

Teens and nature

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Abstract

Part of the curriculum in elementary school is to develop a positive attitude towards nature. In order to connect pupils with it, we should act not only on the intellectual level, but also on the emotional one. Primarily, the individual should feel discomfort when nature is destroyed. This relationship has begun to build since the early days and can be upgraded with rational explanations over the years. In order to approach pupils, we need to listen to them and adapt to their desires about nature. In the elaborated project, we were considering how to include as many pupils as possible into school activities and invited them to participate based on their own interests. We were identifying opportunities to expand our perspective and connect to our planet and living environment. The exploration was embedded in regular school and after school activities. We investigated the devastation our mobile phones produce. We wondered about the importance of separating waste. We were making special waste baskets in art class, watching educational movies and making posters. We had a discussion about our need to own electronic gadgets and how often to buy new one and why. We talked about plants near school and how they adapted to climate. Pupils did not know how raw materials for mobile phones are obtained from nature and were surprised and touched by new information; therefore, it is welcome to continue to explore what are everyday objects made of.

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Keywords: attitude to nature, nature, waste separation, mobile phone, social responsibility.

Najstniki in narava

Povzetek

Del učnega načrta v osnovni šoli je razviti pozitiven odnos do narave. Da bi učence povezali z njo, moramo delovati tudi na čustveni in ne le na intelektualni ravni. Predvsem mora posameznik občutiti nelagodje, ko je narava uničena. Ta odnos se je začel graditi že od zgodnjih dni in se lahko z leti racionalizira. Da bi pristopili k učencem, jim moramo prisluhniti in se prilagoditi njihovim željam o naravi. V izdelanem projektu smo razmišljali, kako v šolanje vključiti čim več učencev in jih povabili k sodelovanju na podlagi lastnih interesov. Opredelili smo priložnosti za razširitev naše perspektive in povezovanje z našim planetom in življenjskim okoljem. Raziskovanje je bilo vključeno v redne šolske in pošolske dejavnosti. Preiskovali smo uničenje, ki ga povzročajo naši mobilni telefoni. Spraševali smo se o pomenu ločevanja odpadkov. Pri umetnostnem pouku smo izdelovali posebne košare za odpadke, gledali izobraževalne filme in izdelovali plakate. Pogovarjali smo se o naši potrebi po lastnih



elektronskih pripomočkov in o tem, kako pogosto kupovati nove in zakaj. Govorili smo o rastlinah v bližini šole in kako so se prilagodili podnebjju. Učenci niso vedeli, kako so surovine za mobilne telefone pridobljene iz narave, in so jih presenetile in se jih dotaknile nove informacije, zato je dobrodošlo, da še naprej raziskujejo, iz česa so izdelani vsakdanji predmeti.

Ključne besede: odnos do narave, narava, ločevanje odpadkov, mobilni telefon, družbena odgovornost.

1 Introduction

Consistency, persistence and understanding are necessary when working with teens in middle school grades or lower secondary education. If we manage to transfer all of these three terms into practice, we can be very successful at achieving our goals. Our school has been very eco-conscious for many years. It is our wish to continue this work, since we are educating new generations, which are our future. Our goal is to contribute to the shaping of an independent person, who knows what is right.

We would particularly like to present the relationship between humans and the environment to the students. There is a special focus on the latter during the regular Biology lessons in the 9th grade. Establishing a positive relationship towards the environment has also been a regular part of the lessons ever since the first grade. As a subject teacher, I can say that students do have information on nature, but it is often wrong, misunderstood or too generalized.

With a view to raising the level of understanding on waste sorting, we decided to raise the students' awareness about taking care of nature in a way that they would find interesting and also entertaining. It is also our aim that attention is paid to the accuracy of information and the clarity of data, which is quoted, and also the consistency of work, we decide on. We discussed the origin of raw materials for mobile phones and how they are excavated, with the teens. We watched videos from different parts of the world and talked about them. The truth can be unpleasant sometimes. We kept asking ourselves what we can do the whole time. Considering that the raw materials are obtained from mines, it is better that they are recycled and reused rather than discarded for good. Unless we recycle, it will be necessary to start new mines and extract more oil, which will result in soil impoverishment and destruction of habitats for the animals, which live in these areas, and humans globally.

Some changes were introduced after the renovation of the school building a while ago. Among other things, we relocated the Eco Corner, which was in the part of the school building with middle school grades, where most of the renovation took place. We also noticed that some waste paper bins were already worn and that certain bins for waste packaging had been destroyed. This is why it was necessary to start certain things from the very beginning again.

2 Something for everyone

2.1 Raising awareness about ecological activities



Some time ago, after the renovation of the school building, we introduced a few changes. One of them was placing a stand for students' products in the part of the school building with middle school grades, at the location where the corner with ecological content was until then. This is why the Eco Corner was moved to another location. The floor plans where the spots with waste bins were marked, including the Eco Corner, were no longer accurate and useful.

