ENVIRONMENTAL PROJECT-BASED LEARNING IN UKRAINE

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Abstract. The article deals with environmental school projects. Many teachers already know they want to use environmental education techniques and concepts. The best way to attain it is to engage students in project-based learning. Nowadays there are many terms to describe the environmental project in class. Sometimes they are rather confusing. Special attention is paid to Ukrainian schools where such projects can be implemented. It is obvious there are Pros and Cons of this technique. In this paper we try to concentrate on the Ukrainian example. We also may see distinctions and similarities of it in comparison with the rest of the countries which accumulated substantial experience in this field. There is a lot of information to consider before choosing this method. Indeed, project learning has proven especially fruitful in environmental education. Without a doubt, students shouldn’t wait passively for the educators to spoon feed them every step of the way and take responsibility for their own learning process. For this reason, fostering student-to-student interaction and enhancing their self-esteem should be included into the design of environmental classes.

Keywords: Environmental projects, environmental education, project-based learning.

Introduction

Rapidly increasing population is causing environmental problems. They can be found everywhere in our world. They affect our air, water and land. Therefore, integrating environmental education into school curriculum is one of our instructional priorities. Environmental education is likely to be associated with projects. There are many benefits of environmental projects such as a possibility to design of a solution to a real-world challenge, connect with community resources and stakeholders’ perspectives, align with core content standards and performance expectations and engage students into authentic and cooperative group learning, etc. It might seem as if no problems would arise. Most of the difficulties depend upon teachers if they recognize students’ inherent drive to learn and manage student assessment. Some of the obstacles are closely connected with the organizational issues and costs involved.

Project-based education can be interpreted in different ways. It is “…a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks” (Markham, Larmer and Ravitz, 2003). Project-based education is one of the most perspective technologies that creates conditions for creative student self-realization, enhances motivation for knowledge attainment and fosters intellect. Students become more experience in authentic problem-solving that is extremely useful for their future life. Projects support attendance, self-esteem, responsibility, process skills and student engagement.

Project-based learning is closely connected with project learning. But there is a difference. Project based learning is “an instructional approach built upon authentic learning activities that engage student interest and motivation. These activities are designed to answer a question or solve a problem and generally reflect the types of learning and work people do in the everyday world outside the classroom (Buck Institute for Education)”. On my opinion, the basic distinctions is that project-based education requires teacher guidance and team collaboration and teacher work occurs mainly before the project starts (Kharbach, 2014).

Project-based learning is very similar to problem-based learning. It is considered to be a subset of project-based learning. Project can be framed only by means of solving a problem. Problem-based learning has a few characteristic features or steps to follow. Among them are ill-structured presentation, problem statement, knowledge inventory, generation of possible solutions, formulation of learning issues for self-directed and coached learning and sharing of findings and solutions. In contrast to project-based learning problem-based learning is more often single-subject, tends to be shorter, follows specific, traditionally
prescribed steps, uses case-study more frequently and the “product” is a proposed solution in a written or an oral form (Larmer, 2014).

The problem of choice between different tools and methods is always number one in any educational system. Why is it so important to stick to that technique? What benefits can we achieve? What knowledge and skills can we teach? Project-based education is an educational process which is based upon cooperation between students, teachers, social and natural environments. In Ukraine theoretical basics of project-based technology were introduced by outstanding researches and educators such as H.Yahodin, I.Zverev, A.Moiseyev, M.Potashnyk, V.Lazaryev, N.Ryzhova. So we try to see characteristic features of Ukrainian environmental projects and use the project “Keep your Hometown clean” as a good example of it. One way to understand environmental projects is to find out what goals and motivation most Ukrainian teachers and educators deal with.

Method

2.1. The goal and objectives of Ukrainian environmental project “Keep your Hometown clean”.

The research methodology of this study involved teacher interviews, classroom observations and review of the related literature. The best way to undertake this research is to observe school classes and extracurricular activities where environmental projects can be found. Most teachers do not like visitors during their classes. But it is almost impossible to get a clear picture without interviews because only teachers can describe the way they conduct their classes in a particular way. All that we did in a close connection with the setting where it occurred.

