

THE TRAINING PART OF EXTRA-CLASS ACTIVITIES WITH BIOLOGY AS THE STARTING POINT

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Abstract. The results of this study show that an extra-class activity provides a suitable context for education in all its forms.

The activities suggested to students from the XIth grade with a Chemistry-Biology specialization were based on topics of Biology. The aim was to create situations which could develop students' critical and analysis skills for a more profound study.

At the beginning, a questionnaire was given to the class. Students were astonished as they were asked to analyze and to evaluate the educational system which they themselves belong to. After the analysis of the questionnaire, some activities were established and achieved during the following school year. Students, who were reserved at the beginning, enhanced their acceptance for the extra-class activities because of the possibilities of enlarging their views about people and facts. The way things are usually seen may be changed with the help of arguments (visit to Cistercian Abbey of Cârța or to the Zoological Garden). The knowledge received during Biology classes and analyzed in real-life situations (e.g. trips to Lunca Oltului or the Râpa Roșie Natural Reservation) led to new information and suggestions concerning environmental protection.

In the informal frame of extra-class activities, students achieved extra speaking and writing skills, a critical and a more flexible thinking. These activities are the basis for self-made education as they stimulated the desire to continue. Therefore extra-class activities could lead to a permanent wish for education.

The starting point of this activity was Gardner's *theory of multiple intelligence*. The advantages that this theory, if applied in the educational system, can bring to society are quite obvious: it will maximize the potential of every individual so that he / she will graduate school aware of their own value and ready to invest it in creative acts – manifested into a large range of solutions – thus generating thus progress.

The *theory of multiple intelligence* requires the teacher to translate the notions taught into the language that is specific to each student, according to their intelligence range. This supposes a very good knowledge of the intellectual and psychological profile of each student by each teacher, and also the special amount of human resources and time. The Romanian educational system, working with over-crowded curricula, is not equipped to allow the things taught to become operational (that would be more complex than the materials created by students and teachers), and therefore prefers traditional teaching methods that are easier to apply.

The proposed activity was centered upon training; students were educated outside school in order to help them discover motivation in their own background, targeting upon professional orientation and self-knowledge.

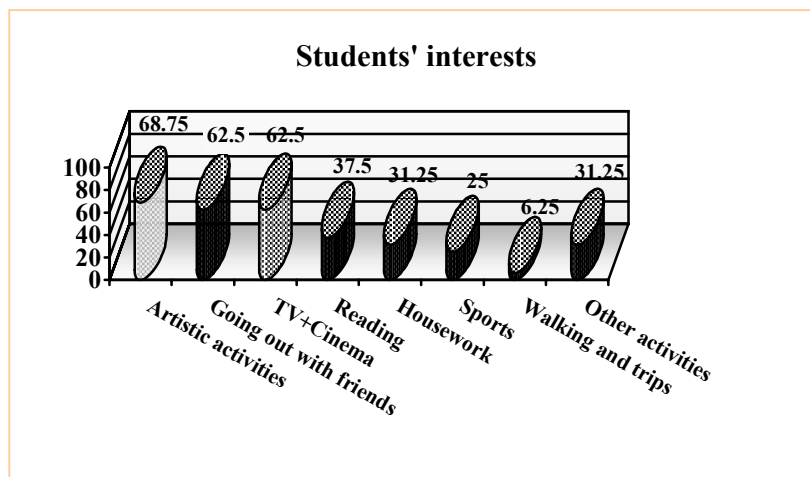
The group of students that we worked with was a class of juniors (aged 17-18), the XIth B grade, specialization Chemistry-Biology, from Liceul Teoretic (Theoretical High-school) “C. Noica” Sibiu. The orientation for this activity was done according to the opinions of students expressed in the initial questionnaire.

The initial questionnaire was aimed at showing how aware students are about the applicability of their knowledge acquired during classes, particularly Biology classes. We wanted our students to observe the involvement of the triangle family – school – own person in their own education. They also analyzed their spare time activities, observing whether the issues discussed in class are also reflected in their post-school activities or whether they stay isolated *intra muros* – and in this case school proves to be something artificial with no connection to real life.

The questions of the questionnaire and their analysis:

Question 1) – What pastimes do you have?

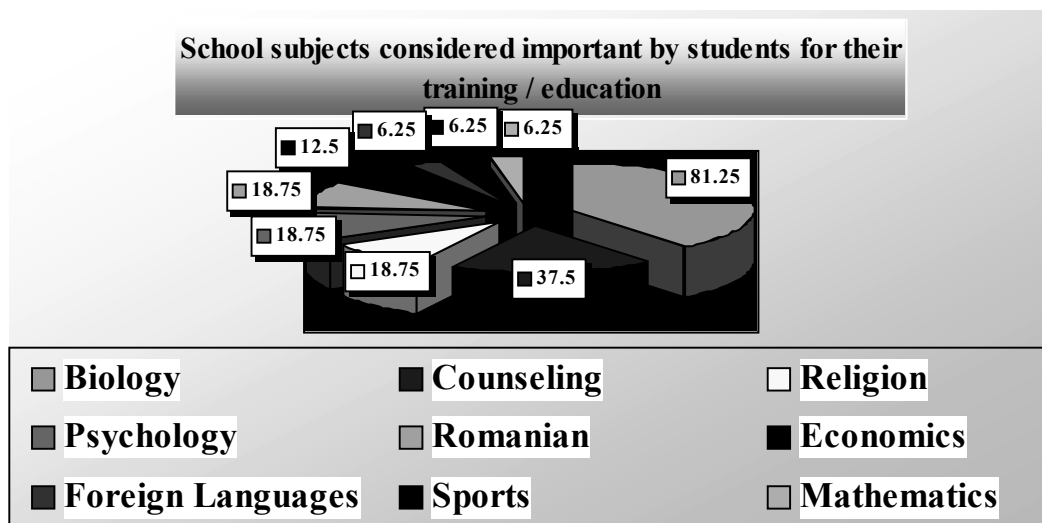
First of all students mentioned the fact that spare time is more of an ideal for them than something real.



