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ECO-TEAM FORMATION IN LATVIA AND THEIR ROLE IN ENVIRONMENTAL EDUCATION

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Abstract

The attitude of an individual to various phenomena, the environment among them, to great extent depends on understanding these issues. The world experience with eco-team activities as a means of building environmental understanding has already been known for more than a decade. Alongside with the foreign experience, this article gives an insight in the process of eco-team formation in the Baltics, especially in Latvia.

The first results allow us to look upon eco-teams as a new and ambitious pedagogical strategy that is a good incentive to introduce the environmental education as a school subject to build a comprehensive and caring attitude towards the nature and the processes inside it.
Key words: eco-teams, environmental education.

Introduction

Environmental education could be considered as the initial stage in life-time education. Thus the definition of environmental education is broadened and it constitutes a small part of life-long activities.

The syllabus of environmental education and the methods applied in a contemporary school to great extent depend on the existing economic conditions of nature environment. A motto for a successful accomplishment of nature education today could be "Future begins today" (Steigens, 1999). With the growth of living standards, the use of natural resources increases accordingly. More and more raw materials, water and energy are required for the production of consumer goods and our everyday comfort. That is why the key factor that aggravates nature conditions is the use of short–term resources and it threatens us with nature pollution and the exhaust of natural raw materials.

The american scientist Bary Commoner has identified four rules that regulate the processes in nature (http://www.liis.lv/vi/Vadlin.htm):

- things in the nature are closely related;
- everything is in constant movement and transformation;
- the nature knows better what it needs, but the human is given a chance to act wisely;
- we have to pay for everything.

Interfering with the nature laws, the individual changes the natural state of things and leaves irrevocable flaws in the environment. To characterize this phenomenon, scientists (Vakerneidžels, Rīss, 2000) have introduced the term Ecological Footprint. In terms of size and space this phenomenon is measured by the area needed to provide for any of us. The more advanced the country is, the more people live in one community (in big cities), the heavier and the bigger the footprint is. Each of us, individually and together, has to develop a certain competence to participate in the processes of sustainability, never failing to understand the needs of future generation and not threatening their ecosystem.

Experience shows the poor knowledge of environmental topics among many students, especially concerning the topics related to the understanding of environmental processes from the natural science perspective. Environmental topics form a significant part of natural science education not only by covering environmental education objectives but also developing learning motivation in the "difficult" natural science subjects (chemistry, physics, biology). On the other hand, natural science subjects are the ones to give the student the knowledge and skills that form a science-based insight into the processes and relationships in the surrounding environment.

In order to promote the formation of a natural science-based worldview and environmental comprehension in students, a new and unconventional form of extracurricular activities is being introduced in Latvia, namely the eco-team. Eco-teams are expected to help arouse students' interest in natural sciences thus motivating them to master these subjects well.

The purpose of the paper is to evaluate the performance of eco-teams launched in Latvia

The substance of eco-teams and their activities abroad

The basic objective of eco-teams is to encourage every individual to change his or her lifestyle, routine habits and develop a friendly attitude to nature, thus contributing to the planet's long-term sustainability.

The first book about eco-teams was released 10 years ago in the USA (Gershon, Gilman, 1992). This idea has been promoted and further developed by Swedish authors (Mehlmann, Bingel, Thunberg, 1996) in their book "Eco-team. Ta makten över miljöutvecklingen". Currently the basic principles of eco-team formation are supported and coordinated by the GAP (Global Action Plan), SIDA (Swedish International Development Agency) and the program TASIS (The American School In Switzerland). They have spread the idea of eco-teams around the world. Currently there are numerous eco-teams in 14 countries: Belgium, Finland, Netherlands, Poland, Ireland, Japan, South-Korea, Sweden, Spain, Great-Britain, Switzerland, Russia, and USA. In 1997 Russia joined the movement of eco-teams, and around the year 2000 the first eco-teams were formed in six other European countries.

Abroad, eco-teams mainly operate as interest clubs, separated from school activities and in the spare time of the participants. Neighbors, colleagues and friends usually meet once a week and are consulted by a group leader on various questions. Six issues are generally under discussion: waste, water, energy, plants, transport and shopping. A typical European eco-team includes representatives of 5-10 families. Its members are free to choose the problem to solve and thus contribute most to saving natural resources. The leader advises them on analyzing their household efficiency and improving it. The experience of Netherlands and Poland proves that the families involved in eco-team programs can eliminate about 40% of their household waste, save 20% of the water used, 10 to 15% of energy, and 15% of fuel (Nitak, 2000).

