kiev in 2003 to express their interest in improving education for environmental protection and sustainable development. They acknowledged education as a crucial tool for promoting environmental protection and sustainable development and released the *Statement on Education for Sustainable Development*, calling on all countries to integrate sustainable development into their education systems. They also urged the UNECE to work with relevant stakeholders to create an education for sustainable development strategy. As a result of this decision, the *Strategy for Education for Sustainable Development* was adopted in Vilnius in March 2005 to facilitate sustainable development through education. During the same meeting, the *Framework for Implementation of the Strategy for Education for Sustainable Development* was also adopted, and a group of experts was assigned the task of developing indicators. The UNECE *Strategy for Education for Sustainable Development* advocates for the adoption and

advancement of sustainable development education in UNECE member countries, with the goal of attaining a common vision: „*Our vision for the future is of a region that embraces common values of solidarity, equality and mutual respect between people, countries and generations. It is a region characterized by sustainable development, including economic vitality, justice, social cohesion, environmental protection and the sustainable management of natural resources, so as to meet the needs of the present generation without compromising the ability of future generations to meet their needs. Education, in addition to being a human right, is a prerequisite for achieving sustainable development and an essential tool for good governance, informed decision-making and the promotion of democracy. Therefore, education for sustainable development can help translate our vision into reality. Education for sustainable development develops and strengthens the capacity of individuals, groups, communities, organizations and countries to make judgements and choices in favour of sustainable development. It can promote a shift in people's mindsets and in so doing enable them to make our world safer, healthier and more prosperous, thereby improving the quality of life. Education for sustainable development can provide critical reflection and greater awareness and empowerment so that new visions and concepts can be explored and new methods and tools developed.*” The Strategy aims to integrate the key components of sustainable development, including environmental preservation, natural resource management, poverty reduction, ethical practices, human rights, social equity, economics, and more, at every level of formal, non-formal, and informal education. (*Action plan for education for sustainable development, 2011*).

The *Sixth 'Environment for Europe' Ministerial Conference*, which took place in Belgrade in 2007, had significant importance. At the conference, the attendees recognized the vital goal of improving education for sustainable development for all governments working to meet the commitments of the United Nations Decade of Education for Sustainable Development. The ministers of environment and education in the UNECE region emphasized the role of education for sustainable development in enhancing capacity to make informed decisions about sustainable development and participating in efforts to tackle social, economic, and environmental challenges. They also stressed the need to strengthen the competences of educators, who are often identified as an obstacle in enhancing educational quality, and the crucial role of non-formal and informal education in building capacity of decision-makers and other stakeholders. It was agreed that the focus should be on enhancing competences and improving the quality of educational tools and materials. Furthermore, the shift should be from education for environmental protection to actual education for sustainable development, and



this process should be based on the needs and challenges specific to each individual country (*Action plan for education for sustainable development*, 2011). In 2009, during the G8 summit, a declaration on research and education for sustainable and responsible development was released by universities. The World Conference on Higher Education also took place in the same year and outlined the direction that higher education should follow in the future, while urging for immediate action. (Črnjar, 2016, cited in Cegur Radović, Varičak, Smajla, 2016). The Association for the Advancement of Sustainability in Higher Education (ASHE) urged action in 2010 by developing a sustainability curriculum for higher education. A working group consisting of 25 representatives from various entities including higher education institutions, agencies, organizations, associations, and student groups released the people's agenda on sustainability in higher education. This agenda was created to establish a collaborative platform following the Rio 20 summit (Črnjar, 2016, cited in Cegur Radović, Varičak, Smajla, 2016). The aim of sustainable development education is to equip individuals with the knowledge, abilities and actions necessary to enable them to live in a sustainable manner, and to make informed decisions that contribute to the well-being of everyone and secure a better future. (Cegur Radović, Varičak, Smajla, 2016). The European Union considers sustainable development to be particularly important, and a new strategy has been outlined for the period up to 2020. The Europe 2020 strategy aims to promote smart growth by investing more efficiently in education, research, and innovation, to achieve sustainability by significantly transitioning to a low-carbon economy, and to encourage inclusivity by prioritizing job creation and reducing poverty. The strategy has set ambitious targets in five key areas: employment, innovation, education, poverty reduction, and climate/energy (Europska komisija: Strategija Europa, 2020, cited in Cegur Radović, Varičak, Smajla, 2016).

Sustainable development involves considering the limitations of natural resources and ecosystem capacity, as well as the interplay between social, economic, political, and environmental systems (Stanišić, 2016, cited in Vukić, Jovanović, Todorović, 2021). The goals of sustainable development are centred on achieving equality in areas such as poverty, hunger, education, health care, and environmental protection, as well as promoting sustainable production and consumption, good governance, accountability, and policies that mitigate the effects of conflict, violence, and human rights abuses. Achieving these goals requires active and responsible citizenship, with individuals who can think about the future and who possess the knowledge and values necessary for sustainable development (Benavot, 2014, cited in Vukić, Jovanović, Todorović, 2021). Since these goals define “the type of person to be formed

and the type of society that seeks to achieve this” (Ђорђевић, 2014, p. 28, quoted in Vukić, Jovanović, Todorović, 2021), education and learning goals must be redefined to align with sustainable development. This has to do with “shaping the sensibility, the profile of an active, global citizen of the world” (Андевски, 2016, p. 23, quoted in Vukić, Jovanović, Todorović, 2021). As a result, there was a need for environmental education, which primarily focused on environmental protection, to incorporate contemporary societal issues such as human rights, equality, and justice. This means that sustainable development goals and values need to be an integral part of modern education programs. This shift in education has resulted in a move from environmental education to education for sustainable development, with the purpose of equipping present and future generations with the skills to live in modern society, encourage sustainable behaviours, and foster values such as peace, justice, equality, respect for diversity, respect for nature, and a responsible attitude towards modern societal issues, with an emphasis on finding solutions. (Vukić, Jovanović, Todorović, 2021).