Analyzing the chart, we realize that, surprisingly, the highest percentage – **68,7 %** – goes to artistic activities. Following their own natural sensibility, young people develop their artistic side, completely ignored in junior and senior high-school years with science and math specialization. They prefer subjects related to the Baccalaureate exam even for their elective courses. **62,5%** of students spend their time with friends. Unfortunately, an equal percentage prefers the TV or the cinema. Reading – **37,5 %** – as a pastime stays behind the audio-video means. Although they are specialized in Chemistry and Biology only **25 %** of them spend time in nature. The computer is a pastime that only **6,2 %** of those questioned can afford.

Question 2) – What school subjects have touched upon issues related to your own development as biological and social individuals?

Biology, especially the part taught in the XIth grade (junior year), finds special interest among students, thanks to its immediate applicability. The issue of child development is related to the level of knowledge, as well as to the teacher teaching that particular subject. Thus, mathematics appears on the list because the math teacher is also the class (counseling) teacher of this class.



Question 3) – Does school succeed in completing family education? If yes, how?

For this question only **94 %** of students had an affirmative answer. This is how they believe that school completes family:

- “it develops our intellectual abilities and it teaches us to think logically and to be responsible”
- “it establishes our general knowledge”
- “it teaches us to manage teamwork and to be disciplined”
- “we acquire a different language style than the one used inside the family”
- “we learn how to behave in society”
- “it punishes us when we make mistakes and it rewards us when we deserve it”
- “we must be punctual and respect each other”
- “it shows us how to manage our time correctly”
- “it is useful only regarding our knowledge”
- “in school we only revise and complete what we have already learned from our parents”
- “there is a big difference between a person educated only in the family and a person who has also learned something at school”.

Question 4) – Have you found topics in the Biology classes that could help you in your spare time activities?

68,75 % of students answered yes, saying that Biology rose their interest for:

- “sciences in general”
- “animal care”
- “growing plants”
- “protecting fauna and flora”
- “the environment we live in”
- “our body” and “human diseases”
- “knowing about people and also about themselves”
- “the origins of medicine – medical methods of in Ancient Egypt and Greece”
- “questions that I found answers to by researching and in the same time growing up, for example issues like cloning and euthanasia”

Question 5) – Can you transfer to real life notions, concepts, laws studied during Biology classes?

95,6 % of students answer affirmatively, saying that they consider necessary the information about:

- hygiene, sexual education, STD (Sexually Transmitted Diseases; Romanian, BTS);
- the human anatomic and functional structure;
- protection against disturbing factors for the human body balance;
- the effect of alcohol, smoking, drugs etc upon the human body;
- using the notions related to the structure and function of the human body in order to have a healthy life;
- protection of the environment;
- professional development;

The aspects related to the applicability of biological knowledge are still unclear to them, although they acknowledge that: “we sometimes use them without realizing” and admit to the fact that “following certain discussions and debates, I can say that now I think more than once before doing something that would involve my own body”.

Question 6) – Which are the educational aspects that school does not approach?

Students consider that the present educational system does not, at all, or hardly, approach the following issues:

- personal and professional development
- interpersonal communication
- “recipes for a successful life”
- the theory of love and sex
- self respect and respect for others
- self-control and self-education
- sexual education
- the convincing and well sustained explanation of the impact of various vices upon young people
- ways to relax

Question 7) – What extra-curricular activities do you think might help you in completing your education? What is their educational aspect?

Students make suggestions, explaining in the same time the educational aspect of each activity:

- trips – they widen the perspective upon the world, encourage interdisciplinary correlations, strengthen relationships inside the class, stimulate communication and sociability
- environment protection club – develops a sense of responsibility and prepares us for future life
- going out (theater, cinema, museum) with a teacher – it stimulates artistic and moral qualities

- organizing debates and discussions on a given topic (for example: manners, sexual hygiene) – it matches the need for communication and debate, it develops expression
- watching documentaries – it develops the observation and analysis skills
- meetings and competitions between different classes – stimulates competition: “we do our best to win, we try to accept defeat”
- helping people with special social situations – it requires moral qualities and a sense of responsibility
- sports activities – exercise teamwork
- artistic activities – develops artistic skills, “they are important psychologically speaking”.

Question 8 – How would you characterize the role of: the family, school, your own person in your education?

The answers of students are quite suggestive:

- “Education starts in the family and is continued in school. The rest depends on us: discovering our own qualities and using them.”
- “School and family work together and complete each other, they have to become a whole, not exclude one another.”
- “All three factors must act in a balanced way without setting boundaries that are too strict or allow irresponsible freedom. For example the family should not insist on religion and school should not become the Bastille!”
- “The family has a fundamental role – it establishes the moral boundaries. School polishes, it rises the standard – another language, a different behavior. The self is the most important factor because it holds the final decision.”
- “What we learn when we are very young will determine our behavior further. School teaches us what our parents were unable to teach us.”
- “Our family trains us to become future parents.”
- “School must solve the problems that young people cannot solve with the help of their family.”