In Russia, the eco-team formation is fully managed by social and non-governmental organizations (the International Ecological Cooperation Centre – PAH; Consultancy Educational Centre – LIBRA etc. They have set up eco-teams in elderly houses in St. Petersburg now witnessing an active participation of the pensioners. There is also an eco-team that involves the residents of a block of flats. They collect food left-overs, compost them in the basement and grow decorative plants, berry bushes and vegetables on the roof of the house for their own use or for sale (Sokol, 1996). Young people attend youth centers and set up co-operative programs with neighboring schools and nurseries (St. Petersburg Children Ecological Center "Vozņesenski Most").

Sweden has identified people with special needs, drug addicts and alcoholics, successfully involving them in eco-teams as well. It is a sort of a restoring therapy that brings the people together, encourages them to take responsibility for the green plants, small pets and their own

surroundings thus restoring their peace of mind (Mehlmann, Nitak, 2001). Such interest groups have been formed in Begsjorn, Tireso, Naka etc.

These positive examples reflect the diversity and unlimited possibilities to integrate school youth and local communities in the processes of ecological education. It is essential to carry out a pedagogical research for the ways to adapt this foreign experience to the local needs and situations in Latvian schools.

The pedagogically psychological aspect of the eco-team

An individual's behavior is basically determined by his or her subjective perception of the environment and the perceived ability to act according to his or her own understanding. By recording the level of resource usage before and after the chosen action, positive changes are apparent thus motivating the individual to take further actions.

Building motivation for a participant's activity, the coach usually starts with drawing a future vision - a micro or macro-model, where they would enjoy living in. By letting the students discover the necessary knowledge themselves by independent research and practical activities, the coach supports their cognitive interests (Figure 1).

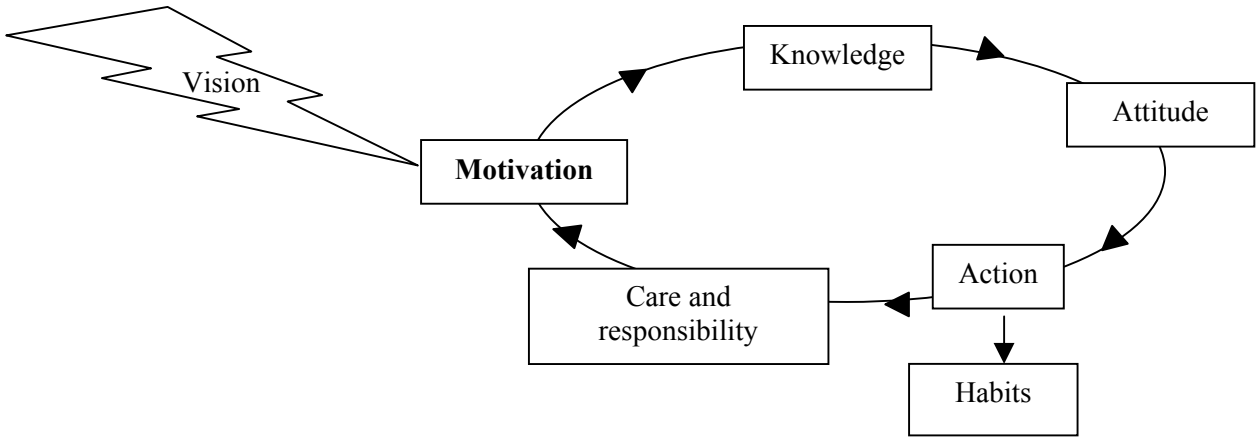


Figure 1. The mechanism of motivation formation (based on Melmann, Nitak, 2001).

As a result, the attitudes and behavior attain a new quality. Knowledge promotes motivation. Attitude conditions actions. With time, actions develop into habits, which in turn motivate the necessity to care for the quality of immediate surroundings in the future, as well. All attachments and care form the sense of responsibility. That builds a cycle that preferably develops a shape of an up-going spiral: the more one cares, the more confident one becomes, the greater the motivation. So the necessity for more knowledge grows, skills and competence are improved, the scope of actions diverge enormously. The moment one loses one's self-efficacy for changing anything the spiral turns upside-down.

