



THE NOTION OF "ECOSYSTEM" IN ECOLOGICAL EDUCATION

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Synopsis

The paper deals with the notion of "ecosystem" in the frames of ecological education of children. The right to a clean and healthy environment which enables proper growth and development is an innate right of every child. As all other living beings, a child is a part of an ecosystem and it interacts with other members of its ecosystem. This is why the notion "ecosystem" should be introduced into the educational process as soon as possible.

The child should be shown not only that everything is connected in one ecosystem, but also that respective ecosystems and everything they consist of are also mutually connected. This every living being is connected to any other being on earth.

Several examples of introducing the notion "ecosystem" to children will be presented.

Key words: ecological education, education, ecosystem, children, interaction, environment.

Sinopsis

POJAM "EKOSISTEM" U EKOLOŠKOJ EDUKACIJI

Ovaj rad se bavi obradom pojma "ekosistem" u okviru ekološkog obrazovanja dece.

Urođeno pravo svakog deteta je pravo na čistu i zdravu životnu sredinu koja mu omogućava pravilan rast i razvitak. Kao i sva druga živa bića, i dete je deo ekosistema i stupa u interakciju sa drugim članovima svog ekosistema. Zato pojam "ekosistem" treba da se uvede u proces obrazovanja što je moguće ranije.

Detetu treba ukazati da ne samo što je sve povezano u okviru jednog ekosistema, nego i da su posebni ekosistemi i sve što oni sadrže u sebi isto tako povezani međusobno. Iz ovoga proizilazi da je svako živo biće povezano sa svakim drugim bićem na zemlji.

Ključne reči: ekološko obrazovanje, vaspitanje, ekosistem, deca, interakcija, životna sredina.

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INTRODUCTION

The wisdom of the ancient Greeks teaches us that the one who does not try loses, and when something is neglected, it is the same as if it is lost. It is high time to try and let the ecological consciousness erase the illusion that the man is the master of the nature. We should finally understand that our destructive instincts and the lack of culture of living pull us backwards. But one thing is sure: even if the wheel of evolution could be turned back, we would not end up on a tree like our predecessors for one simple reason - there would be no trees.

If the man really wants to survive, he must learn to live with the nature, not against it, and he should treat it as a friend, not an enemy. The man, it seems, has never in his history succeeded in destroying his environment so systematically as now... dead rivers, dead forests, birds without feathers, acid rains falling on our heads... the list seems endless. We do not have a spare planet, this is the only one we have. However, surprising is the fact that the manner of destruction is so thorough, almost as if someone had made a precise plan and found the shortest way for our self-destruction.

On the other hand, ecology as a biological discipline teaches about the needs of organisms, ecosystems and the environment. Only by means of ecological education our interaction with the biosphere will contribute to its preservation, not destruction. Teaching ecology can be successful if the children first learn about basic ecological notions, for example the notion of an ecosystem.

WHAT IS AN ECOSYSTEM?

All living things that interact in an area represent an ecosystem. Each system is something that consists of many different parts which do different things but still they all work together. For example, there is one central sun around which the planets revolve and their satellites revolve around them. They all have their own function and act together in order to form one self-regulating mechanism. In this way, a car is a system. All its parts are interconnected and mutually dependent: when you put gasoline into it, the car works, it moves the wheels which enables the driver to manage the steering wheel that runs the whole car. All these parts do something different, but none of them would be able to function on its own.

The word "eco" means "living things" and their surroundings so an ecosystem is a system made up of communities of living things in interaction with their surrounding. "Environment" can be defined as an area surrounding living things, for example soil, water, air that contains O₂ and CO₂, and conditions in the area itself (temperature, humidity, light etc.).

The parts of an inhabited area that are characterized by a relatively same combination of ecological living conditions are marked as biotops. Each biotope is inhabited with a sum of living organisms characteristic of that biotope. That could be for example one lake, one river, one oak wood, and they all have a specific physiognomy and are inhabited by a sum of organisms that are specific for that biotope.

The communities that are at a higher level of organization are marked as biocenoses. In other words, the totality of the living world of one biotope that lives together forms a biocenosis.

