Eco-educational Potential of the Urban Environment

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Abstract. The formation of ecological culture is one of the challenges in the educational process, fully in line with the new initiatives of the European Network for politics in the field of key competences (KeyCoNet). Ecological education presupposes direct contact with nature and the everyday urban environment and becomes a necessary element of modern curricula. The inclusion of adolescents in various activities of an ecological nature fits into the leading ecological paradigms of our time. Along with the traditional school environment, the various urban spaces are becoming a natural learning platform, offering non-traditional educational approaches for teaching outside the classroom and the formation of knowledge and skills in modern ecological and social infrastructure.

1 Introduction

The formation of ecological culture is one of the challenges in the educational process, fully in line with the leading ecological paradigms for sustainable development of the urban environment and suburban areas. Ecological education presupposes direct contact with nature and the everyday urban environment and becomes a mandatory element of modern curricula. Responsibility for the fate of nature is nurtured, and childhood is the most appropriate beginning for cultivating responsibility for the environment. The main goal of environmental education is to engage emotionally adolescents with environmental issues by purposefully forming a specific culture, environmental thinking, knowledge and behavior. Such competencies are gradually upgraded through:
- increasing knowledge about inanimate and animate nature (biodiversity);
- building ecological culture and environmental behavior in young people;
- creating appropriate conditions for activating the cognitive activity of the students with ecological orientation;
- building curiosity and love for nature in children;
- interactive learning through actions, activities and experiences in a real natural environment;

Along with the traditional school environment, different urban spaces are becoming a natural learning platform, offering non-traditional educational approaches to teaching outside the classroom. The purpose of extracurricular teaching is the formation of knowledge and skills in the conditions of our modern urban infrastructure. A serious provocation for the education system, which has become an adequate solution during the Kovid crisis, which creatively implements new projects and models for environmental education.

2 Environmental education

Environmental issues affect every area of our lives. If science seeks effective ways to solve them at the technological and instrumental level, then within the pedagogical sciences another, more productive in perspective approach to exit from critical situations is possible. For example, by forming a responsible, value-oriented attitude towards nature in the process of environmental education. In this sense, environmental education is a topic of increasing relevance, caused by the current environmental situation.

Despite the natural evolution of the concept [1] of environmental education, especially in terms of content, the normative documents in the Republic of Bulgaria define it as: “Education that is aimed at forming environmental culture, environmental awareness and environmental behavior in their relationship and unity preserving the ecological balance.” [2] It is education for building environmental competencies, which are the foundation of environmentally sustainable development. Children should know and respect the norms of ecological culture and behavior in order to protect nature and create a sustainable environment. They need to gain knowledge of the mechanisms of public institutions and civil society for the implementation of shared responsibility for environmental protection; to show readiness to participate in them; to understand the role of people in the care and protection of nature, to love and protect the natural resources of the country and the city in which they live. In this regard, children should be encouraged to participate empathetically in environmental initiatives by realizing and empathizing with their benefits.

The topicality of the mentioned processes raises before the pedagogues the question of the essence of the effective ecological education and upbringing - goals, tasks,
methods, approaches, means (activities). In this direction, alternative pedagogical technologies are increasingly sought. Planning, organizing and conducting modern training in an interactive educational environment is a necessary choice that guarantees the effectiveness of the educational process. Without denying the advantages of the traditional pedagogical approach, in which teachers take full responsibility for the learning process, for the purposes of sustainable development it is necessary to give the child the opportunity and freedom to take their share of responsibility, be active and interact with adults, to seek and offer solutions, to create. Thus, it occupies its equal place in the organization and conduct of the cognitive process, in which it is the main actor.

Successful results are achieved through targeted activities of students in extracurricular activities, classified as extracurricular and outside school activities. According to the National Program for the Development of School Education, extracurricular and extracurricular activities are important for the full development of students. Engaging in a natural way the imagination, abilities and interests of children will undoubtedly contribute to their physical, intellectual and personal development. A natural platform for extracurricular activities is guaranteed by the possibilities of the urban environment.

