

## COMPETENCES, MODES, AND MEANS OF COMMUNICATION OF SOME PROBLEMS OF POLLUTION AND PROTECTION OF THE NATURAL ENVIRONMENT

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**ABSTRACT:** *Through its very content, geography manages to provide students with a complete preparation, contributing to their development from an intellectual, emotional, and physical point of view. Geography is the only educational subject that offers students an overview of the geographical environment. How current and indispensable geographical culture is for students' culture today can be seen from the fact that the material of this subject did not remain between the covers of textbooks but was amplified and diversified. Particularly important is the education of children regarding the preservation of the quality of the environment. We can do this by changing habits and attitudes towards the natural environment. The fight for a clean environment has become an issue of the day.*

**Keywords:** *Geography; overview; geographic environment; clean environment; diversification; education; environmental quality;*

### Introduction

For the healthy evolution of society, we must take particular care to preserve the quality of the environment and, implicitly, the waters.

Economic development at rates unknown in the past, especially in the fields of electricity production, the extractive industry, processing, and transport, have resulted in increasing pollution of the environment in general.

Preservation of the environment has become a particularly important and current issue. A key role in combating environmental pollution and its protection, we believe, belongs primarily to the school, education in the school and educators especially.

All these problems must be reflected in the educational process by making students aware of the importance of preserving the quality of water, conducive to life, by activating them in order to have a special attitude and behavior to achieve this goal.

Protecting and preserving the environment must represent the direction of education aimed at creating attitudes and awareness to achieve this goal. Lately, not a few times, the environment and nature have shown us that we are not paying enough attention to what is happening around us, often jeopardizing the quality of everything that surrounds us.

Throughout the course of the didactic activity, we sought to identify those methods, skills by which to awaken students' interest and concern for a clean environment, because such an environment brings us health. We have considered all these things both in the classroom, but also in the field practical applications, starting with the local horizon.

We have given a special place in our actions to fight against environmental pollution to the Danube, the main element of the natural framework in the local horizon.

As a geography teacher in Hârșova, a small port on the Danube, I have always looked for means and methods by which to

arouse students' interest and concern for waters, to keep them as clean as possible and certainly fight against water pollution.

I have always addressed these things in classroom lessons, but especially in extracurricular activities. During all the activities we had in mind the indication of polluting factors, how pollution is produced and its consequences. I have always exposed them to the methods of prevention, reduction and elimination of pollution and polluting factors

Then we moved on to the practical activity, which consisted of the determination by simple, local means of polluting elements in the waters of the Danube within the radius of the city of Hârşova. As methods we used visual and olfactory observation, microscopic observation, chemical determinations of polluting substances (detergent), measurements of solid residues in water, physical fat emulsification experiment and biological experiment regarding the organoleptic qualities of water.

On the waters of the Danube in the area of Hârşova, I undertook with the students a whole series of observations through which we established: the polluting elements that were determined either with the naked eye (being different remains or solid residues, dry branches, pieces of wood, paper in different forms, pets, animal corpses), either through a microscopic or chemical analysis, by determining the existence of certain substances: detergent, hydrocarbons or other elements).

The sources of pollution that contribute to the degradation of the Danube's waters were quite easily identified by the students: the existence of slaughterhouses or slaughtering centers, numerous households located near the Danube, tourists who stop at the "Puturoasa" thermal waters in the summer. Added to them are the pollutants transported and sometimes dumped in the more protected points of the Danube from the Canary Islands.

Very often near the city, in many practical activities with the help of reed baskets, massive quantities of solid residues were collected for an hour, left in a safe place for several days to dry, and then were analyzed both in terms of content and weight. The students were dismayed by the collected residues, they informed the students from the school and their families, neighbors, friends, raising alarm signals to the local authorities, on and against the pollution of the waters of the old Danube and the preservation of the quality of the waters of this river with which God has blessed us. blessed the environment in the local skyline.

Observing the water of the Danube under a microscope horrified the students who participated in the activity and stated that they would never again consume water directly from the Danube.

The presence of hydrocarbons in certain periods of the year was determined with the help of samples taken in glass vessels with a larger surface area. We divided the students into two groups: those who believed, based on the smell and the identified traces, that the water contains hydrocarbons and those who did not identify. Making the proportion, a ratio of 3/1 was reached in favor of those from the first group.

The presence of detergents was determined through an experiment: in a one-liter vessel with a wider mouth, I took the water from the Danube and put a spoonful of edible oil into it. After 24 hours, it was found that part of the fat had emulsified. I repeated this experiment for a week. Of the 5 days, in two of them the oil emulsified, and in the other two it did not, which showed that in the waters of the Danube there are periods when the detergent concentration is higher.

In order to determine the organoleptic qualities of the Danube waters, in certain areas of the city, we performed an original experiment.

A student came to the practical application with his dog, which was

permanently tied up in the household and which ate and drank water when it was given to him. I drew the attention of the students that dogs' resistance to pathogens, especially putrefaction, is high. The time for this activity was also five days.