The students answered this question according to the role that their family had in their own education. School is regarded either as continuing what the family started, or as a collaborator, sometimes even a correcting and supplementing factor. Family is in itself important either through its position for the beginning education and formation, or as a moral and financial supporter. This situation of dependence on the family can also be regarded as a limitation in self-development and personal decision taking, as it could impose a series of obligations. The family can offer role models that school does not particularly deal with, for instance the future role model for parents. Related to their own person, students discovered that their age allows them certain freedom in terms of decision making together with corresponding responsibilities; they prefer to transcend the position of executing actors for some imposed norms, and become experimenters of their own decisions.

CONCLUSIONS OF THE QUESTIONNAIRE

The questions asked surprised the students as they were in the position of analyzers, evaluating even criticizing the educational system they belong to, finding the roots of their discontent. They perceived the teacher’s intentions with doubt. Some of them refused from the very beginning to contribute because of laziness, lack of interest, or the conviction that they couldn’t change anything. Such an opinion is often encountered even among those who decided to answer. A student says: „We students cannot fight against this. Fortunately, there are also some exceptions that cannot however change the rule. One good example is this very questionnaire. Who else is interested?” Students are not used to being asked for their opinion, or to being in the position of making decisions regarding their own education. They do not believe that they can become decision-making factors in school. Unfortunately we got used to indifference. Each teacher does his / her job as best he / she can during class, following closely a series of objectives from the school curricula. It often happens that we forget that we actually deal with people who would like, at least from time to time, to be treated as human beings. At the end of the questionnaire students suggested a series of extra-curricular activities that in their opinion could complete their education, bringing school closer to every day life. Their suggestions and the analysis of their pastimes oriented the further activity of the teacher.

FIELD TRIP

TOPIC: the Cârța village area – tourist destination with multiple points of interest

OBJECTIVES:

- Observing and interdisciplinary research of a tourist destination
- Researching scientific documents
- Identifying species from different biocenoses
- Observing the specific landscape

- Highlighting the historical importance of this point
- Reaching conclusions concerning the natural environment protection
- Developing artistic taste
- Acquiring some hygiene norms.

STAGES OF THE ACTIVITY:

1. Preparation – team formation / research and survey writing
2. The field trip
3. Processing the researched information (field and laboratory)

TASKS OF THE TEAMS:

Team 1 + Geography teacher – observation and identification: physical-chemical conditions of water (speed of water flow, turbidity, temperature, pH); characteristics of embankments and terraces.

Team 2 – analytical survey upon the fish population in the Olt River (base don fish caught by fishermen, material collecting for lab study); interviews of fishermen regarding the changes noticed in the fish fauna.

Team 3 + Biology teacher – collecting and identifying species of underwater plants, bank and plain plants; underlining the morphological-structural characteristics, observing the indestructible connection species – biotope.

Team 4 – photographing and identifying species of birds in the area of Olt, observing their behavior and their spread in the habitat.

Field stage – the field trip:

Transportation to the point was done by train to the commune of Cârța (half hour) in the direction towards Brașov.

Along the trip, guided by the Geography teacher, the students observed the landscape: the peaks of the Făgăraș mountains accompanying the railway from a distance; the Cibin River together with the Hârtibaciu River; the greatness of the Olt River near Podul Olt, followed upstream until the destination of the trip; the smooth surface of the piedmont plain from the foot of the mountain to the River Olt. The sub-Carpathian hills on the opposite bank, full of vegetation.

The Cârța village showed its entire beauty on that Saturday morning. The tidiness, the flowers and the luxury of the houses showed hard-working art-loving people.

The main attraction of the village is the Cistercian Abbey, dated back to the XIIIth century. At this Abbey took place the meeting with the priest who guided our minds and eyes around the place. For the following two hours there were a series of things discussed inside the small church: the past of this Abbey, one of the richest in past Transylvania; the efforts of the local community to support its „survival”, against repeated pagan invasion; the rite of the Cistercian monks, famous for their many restraints (almost complete silence, limited sleep, exclusive vegetarian diet, a lot of hard work); the unfortunate evolution of the Saxon population in the area, ancient customs respected even today (holiday traditions, the message from the priest transmitted from one man to another on a piece of wood, voluntary work on the church premises performed in turns by all the believers in the congregation etc.); the changes in the catholic faith brought upon by the reform, the way in which the Saxons in this area are lead by the priest who represents the moral and behavioral standard. The unique quality of these facts, the attractive way in which they were told, the priest who appeared worthy of trust, admiration and sympathy, let time pass unnoticed. The students, noisy and playful as they usually are, appeared completely different: they were actually living these stories. Back to present they were shown the ruins of the ancient abbey, the former kitchen, presently the home of the priest (the oldest inhabited building in Transylvania), the traces of the sewers and pipes bringing water to the church mills – the monks held the right to grind cereals in mills in the area. All the places visited were proof of the active involvement and the existence of people who care about where and how they live. The tidiness and good order, famous as being qualities of the Saxons, were proven completely. Moreover, we were impressed by the hospitality and the erudition of the priest who offered a part of his soul to some strangers, thus becoming their teacher! The abbey was painfully left behind after writing the impressions in the guestbook of the church. Thus famous names from all over the world were discovered. The students discovered in surprise that places that some of their mates had considered utterly uninteresting were the objective of tourists from all over the world.

The next stop was the plain of the River Olt. The river was crossed over a wooden bridge and then the bank was followed along the stream on a path. The beauty of the scenery was often spoiled by the garbage left by passing fishermen and farmers. The students who brought rubber gloves gathered all the garbage in plastic bags later on disposed of in the village container. One of the clearings served as a stop for organizing and eating.

After a bit of rest, each group started its activity.

