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Methodology for sustainable development of environmental education in the educational process

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Abstract: The article expresses views on the protection of citizenship and the educational process, and the prevention of inevitable damage to the environment.

Keywords: Citizenship, nature, rights and responsibilities, environment, diversity, biological.

Introduction: Sustainable development in the educational process of environmental education is the ability of future generations to meet their own needs without compromising their ability to meet their own needs. The British Commission, having considered the main teachings that form the basis of sustainable development, identified the following:

The interconnectedness of society, economy and environment from local to global levels.

Citizenship and conservation – rights and responsibilities. participation and cooperation.

Needs and rights of future generations.

Diversity – cultural, social, economic and biological.

Quality of life, equality and justice.

Sustainable change: development and the planet's ability to adapt to it.

Uncertainty and caution in behavior.

For each of the key concepts, the commission identified the required learning outcomes expressed in values, dispositions, skills, abilities, knowledge, and understanding.

This can be seen in the example of one of these concepts that is directly related to technological education - the concept of quality of life and equity. The desired learning outcomes include:

Values and Attitudes (Students: should be able to assess

why equality and justice are necessary for a sustainable society). Skills and Abilities (Students: should be able to distinguish needs from wants; should be able to explain what is included in the concept of quality of life, beyond consumption).

Knowledge and understanding. (Students should know and understand that:

- a) There are basic human needs that are the same for everyone,
- b) Inequality and injustice occur both within and between societies,
- c) Quality of life is a somewhat broader concept than standard of living.)

Learning outcomes for children aged 5-6, 7-10, 11-13, 14-16 and 16+ have been developed in detail.

Examples for students aged 14-16 are provided below.

"Interconnectedness" means that students understand:

understand the role of advertising, product innovation, and popular culture in promoting different lifestyles, and be able to critically assess choices and alternatives in identifying needs and wants;

be able to assess the advantages and disadvantages of using scientific and technological developments by individuals and societies in terms of sustainable development;

understanding the contradictions between sustainable development based on local production and consumption and the globalization of trade and finance.

All of these points apply to technology education. In addition, students "need to understand how values and beliefs influence behavior and lifestyles, which are more relevant to sustainable development than anything else." ("Citizenship and Nature Conservation" section); "Be able to analyze the impact of your actions and lifestyle on the environment and make proportionate decisions" ("Needs and Rights of Future Generations" section); "Be able to critically analyze and participate in debates about political, technological and economic changes that undermine diversity and sustainability, such as biotechnology" ("Diversity" section).

For example, a student designs and builds a table lamp for his home. What voltage bulb should be used for the lamp? A low-voltage bulb requires a transformer and, for this, metal. A lot of energy is required to extract and process metal. In addition, these industries pollute the environment. But with intensive use, a low-voltage light bulb requires less electricity, which means less oil or gas is used. This way, less SO₂ is emitted into the air

and natural resources are saved.

Students should be encouraged to think about the product from the perspective of its design. That is, what happens to it at the end of its life. Can it be easily disassembled and its parts recycled? If students think about this, they can make better design decisions.

In his seminal study, *The Common Beauty of Sustainable Products*, Edwin Datchevsky (2001) proposes a five-point approach to assessing sustainability: Is a product sustainable, sustainable, safe, social, and efficient? These criteria allow students to analyze products for their sustainability (sometimes called design analysis).

In the United States, the impact of technology on the environment is a major focus of student technology education.

In 2000, the American School Student Technology Literacy Standards, developed as part of the NASA-funded "Technology for All Americans" project, were published.

The standards include a section called "The Impact of Technology on the Environment." It outlines the knowledge requirements for students of different age groups:

Children from kindergarten to grade 2 should know that some materials can be reused or recycled;

Students in grades 3-5 should know the following:

Waste must be properly recycled or disposed of to prevent unavoidable environmental damage;

The use of technology has either a positive or negative impact on the environment.

Students in grades 6-8 should know:

Working with technological production waste is an important universal problem;

Technologies can be used to repair damage caused by natural disasters and to process waste generated by the use of various products and technical systems;

Decisions about the development and use of technologies often put environmental and economic actions in conflict with each other.

Students in grades 9-11 should know:

People can develop technologies to conserve water, soil, and energy through methods such as reuse, reduction, and recycling;

Technology can be used to monitor the state of the environment to obtain information for decision-making;

People create technologies to reduce the negative consequences of other technologies;

Decisions about the use of technologies involve an assessment of the positive and negative effects of the

expected environmental impacts;

As new technologies are developed to reduce resource use, it is important to choose the right one among different approaches.

In conclusion, we believe that we should instill in students during the lesson that waste should be properly recycled or disposed of to prevent inevitable damage to the environment.

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