The goals of any Ukrainian environmental project should be to cultivate an understanding of modern environmental issues and awareness of its importance for our country, develop personal responsibility at national and global levels and engage students as future citizens into the business of improving and cleaning gardens and parks in the city.

The goal of “Keep your Hometown clean” project is to foster environmental awareness among young people and support them in their practical activity, exchange of experience, providing younger generation with information concerning environmental condition of our land, be ready to protect and preserve our environment.

Objectives of this activity:

1. Concentrate on environmental philosophy and education.
2. Spread environmental knowledge.
3. Master environmental stewardship.
4. Involve students in environmental activities based on acquired knowledge in school.
5. Develop information technology competence in students.
6. Clean the city.
7. Conduct training among citizens about city setup and cleaning gardens and parks.

2.2 Background of the project “Keep your Hometown clean”.

Environmental education of young people is an important element of general education and extremely important factor for humanist society.

Environmental education is aimed at creating environmental competencies in young children. It is important for children to understand that human being is a part of nature. That’s why human life is related to our environment.

Environmental education should start right at your place: at your home, on your street, in the yard of your school. Only if people are aware of personal abilities to solve the immediate environmental problems, they can think about the future of our world as a whole. We must teach children to love nature in order to foster feeling to protect and preserve environment.

The idea of cleaning city parks and gardens by its residents is new to our region. During the administrative and command type of Soviet economy there were no practically models of scavenging in small settlements. Some territory was attached to every enterprise (community effort/donation of a day’s work). Parks, gardens, tombs of unknown soldiers were out of sight of that time authorities.

Today the cleaning of these areas is a time consuming project. Young people who care for the nature and environment take charge of this land. So the territory was divided between secondary school children.
Information Technology Specialized school No. 2 is located in the center of Zolotonosha. The school is overlooking the picturesque square named after General Neverovski. There is a tomb of the Unknown Soldier near the square. School backyard goes to the Zolotonoshka River. In other words, the school is surrounded by green flowers, trees and grasses. Besides there are two monuments next to the school. The task of children is to take care of adjusting territory and maintain it in good condition as well as town parks, attractions and sightseeing.

So the school authorities launched a project "Keep our hometown clean".

Fifth graders take charge of school territory. Children work on flower beds, clean rubbish, plant flowers and pull out weeds.

Sixth graders secure the area around the monument to soldiers. Sixth graders clean rubbish from the tomb of the Unknown Soldier (as residents of the city leave cigarette butts, plastic bottles and empty cans). At the foot of the monument children have their own flower garden and look after it.

Seventh and eighth grade students look after the Zolotonoshka. They clean out there trash, break out dry twigs, plant trees and make up birdhouses and bird feeders.

High school students (grades 9 – 11) clean the park named after Neverovski. Children have contrived benches and installed them on their own initiative in the park. They also scavenge for rubbish after city residents, take out the leaves, plant beds and maintain park in good condition.

Our project proposes to develop a system that would help to resolve questions of scavenging with minimal cost. Taking into consideration global problems of preservation and resources distribution and Ukraine's transition to a market economy, the idea of cleaning urban areas and their greening or landscaping is not only innovative, but also vital to all of us.

Stages of the project:

Stage I - organizational (2010-2011 school year):
- Conduct investigation of cleaning urban areas by special services;
- Identify areas of work;
- Activity planning of environmental group;

Stage II - Information and educational (2011-2012 school year):
- Develop teaching materials regarding rubbish cleaning technology;
- Issue the environmental newspaper "Ecological Bulletin";
- Creation of environmental book shelves;
- Develop teaching materials regarding population garbage cleaning technology, maintaining parks in good condition, graves of Unknown Soldier, taking care of flower beds and information booklets;
- Conduct training and propaganda concerning garbage cleaning among population in schools and institutions.