After all the research observations were presented and discussed and then conclusions were drawn. The Geography teacher described the superior fragment of the River Olt based on the observation of team 1.

The notes of team 2 helped understand the changes brought to the biotope through the construction of dams – 27 dams and lakes – which many times lead to the change of course of the river resulting in various pools and canals. These allowed various fishes typical for lakes to settle – *Cyprinus carpio*, *Carassius carassius*, *Scardinius erythrophthalmus*. The gold perch (*Lepomis gibbosus*), brought to us from North America, is considered an invasive species, as it spread excessively in the pools located next to the main river flow. They eat the eggs of local fishes thus causing the extinction of some species from this eco-system. The observations of team 3 and 4 completed the whole perspective upon the river fragment with the characteristics of the flora and the ornithologist fauna. The summer migratory birds and the sedentary species were established. The extension of the habitat of some species in search for good feeding places – for example the seagull – was also established. The conclusion was that the spread of each species is determined by the exact conditions of the biotope.

The trip ended with the march back towards the railway station and the trip by train, both accompanied by singing and laughter. Both teachers and students expressed their wish to come back to these special places in order to continue the observation.

CONCLUSIONS

- Teachers and students had to work together against the “lack of the teacher’s desk” issue in transmitting / receiving information.
- By investigating the objective from a variety of perspectives, **all types of human intelligence could be exercised.**
- The encounter with the Protestant priest, a man of a different nationality and religion, offered students a model of tolerance and respect for another person, attitudes that are often stated but rarely practiced.
- The visit of the historical monument has opened the children’s appetite for beauty. Once they arrived on the meadows of the Olt River, they immediately noticed the contrast between natural beauty and the presence of garbage thrown all over the place. The cleaning activity came natural to them and also stimulated their responsibility regarding the disposal of their own wastes.
- The real value of this trip became obvious when all students managed to work in co-operation, everyone making the same effort in order to complete a collective task.

PHOTO ALBUM: THE ZOOLOGICAL GARDEN OF SIBIU

Stages of the activity:

1. research
2. visit at the Zoo of Sibiu
3. solving the tasks
4. creating the photo album based on students’ answers and photographs

The students worked individually, motivated by the wish to obtain arguments that would support their own statements made during the visit. The purpose of this research was to analyze and compare the conditions offered by the Zoo and those that were theoretically appropriate.

The main aims of the visit were to observe how the specific objectives of a zoo were being completed, as well as the students’ emotional involvement, while also stimulating their responsibility, respect and love towards animals, and developing their critical analysis skills and obtaining material for a photo album.

Operational objectives:

- Observing and identifying the species found in the Zoo, acknowledging those protected by law;
- Investigating the conditions offered to animals in captivity;
- Observing the behavior of the animals and their reactions in captivity;
- Suggesting possible solutions for the improvement of life in captivity;
- Taking photographs to gather visual support for their further arguments and statement about the visit.

Summary of the visit:

Students were told from the very beginning to observe attentively every animal, its behavior and the conditions offered to it in captivity, in order to be able, further on, to answer the questionnaire (and also provide new solutions).

The teacher made clear to students the specific objectives of a Zoo:

- Reconnecting man to nature
- Scientific education of the visitors
- The study of the species, also keeping in mind the ways of protection of their breeding (reproduction) with a view of the continuation of the species and the application of their knowledge regarding their protection

- Protection of species in danger of becoming extinct (Cociu M., 1980)

The teacher brought students – in turns – closer to the cages. They identified the morphological-structural particularities of each species. Every animal was included in the corresponding zoological order, according to knowledge acquired in the IXth grade (freshman year). Students tried as much as possible not to disturb the animals in order to observe them correctly. They studied: nutrition of primates, their habits of playing and cleaning; the repetitive moves of mammals in their cages, a neurotic reaction caused by restrained, insufficient personal space; tigers' habit of marking their territory and fights between rivals; bear cubs playing; the isolation of a morphologically different individual of a Guinea-hen community etc.

The students openly disagreed with the life conditions of the animals and took suggestive photographs.

There was also an open discussion analyzing the feeling of pity and compassion towards animals – a most natural feeling occurring at the association between their captivity conditions with the conditions of a prison. However strong, this feeling was sterile, as it would not improve at all the situation of the animals. The majority were born captive and do not even have the perception of freedom that we assume to be their own.

People should be aware of their responsibility and get involved themselves in finding better solutions. It is wrong to believe that there is nothing to be done, every individual element in an equation matters, the first step was this very activity. In the end the students solved the tasks of the questionnaire.

QUESTIONNAIRE – Does the Zoological Garden of Sibiu manage to achieve its specific objectives?

1. What was the thing that impressed you most during this visit?
2. Comment on the relation between man and nature from the perspective of captivity compared to natural conditions
3. How could you use the animal and environmental resources of the zoo during biology classes?
4. Does Zoo of Sibiu succeed in contributing to the protection and breeding (reproduction) of rare species in danger of becoming extinct?
5. Suggest one topic of research that could involve the Zoo of Sibiu.
6. What remarks could you make about the activity of those in charge with the Zoo?

