

**ADVANCING ENVIRONMENTAL SUSTAINABILITY THROUGH
DEVELOPING ECOLOGICAL CONSCIOUSNESS IN INTERNATIONAL STUDENTS
AS PART OF A PREPARATORY DEPARTMENT EDUCATIONAL PROGRAMME**

**ПОВЫШЕНИЕ ЭКОЛОГИЧЕСКОЙ УСТОЙЧИВОСТИ ПУТЕМ РАЗВИТИЯ
ЭКОЛОГИЧЕСКОГО СОЗНАНИЯ У ИНОСТРАННЫХ СЛУШАТЕЛЕЙ В РАМКАХ
ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЫ ПОДГОТОВИТЕЛЬНОГО ОТДЕЛЕНИЯ**

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The article is devoted to the problem of development of ecological consciousness in preparatory department students. The authors justify the need for implementation of environmental education in the process of training and illustrate the possibility of promoting environmental sustainability by developing ecological consciousness and ecological culture in international students through teaching various subjects.

Статья посвящена проблеме развития экологического сознания у слушателей подготовительного отделения. Авторы доказывают необходимость включения экологического воспитания в процесс обучения и демонстрируют на примерах преподавания различных дисциплин возможность повышения экологической устойчивости путем развития у иностранных слушателей экологического сознания и экологической культуры.

Keywords: ecological consciousness, ecological culture, environmental sustainability, environmental education.

Ключевые слова: экологическое сознание, экологическая культура, экологическая устойчивость, экологическое образование.

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People's environmental awareness today is an integral part of the world in which our great-grandchildren will live.

Historically, human civilization has been opposed to wild nature. The progress, development and prosperity of our civilization were perceived as the complete opposite of nature conservation. Loss of biodiversity, land and air pollution do not just harm the nature around us, all this threatens our well-being. The burden of environmental disasters falls on us not equally. Both poor and developing countries suffer from it.

Researchers associate the ecological crisis situation to a greater extent with broken values of people, and to a lesser extent with the crisis of nature itself.

Sustainability is the idea that our progress should not leave anyone behind. We cannot afford to spend the resources of nature thoughtlessly for the development of mankind.

Stable and environmentally friendly social development is possible with the formation of ecological consciousness and culture, which will become a means of social impact and ensure the priority of environmental well-being. It is quite obvious that it is necessary for people to form a new vision of the world, a new type of ecological consciousness, characterized by the absence of opposition between man and nature.

Instead of changing nature, we should change our relationship with it. The well-being of the entire planet depends on the Earth's ability to sustain life, renew resources and absorb waste. It is possible to build a balanced and truly sustainable society only after systemic changes. People's outlook, values and norms must change.

The COVID-19 pandemic and the subsequent crisis showed humanity the danger posed by ecosystem degradation. At the same time, they also demonstrated the importance of changing the outlook and approaches, our willingness and ability to unite for a common goal. And it depends only on us whether this recovery will become «green» and sustainable.

Ecological consciousness is understood as a reflection of the psyche of a variety of man's relationship with nature, which mediates its behavior in the «natural world» [4].

Ecological consciousness is an indicator of a person's moral maturity. The system of ecological consciousness consists of three types: attitudes towards nature, attitudes towards oneself and attitudes towards other people.

The practice of interaction with students convinces us that this important component of ecological consciousness is immature.

The purpose of environmental education is the development of the ecological consciousness as one of the important components of ecological culture of an individual. The development of ecological consciousness can be carried out through various actions and campaigns. «If the transfer of knowledge, skills and abilities is the task of specialists, the formation of an attitude to nature, goals and motives for interaction with it, readiness to choose environmentally appropriate strategies of activity is the task of all teachers» [1].

The researchers in the field of environmental education have identified the stages of the formation of environmental consciousness and responsibility, each stage being an important component of the environmental behavior of the student:

Stage I – cognition, which includes a variety of knowledge in various disciplines: humanities, natural science, as well as environmental knowledge related to knowledge about the holistic picture of the world;

Stage II – moral attitude, including the development of moral models based on existing knowledge, conscious environmental protection and human health protection;

Stage III – behavior involving environmental activity of students.

Development of ecological consciousness in students will be effective if some important conditions are met, namely:

- teachers should take the right stand and accept the ethical foundations of sustainability to improve environmental education of students;
- improving the level of students' environmental education;
- the process of training should be properly organized according to the principles of consistency, variability; teachers should use students' life experience for their further development;
- application of innovative developing forms of education;
- ensuring the high level of organization of students' environmental training;
- ensuring the flexibility of students' ecological consciousness, necessary for future professional activity [3];
- conducting research activities; the research should be interdisciplinary in nature and environmentally oriented;
- planning events related to presentation of projects demonstrating students' contribution to environment protection;
- improving the ecological culture of teachers: the development of their abilities and skills to make training process environmentally oriented [1].