A biocenosis is very tightly connected to the biotope and they form an entirety of a higher rank that is marked as ecosystem. Thus, an ecosystem represents an integral entirety

that includes a living community (biocenosis) and represents the highest ecological reality in nature.

An ecosystem is not a static creation but a dynamic entirety as it is founded on joint actions between living and non-living components. It is not an exhibit in a museum that stays there not moving and not changing in front of the eyes of generations of visitors that pass by the glass showcases. There is also another definition of an ecosystem saying that an ecosystem represents a functional unit of different sizes, made up of living and non-living parts that interact. The parts that constitute the system function through a sequence of operations which include the transfer of energy.

ECOSYSTEMS CONNECTED WITH OTHER ECOSYSTEMS

The child should be told the fact that the things are not only connected within one ecosystem, but that respective ecosystems and everything they contain are also mutually connected. In this way, every living thing is connected to any other living thing.

For example, plants absorb water from the soil by means of their roots and transport it to its leaves. When the water gets to the leaves, it evaporates into the air and this process is called transpiration and is used for pulling up the nutritious matters from the soil and for the cooling of plants during hot days. Water vapour rises high into the air and forms clouds that can be blown by the wind to some other ecosystem. The cloud will burst and rain will fall onto the plants of that other ecosystem letting them grow and maintain the rest of their community.

This can lead to the conclusion that there are no limits to interactions on the whole Planet. Consequently, the existence of life in one part of the globe depends on the life in any other part.

A POEM ABOUT ECOSYSTEM

One of possible enjoyable activities for children is the creation of something artistic, for example a picture, a poem or a story, because aesthetic experiences are usually deeper than intellectual and they leave a more powerful impression than does the intellectual understanding. In addition, such activities can be connected with the curricula for fine arts and mother tongue. One of possible ideas is to write a poem in acrostic for the word ECOSYSTEM; or another idea is for the children to make a drawing "I in my ecosystem".

All these working tasks can be used not only for intellectual understanding but also for expressing of aesthetic feelings because these feelings supplement the intellectual understanding. Tasks like these also have a linguistic aspect.

EFFECTIVE TEACHING

The use of professional terms during teaching was reduced to the minimum. The activities and the discussions were performed in groups in order to enable the less capable children to participate together with the more capable ones.

It was very often difficult to keep the children focused on respective topics or tasks, and another problem was their endless enthusiasm and wish to share new knowledge with other children. To a certain point these characteristics are useful but after a while the lesson lost direction and it was impossible to finish it on time.

In order to introduce them to the notion of an ecosystem, the children were asked to write a poem about it. They put surprisingly great effort into the writing of such poems so the result was appropriate.

After this, the teacher had a conversation with the pupils about the influence of the man on ecosystems. The answers were very good and it came out that they are familiar with the terms such as global warming and pollution with exhaust fumes. They even knew about the possibility of melting of the North Pole, which in turn could induce the increase in water level and the creation of big waves.

However, the children specially wanted to find as many possible solutions for these problems as they could. They wanted to know what they alone could do to improve the present pollution of the planet. One of the pupils even wanted to spend his time for play in collecting waste from the playground so that it could be recycled. So, the most popular topic for the pupils was "how to prevent pollution".

CONCLUSION

The importance of ecological education becomes clearer if we take a look at the present situation on Earth and its life forms. The non-existence of ecological perspective is one of the many reasons for the destruction of nature. That is why there is an urgent need for awakening of our shortsighted consciousness.

The curricula for ecological education in primary schools become fewer with time. And even if they exist, they are more often than not written in a reduced and unrelated way.

The teacher should ask his/her pupils for suggestions and each such suggestion should be discussed with a series of related questions, each of which being a step on the way to the solution of the problem.

Every man is the product of his time and when we talk about ecological education realized through the introduction of some elementary ecological notions, as for example the notion of ecosystem, we should especially emphasize the fact that children should be shown the beauties of the nature as early as possible so that they would be able to appreciate and respect it in their future adult lives.

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