Answering the questionnaire students provided relevant opinions:

- “I appreciated the possibility of seeing live new species, some of them in danger of becoming extinct.”
- “I was impressed with the various feelings one can experience while watching these animals.”
- “Carpathian bears eat bread and apples, while felines are fed old bad-smelling meat.”
- “The conditions in which these animals are kept: little and bad-quality food, small and badly-attended cages.”
- “When you look in their eyes you feel an overwhelming responsibility accompanied by a strong feeling of uselessness.”
- “I felt that man forgot his own roots.”
- “Many visitors are not prepared for the sight of the animals, and, mainly, that is why they have an inappropriate behavior.”
- “The complete lack of training of those in charge with looking after the animals, and the absolute lack of feeling of those who have the appropriate training.”
- “While watching the monkeys I couldn't stop myself from thinking about man.”
- “Studying live the process of adaptation, and correlation of instincts according to the conditions of life in captivity.”
- “It's better to free them than to torture them!”
- “Help must be asked from people who are ready to offer help.”
- “Animals should be a priority when speaking of improving life conditions.”
- “Cleaning does not cost a thing.”

Forgetting about captivity the students were happy to admire exotic species they had previously seen only through the media. Analyzing the conditions offered to animals, they concluded that man is responsible for all species in the biosphere, and especially for those kept in captivity. Moreover, those in charge with Zoo should also be a model of behavior for the visitors, and therefore also have a moral responsibility. Despite the cages, the students managed to create a real contact with wild life, something that would have been very difficult to do somewhere else. Thus they were expected to remember the origins of man by observing the behavior of animals.

The activity of putting together the photo album allowed students to illustrate visually their own observations, opinions and solutions. These showed to the school community the bad situation of the animals in captivity, while also suggesting that a possible solution of the situation could actually come from them.

Visual representations are more suggestive and give an emotional value to the text. By working for this album students stimulated their creativity and artistic talent.

Operational objectives:

- Analyzing the questionnaires and selecting the most representative opinions
- Associating these opinions with relevant images (photographs)
- Creating an aesthetically-successful visual representation

In conclusion, the efficiency of this activity is illustrated by the feelings and achievements of students throughout:

- They were happy to exercise their analytical and critical capacities
- They got the chance to be creative in expressing their own feelings by working on the photo album
- They found the basic coordinates of the solution: EDUCATION and BEING AWARE OF RESPONSIBILITIES

3. DEBATE – SEXUAL EDUCATION IN SCHOOLS

In order to establish the reference points for this activity, the teacher solicited the opinions of the students.

THE SURVEY OF OPINIONS required the students to:

- **Think** about their preparation for the biological process of growing-up
- **Highlight** the factors involved in their education and the group of people they can trust
- **Express** their opinion as future parents
- **Acknowledge** the gaps in their own education
- **Suggest** solutions
- **Analyze** their behavior concerning STD

The questions of the test and their analysis:

Question 1) How would you define sexual education?

Completely excluded from the school curricula – except for its being mentioned in the special handbook of the class-teacher and for the some elective courses, the sexual education topics appear tempting to high-school students interested in their own biological development. Asked to name the field of this subject, some of them managed to give a correct answer: “SE supposes first of all knowledge about both female and male genitals”; “SE gives us information about sexual activity, the hygiene of genitals, contraception and the risks following a sexual intercourse”. Others appear completely distrustful regarding “all this information about what has to be done before, during and after a sexual intercourse to make it safe and pleasant”. Unfortunately, some young people expect the educators to take responsibilities in their stead. No one can decide when, whom with and in what conditions is good for a person to become sexually active. The purpose of such a didactic activity is to illustrate normality by establishing a norm of responsibility of the young to their partners and to themselves, as well as to anticipate specific problems and suggest possible solutions. The main aim here is to help young people become conscious decision makers who do not listen to instinct only.

Question 2) If you were a parent how old should your child be for you to consider him / her ready to be educated about this topic?

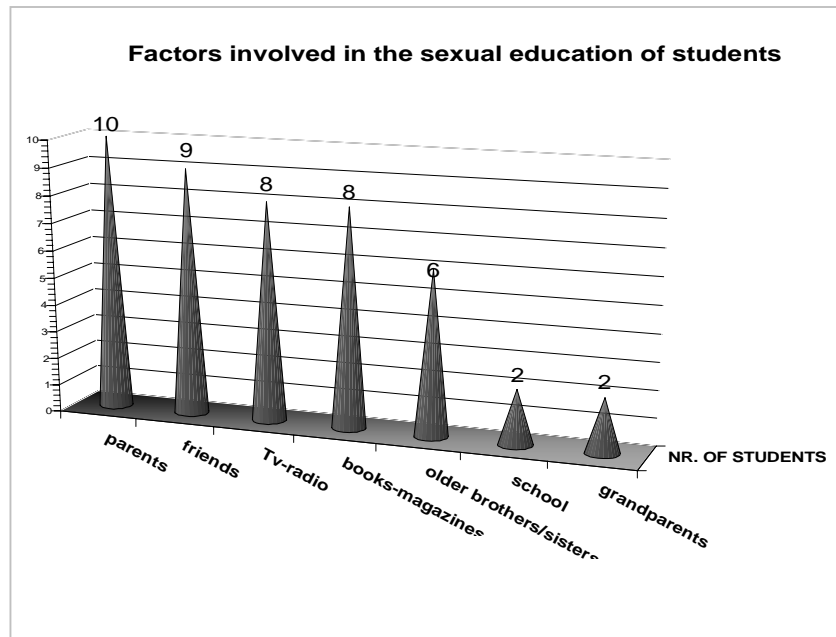
Given this situation, students realize the obligation of their parents to get involved and approach the problem maturely, base don their own experience (unfortunately often a negative one): “a child starts asking himself from the very moment he can articulate words why he / she is in a certain way and the one next to him / her is different, that’s why IO think he / she should be educated about these things as they grow up”; “things have to be explained for their own level, if they don’t learn how to be tidy and clean, it will be difficult for them to do so when they grow up” or “I would start explaining before they get to environments and into groups that will allow them to learn about and experiment sex”.