In 2017, UNESCO released a document titled "Education for Sustainable Development Goals: Learning Objectives", which outlines 17 sustainable development goals (No Poverty; Zero Hunger; Good Health and Well Being; Quality Education; Gender Equality; Clean Water and Sanitation; Affordable and Clean Energy; Decent Work and Economic Growth; Industry, Innovation and Infrastructure; Reduced Inequalities; Sustainable Cities and Communities; Responsible Consumption and Production; Climate Action; Life below Water; Life on Land; Peace, Justice and Strong Institutions; Partnerships for the Goals) and their related objectives in cognitive, socio-emotional, and behavioural domains. It also provides examples of learning approaches and methods as a guide for those involved in planning educational goals for sustainable development. The main objective of the document is to promote sustainability competencies among all learners and enable them to contribute towards achieving the Sustainable Development Goals. (UNESCO 2017, cited in Vukić, Jovanović, Todorović, 2021). Leicht et al. (2018, cited in Vukić, Jovanović, Todorović, 2021) indicate that these competencies include systemic thinking, joint decision-making, and taking responsibility for future generations. For this to be successful, students must be exposed to the concept of sustainable development, which is why it has been integrated into the curriculum of many educational systems.

Guiding principles of education for sustainable development (*Action plan for education for sustainable development*, 2011) include lifelong learning; learning through action and participatory methods; cooperation and partnership; encouraging critical thinking, defining

problems and identification and application of solutions; integrating themes of sustainable development into the education system and involvement of a wide range of actors. Key roles of education for sustainable development: education should stimulate the belief that everybody has a power and responsibility for affecting positive changes at the global level; education is the primary agent of changes towards sustainable development, by strengthening capacities of individuals to transform their visions of the society into reality; education enhances values, behaviour and lifestyles needed for sustainable development; education for sustainable development is a process of learning to take decisions that take into account a long-term future; education helps develop capacities for future-oriented thinking (*Action plan for education for sustainable development*, 2011). Education for sustainable development involves integrating key development issues such as poverty, peace, democracy, justice, human rights, and responsibility into the learning process using participatory methods that motivate students to adopt sustainable behaviours. This approach promotes competencies such as critical thinking, joint decision making, and envisioning future scenarios (UNECE, 2005, cited in Vukić, Jovanović, Todorović, 2021). It is distinct from education about sustainable development, which refers to adding new issues or subjects to the curriculum to familiarize students with sustainable development topics (Woo et al., 2012, cited in Vukić, Jovanović, Todorović, 2021). In contrast, education for sustainable development means “promoting the values and behaviours prescribed by sustainable development policies” (Lončar, 2011, p. 249, quoted in Vukić, Jovanović, Todorović, 2021). Thus, education is viewed as a tool for achieving sustainability rather than just an informational resource (Nikolić, 2011, cited in Vukić, Jovanović, Todorović, 2021). Education for sustainable development is an interdisciplinary educational domain that focuses on sustainable development concepts, issues and strategies. It covers a wide range of themes such as climate change, disaster risk, biodiversity, and poverty reduction, as well as sustainable consumption. Participatory teaching and learning are emphasized to encourage behavioural changes and greater learner participation in sustainable development (Christie et al., 2013, cited in Tang, 2021). The development of critical thinking skills, teamwork and decision-making based on empirical evidence is essential to empower learners to take action towards sustainable development (Lozano et al., 2019; Tang, 2020a, cited in Tang, 2021).

The thesis that sustainable development needs to be studied is supported by several arguments, as outlined by Črnjar (2016, cited by Cegur Radović, Varičak, Smajla, 2016). Firstly, education for sustainable development is a lifelong process, and citizens need to be educated and informed with the necessary knowledge and skills to solve sustainability

problems. Secondly, sustainable development requires a new way of looking at the environment, where students understand the interconnections between nature, the economy, and social components at local, regional, and global levels. Finally, education for sustainable development deals with the dynamics of the physical, biological, social, economic, and social environment. To ensure effective implementation, education for sustainable development should be carried out at three levels. The first level is formal education through educational institutions, where the concepts and strategies of sustainable development are included in the regular curriculum. The second level involves non-formal education, which takes place outside of traditional educational institutions and is carried out through activities of non-governmental organizations (NGOs). Finally, the third level involves using media to integrate education for sustainable development into daily life, making it a natural part of people's everyday routines. (Elaborated according to Hrvatski sabor 2009, cited in Ham, Štimac, 2012). Education for sustainable development should aim to develop knowledge, skills, understanding, attitudes, and values, with schools playing a crucial role in preparing young people for active participation in society. The focus should shift from merely transmitting information to promoting interactive learning, with a focus on systemic, critical, and creative thinking. To achieve this, formal education must be supplemented with real-life experiences beyond the classroom. Educators have a significant role in facilitating this process, encouraging dialogue between students and decision-makers, the business sector, and civil society. It is essential to prepare learners to assume responsibility for the constructive development of society, encouraging them to think systemically, critically, and creatively (*Action plan for education for sustainable development*, 2011).

The concept of education for sustainable development is constantly evolving and should be viewed as an ongoing process of learning. It is continually updated with new knowledge and understanding based on experience, modern science, technology, and social changes. It is a lifelong process that should start early in childhood since values and attitudes are shaped at an early age. This process of learning should continue both in formal education settings and in non-formal contexts throughout a person's life (Ham, Štimac, 2012). Education for sustainable development plays a vital role in societal development by introducing young children to their environment. By learning about sustainable development, children can gain an understanding of the relevant issues and cultivate a sense of empathy and respect for the world's diversity (Yan and Fengfeng 2008, cited in Bahtić, Višnjić Jetvić, 2020). Early childhood education is particularly crucial in promoting sustainable development goals (Bautista et al., 2018, cited in

Bahtić, Višnjić Jetvić, 2020). Education for sustainable development also fosters children's development into active citizens and agents of change, and acknowledges them as capable individuals with their own rights (United Nations, 1989, cited in Bahtić, Višnjić Jetvić, 2020). Education for sustainable development has significant benefits for young children, including the chance to develop critical thinking skills and express themselves effectively. It provides opportunities to learn about citizenship and community involvement, as well as preparing children for future challenges and decision-making moments in their lives. Rather than simply providing problem-solving skills, the ultimate goal of education for sustainable development is to equip children with the tools they need to tackle and overcome challenges as they arise throughout their lives (Norrdahl 2008, cited in Bahtić, Višnjić Jetvić, 2020). Education for sustainable development entails teaching children about contemporary environmental concerns such as climate change, inequality, biodiversity, and the impacts of poverty. When we prompt children to ponder over such matters, we promote independent and analytical thought, enhance the drive to tackle issues, and encourage collaborative problem-solving to create sustainable solutions (Bahtić, Višnjić Jetvić, 2020). Education for sustainable development acknowledges that young children have the ability to comprehend the significance of sustainability and can become agents of change in the present and future. Early education plays a vital role in shaping attitudes, knowledge, and behaviour related to sustainability. Today's children are exposed to a rapidly changing world that presents novel challenges and possibilities. Therefore, education for sustainable development is viewed as a crucial instrument in addressing these challenges. Although early education may not fully meet all of these expectations, it remains a significant starting point for cultivating and promoting sustainability-related values (Bahtić, Višnjić Jetvić, 2020).