Stage III - Practical (2011-2012). Students participate in various environmental actions:
- “Clean Village”;  
- “Along the clean street in the third millennium”;  
- “Action on school improvement area”;

Some of the examples may include:
- Holding environmental competitions and exhibitions;
- Studying the transport impact on the environment;
- Monitoring the ecological conditions of the school district;
- Creating Projects;
- Greening school yard – “From greening the classroom to landscaping the neighborhood”
- Making a speech of the team “Green Guard”
- Conducting of environmental events: “Ball of Flowers”, “Homeland: Take care, love and know it”;
- Promoting environmental awareness and education among population through Environmental school website (Vertiporoh, 2010).
General Discussion

3.1 Why support project-based education in Ukraine?

At the current level of development there is an urgent need to use these methods in Ukrainian secondary schools. It transforms our system of education into a more efficient interaction and adds new features. It may be particularly beneficial for teachers and students who have difficulty learning in traditional classroom settings. Project-based learning is designed to reduce human negative impact on our environment. It gives a chance to Ukrainian schoolchildren to use material taught during classes and put it into practice. Project-based learning has different names such as project learning, community-based education and place-based education. It depends upon context where students and teachers participate regularly. Though all of them are different concepts, they are overlapping categories. Though projects are not so closely connected to our community, community-based education is becoming increasingly popular nowadays in Ukraine. Such approach can be done at local, regional, national and international levels. It aims to solve different problems in agriculture, politics, technology and other fields. It develops creativeness and motivation.

Many science researches support the idea of project learning implementation in schools. Among such advantages we can find the following: better student engagement, reduced truancy, cooperative learning support and achievement of better results during examinations. Projects should be part of classroom experience, especially in natural studies. That’s why environmental projects are so widely used in schools all over the world. Such projects shouldn’t be implemented in a traditional, teacher-centered approach or shouldn’t be a kind of supplement to lectures and discussions. What I mean by these projects that they are a nice opportunity for children to investigate our world in an authentic way. I would go even further. Why not allow students decide which topic to choose or plan their own activity? Of course there should be some kind of supervision and control over children. But it does not necessary mean to be obsessed with the structure or when the project is too highly structured. Anyway it’s up to the teacher to make up which path to choose. It goes without saying that majority of the projects should last at least one week or more. It requires substantial amount of time to develop deep and meaningful thinking, solving problem skills and use metacognition. But the biggest advantage of this instructional methodology of choice relies heavily on our teachers. Very high teaching standards, expertise in every aspect of reality is a must for all educators. This method isn’t so widely used and it can be explained by several reasons. It lacks organizational, technical and personal issues in Ukraine. In addition to this, some teachers and academic administration have no clear understanding of content, principles, methods of instruction and confidence in objectively assessing project activities.

3.2 The goals and motivation of project-based learning in Ukraine.

Again, the goals and motivation of Ukrainian project-based learning is key to its understanding. As might be expected, we differentiate between the following goals of Ukrainian environmental projects:

- Fostering personality who can consciously and actively engage into environmental issues;
- Developing initiative skills necessary for actions and self-efficacy;
- Committing to maintaining sound environmental practices and attitudes;
- Focusing on environmental education activities;
- Engaging students to local practical activity;

The objectives of environmental projects are:

- It aims to conduct activities for solving local issues (greening school territory, avenue planting and transplanting tree seedlings to the park);
- It supports cooperation with all stakeholders in practicing environmental activities.

In most cases the expected outcome of student project would be the improvement of adjusting territory, planting a park or a lane, studying of the legal implications, finding appropriate solutions in tough situations and assessing them, having skills of carrying out environmental projects. In addition, we can use such methods as research, observation, cooperation and collaboration, field activity. Motivation plays a vital role in Ukrainian environmental projects:

- Opportunity of creative self-actualization and self-improvement;
- Realize the urgent need to protect nature;
- Possibility to preserve and increase the beauty of nature;
- Recognition of the importance to go green;
- Awareness of close ties between human health and environmental factors.
3.3 The use of project-based education in Ukraine.

This method isn’t so widely used in Ukraine and it can be explained by several reasons. It lacks organizational, technical and personal issues in Ukraine. In addition to this, some teachers and academic administration have no clear understanding of content, principles, methods of instruction and confidence in objectively assessing project activities.

At the current level of development there is an urgent need to use these methods in Ukrainian secondary schools. It transforms our system of education into a more efficient interaction and adds new features.