Question 3) Who taught you about sexual issues?

The educational and pseudo-educational factors and their importance is shown in the chart below. As each student mentioned a series of factors who were involved in their education, the chart shows for each factor also the number of students who considered it important.

Analyzing this chart we realize that only 34,5% of students mention their parents as main educational factors and always completed by friends and / or the media. The reduced involvement of parents is associated with shame, taboo and prejudice. Most parents are just happy in the case of sexual education to be in the position of pure observers, refusing the role of educators for their own children. Their passive attitude allows street education to intervene, usually very low quality education, based on incorrect, even dangerous ideas. Therefore, school is the only chance of these youths to receive appropriate education, given the fact that this represents the basis for the biological part of their existence. A possible solution would be to introduce compulsory (not elective) specialized courses, as well as especially organized seminars for parents

who should be stimulated to approach these topics tactfully and perseveringly. Most children admit the fact that parents are the most appropriate people to get involved in this type of education, thus justifying their children's trust.



What is worrying is the importance of friends, comparable to that of parents regarding these issues.

The importance of school is unnoticeable, only 2 students mention, among other factors, the classes of anatomy and counseling.

Question 4) Whom can you discuss such issues with?

This question is complementary to the previous question, as it verifies the conclusion of the latter. Students trust the advice given to them by those who are in charge with their education. Parents will surely be asked for help by 9 students of the 28 questioned, other 5 will only appeal to them for serious issues, and 3 would only do that if they trusted them. Again friends appear as most important in terms of whom the students trust, 16 students consider friendly advice as quite correct. Other factors, like the older brother / sister (5), the psychologist (4), the specialist doctor (2), the teacher (2), or a close relative (2).

Unfortunately, we have to conclude that the following factors:

- Difficult communication between child and parents;
- Lack of involvement on the part of the Biology teacher – who ignores these aspects, being too tied up in the over-crowded curricula;
- Lack of psychological counseling in schools;

Force students to look for solutions for sexual development problems in the wrong places.

Question 5) What are STD (sexually transmitted diseases; Rom. BTS) and how can you protect yourselves from them?

All questioned students knew what the initials STD (sexually transmitted diseases; Rom. STD) stand for, and starting from this name they concluded that the only possible way of transferring them to one another is the sexual one, ignoring the other possible ways that can represent a danger to them (most of them sexually inactive).

As a means of protection against STD only 50% of the students consider condoms efficient.

Question 6. What is your opinion about sexual life in high-school?

Nine of the questioned students present the advantages of sex life experienced during high-school: knowledge brought upon by this experience that completes the process of growing up of the young people, losing one's virginity regarded with pride (probably by boys), happiness experienced during the sexual intercourse. Most students ignore the emotional connotations of this act, regarding it from the point of view of the child who wants to grow up out of curiosity and pride.

There were, however, more maturely expressed opinions: "I think that at the moment we should be more concerned about our future, our career. Still... there are temptations everywhere, and many people begin their sex life out of curiosity, without any kind of beautiful feelings involved, like love!"

Only a number of 5 students from the 28 realize the danger of STD, and only one of them admits that such issues could distract him in his school activity. The fact that the duration of school education is the one that postpones the finishing of development for the human species – by eating up most of the energetic resources of the human body - is also eluded. Education prolongs the growth of the human body.

Conclusions of the test:

Completely lacking in support from school and also from parents, the sexual education of students is based especially upon the experience of friends and upon the media.

Based on this conclusion, the teacher initiated an educational activity for this field. This activity was a debate entitled SEXUALLY TRANSMITTED DISEASES and its purpose was to help students acquire a minimum level of knowledge to be able to prevent contacting such diseases.

4. PROJECT - THE RÂPA ROȘIE NATURAL RESERVATION

The suggested activity, organized in 3 stages – research, trip to Râpa Roșie for material gathering and making of the project – aimed at exercising students' creativity in showing the real potential of this reservation.

The trip to Râpa Roșie was organized on a Saturday in May. A part of the way was done by train to Sebeș Alba, and the rest on foot on the ancient Roman road that used to link the Valley of the River Olt to Apulum.

The Râpa Mountain Range could be admired in the background from the railway station. It showed a vertical slope 496 meters tall, shining purple in the morning light.

The teacher discussed with the students about the process of water torrents erosion that led to the incrustation in the rock of the massive organ-like form. They observed and photographed from variable distance these very special forms of micro landscape called “bad-lands” by specialists. (Buza M., Hozoc I., 1989).

The students who made the research were able to describe the components of the soil: horizontally sediment layers of clay, marl, grit stone, sand and gravel. Observed closely, the rocks allowed students to discover the cause of the success of water erosion. The yellow and red sands, the talc, reddish or greenish clays represent the basic material for these soft, inconsistent rocks. Their attraction is the simple fact that they are made of gravel, silverish marls, fragments of quartz, grit stone and crystalline schists.” (Buza M., Hozoc I., 1989). Charmed by such colors, students collected small fragments taken from the massive rock, without spoiling its beauty. They took photographs of the results of erosion performed along thousands of years by water torrents, also supported by the bare landscape, and the avalanches. Students tried to identify the most spectacular forms: towers, pillars, obelisks, buttresses and pyramids of soil that make this natural place unique.

After observing the peaks of this massive students directed their attention towards its foot, where they discovered small hills with grass and forests, interrupted here and there by torrents, flowing into a collecting valley.

The reservation does not only protect landscape. The sands, the grassy plains, the valley and the forests on the hills also nurture vegetal association characteristic to warm steppes, and even endemic species.