Christie et al. (2013, cited in Tang, 2021) conducted a study on how Australian academics teach education for sustainable development, and found that lectures, tutorials, critical thinking, and discussions were commonly used methods. This suggests that there is a lack of innovative teaching strategies in this field. On the other hand, a survey by Lozano et al. (2019, cited in Tang, 2021) of European higher education institutions revealed a greater diversity of teaching strategies, including lectures, case studies, and project- or problem-based learning. However, less common strategies such as supply chain/life-cycle analysis, concept mapping, participatory action research, and traditional ecological knowledge were used less frequently. O'Flaherty & Liddy (2018, cited in Tang, 2021) conducted a study to assess the impact of education for sustainable development and discovered that it succeeded in raising

awareness among learners on global issues, environmental interdependence, and global responsibility. However, it is unclear if these awareness-raising efforts have led to changes in attitudes, which is the ultimate goal of education for sustainable development. According to Arbuthnott (2009, cited in Tang, 2021), attitudinal change is complex and influenced by various factors. Conversely, Nousheen et al. (2020, cited in Tang, 2021) found that education for sustainable development had a positive impact on student-teacher's attitudes towards sustainable development. Furthermore, Orr (2004, cited in Tang, 2021) highlighted that graduates nowadays lack values for land and community, indicating a need for educators to revise their teaching methods and instil these values. Moreover, it is crucial to recognize the significance of non-formal and informal education for sustainable development, which should complement formal education. Cooperation among all stakeholders involved in all forms of sustainable development education should be acknowledged and encouraged. Media also plays a crucial role, and journalists as well as newspaper editors should be included in the process. (*Action plan for education for sustainable development*, 2011).

### **3.2.1. Education for sustainable development in Croatia**

Croatia has been involved in the global and European initiatives related to sustainable development from an early stage. The country adopted the *Resolution on the Protection of Human Environment* in 1972, on the eve of the I. UN Conference on Human Environment held in Stockholm. In 1992, Croatia passed the *Environmental Protection Declaration* at Rio de Janeiro, pledging to support sustainable development. At the same conference, the country also endorsed Agenda 21 and the *Action Plan* and assumed obligations from the *Millennium Declaration* and the *Millennium Development Goals* adopted by the United Nations General Assembly in 2000. The Croatian government adopted the Principles for Development of the Republic of Croatia in June 2001, where they emphasized their commitment to the sustainability concept for the country's development in the 21st century. This means that the country will focus on establishing a strong rule of law, active participation in global integration processes, transforming the relationship between individuals and society, changing mindsets, building a distinct identity, and meeting the standards required for full membership in the European Union (*Action plan for education for sustainable development*, 2011). According to Article 178 of the "Education on Environmental Protection and Sustainable Development" chapter of the *Environmental Protection Act of the Republic of Croatia*, the state is responsible for implementing environmental education and sustainable development education in the education

system. The guidelines for an educational program will be established in cooperation with the ministries responsible for environmental protection and education in accordance with the Republic of Croatia's Strategy for Sustainable Development. The *2007 Strategy for Sustainable Development of the Republic of Croatia* outlines the long-term goals for economic, social, and environmental development towards sustainable development. One of the conditions for further progress, according to the strategy, is the establishment of a knowledgeable and educated society that embraces sustainable development. This can be achieved through three means: 1) formal education offered by educational institutions; 2) non-formal education provided by non-governmental organizations; and 3) mass media (such as newspapers, television, and radio) to make sustainable development education a part of daily life. *The Action Plan for education for sustainable development* was created in 2011 in Croatia with the collaboration of different social groups. Its aim was to take responsibility for the future. The Plan emphasizes the significance of continuous learning and enhancing the abilities of individuals and groups to enable them to bring about positive changes. The general objective of the Plan is to enhance the capacity of stakeholders to contribute to sustainable development by fostering a better comprehension and acceptance of the sustainable development concept. To achieve this goal, it is necessary to enhance communication about the principles and objectives of education for sustainable development, support research work, connect existing initiatives and create new ones, educate decision-makers at national, regional, and local levels, promote collaboration and partnership between sectors, and monitor and evaluate progress. To achieve the objective, a change is needed in the current educational approach, which primarily focuses on imparting knowledge and facts, thereby suppressing awareness and creativity necessary for promoting social action and change. The proposed education paradigm requires critical thinking and reflection on issues related to work and life, enabling individuals to freely reflect and comprehend the reality and interdependence between environment, society, and economic development, including their impacts (*Action plan for education for sustainable development*, 2011). The implementation of education for sustainable development is evident in significant educational documents such as the National Curriculum for Early and Preschool Education, Curriculum for Primary Schools, Curriculum for Interdisciplinary Topics in Sustainable Development, and National Curriculum Framework. These documents stress the value of education and the improvement of the capabilities of those who carry out the educational process, who are regarded as key contributors to promoting sustainable development and generating change (Anđić, Ćurić, 2020).

Table 3. Analysis of the state of sustainable development education in the Republic of Croatia in 2011 (Ministarstvo zaštite okoliša, prostornog uređenja i graditeljstva, Uprava za međunarodnu suradnju i održivi razvoj, 2011; Akcijski plan za obrazovanje za održivi razvitak 2011.-2015. za provedbu Strategije održivog razvitka Republike Hrvatske – Nacrt, verzija 10/2/2011., pp. 9-13., cited in Ham, Štimac, 2012)

