



Teaching of Natural Science outside the classroom and with support of on-line learning

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The Regional Teacher Training Centre in Skierniewice is one of 49 public, accredited institutions in Poland carrying out its statutory goals at the regional level. It has been operating since 1989 and is responsible for organizing of support of schools, institutions, networks of teachers and school managers for cooperation and self-education, organizing and conducting various forms of in-service training, giving methodological councils and disseminating examples of good practice. It also has rich experience in teaching by using modern ICT tools and on-line learning platform (MOODLE).

I present two examples of teaching of Natural Science through outdoor activities as well as with using ICT tools and on-line learning.

Nowadays on-line learning plays an important role in organizing educational activities not only in the field of modern didactic but also in Natural Science. Teachers busy with their every day duties found on-line learning as a very economical, easy and useful way of learning and developing their knowledge and skills. Moreover they are no longer afraid of using new ICT tools and programs which help them to cooperate with students effectively. Since the year 2011 Regional Teacher Training Centre in Skierniewice has been an organizer of many on-line in-service forms for teachers in the field of Natural Science and Regional Education. Some of them are organized as blended-learning forms which allow teachers to participate first in outdoor activities then continue learning on the MOODLE platform. So far about 7 workshops and courses concerning Natural Science issues were organized in which about 50 teachers participated. On-line modules consist of both publishing learning materials in various forms, eg. power point presentations, Word & PDF materials, web sites, publications, working sheets etc. as well as practical duties (participation in chats, forums, tasks, Wiki, group workshop). Teachers use these materials for extending their knowledge as well as for preparing their own tasks, like lesson's scenarios, projects and virtual trips. Then they have opportunity to exchange their knowledge and experiences on-line.

Another example of challenging teaching of Natural Science is outdoor education. Regional Teacher Training Centre in Skierniewice has been involved in such event, called "On Bolimov Nature Preserve Trails" that has been organized regularly since 2001. The Bolimov Nature Preserve is a protected area in central Poland, situated between two agglomerations: capital city Warsaw to the East and industrial city Lodz to the West, covering an area of 231,3 sq kilometers. It was established in 1986 to protect an unique ecosystem on the Rawka River banks from human activity and harmful external factors. Pine tree forests cover more than 60% of the landscape park. Small streams, sloughs, glades are another elements of the park scenery. Walks on the trails in this park are a great opportunity to see many unique species of flora (more than 40 protected species and many endangered species on verge of extinction) and fauna.

The main activity of the walks is participation of students and teachers in group walk along trails of the park using various tools of orientation: maps, compasses and nowadays GPS. Along the paths they learn recognition of forms of terrain, identification of species of plants and animals (using flora & fauna guides and keys, magnifying glasses), measuring and identification of components of weather (using weather atlases, thermometers and anemometers) as well as preparation of soil profile. Some tasks are prepared by students before the event, at school and then presented as a part of competition e.g. soil profile.

A survey is conducted after each such program. A statistical analysis of the survey data reveals that each year more and more students representing all levels of education from primary to upper secondary levels and their teachers are involved in this enterprise. Oral and written evaluations reveal that both students and teachers highly assess participation in this event. Each year the same schools and sometimes more are engaged in the enterprise. Students prepare to participation in event before the date it is organized through gaining knowledge about biodiversity and cultural monuments of the landscape park, preparing research on the topics announced in every year. Their abilities and knowledge are checked during the walk as well as through participation in many competitions. Each year almost 700 – 1000 students and about 100 teachers participate in this ecological learning process.

Outdoor education, observations and experimentations are crucial issues of national school curricula referring to all educational levels which is successfully addressed by this program.

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