Hoping to get the chance to photograph rare species, students started their research guided by the teacher. Unfortunately, the species that make this place famous, like *Dianthus serotinus*, the *Centaurea atropurpurea*, or the Mediterranean fern *Asplenium adiantum nigrum* could not be found. We managed to identify in the forest facing the Râpa Massive, a vegetal association formed of tree species of the *Acer* and *Tilia* type, and the bush species of the *Prunus* and *Cotoneaster* type. Isolated and organized in a rarefied pattern on the bare hills of the massive have some shade from the wild rose bushes *Rosa canina*, and hawthorn *Crataegus monogyna*, in full blossom at the time. In the grass associations on these hills students could discover and collect plants of the steppe: sedge *Carex sp.*, feather-grass *Stipa pennata*, thistle *Carduus nutans* and *Carlina acaulis*. The beauty of these pastures is also enhanced by the colors of plants like the primrose *Primula veris* and a wonderful lilac species called grape hyacinth *Muscari comosum*. In the meadows located at the foot of the mountain there could be discovered another rarity of the place – the oak *Quercus pubescens* from which they collected dry leaves and acorns (Rădulescu I., Voican Valeria, 1986). The exotic atmosphere of the place is also enhanced by the families of ravens *Corvus corax*, floating above the valleys.

Similarly to other reservations, (for example the paleontological reservation Turnu Roșu) Râpa Roșie is abundant in various traces of passing herds. Besides the damages they cause, and their unaesthetic effect, students were also signaled another unfortunate consequence of their presence: the presence of ticks *Ixodes ricinus*, one of the risk factors of going out in nature.

After having enjoyed nature, the students and the teacher discussed the reasons for which this area is considered a protected natural reservation. The students showed that such landscape is also encountered in the Tyrol Mountains and in the Grand Colorado Canyon, very famous areas around the world. In our country this phenomenon is unique. However, it does not hold the deserved popularity. On the occasion of this trip students were reminded about environmental terms (natural reservation, protected species, endemism, species

becoming extinct, anthropic pollution etc.). They also developed their ability to express remarks about nature, selecting and writing characteristic aspects, in order to use them further on in their study. Observing a series of protected species in their natural environment helped with the development of their environmental awareness, the starting point of appropriate environment protection behavior.

THE PRESENTATION OF PROJECT RESULTS AND THEIR EVALUATION

As project work was performed individually, each student presented his work in front of the whole class. The teacher together with the other students evaluated each paper according to specific criteria.

Evaluation criteria:

- The way in which objectives were achieved
- The originality of solutions found for the valuable use of the collected material
- Scientific accuracy
- Coherence of ideas and materials and their organization
- The use of artistic means
- The quality of the presentation

The products created by the students we exhibited in the laboratory.

6. CONTEST “MENS SANA IN CORPORE SANO”

As during class the teacher does not normally focus upon serious competition among students, in order to avoid inhibition, an extra-curricular contest can fill in this need for competition, by stimulating the competitive spirit students will need further on in their careers.

Operational objectives:

- Applying the knowledge in Biology and Chemistry in order to solve problems
- Preparing fresh substances with the help of laboratory resources and observing them through the microscope
- Performing chemical experiments and drawing conclusions based on them
- Proving physical abilities through practical tasks

The teacher decided together with the students: the topic and the tasks of the contest, the necessary time for preparation, the bibliography, the plan and the working methods for the practical part, the participating groups and their organization, the methods of evaluation.

The day chosen for the contest was one of the special official days of the high-school. The contest became the best occasion to officially open the Biology laboratory.

It was established that at the contest should participate only 3 XIth grades, all specialized in sciences. As we wanted to encourage teamwork, not individual work, each class had to choose their representing team (4 students each), according to the different tasks and the bibliography for the contest.

As the specialization of these classes was Chemistry – Biology, we opted for the evaluation from the point of view of these two subjects. The teachers of Chemistry and Biology devised for each subject a theoretical and a practical task that students could solve in the respective laboratories. According to the topic of the contest, intelligence was to be associated with physical strength, and therefore it was also introduced a sports competition.

Competition does not test the capacity to memorize of the students, but the way in which they can apply the acquired knowledge. That is why the amount of information was diminished - for example for the theoretical task in biology we chose the *Visual Analyzer*. Teachers wrote the subjects and established the evaluation standards. Fellow teachers and students from each participating class were invited to attend as observers.

The first part of the contest took place in the Biology lab, the furniture having been especially rearranged for this activity. For every task, students had 20 minutes. The subjects for the theoretical task in Biology were:

1. Describe two processes which take place when we look a red apple in full light, the apple being located 2 meters away from the eye.
2. If the right eye is closed, which ways of directing the visual impulses are open?

The students wrote the solutions through teamwork. After time was up teachers corrected the answers according to the established standards.

For the practical task the teams received each a worksheet:

1. Make a microscopic sample from a leaf taken from an aquarium plant, introduced in a drop of water.
2. Set the microscope ready for observation. Set the sample on the microscope board.
3. Observe the sample. Identify a population of *Vorticella sp.* Draw the image you can see.
4. Using the clams, place some particles of salt on one side of the sample. Wait for a couple of minutes and observe the reaction of the *Vorticella sp.*

5. Write your conclusion based also on the comparison with the reaction of the *Paramecium* observed on a previous occasion.

On the table of each team were initially placed all necessary materials for this experiment. The teachers evaluated: the practical skills of the students, the speed, the clarity of the image, the coherence of the conclusion.

The scores were immediately communicated to the students motivating the decision of the evaluators where necessary.

In the second part of the activity students, evaluators and observers moved to the Chemistry lab. The theoretical task included two chemical transformations, and the practical task was the producing of a chemical reaction and the announcing of the result.