In the Republic of Bulgaria the main goals [3] of environmental education are the following:
- making sense of environmental education as a mandatory element of the educational process. Acquisition of ecological knowledge for preservation of the integrity of nature, increase of the productive, healthy and aesthetic qualities of the environment and for its sustainable development. Absorption of skills for individual and collective ecological activity, readiness for nature protection.
- clarification of the results of the ecological education in relation to the individual and his / her individual ecological culture, ecological consciousness and behavior in relation to the natural environment. Formation of a conscious attitude of the students to nature, to their immediate environment and to the whole planet and manifestation of ecological consciousness and ecologically competent behavior in everyday life.
- the introduction of state educational requirements allows to create a more accurate toolkit for assessing the effectiveness of environmental education. One of the goals underlying them is decision-making skills and the development The main concepts we associate with environmental education are:
  - environmental literacy
  - environmental awareness
  - responsible attitude towards the environment.
  - ecological culture
  - environmental ethics

Ecological literacy, ecological culture, ecological consciousness and ecological ethics regulate ecological behavior. It is expressed in interactions and actions that preserve nature and one's own health. [4]

The effective orientation of children in the natural world is achieved through the application of an appropriate pedagogical system of methods to ensure cooperation in the process of joint activities of adults and children. The system includes methods of pedagogical interaction of different nature: information-cognitive, game-transforming, heuristic, experimental, etc., all with specific functions in world orientation and ecologically significant problems. The thematic modules are diverse and reveal a wide range of educational opportunities. Some of them are related to project-type activities that encourage students' initiative and personal commitment to environmental issues. Others give them the opportunity to get to know nature by experimenting with plants, water, air, soil. In order to learn to use natural resources wisely, students are given tasks to recycle, to create objects from different natural materials. Through these activities, adolescents acquire certain knowledge and at the same time make sense of their importance by applying them in practical situations.

3 The challenges

The expansion of urban areas combined with the increase of low-density housing areas is one of the main threats to sustainable territorial development; public services are more expensive and more difficult to provide, natural resources are wasted, public transport networks are inadequate, and the use of mainly cars and congestion in and around cities creates severe pollution problems.

Urban ecosystems are under pressure - urban sprawl and soil sealing threaten biodiversity and increase the risk of both flooding and water scarcity. Many cities find it difficult to cope with social and environmental problems resulting from overcrowding, poverty, pollution and traffic jams.

Making cities "green and healthy" goes far beyond simply reducing CO2 emissions. A more holistic approach to environmental and energy issues needs to be taken, as many components of the natural ecosystem are closely intertwined in a unique way with the social, economic, cultural and political system of cities.

Climate change is another threat to city life. Some cities are suffering significantly as a result of climate change. This can exacerbate social inequalities: the poor are often at greater risk and lack the resources to adapt. Climate change affects the urban environment: for example, air and water quality.

The social, economic and environmental challenges in cities need to be addressed both on a neighborhood level and in a wider territorial context. Targeted activities related to proper waste management are needed, as one of the global problems related to environmental pollution. [5]

4 The urban environment

In recent years, in the field of education, preconditions have been created for the emergence of various platforms and alternative educational formats, which aim to expand the field of knowledge of students. The urban environment, as a means of ecological education, creates a wide range of creative interdisciplinary opportunities for educating young people and focuses the attention of educators and parents. The connection with "places of everyday life" is built gradually, from the earliest childhood and when it is
purposefully oriented - attitude to cultural and historical heritage, environmental protection, it presupposes the transformation of adolescents into future responsible adults, into people with active citizenship, position, aware of their role in the formation of sustainable models for urban environment, culture and education.

In the process of maturation, the child has the ability to learn unconsciously when he first discovers the world around him, exploring his immediate environment and gradually expanding the boundaries of his perceptions. The urban environment is the first source of knowledge that provokes children's imagination. In the form of a game and in harmony with his individual perceptions, the child explores different spaces, actively interacts with the architectural environment, from which he acquires information about space, shape, color and more.