After a discussion with co-workers we decided on a new location next to the school dining hall on the ground floor of the school. We then equipped it with a notice board and the title "Eco Corner" as was customary until then. The purpose of the Eco Corner is to post notices about waste paper collection events and activities with ecological content, which took place at school, and similar.

The Eco Corner was first used at the beginning of the school year to inform the students about the waste paper collection event in autumn. The location of the corner proved to be very appropriate, as it is clearly visible to the students of middle school grades when they go to the wardrobe area.

There is also an Ecology Club in the school, which decorated the entire new Eco Corner. To determine what this corner should contain, we walked through the school and noted what kind of waste bins we have and where the suitable locations are. We decided on mixed waste and bio-waste, packaging, paper, plastic caps and batteries. The janitor gave us a few bins, which were provided by the utility company. We then painted the bins and labelled them accordingly.

To get the students used to the new location of the corner, we used the teaching method of brainstorming and got the idea to make the corner interactive through a prize game. We decided to post posters on the chosen topic every week for a few months while posing prize questions related to the aforementioned poster. This is how we encouraged students to read about ecology and motivated them with simple prizes at the same time. We drew the prizes weekly and posted the names of prize-winners on the notice board in the Eco Corner; see Picture 1.

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Picture 1: Students are curious about who won the prizes.



The topics were different, from looking for the waste bins in the school building by using an updated floor plan (see Picture 2), biodiversity, preserving clean water, purpose and aim of waste sorting to instructions on how to separate waste correctly and recycling. The students suggested the topics themselves and then we chose one together. Through group work or pair work we searched for data, which we then put together on the poster. Magazines for young people, books, textbooks and the internet were used as sources of information. While working with the internet, we learned how to read critically and select appropriate news. We most often decorated the final product (poster) with products from daily life as well.



Picture 2: Floor plan focusing on waste



2.2 Waste separation bins

Since a few waste bins disappeared or were destroyed after the maintenance works during the summer holidays, we noticed a shortage of waste bins in the classrooms, which we had been used to until then. We were also getting the students into the habit of using the three bins, one for packaging, one for paper and one for mixed waste. As the situation changed during the holidays, the waste was not separated appropriately. Therefore, one of the topics chosen for the prize question was: »Why separate waste?«.

The Ecology Club took care of the waste bins as well. We started by checking the classrooms in the entire part of the school building where the middle school grades are and the hallways. We recorded the situation in individual classrooms: which bins are missing, which spots in the hallways would be ideal for waste bins and which waste bins would be most needed or relevant at individual locations. By recording the situation, we discovered that the cardboard boxes intended for waste paper were in a very bad condition and that many bins for packaging were missing. The bins for mixed waste were everywhere and there was no shortage of them.

The recording of the situation showed that the cardboard boxes for waste paper in individual classrooms were worn and destroyed. As individual classes had been taking care of the waste paper bins in homerooms until then, we turned to the student council for help. At the meeting we talked about waste sorting and the necessity of appropriate waste paper bins as there is a lot of such waste in school. With the help of the student council for the middle school grades we encouraged the individual classes to make sure that every waste paper bin in the homeroom is neat and decorated. The students within the class agreed on who would decorate the bin, what the topic would be and which colours would be chosen. All the classrooms had waste paper bins in the end.

While equipping the classrooms with waste bins for packaging, we acted in an environmentally friendly way; which is why we went to the kitchen to ask for the large plastic containers, which were no longer needed and could be used as waste bins; Picture 3. We then glued appropriate labels on the bins together with the students; the labels were made by students years ago and have been in use ever since. We equipped 8 classrooms in this manner and we also put some waste bins into the hallway and the Eco Corner.

Picture 3: Making the waste paper bins

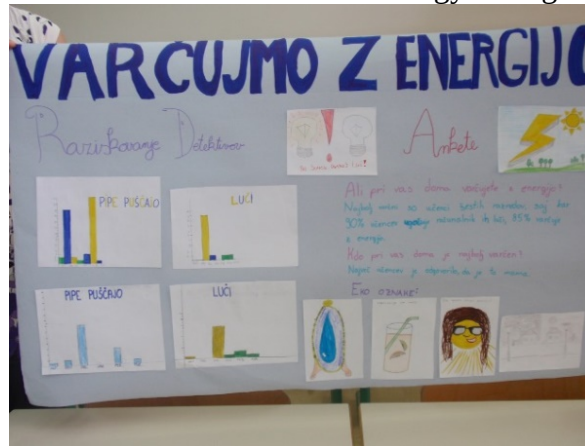


2.3 Educational films and posters

We discussed the impact of humans on the environment during the regular lessons as well and made posters. In the Chemistry curriculum for the 8th and 9th grades and in the Biology curriculum for the 9th grade, there are learning themes and objectives dealing with substances that pollute the environment. Using the method of discussion and demonstration we discussed pollutants and the consequences they have on the environment at Chemistry lessons. The discussion focused on how we are directly linked to pollution on Earth. We watched videos, which clearly show that the goods we use every day are devastating the environment. It became evident that without information we can become an easy target for the consumer society. The majority of the students did not know that their mobile phones leave a trail of devastation, landscapes destroyed due to mining, air polluted due to fine dust, water polluted with chemicals and people who can barely survive with their work. Information is very precious nowadays and that is why we must encourage curiosity in students. Some of them were genuinely surprised while watching the videos and did not know that anything like that is even possible. They had only heard about that until then, but they had never seen actual videos and the telling numbers. They never connected their daily life with what happens on Earth. Such discussions shape them into critical individuals, who know when to weigh a piece of information and look for a new source.