The evaluation criteria were similar to those for the Biology tasks. After the evaluation of these tasks the contest continued on the sports field.

For the sports competition two representatives from each team competed (a boy and a girl).

The sports tasks were in such a way chosen to be attractive, amusing and to stimulate competitiveness. The cheering of the mates grouped around the sports field contributed a lot to the stimulation of the participants. The rule that had to be respected all through the course was that the members of the team had to hold their hands as long as possible. Time was observed. The evaluation of the sports task was done by the Sports teacher who took into consideration: time, correct execution, ingenuity of solutions in order for the team to succeed together.

After adding up the points and establishing the order of the teams the students were awarded prizes in front of all the school mates. Although the main motivation for this contest was not the prizes, students were especially happy about receiving them.

Organized at the end of the school year, this contest was regarded by students more as a leisure activity. The tasks had a medium degree of difficulty at and they aimed at increasing the students' interest for the respective subjects. The main purpose of this activity was to check students' capacity to solve problems through teamwork. The organization of the teams was done according to students' skills. Thus, the teams were formed of: very good students with high marks, students with lower performances, but highly interested and particularly equipped for making scientific experiments, and students with very good sports skills. Their association in a team and the fight for a common purpose made them forget about their initial prejudices, realizing that in order to achieve a common goal they need each other, each member of the team being equally important.

The inter-curricular topics allowed a series of connections to be performed, on the knowledge level, as well as on the human level. The collaboration of the type student-student, students-teacher and teacher-teacher brought upon a special closeness maintained further on, after the end of the contest, in usual school life.

The association of theoretical and practical tasks appears amusing to students, focusing upon the acquisition of skills throughout the practice of their dexterity and physical condition.

7. THE SCHOOL FESTIVITY

The involvement of all the students in a class in the school festivity appeared initially as a utopist wish. Through this action we intended to prove that each student has at least a special skill that can be noticed on such an occasion. In order to complete the utopist image, teachers were also challenged in the show, each teacher being associated with one team of students.

The coordinating teacher established the following together with the students: the day of the festivity, the artistic parts of the program, the teams of students performing the various parts and the teachers that students wish as invited associates, the tasks and the resources (written or musical).

From the very beginning of the activity the teacher made students aware about their involvement. After establishing the different parts of the program (presentation, ballet, modern dancing, folk dancing, theater plays in Romanian and English, choir singing, final parade of participants), based on students' preferences, each student chose his favorite team. Students made their choices according to the activity they were going to perform and their own abilities and skills. The teacher took on the role of counselor. There were cases when students strongly disagreed with any artistic manifestation, either because of shyness, or because of prejudice. Such students were encouraged to work in the organization team, dealing with posters, invitations, scenery and management issues. There were also cases of students who opted to work in more than one team, either because of eagerness, or because of their ego.

The organization of the teams was followed by the process of convincing teachers to join these teams. Their positive answer and further choice proved how well students had managed to know their teachers.

There followed the separate rehearsal of each part, performed by each team. Each teacher became the coordinator of the team they worked with. These rehearsals, during which teachers worked equally together with the students, getting to know each other from a different perspective than the academic one, represented, in fact, the real gain of this activity, as they constituted a series of connections that led to

success. The gap between students' desks and teacher's desk was diminished, without going beyond good manners and common sense. The teacher became a leader, as well as a partner and competitor, special positions which amused both students and teachers.

The representation of the different parts of the festivity proved once more the efficiency that teamwork can reach when there is strong motivation. And young people are especially motivated by the desire to be noticed and by success. The way they chose their teams proved that quite a number of students did not know their strong points. During rehearsals there took place a second distribution of students in teams. Witnessing the rehearsals of the other teams many of the students discovered different preferences and got involved into a different activity. There were also those who initially had a resistant attitude and who later on acquired stronger motivation thanks to the example of their mates. The show "behind the curtains" was, probably, the most interesting. There were also students who started powerful, and later on discovered they could not match the challenge, and therefore chose the role of prompter in stead of the gifted storyteller. Other students, apparently very inhibited, attained incredible performances even from the point of view of their mates. The teacher was exceptionally glad to see students who had been initially very suspicious and ironic getting involved and becoming more than simply cooperative (for example getting to sing in the choir).

The rehearsals did not just determine the dynamics of the teams; it also increased the dynamics of the different parts of the show, students and teachers contributing with new ideas that augmented the quality of the activity.

The festivity itself was a challenge of a new kind. Teamwork broke a series of preconceived patterns, freeing the members of the teams from unjustified inhibitions, a numerous audience made more present. Some of them had the ability to direct their nervousness towards improving their act; others could not reach their level of performance during the rehearsals. The feeling of content after the festivity was unique and the "artists" knew how to enjoy it to the full.

The way in which all those involved accepted to go beyond their prejudices and play their parts, forgetting about academic position, is similar to the way we actually manage to accept change (reform, even). The example of fellow teachers clearly proved that this attitude does not depend on the age, it depends on the "flexibility of dogmas" that each of us managed "to adopt", considering them universally true. It seems, however, that truth is something quite relative, that changes according to situation.

The extracurricular activities described allowed both the practical application of theory and the acquisition of new information and knowledge. From the point of view of human relationships, this activity led to the better cohesion of the group through knowing each other better. Students considered this a successful opportunity for spending their spare time.

In conclusion, we can say that the formative direction of education, which can, of course, be only sustained by knowledge, stimulates students' eagerness and wish for continuing to learn. Thus we establish the basis for self-education which invariably leads to permanent education (Salade D., 1995).

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