Starting school, children find themselves in an atypical controlled environment and gradually lose their innate curiosity for knowledge and a sense of freedom. The school curriculum is mostly theoretical in nature and does not always develop the creative, social and emotional growth of young people. It is often distant from their interests, abilities and daily life. In the Bulgarian educational system, the training center falls on the teacher. For the controlling institutions, he is the main actor. This sometimes disrupts his natural communication with students and reduces their motivation to learn. [6]

That is why teachers face the challenge of discovering or creating new, different approaches to learning that provoke children's interest in acquiring knowledge, skills and experience. The diversity of the urban environment offers endless opportunities to build qualities and gain experience for children and young people of all ages. This potential successfully supports the traditional curriculum with a variety of practical exercises, teamwork opportunities, research projects, especially in the field of environmental education. Complex problem solving, critical thinking and creative approach are three of the main key competencies that are associated with the future successful realization of adolescents. And the role of the urban environment is an invariable platform for the formation of these specific qualities of environmental competencies.

5 Learning through an urban environment

The diverse potential of cities is one of the modern and contemporary concepts that decompose the traditional understanding of the urban environment, architecture, space. The new look at the surrounding urban landscape focuses on the city as a place for people [7], providing security, safety, opportunities, experiences, learning. This multilayered nature naturally becomes a source for the study of continuity and change in the environment. Disciplines such as architecture, urban planning, design, visual arts, history, sociology, etc. study and modify the urban environment, creating various opportunities for the development of interdisciplinary relationships and non-traditional methods of education and training.

The idea to include the architectural environment as an element of the learning process has been known since antiquity. A common practice in ancient Greece was for educators and their students to explore the city and explore the various social interactions and processes that were part of everyday life. In the 18th century in Europe, in the Age of Enlightenment, there was a rise in every public sphere. Socio-political, social and economic changes presuppose the industrial revolution, the growing urbanization, the creation of unique cities that have cultural and commercial significance for centuries to come. The medieval citizen and the places of his everyday life [8] became the main carrier of the new time. In the context of the changing social environment and the pursuit of more civil rights and freedoms, various philosophers such as John Locke and Jean-Jacques Rousseau emphasize the importance of early childhood education and promote the idea of education through the urban environment.

In his book "Emil or for upbringing" (Rousseau 1889), Rousseau launched ideas related to the invariable connection between the individual and society and proposed guidelines for civic education of the child, which have a practical orientation. [9] Later, at the end of the 19th century, the progressive education movement emerged, which proclaimed learning through experience and interaction with the environment as the main didactic method. One of the most famous educational reformers and follower of the idea of education through experience is the philosopher John Dewey. In his book "Experience and Education", the author recommends that teachers take into account the cultural and social context of children during teaching, because the ongoing processes of interaction and personal experience directly affect children's development [10] (Dewey 1938). The evolution of these theories and movements has led to the idea of introducing learning into a real urban environment, which can naturally support and enrich traditional approaches to teaching and learning.

In the last few decades, the interest in education through the urban environment has increased markedly and many professionals such as philosophers, psychologists, architects, educators, environmentalists and others try to define the direct connection of young people with the city they inhabit and their role in the formation of the so-called sustainable cities. Organizations around the world are setting up networks at local, regional, national and international levels in order to expand the spread of this new type of education and increase the number of people involved in the process. At the same time, global organizations such as UNESCO, the United Nations and the International Union of Architects are initiating projects that influence and support various activities in the field of learning through a built environment, regardless of the nature and objectives of education. Schools, libraries, museums, universities, chambers of architects, environmental organizations and all people who believe in the meaning of this idea are involved in such initiatives. Countries such as Austria, Finland, Germany, Sweden, the United Kingdom and the United States are among the leading players in this process with successful programs already in place. Good examples of such educational
practices can be seen in countries where the state supports this education.

According to the studied examples, the activities related to ecological education of children in a real urban environment can be classified as: 1) projects in schools and in extracurricular associations and organizations; 2) participation in actions of environmentalists 3) organized educational walks in the city; 4) holding events at regional and national level such as the forum "Let's clean Bulgaria in one day".