We also talked about electricity saving at school and at home. We carried out a survey among the students and found out that mothers are the most frugal at home. Detectives investigated the school building to find out how many lamps were turned on in empty classrooms and how many water taps were leaking. The data was then presented in the form of a bar chart as part of the poster. The poster was presented during the Chemistry lessons in the 9th grade. The students also drew a few symbols, which could serve as a reminder to turn off the lights and use the water more carefully. Some of the better ones were added onto the poster, Picture 4.

Picture 4: Poster entitled "Energy saving"



2.4 Cleaning the school surroundings

During Biology lessons in the 9th grade, we discussed the adaptations of organisms to their environment. We discussed plants, which are always in the same location and do not move as the animals do. How can a plant survive extreme heat if it cannot get out of the sun? How can a plant survive drought and how is a plant adapted to heavy snow? Why do indoor plants exist and what happens to them if we leave them outside? While discussing these topics we also thought about whether it is possible that plants and animals could adapt to the impact that humans have on nature. Among other things, the students mentioned that there are no longer any crabs in the nearby brook. They have heard their grandparents' accounts of these crabs. In short, they found out first-hand that nature has changed significantly even during the lifetimes of their grandparents. Why have these changes occurred? Did the crabs resettle in a new location? The students found the term bio-indicator in their sources. This can be an animal or a plant that lives in a clean environment. If it cannot be found in our brook, this means that the brook is polluted. The reverse can also be true; the presence of a certain organism can indicate that the environment is polluted. An example of this is the lichens, which cover the trunks of trees.

To see what happens in nature, we headed out of the classroom and observed some of the plants closely. Based on the lichens, we discovered that we do not breathe a very clean, but a medium clean air. The fact that there are no crabs in the brook anymore indicates that the water quality has deteriorated in the recent years. While researching, we found waste trapped in the branches and waste on the ground. It was the students' idea to do a clean-up. We did the clean-up in the surroundings of the school during the next lesson; Picture 5. The students showed initiative and played an active role. They showed that they are developing into socially responsible individuals.



Picture 5: Cleaning the school surroundings



2.5 Using electronic devices

The use of computers, smartphones and tablets is discussed on many occasions. The discussions revolve around dangers which young people are exposed to on the internet. There is also the problem of radiation from such devices and its impact on the development of children's and adolescents' brains. To warn students about the safe use of internet and when it is appropriate to use electronic devices, we discussed these issues with the students in a round table discussion. We talked about which of these devices we need and why during the regular lessons. In most cases, the students said that they have a computer, a phone and tablets. They use those for social networks, e.g.: Twitter, Facebook, Instagram, Snapchat, and similar. The students are very skilled in using such applications, but have quite a few problems writing a letter in Word document format. A presentation in PowerPoint also poses more problems to them than any of the aforementioned applications.

When we talked about the appropriate time for replacing a device, the students said that they would buy a newer model if it was only possible, but they do not have their own funds. The students are different in this regard; some of them are true enthusiasts who follow the trends and buy new products. Others are not interested in this, they keep their phones as long as they work and do not wish the latest versions. Quite a few of them said that they had replaced their phone before it stopped working. At this point we discussed the method of obtaining raw materials for mobile phones. Most of the students were not familiar with the story. The batteries in the phones contain rare metals as well, that is why it is very important how old phones are disposed of. By recycling we can reduce the number of mines and stop destroying the habitats of gorillas and other animals. The topic was difficult for the students as they became aware of the power of information and how important it is to be well-informed. They saw that people on Earth are more connected and dependent on each other than it seems at first glance. The students will soon leave for high school, where they will need to express their opinion and stand up for their rights. Since they saw how important balance is in local life, they will be able to understand global problems that they will encounter in the future.



3 Conclusion

The entire activity was carried out as a project, which developed out of the need to have orderly classrooms and preserve the Eco Corner, which has always been part of the school. Expert staff, technical staff and students were involved in the entire process. I think the most important thing was that the ideas and initiatives came from the students who felt the need for a change themselves. Using the methods of brainstorming and discussion was always productive. As the ideas came from students, motivation was not a problem. The students worked independently; the only help they needed was encouraging accuracy and clarity when giving pieces of information, so that the readers would obtain the whole information. The final result is reinforcement of waste sorting habits and awareness of the impact humans have on the environment. Some discussions were hard as the students saw that a mine that is in the middle of Uganda would cause devastation in Slovenia. Even now we can already see that individual species are vanishing, since only the grandparents of our students can remember them. Serious modifications of the environment make the consequences even bigger. Certain topics were very hard for the students as they feel with nature and do not want this degradation to continue.

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