It is important to understand the determinants of an individual's behavior and the possibilities to affect those. It is erroneous to think that knowledge and information is enough to change a person's behavior. Practice proves that knowledge does not necessarily change one's actions and behavior. It is not easy to define what does. At times – positive thinking or a well-done job can be rewarding, at times the process itself gives satisfaction. Occasionally, a piece of luck or success add to our comfort, but more often than not, a positive example encourages us to take further actions

(Lagzdiņa et al., 2003). At the base of a newly transformed behavior lies ethical, scientifically and pedagogically supported attitude to nature and the surrounding environment.

This approach centers around a student endowed with his or her own will, feelings and readiness to take a reasonable action, supported by well-informed and interested parents and a competent and confident teacher (Figure 2).



Figure 2. Interaction of students, teachers and parents builds the eco-team.

Building an eco-team is a democratic process. A student-centered approach corresponds to the change of educational paradigm from subject to personality; from knowledge and skills to building motivation and attitude. The expected results are changes in thinking, attitude and performance in eco-teams. These results are achieved when one's habits are changed, when the changes in the surrounding environment has invoked changes in one's inner self (Figure 3).

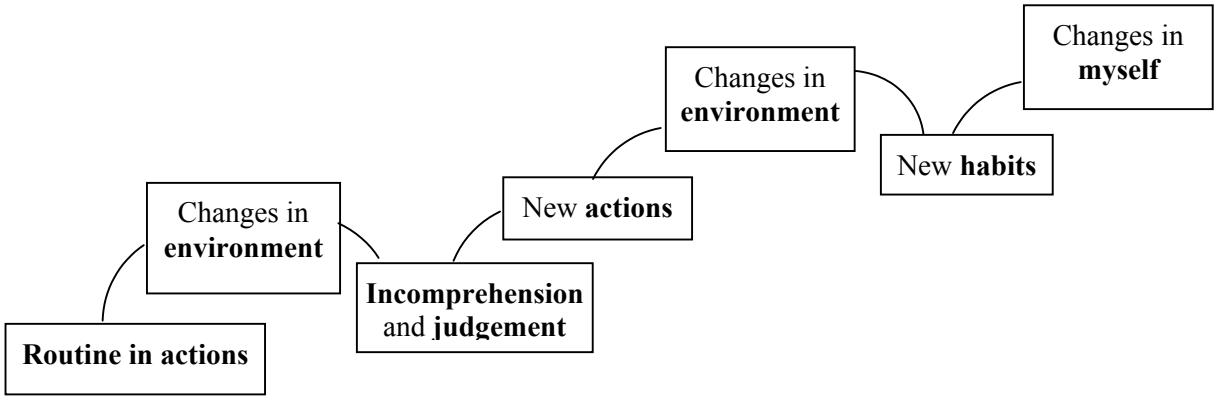


Figure 3. Process to form new actions and new habits.

Every student is supposed to acquire the knowledge, values and skills that enable him or her to become an active, democratic and responsible citizen. It is essential for a child to understand as early as possible that he or she is a constituent part of the environment and to encourage him or her to adopt a positive attitude to nature. The raising of awareness, training and education contribute significantly to the formation of a nature-friendly and caring personality. In the early childhood, emotions play an important role in the formation of attitudes and habits of a responsible individual. It is in an early stage of development that an individual forms many habits for life. Therefore, the stability of the results depends on involving the children in environmental education early.

Development of eco-teams in Latvia

In 2001, eco-team formation was initiated in Latvia, Lithuania and Estonia within the project "Schools for Sustainability in the Baltic Countries" of the MATRA (Mechanique Aviation et TRAction) program in the Netherlands. The long-term objective of the project is to encourage and

promote sustainability in Latvia by integrating sustainability education in the school curricula and extracurricular activities.

Main directions of activities:

1. Strengthening nature awareness;
2. Formation of a nature-friendly social behavior;
3. Development and approbation of a methodological provision for the eco-team program in Latvia

Unlike abroad, eco-team leaders and coaches in Latvia are biology, chemistry or primary school teachers of regular schools; eco-team participants are students of very different ages. The first eco-teams were found in Cēsis elementary school No.1, Džūkste secondary school and Liepāja secondary school No.8. They have found cooperation partners in three more schools from the Cēsis, Tukums and Liepāja regions. Currently each of the nine partner schools have several eco-teams, involving students and their families. In the framework of the project they have built the Eco-foundation, which grants support for the schools involved in the project to organize activities at local level and share their experience. Alongside with the experience-exchange seminars they organize new leader training courses, too. The first GAP eco-team coach certificates, that give the rights to train team leaders, have been granted to six people in Latvia.