6 The places of our everyday life

Naturally, the question arises - What are those places in our urban environment that are appropriate, and in the current pandemic environment, an adequate substitute for the classroom, for environmental education and training of young people? First of all, it is logical for these alternative spaces to be city parks and gardens, which become areas for open lessons. The study of the flora, fauna, natural cycle in this environment is closest to the real natural resources in each region. Not to mention that the purposeful creation of such places allows in a park or eco-route to cultivate and grow species that cannot coexist together in a natural environment due to the diverse nature of the natural conditions in which they can grow. Similar examples in Bulgaria can be mentioned and such are for example the park "Vranya" - a former royal residence, the park "Kaylaka" - near the city of Pleven, the Palace "Euxinograd" near the city of Varna and others.

Parks emerged in an era in which the cultural environment was opposed and categorically separated from the natural one. With the growth of cities, however, there is a need for green areas to provide opportunities for recreation. Traditional parks and gardens appear as green areas, built by man, imitating the natural environment, created as a place for recreation and subject mainly to aesthetic norms. They often require incredible effort and resources to build, as they are built on disadvantageous zones. A variety of ornamental plants are used, most of them uncharacteristic of the area, which require intensive maintenance and depend entirely on human care and intervention. However, they are the most popular type of parks in the world to this day.

Secondly, but not in importance, we can mention the eco-parks. They are a comprehensive and sustainable green system, which is aimed at protecting nature and biodiversity, but is also designed for recreation, entertainment, education. These areas have exceptional ecological, cultural and educational value and are successfully integrated into the urban and environmental environment. Each eco-park has a specific design (buildings, alleys, parking lots, children’s play areas) and has environmental value (energy, waste recycling, wastewater management, pollution, flora and fauna) and cultural and educational orientation. For the purposes of environmental education, it turns into a desired space with exceptional educational and upbringing potential. Every element of this area is well thought out and planned. There is no better educational platform for children and young people, where in a real environment they can touch and appreciate the various environmental parameters:
- Maintenance of natural balance and circulation;
- The use of area-specific plant species;
- Protection of wildlife elements;
- The minimum planting of foreign plant species;
- Cultivation of medicinal plants;
- Providing seeds for bird food;
- Reduction of noise levels and air pollution;
- Use of funds for conversion of plant waste into compost;
- The planned and realized places for expression (workshops, forest school, signposts - educational signs in front of different plant species), with space for the public - are the necessary prerequisite for the formation of ecological culture and the integration of man with the natural environment.

The eco-park is applicable everywhere in the urban environment, regardless of its shape and size. It can be applied with different environmental value, which can gradually progress. Each step towards making a green territory sustainable, leads to a positive change in the urban environment and creates a potential opportunity for educational alternatives.

Thirdly, we can point to those urban spaces that are part of our daily lives and often become good examples for young people, especially when they are well planned and maintained. The created bike lanes in a number of European cities, as a necessary alternative transport [11], give us a chance to breathe cleaner air. Separate garbage collection in almost every inter-block space forms an ecological culture that is again with a view to the future.

By rethinking urban planning, architecture, transport and planning, we can turn our cities and urban landscape into ‘urban ecosystems’ in order to mitigate climate change (better transport, clean energy). Better urban planning will improve the quality of life everywhere and create new employment opportunities by developing the market for new technologies and green architecture (floating houses, vertical gardens, garden areas on the roofs of buildings, landscaped and beautifully arranged terraces and balconies).

Speaking of Sustainable Planning, we are currently facing the need for change and swift action aimed at protecting and developing green areas and urban development in order to restore the unity between urban and natural environment and create conditions for healthy and fulfilling life.

7 Good examples from Bulgaria

Bulgaria has good traditions in the development of environmental education - both in theoretical and in practical terms.

Active environmental activities aim to form skills and environmental culture in students through their direct involvement and participation in:
- Cleaning of: schoolyards, parks, reserves, protected areas, riparian and lakeside areas.
- Planting trees and other plants in local parks and districts. Preparation of a program for monitoring and caring for the planted trees. Construction of bird houses and feeders for
forest animals. (Thousands of trees for the children of Bulgaria project, organized by the “77” Foundation and conducted on the website www.gorata.bg.)

The stimulation of the youth activity and initiative is also achieved through the Youth Ecological Cinema. Periodic meetings of students with current environmental issues expand their field of vision and provoke their creativity. They serve as a signal to seek a solution.