Developing ecological consciousness and culture in international students is an important part of education for sustainable development, as it forms a careful attitude not only to the environment, but also to their own health.

International students who have chosen the preparatory educational programme of the biological; medical and pharmaceutical; ecological; veterinary; agrarian; catering educational profiles study the English language as well as Chemistry, Biology and Physics in English. The latter subjects are connected with the study of nature and environment.

Developing ecological consciousness is closely related to motivation, which determines the relevance of the activity being carried out. Ecological consciousness and culture are formed more successfully if the students have developed a positive motivation for mastering environmental knowledge and skills. Dealing with a multicultural group of international students, the teacher should always be aware of their social and cultural backgrounds. It's no doubt that international students are always eager to speak about their own country, culture, and traditions. The issue of knowledge of the country, the place where a person was born and grew up, is relevant due to many circumstances. The place that is especially significant for a student (city, village where he was born) is the object of particular importance [2]. So all the topics suggested for considering are always connected with the burning issues the students native countries are facing.

We believe that the preparatory course international students who have chosen the educational programme of the biological; medical and pharmaceutical; ecological; veterinary; agrarian; catering educational profiles should include discussions or debates based on a set of questions related to environment protection issues, brainstorming tasks consisting ideas or giving solutions to a given problem, role-plays based on role-cards presenting conflicting opinions, mind mapping, compare and contrast tasks calling for a comparative analysis of a given issues in different countries.

The course of Biology includes training in Genetics. While considering the topic «Mutational variability» students discuss the influence of mutagens of different origin on the development of organisms.

It is widely acknowledged that due to the expansion of atomic weapons, the use of radiation exposure in medicine, man-made disasters with nuclear materials, there has been an increase in background radiation and radiation dose accumulation, which increased the frequency of mutagenesis caused by physical factors. The development of chemical industry and the use of various types of compounds both as food additives and in residential construction also adds to the mutation processes in the human body causing changes in enzymatic systems, carcinogenesis.

The role of biological factors in the process of human mutational variability is also great. The metabolic products of viruses, bacteria, protists, fungi, etc. increase toxic load on the body. For example, patulin is synthesized by *Penicillium expansum*, which can form mycelium on food and have a nephrotoxic and carcinogenic effect. So, special attention is attracted to the importance of observing 'use-by' dates of food products, careful following storage instructions, checking your freezers and, in case of impurity, treating with antiseptic substances active to the spores of protozoa and fungi.

Replication of foreign proteins of pathogenic bacteria, viruses can also leave its trace in the human genome, changing it and causing mutational processes such as carcinogenesis. The students are invited to carry out a creative project on the topic «Mutational variability». They choose one environmental factor for consideration. For example, considering

chemical air pollution, the students observe the change of the statistics of respiratory system diseases over a certain period of time in their native country and offer the tools necessary for eliminating this type of pollution. They also study the cases of induced mutagenesis, arising under the influence of mutagenic environmental factors, and make a conclusion about its effects (a decrease in the reaction rate of organisms, and subsequently their immunity violation). They present the results of their research either at a simulated scientific conference or in the form of posters. The simulated conference aims at providing the presenters with an opportunity to exercise public speaking in English. At the same time, all participants have a chance to discuss very important environmental issues. Instead of presenting results of their research in the form of a presentation, some students prepare posters displaying their research projects. The posters suit well for presentations of complex environmental issues. The poster presentations provide the audience with more time to perceive complex information and facilitate discussion between presenters and their audience.

The course of Chemistry includes practical classes on the topic «Hydrocarbons in nature». During the round table discussion students consider the issues of content of hydrocarbons in oil, petroleum products and natural gas, as well as the problems that can arise from the transportation of oil and petroleum products. Students give their ideas on the issue of eliminating the consequences of petroleum leaks and spills. The emphasis is placed on the damage caused to the environment – pollution with fuels and lubricants, the subsequent reduction of the biodiversity, air pollution with volatile substances during oil refining. Preparatory department international students are usually representatives of different countries. So they suggest for consideration some examples of emergency situations connected with the extraction of hydrocarbon-containing minerals and their processing that took place in their native countries. Students eagerly propose possible alternative and renewable energy sources that can be used, taking into account the geographical location and climate of their native countries.

While studying the topic «Preparation and application of alcohols and phenols» students can have debates on the possibility of using phenol in medicine composition and the negative impact of alcohol on people's health. Some students have to prove phenol has a toxic effect on the human body, being a highly dangerous substance. Once in the body, it easily enters into chemical reactions, forming carcinogenic aromatic substances, although it is not carcinogenic in itself. But as is doubted whether there is a direct influence of phenol on the occurrence of a mutational process in the body, since toxic effects and possible carcinogenic effects may indicate that the substance is a mutagen of chemical nature. So another group of students can try to prove this idea. They can give examples of phenol-containing drugs that are allowed and sold in their country, offer alternative less toxic drugs with a similar effect.