<p><b>FORMAL EDUCATION</b></p>	<p>The Preschool Education Act provides that all kindergartens should include in their curricula subjects related to ecological education, and it was done so by the kindergartens starting with 1997. Ninety-eight kindergartens specifically verified ecological and sustainable development education programs.</p> <p>Different fields of sustainable development are covered by the curricula of primary and secondary school education through subjects such as Biology, Geography, Religious Education, Ethics, Politics and Economy. The primary school curriculum emphasizes the sustainable development education as an integral educational content. Since 2010, when the National General Curriculum was adopted, sustainable development education has had a stronghold in such basic educational document.</p> <p>Situation in the higher education institutions is conditioned by implementation of the Bologna process. It was found that this subject matter is covered at greater extent at the postgraduate level. Multidisciplinary and interdisciplinary studies are carried out only in several higher education institutions.</p>
<p><b>NON-FORMAL EDUCATION</b></p>	<p>Non-formal education in the Republic of Croatia is carried out by various civil society organizations, business associations,</p>



	institutions and state administration bodies, often in collaboration with providers of formal education or bodies of local self-government. It is evident that most of the non-formal programs are carried out in the field of human rights, EDC and social cohesion, somewhat fewer in the field of environment and health protection and finally in the fields of promotion and planning of sustainable development, cultural and traditional heritage and sustainable production and consumption.
<b>INFORMAL EDUCATION</b>	Informal education is insufficiently developed in Croatia. For the time being it is carried out through informing the public about sustainable development and environmental protection, and through printed materials and media. Sustainable development is not sufficiently present in the media.

Since the 2019/2020 academic year, primary and secondary schools in Croatia have been implementing a curriculum on the interdisciplinary topic *Sustainable Development* that covers all educational cycles. The interdisciplinary topic is designed to provide students with knowledge about the three dimensions of sustainable development (society, economy, and environmental protection), including the need for sustainable management of natural resources, personal and shared rights and responsibilities, among other things. The curriculum aims to equip students with skills to promote their personal and general well-being, instil values such as solidarity and responsibility, and foster a personal identity that respects diversity (Odluka o donošenju kurikuluma... 2019, cited in Vukić, Jovanović, Todorović, 2021). The curriculum is divided into three domains: *Connectivity* (which covers fundamental principles of sustainability and interdependence in ecosystems), *Action* (which covers knowledge and skills for sustainable living), and *Wellbeing* (which covers responsibility and rights for the well-being of all people, the environment, and future generations). Each domain includes mandatory and recommended key contents, as well as educational expectations and recommendations for each education cycle (Odluka o donošenju kurikuluma... 2019, cited in Vukić, Jovanović, Todorović, 2021).

The *Decision on the adoption of the curriculum for the interdisciplinary topic Sustainable Development for primary and secondary schools in the Republic of Croatia* (Narodne novine 7/2019, cited in Vukić, Jovanović, Todorović, 2021) presents several educational goals. These goals include acquiring knowledge about nature, understanding the relationship between people and the environment, developing critical thinking, personal and social responsibility, and getting acquainted with the causes and consequences of human impact on nature to stimulate creative and problem-oriented thinking. Additionally, the goals aim to develop solidarity, empathy, responsibility, and motivation to act appropriately toward nature and other people. Students are encouraged to adopt an active approach to identify needs, devise solutions, and make specific contributions to the community, while also thinking about future generations and developing a sense of responsibility toward them. The emphasis is on promoting an active and responsible attitude toward the environment and others, both now and in the future, which is essential for achieving sustainable development. The educational objectives of the interdisciplinary topic Sustainable Development in Croatia are structured around domains and educational cycles, namely connectivity, action, and well-being (Odluka o donošenju kurikuluma... 2019, cited in Vukić, Jovanović, Todorović, 2021). The *Sustainable Development Curriculum* is organized into five cycles based on educational expectations. The first cycle encompasses the 1st through 3rd grade, the second cycle includes the 4th through 6th grade, the third cycle covers the 6th through 8th grade, and the fourth and fifth cycles are designed for high school students. Unlike other curricula, interdisciplinary topics such as this one are not evaluated at the end of the academic year, but rather by cycle. This means that the teaching of cross-curricular topics is planned and implemented throughout the year, but the evaluation of their realization only occurs at the end of each cycle. The Ministry's official decision requires all primary and secondary schools to incorporate the *Sustainable Development Curriculum*, and it is expected that teachers will use different teaching and learning methods to implement it. In addition to recommendations for teaching sustainable development topics, specific content that should be covered with students is specified, such as eco-projects, recycling, school gardens, healthy food, pollution, and more. Therefore, the effectiveness of this curriculum is largely dependent on the teacher's competencies, education, and professional development, which enable them to competently implement the curriculum (Anđić, Šuperina, 2021).

Table 4. The outcomes of secondary education for sustainable development in Croatia (Odluka o donošenju kurikuluma za međupredmetnu temu Održivi razvoj za osnovne i srednje škole u Republici Hrvatskoj. Narodne novine 7/2019, cited in Vukić, Jovanović, Todorović, 2021)

Domain	Connectivity	Action	Wellbeing
<b>4<sup>th</sup> cycle</b> (1 <sup>st</sup> and 2 <sup>nd</sup> grade of four-year-long high school and 1 <sup>st</sup> grade of three-year-long high school education)	<ul style="list-style-type: none"> <li>▪ distinguishes personal from collective identity, and has a sense of belonging to humanity</li> <li>▪ explains the importance of establishing natural balance</li> <li>▪ assesses how the state of the ecosystem affects the quality of life</li> <li>▪ collects, analyses and evaluates data on the impact of the economy, state policy and everyday consumption of citizens on sustainable development</li> </ul>	<ul style="list-style-type: none"> <li>▪ acts in accordance with the principles of sustainable development with the aim of protecting nature and environment</li> <li>▪ acts in accordance with the principles of sustainable development with the aim of promoting social justice</li> </ul>	<ul style="list-style-type: none"> <li>▪ considers the importance of sustainable development for the common good</li> <li>▪ analyses indicators of quality of life in a society and explains differences between societies</li> <li>▪ analyses and compares the causes and consequences of social differences in some societies from the point of view of individual's wellbeing</li> <li>▪ describes the impact of different economic models on welfare</li> </ul>
<b>5<sup>th</sup> cycle</b> (3 <sup>rd</sup> and 4 <sup>th</sup> grade of four-year-long high school and 2 <sup>nd</sup> and 3 <sup>rd</sup> grade of three-year-long high school education)	<ul style="list-style-type: none"> <li>▪ critically considers the connection between one's own way of life and the impact on the environment and people</li> </ul>	<ul style="list-style-type: none"> <li>▪ critically reflects on the impact of our actions on Earth and humanity</li> </ul>	<ul style="list-style-type: none"> <li>▪ explains the connection between resource consumption and equitable distribution to ensure the common good</li> </ul>