So currently there are six certified eco-team coaches in Latvia; 36 teachers eco-team leaders; 40 eco-teams in 35 schools; 311 students participating in the eco-teams. The expected results after one or two years are to have about 80 teachers trained as eco-team leaders, about 60 operating eco-teams, about 500 families involved and providing support.

The first achievements and their analyses

The subject matters that are under consideration of our eco-teams are saving energy and water resources; proper waste and litter management; transportation and shopping habits. After the group receives information from their teacher about the prospective activities, every team member is free to study the matter closer and later become a team-leader (it is possible to appoint several team leaders). Later, in the next meeting the team leader informs the group-mates about the research strategy. Every member has a portfolio (work-sheets or a work-book) where they place the results of their measurements, and compare them with the data gathered before the experiment.

Perhaps it is too early to estimate the saved resources in Latvia in terms of money or quantity, although economically these gains may prove a considerable profit and testify to undeniable efficiency. However Estonia has come up with the first figures: a school hosting an eco-team of 39 students, has carried out research on saving paper. Instead of writing on one side of a sheet they chose to write on both sides thus saving 27 kg paper a month, which makes 342 kg paper a year! They made an experiment on energy saving, too. Exchanging twelve ordinary electric bulbs for more effective ones their gain was 580.8 kW/h (Štrausa, Galkute, Kivinukk, 2003).

In Džūkste secondary school the students figured out that they can save 80g plastics a week if they reject plastic shopping bags. They can save 15-kW/h energy if they do not waste it in empty rooms. It makes 3.84 kg plastics and 720 kW/h of energy a year! Cēsis elementary school No.1 eco-team students suppose that with a reasonable attitude a four-member family can save 1.2 m^3 hot water and 0.9 m^3 cold water per month (Štrausa, Galkute, Kivinukk, 2003).

Undeniably, students, their parents and teachers are the ones benefiting from this unconventional pedagogical method. They are improving their knowledge and learning to use it in their everyday life. The students of grades five to seven have proven to be more responsive and ready to engage into experiments as their senior colleagues. Secondary school students are more willing to process the accumulated information and use it in their research work.

Interviews and surveys of the students allow us to identify the most valuable gains. From the perspective of the students those are the opportunity to be together with friends, common events, excursions and meetings, the awareness of doing a good job, the idea of saving the family budget. The younger students are most active. Most classmates that are not involved in the eco-teams show interest, but are not ready to participate actively yet.

Participating in an eco-team teaches the student to consciously care for the preservation and improvement of the quality of environment, develops communication skills, forms a sense of responsibility for environmental processes, draws the students' attention to the importance of the natural science-based education in the real life.

Conclusions

The very participation in an eco-team is an education, it offers the individual real chances to contribute to the improvement of the environment, combining the theoretical knowledge obtained in the separate study subject classes with practical work. Consequently, it motivates the students to further action. Thus the knowledge acquired in the subject classes may promote useful activities in families, social life, at leisure and in everyday life.

The first results, the interest of students and teachers in this method imply that the eco-team is a new and promising pedagogical strategy, helping the students to develop an evaluative and caring attitude towards the surrounding environment and its processes as well as providing learning motivation for natural science subjects.

The initiative of eco-team coaches, the pedagogical skills of eco-team leaders and the activity of the current participants will to a large extent determine whether and to what extent will eco-team movement spread and succeed in Latvian schools and society in future.

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Резюме

ЭКОГРУППЫ В ЛАТВИИ И ИХ РОЛЬ В ЭКОЛОГИЧЕСКОМ ОБРАЗОВАНИИ

Айра Бартусевича, Дагния Цедере

Отношение к различным феноменам, в том числе к окружающей среде, в большой степени зависит от понимания данного феномена. Экогруппы как средство для развития экологического понимания в мире известны уже около десять лет. В данной статье помимо опыту по организации и руководству экогрупп за рубежом рассматривается образование экогрупп в Латвии. Организация экогрупп в Латвии - новая, нетрадиционная форма внекласной работы школьников, способствующая их активное действие, что приводит к образованию отношений и перехода действий в новое качество – в привычки.

Первые результаты, интерес участников и организаторов к работе позволяют сделать вывод о том, что деятельность экогрупп является новой, перспективной педагогической стратегии для развития у школьников бережного отношения к окружающей среде и познательного интереса к естествознанию.

Ключевые слова: экогруппа, экологическое образование.

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