Project activity gives practical experience to all participants. It is very supportive in checking knowledge and universal truths during such activity. Such experience fosters individual abilities, communication and problem-solving skills, helps to find ways in conflict situations, etc. Active participation backs environmental attitude. There is a list of skills which are developed during project-based learning in our opinion:

1. Interpersonal. Express your own ideas and thoughts, consider other opinions and ask questions, find arguments to support your own perspectives, solve conflicts, have concerns for others.
2. Process skills. Understand complicated facts, develop own ideas, analyze, use and find information, make decisions in unexpected situations.
3. Team work. Work in teams, perform certain functions: take responsibility of a leader, do statistical calculations, carry out different duties, etc. Plan and split duties between members of a team, be involved in individual and team work activities.
4. Problem-solving skills. Find a problem, assess the degree of question difficulty, plan the ways to solve the problem, engage different social groups, authorities to problem-solving, analyze possible solutions to the problem, change ineffective tasks and tools while problem-solving.
5. Initiative. Develop initiative, be actively involved within a given structure, tackling obstacles on one’s own initiative, make appointments, express propositions and ideas.
6. Creative skills. Foster talents and inclinations, develop confidence in members of a team, make flexible solutions and consider different solutions.
7. Democratic. Respect rights of each other, take into consideration interests of everyone, debate and discuss, defend your positions, find a compromise, assume the responsibility for actions.

Project-based education is closely connected to its planning, implementation and assessment in classrooms. Effectiveness depends on the following stages:

- Understanding the question of a project;
- Explicit planning of all project stages;
- Initiative and activity involvement;
- Use of prior experience of solving this problem in society;
- Presentation of students results;
- Paying attention to faults and assessment of activity.

Topics of environmental project can be of different nature. Its variety can depend heavily upon a given place or town. You can start by stating a question in front of students: How can we improve our environment? What can we do for our environment? Can we do anything about our school garden, town’s park, trees along the ditch, full of rubbish street and local stream. Such questions should be raised and answers can be found together with students.

It is important that project topics should be closely related to local issues and be handled by schoolchildren independently or with the assistance of grown-ups. Duration of projects can vary and is linked to the goals and their practical application. It is desirable that such problems became a subject to school project activity again after some time. Especially it applies to issues such as planning a school setting, cleaning streams and street greening.

Special attention should be paid to the assessment of school activity and presentation of its results. Low self-efficacy can lead people to believe tasks to be much harder than they actually are and cause serious harm to children. That’s why it should be stressed on positive results and we must appreciate marked changes in environment.

Environmental projects can be enhanced by student cooperation with their community. Community can be represented by parents, authorities, organizations and business circles. During the project all children should be engaged equally into the activity, monitoring the situation and presentation of their results.
3.4 Some practical tips for dealing with environmental projects.

Many teachers have decided for themselves they want to integrate project-based learning in schools. The best way to start it with one class on a small scale and not to use all the variety of this method in classes at first. It is important that the product of such cooperation has real world value. You can use experience from other schools or visit educational websites. In order to fully understand the project you should complete it yourself. It is useful sometimes to involve student critique for better attainment during classes. Other tools that can be used to enhance project-based learning are: take time while trying to introduce this instructional method, engage reluctant staff because it requires skills, values and experiences than traditional classroom setting, put your children in the center of the learning process and leave enough time for teachers and students to reflect. In brief, teachers should be extremely patient and take your time while introducing new method into the instruction. There may be some mistakes especially at initial stage but that shouldn’t be concerned about it (Welham, 2014).

3.5 Project-based education and Ukraine.

Actually environmental problems have become international. They have crossed the borders of many countries. In my opinion, there is little or no difference between environmental projects in Ukraine and the USA or in Western European countries because they are very similar in general and have no substantial differences between the goals. Most large environmental organizations act in difference countries. This happens because pollution caused in one place and has a big impact on bordering country. It is obvious boundaries doesn’t stop negative influence and spread of toxic substances. Environment projects can be divided into tree planting, recycling, education, environmental clean-up, water preservation, and green technology projects as well as involvement in environmental advocacy/governance according to the activity of students and most environmental organizations.

In order to implement project-based education successfully teachers need clear guidance and steps. It helps them to switch from traditional learning to something new. One of the prerequisites of using projects in your classroom is to meet academic standards and effective assessment. There are plenty websites and online courses that can engage students into the meaningful and authentic instruction. I would advise to use proven methodology and design especially at initial stages.

References