- analyses the principles of sustainable production and consumption
  - designs and uses innovative and creative forms of action to achieve sustainability
  - suggests ways to improve personal and general wellbeing
  - analyses power relations at different levels of government and explains their impact on sustainable development
  - participates in activities inside and outside of school aimed at the common good
- 

In 2020, Bahtić and Višnjić Jetvić conducted a study in two Croatian kindergartens, involving 43 children aged between 3 and 7 years old. The research findings demonstrated that all the children were familiar with recycling and practiced it regularly while in kindergarten. The participants acknowledged the significance of waste sorting and recognized it as a means of environmental conservation. The study also revealed that the children had a high level of awareness of waste in the natural environment and were proactive in seeking solutions to address this issue. A number of the children expressed concern about the harm pollution can cause to animals. The results were not surprising, given that all the children involved in the study regularly participate in environmental care projects and two-thirds of them attend an ECO school. Previous research conducted by Engdahl and Rabušicová (2010) and Grodzieska-Jurczak et al. (2006), cited in the study conducted by Bahtić and Višnjić Jetvić in 2020, supports the findings that children are aware of their environment and express a desire to protect it, particularly through recycling. The research also revealed that the older children in the study were familiar with sustainability themes related to economic, socio-cultural, and environmental aspects, with environmental sustainability being the most familiar to them, as observed in previous research (Bahtić, Višnjić Jetvić, 2020).

Croatia also participates in the Eco-Schools program, which is a global environmental education initiative providing schools with a clear and manageable approach to integrate environmental issues into their regular activities. This program is implemented in 67 countries worldwide and shares the same methodology and approach, as indicated by the Eco-Schools logo and Green Flag (*Eco Schools Handbook*). In February 1998, the Eco-Schools programme was introduced in Croatia and received support from both the Ministry of Education and the Ministry of Environmental Protection. By the end of the third year, 150 schools had joined the

programme. On 14 March 2001, the first Eco-Schools promotion ceremony was held and 20 out of the 150 schools were awarded Green Flags. In the following year, 33 more schools were awarded and over the past 19 years, all 150 schools have received Green Flags. In 2005, the fifth generation of Eco-Schools joined the programme, which included special schools, and in 2006, the sixth generation, which included kindergartens, joined as well. The first student dormitory joined the programme in 2009, and the first higher education institution in 2015. As of 2019, there are 340 Eco-Schools participating in the Croatian programme. During the initial three years, Association Lijepa Naša arranged several training seminars for teachers on the Eco-Schools programme, its approach, and ways to integrate it into schools. Additionally, they created Eco-Schools resources that were utilized to promote the programme in Croatia and instruct teachers and local communities. The major obstacle for the Eco-Schools initiative in Croatia is the monetary expenses of programme execution and shifting the perspectives of local communities (*Changing Together*, 2019).

### **3.3. Critical pedagogy and Ecopedagogy**

The notion of active citizenship in education is based on the principles of active democratic citizenship, critical pedagogy, and ecopedagogy. The last two fields directly incorporate the concept of "learning from activists" to achieve sustainability for the whole community. Paulo Freire, a Brazilian philosopher, activist, lawyer, and educator, created the critical pedagogy, a teaching methodology influenced by critical theory. Its aim is to encourage students to challenge and question the alleged "domination" of political, corporate, or capitalist structures. Richard Kahn advanced this critical theory of education through ecopedagogy, which shifted the critical analysis towards environmental issues. Both critical pedagogy and ecopedagogy aim to challenge the commonly held beliefs and practices that reinforce this domination (Kahn, 2010, cited in Kopnina, 2020). Ecopedagogy, which is partially derived from critical pedagogy, places less emphasis on leftist ideology and is more focused on the environment (Kahn, 2006; Nocella, 2007, cited in Kopnina, 2020). Despite this, ecopedagogy remains critical of social issues and asserts that learning about the environment can help students understand ethical considerations that are often overlooked in traditional schooling, such as deep ecology and ecocentrism (Naess, 1973; Sitka-Sage et al, 2017, cited in Kopnina, 2020), animal rights and welfare (Singer, 1975; Regan, 1984, cited in Kopnina, 2020), and inclusive, multi-species pluralism (Kopnina & Cherniak, 2016, cited in Kopnina, 2020). Critical pedagogy scholars argue that education for sustainable development and traditional

environmental education are still shaped by the prevailing anthropocentric economic philosophy, as Bonnett (2007, cited in Kopnina, 2020) and Kopnina (2012, 2015b, 2015c, 2016, 2019, cited in Kopnina, 2020) have observed. These scholars point out that industries and the government have significant institutional and financial interests that are contrary to environmental justice, as highlighted by Nocella (2007, cited in Kopnina, 2020).

Critical pedagogy is different from traditional education as it aims “to fight and unveil the complex and interwoven lies of the global capitalist machine” (Nocella, 2007, cited in Kopnina 2020). In contrast, conventional education is influenced by anthropocentric economic thinking and often fails to prioritize environmental justice. Critical ecopedagogy “fights for the oppressed, adopts a critical methodology and promotes education as a non-violent form of radical social change” (Nocella, 2007, cited in Kopnina 2020). Peter McLaren’s ‘revolutionary pedagogy’ is an example of ecopedagogy that challenges market logic and reformist ideology to bring about widespread social transformation. Critical Animal Pedagogy is another example of eco-pedagogy that focuses on the examination and elimination of speciesist pedagogies (Grubbs and Loadenthal, 2014, cited in Kopnina, 2020). Grubbs and Loadenthal (2014, cited in Kopnina, 2020) point out that scholars who challenge anthropocentrism are often seen as activists rather than objective scholars, but their challenge addresses the most dominant power, which many learners may not be aware of.

Critical pedagogy, ecopedagogy, and ecocentric education are alternative forms of education that critique the conventional approach to environmental education and education for sustainable development. These approaches focus on the political and undemocratic nature of the subordination of the environment to industrial and economic interests. According to Molino-Motos (2019, cited in Kopnina, 2020), they challenge the dominant forms of education in order to bring awareness to the power structures underlying society. Active ecological citizenship requires an education that uncovers the lessons of environmentalism and engages with these power structures. The teachings of eco-radicalism are distinct from mainstream environmental education and education for sustainable development, which are typically apolitical and focused on human-centred perspectives (Bonnett, 2007, cited in Kopnina, 2020). However, ecopedagogy offers an alternative approach that promotes political awareness and engagement, and considers the impact of societal power structures on the environment. Even a short exposure to an ecopedagogical documentary film can encourage students to think critically about moral complexity and the role of citizens in environmental issues. Richard Kahn (2006; 2010, cited in Kopnina, 2020) suggests that one approach to addressing power

imbalances is to introduce students to some of the unconventional ideas advocated by environmentalists. He argues that this could help to cultivate critical and socially engaged citizens. According to Kahn (2006, p. 40, cited in Kopnina, 2020), turning environmental activists into educators could be particularly valuable in this regard, as they can bring their passion and knowledge to bear on the task of educating students. However, Kahn also acknowledges that these educators would still need to undergo their own training and education in order to be effective.