On the first day, he was not given a chance to drink water until 11:30 a.m. when I tied him up and took him to the Danube. At the sight of the water, he hurriedly tried to drink greedily, but after the first sips he stopped and continued to drink until he was full. He was not given water until the next day. The next day I took him to the same place. At first, he had reservations, then he drank intermittently and much less. On the third day, he was taken to another place in the evening at around 18:30. At first, he rushed as he did on the first day, but after a few greedy sips he stopped, then tried again, taking only a few sips, after which he moved away from the Danube water. In the following days, he soaked his muzzle more than he drank.

In addition to this reaction of refusing to drink water even though he was thirsty, a weakness in his movements and a diminution of his senses were observed.

All the observations on the evolution of the dog's condition made the students realize that the loss of the organoleptic qualities of the Danube waters was due to the degree of pollution. The water consumed by the dog was from the points where we knew that the Danube waters were polluted

After all the stages of observation and experiments in the classroom and outside the classroom, we moved on to the stage of synthesizing and drawing conclusions.

I guided the students to deduce for themselves the fact that the process of technology and economic development, conducting transports on the Danube can have particularly negative aspects on the waters of the river and certainly on the entire surrounding environment.

Following all the practical activities conducted on the banks of the Danube, the

students understood that every citizen is responsible and must personally contribute to this real work of preserving the quality of the river's waters.

The experiment with the dog also guided the students to hygienic precautions regarding the waters of the Danube where they bathe in the summer, alongside the Roma horses, not realizing the possible dangers of microbial infections.

Also, to highlight the preservation of the Danube's waters as clean as possible, we organized a competition: "You know, you win", in which students who did not attend the practical activities also participated.

The result of the contest showed a clear increase in the level of knowledge and awareness, at the same time, regarding water issues, of the students directly participating in the activities, specifying that special results were also obtained by students of medium level or below this level.

As a result of all the practical activities conducted on the banks of the Danube, the students contributed to influencing all their colleagues in the school, the inhabitants of the city to become more attentive, more active in the field of preventing pollution and preserving healthy Danube waters.

At any level, starting with primary, secondary and continuing with high school and even beyond, the teacher in general and the geography teacher in particular, must know how to adopt a set of methods, skills, means and procedures, which applied in didactic work to ensure the maintenance and improvement of water quality, corresponding to the requirements of nature protection and the harmonious development of human life; only by complying with some ecological laws will we be able to keep the surrounding environment as clean as possible together with our students.

I have always noticed that a wide range of good things regarding the protection of the natural environment, the Danube waters in our case, go from the students to the local community and thus all people can know

what is most important in the field of water, such an essential element in the development of life. Therefore, the protection of the environment, the fight against its pollution, waste has become not only a national but also an international problem, with water having a world day -March 22- and the environment -June 5-.

We believe that one study hour per week allocated to geography is too little for learning the program and especially for practical activities. It is true that students are the most receptive to all the problems in the environment, but they can also become the most exposed due to the sensitivity and ignorance of these problems, the unceasing aggression of so many polluting factors existing in water. For this reason, I considered that these practical activities become particularly important, because the students can come into direct contact with the phenomena of water and environmental degradation and with some of their consequences. Direct contact with the local horizon always gives students the opportunity to gain experience about so many problems that affect, in our case, the Danube. The main objective of educating students in the field of preventing and combating environmental degradation is to know all the problems, the measures that can be taken at the general and individual level to prevent and reduce the unfavorable consequences of degradation processes.

### **Conclusions**

Therefore, we believe that the geography teacher must demonstrate communication competence, this consisting in the ease with which he uses a series of educational language skills (specific, didactic, linguistic) with various combinations appropriate to learning situations, to identify some phenomena appearing in the local horizon and beyond, within practical field applications. I have always considered that the environment is an excellent laboratory

where not only specialized training can be proven, in our case, geography, but also the tact, the proficiency that the teacher can show in succeeding in making the student aware of good things or less good with which he may come into contact. Many times, during such activities we can have particularly pleasant surprises, when students who are less prepared in class make a special contribution to solving practical problems, surpassing the compulsive students in the class.

All the conclusions drawn from the implementation of multiple practical activities, not only those related to water, were made public at the level of the entire school, the city and in the county press, on the Constan a County School Inspectorate Forum, and the students even if they cannot take essential actions for preventing and combating environmental degradation, but educating them in this sense, combined with education for the formation of disciplined behavior skills, with respect for everything that the environment offers us all, and beautiful and healthy landscapes have such a big role in educating our students, so that we educators, it is often difficult for us to compete, with everything we offer students for science, with such landscapes. All the problems related to the practical activities related to the natural environment, to the waters of the Danube, had and are aimed at bringing to public attention the issues related to the need for quantitative and qualitative protection of waters, the environment and necessary to put in the true light the role, duties and responsibilities of those with attributions in the maintenance, valorization and protection of the geographical environment.

Through the multitude of actions initiated and conducted within the environment, we know we must make every effort and together students, educators, local communities to manage with more responsibility, to get involved in preserving the quality of the natural environment.

**To live healthy, we must have a healthy environment!**

**Let us fight for the preservation of the quality of the natural environment!**

**Let us be environmentally friendly environmentally friendly!**

**We protect the environment; we build the future!**

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**Practical field applications to protect the natural environment !**