In 1971, the UN excluded alcohol from the list of psychotropic substances, but everyone knows that its excessive use leads to a change in the psycho-emotional state of a person, can cause aggression, deviant behavior, so most offenses are committed under the influence of alcohol, which in turn contains ethyl. In turn, ethyl alcohol exhibits carcinogenic properties in high concentrations and has mutagenic properties, which also allows it to be referred to as a mutagen of chemical nature. The students discuss the attitude to alcohol in their countries based on historical and cultural development, traditions, legislation.

The study of English for specific purposes is focused on learners' professional needs. International students who choose to study in English at different Belarusian universities should acquire a good command of it to understand professional texts and communicate effectively when fulfilling the tasks connected with their study, research or work situations. According to the principle of interdisciplinary relationships the syllabus of the educational discipline «The English language» includes the following topics connected with environment protection and healthy way of life: «Diet, nutrition and the prevention of chronic diseases», «GMOs – their role in environmental management», «Plant Kingdom diversity», «Life of Animals», «Challenging Problems of Ecology».

The following list of talking points illustrates some issues connected with environment and wildlife protection that teachers can offer the students for developing a creative project, having round table discussions or debates, brainstorming tasks and role-plays.

1. What are some ways energy is wasted? What types of energy are popular in your native country? If you could choose one alternative energy source to develop which one would you choose? Why? Who should pay for the costs associated with renewable energy? Should we make the development of renewable energy sources an economic priority?

2. What can you do to make this world a better place? Which is more important, increasing people's standard of living, or protecting the environment? What are some things that your community is doing to help the environment? Who do you think is more responsible for pollution, individual people or the government?

3. Are there litter laws where you live? If so, what is the penalty for littering? Do you think recycling is an important community service? What are some things which you recycle? Does your local government make it easy or hard for citizens to recycle? Do you have any ideas on how to minimize the use of plastic bags and Styrofoam boxes?

4. Is using nuclear power really the answer to clean, environmentally friendly energy? Could nuclear energy help the third world to develop carbon-free economies? Would you rather live next to a nuclear power plant than a coal-fired one? Why? Would you live near a nuclear power plant if it meant your power bills were halved? If nuclear energy is clean, why isn't it in every country? Which is more dangerous to human life over the next two hundred years – spent nuclear fuel or carbon dioxide/global warming?

5. How can we use plant science to prevent malnutrition? Which crops must be grown and which sacrificed, to feed the billions? Can we increase crop productivity without harming biodiversity? How can we simultaneously eradicate hunger and conserve biodiversity? How can we translate our knowledge of plants and ecosystems into 'clever farming' practices?

6. Considering two plants obtained for the same trait, one by genetic modification and one by traditional plant breeding techniques, are there differences between those two plants that justify special regulation? How can we use knowledge of plants and their properties to improve human health?

7. What is importance of plants and trees in our life? How we can save plants as they have great significance in our life? What's happening to forests in the world? What happens when we remove forests? What can we do to protect forests?

8. What animals have disappeared from your country? What is the most effective way to save endangered species? How could animals be better protected in the wild? Why should we care if species become extinct?

9. What native wild animals is it possible to see in your country? Which is the largest? What is the national animal of your country? How or why was it selected?

Students create presentations of a plant / an animal that is commonly found in their countries including information on where it can be found, how it viewed in their country and how it is represented in their culture (myths, fairy tales, legends, songs and etc). They share the results with their fellow students during the round table discussions.

Currently, according to researchers, the greening of all vital social spheres is important and, first of all, the person himself must be greened. This applies to all spheres of his activity: production, everyday life, education and training. The basis for the development of a conscious scientific and ethical attitude to environmental problems is a wide range of awareness of environmental orientation, moral-aesthetic and emotional-value attitude to nature. The priority of a different conscious attitude to nature is the process of prolonging- It is significant, directly related to the diverse conditions of the society's life: environmental, social and other. Regardless of the student's future professional activity, his knowledge of environmental ethics, environmental culture and environmental awareness is important and necessary.

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ВРОЖДЕННЫЕ ПОРОКИ РАЗВИТИЯ ЧЕЛЮСТНО-ЛИЦЕВОЙ ОБЛАСТИ НА УРБАНИЗИРОВАННОЙ ТЕРРИТОРИИ У ДЕТЕЙ БЕЛАРУСИ CONGENITAL MALFORMATIONS OF THE MAXILLOFACIAL REGION IN URBANIZED TERRITORIES OF BELARUS

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Врожденные пороки развития (ВПР) составляют одну из самых актуальных медицинских и социальных проблем в связи с их высокой частотой и тяжестью. Врожденные деформации челюстно-лицевой области занимают второе место среди всех пороков развития человека. По данным ВОЗ распространенность