### **3.4. Education for Environmental Citizenship**

Environmental citizenship is a concept that has some similarities to other ideas such as sustainability citizenship, ecological citizenship, green citizenship, environmental knowledge, and environmental attitude. However, they differ in terms of their meanings and actions. While some authors consider ecological citizenship and environmental citizenship to be interchangeable, Dobson (2003, cited in Gašparović, Šulc, 2019) makes a distinction between the two and associates ecological citizenship with green citizenship. Environmental citizenship involves rights and responsibilities towards the environment, as well as pro-environmental attitudes and actions, and is closely linked to the idea of justice (Dobson, 2007, cited in Gašparović, Šulc, 2019).

Education has been an integral aspect of Environmental Citizenship since its inception. However, it extends beyond that by striving to cultivate the abilities, principles, beliefs, and expertise of environmental citizens, who serve as catalysts for resolving current environmental issues, preventing the emergence of new ones, promoting sustainability, and establishing a positive rapport with nature. (ENEC, 2018, cited in Gašparović, Šulc, 2019). The aim of education for environmental citizenship is not just about the environment, but also of how to expand the knowledge and skills of each participant as a part of lifelong learning. It can improve competence (i.e. communication, social competence, empathy, etc.) and eventually be beneficial for the environment. Education for environmental citizenship is more effective than other education types because it connects actors on different operational levels, it affects the reduction of social inequalities and could be a part of lifelong learning. Education for environmental citizenship is a proactive education. It includes a multidisciplinary approach, the possibility of incorporating into other educational areas and the adaptability of educational content to target groups. Education for Environmental Citizenship has a broader objective than

just focusing on environmental concerns. It aims to enhance the knowledge and abilities of each participant as part of their lifelong learning. This education can improve various competencies such as communication, social skills, empathy, etc., which can ultimately have a positive impact on the environment. Compared to other types of education, Education for environmental citizenship is more effective because it connects actors at different operational levels, contributes to reducing social inequalities, and can be incorporated into lifelong learning. This proactive education approach adopts a multidisciplinary approach, can be integrated into other educational areas, and can be tailored to suit specific target groups (Gašparović, Šulc, 2019). Education aimed at fostering environmental citizenship may not yield immediate results, as its focus is on achieving long-term developmental objectives. As a consequence, local and national policies, as well as individuals and groups, may not approve of it. Particularly in developing countries, the absence of explicit and tangible examples of successful implementation is evident. The concept of education for environmental citizenship can be described as a holistic approach, while other concepts tend to be more limited in scope. For example, environmental education typically focuses on biology, overlooking abiotic factors and the indirect consequences of human actions. Education for sustainable development may neglect certain social aspects and prioritize economic concerns. Science education is primarily aimed at students and does not include the wider public. Citizenship education only partially overlaps with education for environmental citizenship. Education for environmental citizenship can be integrated into various settings, including schools, workplaces, and everyday life. Given the current global environmental challenges, raising awareness about the environment is crucial, and education for environmental citizenship provides an effective means to achieve this. It is important to integrate education for environmental citizenship into lifelong learning and increase its presence in schools, colleges, and public institutions. This can be achieved by providing more educational resources, workshops, and posters. It is crucial that individuals understand their role in preserving the environment. However, if the topics covered are not engaging, there is a risk of education failure as Education for Environmental Citizenship may not receive much attention. (Gašparović, Šulc, 2019).

The term "Environmental Citizenship" is not currently used in Croatia's formal or informal education systems. Nonetheless, several of its components have been incorporated into both types of education. Education for environmental citizenship is also present in several areas of formal and informal education, but it is not yet embraced as a holistic concept. Primary and secondary education curricula in Croatia include specific courses or subjects that align with



environmental citizenship and education for environmental citizenship (MSES, 2006; NCEEE, 2015, cited in Gašparović, Šulc, 2019). While environmental citizenship is primarily taught within the Biology curriculum, some of its elements are also integrated into the Geography curriculum. Additionally, many aspects of environmental citizenship are covered in pre-school education (for children up to 7 years old) and in lower levels of primary school (for pupils aged between 7 and 10 years old), as outlined in the Ministry of Science and Education documents from 2006 and 2011 (cited in Gašparović, Šulc, 2019). In non-formal education settings, such as those offered by government bodies, local administrative organizations, and non-governmental organisations, various activities also incorporate aspects of Environmental Citizenship. Education for Environmental Citizenship holds great significance for young people in Croatia as it raises their awareness of the environment and their potential to contribute to sustainable development. It is crucial as it teaches the importance of preserving the environment for future generations. By tackling real-life problems from a practical and everyday perspective, Education for Environmental Citizenship can encourage students to consider their future and engage in social initiatives and projects. The use of modern learning methods, such as fieldwork and showcasing best practices, can also enhance the educational experience. Given the vital role of the curriculum in Croatian education, Education for Environmental Citizenship presents an opportunity to implement and enhance it comprehensively. Education for environmental citizenship is not given sufficient time in school lectures across the curriculum and may be viewed as an extra academic obligation if not appropriately integrated. Due to the large number of courses offered in schools in Croatia, it would be challenging to introduce a new standalone course. However, education for environmental citizenship could be integrated as a component of existing courses or project assignments. (Gašparović, Šulc, 2019).