In recent years, the so-called "Green School" has become an extremely popular form of environmental education in Bulgaria. A non-standard form of education aimed mainly at children living in urban environments, cut off from direct contact with nature. Such an educational expedition includes children and young people from 5 to 17 years old, for whom eco-educational events are purposefully organized for several days in the open - in a certain urban environment or in nature. Extracurricular education focuses on the following topics: recycling, alternative energy, prevention of environmental pollution.

The aim of the Green School is for children to become involved in environmental issues and to understand why it is necessary to preserve natural resources; to realize the importance of the forest as an element of living nature - clean air, silence, coloured balance, diverse flora and fauna and to enrich their knowledge of ecology, forming in themselves ecological self-awareness and culture.

- New educational technologies are used: for separate waste collection, production of works of art from recycled materials, environmentally and energy efficient use of resources.
- The application of non-formal education is combined with entertainment, research and adventures such as cave walks, night hikes, climbing peaks, observing endangered birds and others.

Some of the interesting and non-standard examples illustrating the results of environmental education in urban environments refer to the participation of our children and youth in the European competition for good practices in education for environmentally sustainable development - "Our classroom for a sustainable world" project SAME WORLD. The good practices from Bulgaria [12], which participate in the competition, are a motley kaleidoscope of unique, realized activities and conceptual projects for a more perfect ecological environment. Only the names of the practices such as: Hotel for insects; Escape from the Plastic Monster; Educational tours for responsible consumption; Replace the deodorant, save the Earth; Children's workshop for cleanliness; suggest the exceptional creativity and purposeful thinking for the future of all participants.

Impressive is the idea of high school students from Burgas, who are motivated to make a model of "School of the Future" inspired by the statement of A. Gatto that "The main source of renewable energy is under our feet." Students propose an original project in which the gym, classrooms, corridors and sports ground in front of the school are made of flooring that can absorb kinetic energy and contains a polymer - Polyvinylidene fluoride, and which will convert mechanical energy into electricity. When dozens of students leave their classrooms and play games and run down the hall, when they play sports, their youthful energy will literally become a valuable resource - enough to charge mobile phones, to provide lighting.

Here are some more good examples that present the variety of activities related to early environmental education:

Project: SOLIDARITY NETWORK OF THE TASTY EDUCATIONAL BIO-GARDENS (National Campaign “Skills for a Sustainable Lifestyle”). [13] The "Delicious Educational Garden" is an interactive green educational area in the kindergarten yard, where children, teachers and parents, individually and together, study the principles of Nature, growing herbs, vegetables and fruits. The delicious organic garden is an innovative educational tool with great potential, with which teachers can combine many different topics and present them to children in an interactive, easy to implement and extremely attractive way.

The delicious organic garden quickly turns into a FAVORITE green classroom. The immediate results of the work on this project can be framed as follows:
- Provides the personal connection and experience of the Child with Nature;
- Attitudes towards a healthy lifestyle are developed through it;
- Supports positive communication between children, parents and teachers;
- Educates children in responsibility, research spirit and cooperation;
- Helps to develop important personal qualities, such as creativity, confidence, positive and responsible attitude towards yourself and the world around you;
- Inspires the desire for cordial communication and mutual support in the community;

Such organic kindergartens have been built in 16 kindergartens in the Republic of Bulgaria.

The project "Urban Ecology" [14] aims to reduce environmental protection and sustainable development to the level of individual responsibility for each citizen of Varna in Bulgaria. Within the project, young people from Varna and the region are involved in various environmental activities - from actions for recycling and own production of environmental products, through cleaning campaigns and eco camps, to educational campaigns in schools, kindergartens and other organizations.

The high level of overconsumption among citizens in combination with the low level of awareness leads to the generation of a large volume of waste that is not separated and recycled. This affects the ecology of the urban environment - its vision, friendliness, pollution and level of hygiene. The high level of noise, radiation and dust particles in the air, together with the poor awareness of citizens about the impact of these phenomena on their health, leads to a lack of adequate precautions.