#### 4. Environmental pedagogy in English classroom

Green English refers to methods of teaching and learning in English class that incorporate environmental topics, concerns, and resolutions. Essentially, it involves implementing sustainable and eco-friendly approaches to teaching, learning, and assessment in English education. Green English has the potential to instil sustainable values, concepts, and attitudes in students, making it a valuable tool for promoting sustainability. Language is a valuable asset to humanity as it enables individuals to break down their surroundings into understandable symbols. It enables people to express and share their thoughts, as well as to interact and collaborate with others. In addition to its communication benefits, language can also influence attitudes, as it is frequently utilized for education, advocacy, advertising, and mobilization. Consequently, language can be utilized to cultivate students' environmental consciousness and transform their perspectives on the environment. The Environmental Protection Agency of the United States acknowledges that incorporating environmental education into English language instruction can serve as a gateway for students to understand waste reduction, recycling, and reusing. To achieve this, the agency developed a series of teaching materials, including lesson plans and worksheets, called "Teach English, Teach about the Environment." It is crucial to teach environmental awareness not only on a global scale but also on a personal and community level since environmental issues can have a significant impact on individuals and their surroundings. As an environmentally-friendly class, the English language classroom should encourage students to cultivate their creativity and problem-solving skills (Timothy, Obiekezie, 2019).

To make the English language classroom more environmentally conscious, incorporating environmental topics into English textbooks is an effective approach. These topics should be utilized when teaching all aspects of the curriculum, including composition, reading and listening comprehension, vocabulary and grammar, and pronunciation. Textbooks should feature photographs and illustrations that emphasize both environmental issues and potential solutions. If the textbooks lack environmental content, English language teachers can consciously incorporate environmental themes into their teaching through various methods, such as (Timothy, Obiekezie, 2019):

- *Continuous writing* – for creative and expository writing, the teacher can exploit themes such as: 1) Our climate: what's wrong with it; 2) Tending the Earth, 3) Things we should not throw away 4) Renewing our land, etc. Every student's

article can be utilized as a "News on Board" (Egbe, 2009, cited Timothy, Obiekezie, 2019), where the article is posted on the class bulletin board or any available materials, with or without accompanying illustrations.

- *Letter Writing* – one approach is to have individual students or groups take on the role of a local plant, flower, or tree and engage in role-playing activities. Afterwards, the students can write letters to each other, detailing their experiences, aspirations, challenges, and concerns, with copies of these letters displayed on the class or school notice boards. Alternatively, students can take on the roles of various fish species and write complaint letters to the manager of a fertilizer company, describing the negative impact of industrial waste released into their habitat.
- *Comprehension* – newspaper pieces related to sustainable topics may be utilized for educational purposes, specifically to assess and enhance comprehension skills. Pupils can contribute by bringing in dated newspapers or magazines that cover various topics such as environment, pollution, desertification, agriculture, oil spills, erosions, floods, alternative energy, among others. By doing this, not only are old newspapers or magazines being recycled, but they are also being repurposed as educational resources.
- *Games* – games related to environmental issues can be incorporated by the teacher in the classroom. For example, the teacher could create crossword puzzles focusing on environmental themes. The students, either alone or in teams, may also create their own puzzles with the possibility of winning prizes.
- *Green album* – allow the students to create a collection of newspaper clippings regarding articles related to the environment, as well as pictures of plants, flowers, trees, birds, fish, animals, and insects. This collection can showcase both examples of environmental mismanagement and sustainable practices.
- *Debates* - debates allow students to develop not only research skills, but also their oral communication skills. Examples of debate topics could include the following: 1) “The Cross-River State Government should not clear 1000 acres of forests for a superhighway”; 2) “Fossil fuel drives our economy: without it, we are doomed”, 3) “Birds are more important than trees”. Teaching English grammar and speaking skills can also involve the use of vocabulary related to the environment and instructional materials that promote eco-friendliness.

To further promote environmentalism in English language classes, the next sensible move is to eliminate the use of paper. As paper is made from wood, which is obtained from forests, the harvesting of trees for paper and wood production contributes to deforestation, higher carbon emissions, and worsened climate conditions. Hence, adopting teaching methods that reduce paper consumption can have a positive impact on the environment over time. Therefore, Carley (2014, p.10, quoted in Timothy, Obiekezie, 2019) comments: *“The momentum to go green coincides with advancements in technology and an awareness of how human consumption of scarce resources impacts the environment for our generation and those yet to come. Transferring from paper to a paperless classroom has never been easier”*. To promote eco-friendliness in English teaching, a viable approach is to utilize technology. Integrating information and communication technology (ICT) into Green English Pedagogy can help to minimize the use of paper and paper-based products. Instead of relying on traditional paper materials, teachers can leverage social media platforms like Facebook, Skype, WhatsApp, Twitter, and Messenger to interact with students. This can add an element of excitement to the learning process, and also provide a space for sharing environmental content, chats, and photos. Assignments can be uploaded for online discussions, while individual submissions can be sent via email to the teacher. According to Carol Ann Tomlinson's (Tomlinson, 2001, cited in Timothy, Obiekezie, 2019) principles of differentiated instruction, which emphasizes catering to learners' varying interests, learning styles, and intelligences, incorporating different modes of presentation enhances the effectiveness of learning. Multimodality, as defined by Dressman (2010, p.71, quoted in Timothy, Obiekezie, 2019), is *“the crafted integration of two or more ways, or modes, of communication, so that their combined meaning as a whole is greater than either mode separately or their simple combination”*. This approach requires diverse instructional materials and strategies that encourage students to explore alternative forms of presentation beyond pen and paper. For instance, teachers can use PowerPoint presentations, and organize field trips to locations like farms, markets, or refuse dumps where students can take photos and later discuss how the trips influence their environmental perspectives (Timothy, Obiekezie, 2019).

## 5. Critique of environmental pedagogy

Pedagogy theory has long been the subject of debate, with conflicts arising over the role of education in promoting business success versus ecological awareness. This conflict reflects a division of values in our society, with some prioritizing economic growth and success, while others prioritize environmental protection and sustainability. Supporters of education for business success argue that economic growth is essential for improving the overall standard of living. According to this approach, the primary goal of education should be to provide individuals with the skills and knowledge necessary to succeed in the job market and contribute to economic growth. Economic growth is essential for providing opportunities and improving standards of living, and education should prioritize developing the skills that are in demand in the job market. This approach emphasizes the importance of STEM education and business skills, with the goal of producing graduates who can create wealth and generate economic growth. On the other hand, supporters of education for ecological awareness argue that sustainability is essential for long-term well-being, both for humans and the environment. This approach emphasizes the importance of interdisciplinary learning and ethical decision-making, with the goal of producing graduates who can balance economic growth with environmental protection and social justice. The primary goal of education should be to promote environmental sustainability and prepare individuals to address the pressing environmental challenges facing our world. Education should prioritize teaching individuals about the importance of environmental protection and sustainable practices, and that economic growth should be viewed as secondary to protecting the environment (Orr, 1992). While these two approaches may seem at odds, there are ways to integrate them. For example, educators can emphasize the importance of sustainable business practices, such as renewable energy and waste reduction. They can also incorporate environmental science and sustainability into STEM education, highlighting the ways in which science and technology can be used to promote environmental protection and sustainability. As a study by the Journal of Business Ethics notes, business education can incorporate ethical considerations and social responsibility into its curriculum, promoting a more sustainable and equitable approach to business (Schwartz & Carroll, 2008).

Furthermore, education can be limited by political and economic factors. Some scholars argue that schools are primarily reflective of the values and beliefs already present in a society and therefore cannot effectively contravene key economic arrangements. Schools tend to mirror the dominant social and economic ideas, and thus they are not free from political, social, and

economic forces. One way that schools may promote dominant economic arrangements is through the curriculum. For example, in many countries, the curriculum is designed to prepare students for the world of work and to promote economic growth. This may mean that subjects like mathematics and science are prioritized over subjects like art and music, which are seen as less directly relevant to the economy (Lambert, 2010). One argument for the idea that schools promote existing societal values is that schools are embedded in broader social structures and cultural systems that shape the beliefs and values of individuals. In this view, schools are not neutral spaces, but rather are influenced by broader economic, political, and social forces. However, others argue that schools have the potential to challenge existing economic arrangements and promote alternative values. In this view, schools can be transformative spaces that challenge students to think critically about the world around them and promote alternative visions of society. There are examples of schools promoting alternative values and ways of thinking that challenge dominant economic arrangements. For instance, some schools have adopted an ecological perspective that emphasizes sustainability and the importance of caring for the natural world (Gruenewald, 2003). Other schools have focused on promoting social justice and equality, and encouraging students to think critically about economic arrangements that perpetuate inequality. Some argue that education can still play a crucial role in promoting environmental change by empowering individuals to act and advocate for systemic change (Sterling, 2011). Education can also facilitate the development of critical thinking skills, which are necessary for evaluating and challenging dominant societal values and beliefs.

However, while schools may not be able to fully contravene key economic arrangements of a society, they can play a crucial role in promoting values that challenge the existing structures. However, simply adding a few lessons on environmental topics to the curriculum is not enough. Education must be fundamentally transformed to incorporate a serious response to the ecological situation. This can be achieved by adopting a critical pedagogy approach, which involves challenging dominant power structures and promoting social justice and environmental sustainability (Orr, 1992). Critical and liberation pedagogies offer a framework for schools to promote values such as social justice, equity, and democracy that may not be prioritized in the broader society. Schools can also create opportunities for students to engage in community activism and to promote positive social change. Critical pedagogies focus on exposing and challenging the oppressive social, economic, and political structures that perpetuate inequality and marginalization. It seeks to empower students to critically examine and question the world around them and to become agents of social change. On the other hand,

liberation pedagogies aim to provide students with the knowledge and tools necessary to understand and transform the oppressive structures of society. It seeks to empower students to engage in the process of social change and to actively work towards a more equitable society. One key aspect of critical pedagogy is the emphasis on experiential learning, which involves active engagement with the environment and a focus on problem-solving and critical thinking. This can be achieved through hands-on activities such as gardening, restoration projects, and outdoor education. These activities provide students with opportunities to connect with nature, develop a sense of stewardship, and gain practical skills in sustainable living. Another important aspect of critical pedagogy is the incorporation of diverse perspectives and voices, including those of marginalized communities and indigenous peoples. This can help to challenge dominant narratives and promote a more holistic and inclusive understanding of the ecological crisis. For example, indigenous knowledge systems and practices can provide valuable insights into sustainable land use and resource management. Finally, critical pedagogy involves a focus on action and social change. This means equipping students with the knowledge, skills, and motivation to become agents of change in their communities and beyond. This can involve initiatives such as community-based research, advocacy campaigns, and service learning projects.

Personally, as a pedagogue and eternal optimist, I believe in the power of education and the potential of environmental pedagogy to change people's thinking and behaviour towards the environment. Although school education has many flaws and is subject to current political trends, with a curriculum that remains outdated despite efforts to update it, I still believe that education has the ability to change the world, and that power lies within the individual. To overcome the shortcomings of the current system, creative and ambitious individuals are needed, especially (future) teachers, who are willing to introduce innovations in their teaching, encourage students to question and criticize the system they are part of, and transmit enthusiasm to their students. Critics view education as brainwashing and an opportunity to instil attitudes and values that serve the ruling class. I see education as an opportunity for growth and development, a chance to develop awareness of the advantages and disadvantages of the systems in which individuals find themselves, and the possibility of change. Because, realistically speaking, if people unquestioningly accept everything imposed by the system, we would never have had any revolutions. Personally, as an eternal optimist, looking at today's youth and the enthusiasm with which they talk about environmental preservation, and the growing awareness of ecological problems, I expect another revolution with a focus on the

environment that surrounds us and the raise of ecological awareness through formal and informal education.

## **5. Conclusion**

In conclusion, environmental pedagogy plays a crucial role in addressing the environmental challenges faced by society. It equips students with the knowledge, skills, and attitudes needed to become responsible and environmentally conscious citizens. This thesis has explored the various aspects of environmental pedagogy, including its history, theories, and practical applications. Environmental pedagogy involves different approaches that aim to equip individuals with the knowledge, skills, and attitudes needed to become environmentally conscious. All of the approaches have their strength and weaknesses, but all of them emphasize the importance of connecting with nature, fostering environmental awareness, and promoting sustainable practices. As we continue to face the pressing challenges of climate change and environmental degradation, it is imperative that we recognize the value of environmental pedagogy and continue to develop effective strategies for educating individuals about environmental issues. The evidence presented in this thesis highlights the potential of environmental pedagogy to make a positive impact on environmental issues. However, further research is needed to understand the most effective approaches for implementing environmental pedagogy in different contexts and to evaluate its long-term effectiveness. Given the urgency of the environmental challenges we face, it is crucial to integrate environmental pedagogy into formal and informal education systems. By doing so, we can work towards a more sustainable and equitable future, where individuals and communities are empowered to protect and preserve the environment for generations to come. Through collaborative efforts between educators, policymakers, and the wider community, we can work towards a sustainable future for all.



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