The wide variety of project activities - paper collection and recycling campaign, eco-construction camps, screenings of eco-films with accompanying discussions, workshops for biosoaps and household chemicals, educational presentations and traveling exhibitions, expands the message of the Public Centre for Environment and Sustainable development for a more environmentally friendly way of life to reach more people and to be...
recognized in it. The project relies on the principle of "Something for everyone" - different spaces (urban, rural and virtual), different topics (recycling, eco-building, biocosmetics, urban pollution), different approaches (actions and campaigns, camps, screenings, workshops, discussions, training blocks). In this way, the message of an ecological and sustainable way of life has the potential to reach more people. The project contributes to increasing the number of participants in the actions for separate collection and recycling of waste, increasing the amount of recycled waste and the number of trees saved from felling by recycling paper, which is part of the organizational goals of the Public Centre for Environment and Sustainable Development.

The Junk Around campaign is part of the long-term program of BG Be Active "PLACE Bulgaria" [15], with which the association tries to engage citizens to keep the urban environment clean and beautiful. The organizers invite young and old residents of the area to join the action to contribute to the cause "Plovdiv without waste". Another initiative of the activists for cleanliness in Plovdiv is realized in "Lauta Park". Special participants in this edition are children from two private children's classrooms, which are involved in the cleaning, and especially for them the organizers are preparing an educational module for learning through fun called "Clean Games". During the games, children learn why it is important to keep clean, how to collect waste separately and where to dispose of it.

In 2020, the activities of "PLACE Bulgaria" cover six cities through the initiative "Partnership for a beautiful and clean environment" - Plovdiv, Varna, Shumen, Dobrich and Silistra. Among the planned activities are trainings for organizing events without waste, joint initiatives with residents and local authorities to improve public spaces and activate local communities, cleaning of urban areas and areas around water bodies, as well as training of volunteers, recycling workshops and etc.

8 The meaning

Based on the overall theoretical and empirical analysis of the studied problem, we can make the following summaries and conclusions about the inclusion of adolescents in environmental projects of different nature:

1. Through the participation in eco-projects of different nature and direction, ecological knowledge and competencies of the students are upgraded. Project training is a modern innovative technology that is successfully included in the educational process as a strategy for independent acquisition of knowledge.

2. Project work is an alternative extracurricular form of education that supports the development of the good qualities and interests of children by cultivating adequate attitudes and behavior related to global environmental problems.

3. The work on a specific eco-project is an interactive technique, contributing to a full interaction between trainees and trainers, built on the basis of empathy and dialogue.

4. The project activity is a successful form for practical realization of the open education, through which active cooperation with the socio-cultural and urban environment outside the school is carried out.

5. Participation in educational eco-projects proves the effectiveness of the implemented basic principles of environmental education as part of civic education.

6. The work on each project is a model of cognitive activity, independent construction of knowledge and a process through which positive motivation is created in learning.

The conducted research activities prove that the project training successfully intertwines with the tendencies for modernization of the classroom system and in the attempts for teaching and learning in an alternative urban environment. The didactic role of project work in the process of environmental education and upbringing of young students is extremely important. The realized numerous extracurricular forms of education through projects create a wide range of opportunities for expanding students' knowledge of the natural and social environment through a system of practical activities.

This innovative, didactic strategy has been proven to stimulate children's initiative, form skills for teamwork, build qualities for arguing one's own position, for taking responsibility and social commitment. Working on environmental projects is a practical option for building environmental competencies.

9 Conclusion

The activities carried out in a familiar urban environment carry the message that the future of the planet depends on all of us and small changes in our personal habits make sense on a global scale. The desire to develop and maintain in adolescents respect for nature, awareness of the meaning of purposeful protective human activity is a major goal of environmental education. Closeness to nature can return the feeling of simplicity and naturalness, the desire to play outside, to communicate, to be a discoverer in your world. Modern generations are growing up with the idea that everything can be replaced, that the sources are inexhaustible. These notions are not always related to nature, and it is the EC that focuses their attention on the role and importance of man in preserving the natural balance, albeit with the help of the urban environment around us.

The reflection process related to the cities of the future and their eco-educational potential is a challenge and a source of inspiration not only for educators but also for policy makers and those working in the field of urban development and local, regional planning at national and European level.

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