

ECOLOGY EDUCATION AS AN INTEGRAL COMPONENT OF PRIMARY NATURAL SCIENCE EDUCATION: SOME RELEVANT ISSUES

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A contemporary environment solves highly relevant issues of environmental protection, natural usage, ecology, etc. In order to overcome all serious obstacles, it all requires our new approach and efforts of the experts' of different fields. The global matters are our general concern. This is *ipso facto* because none of the problems is isolated. Most of them are mixed, versatily determined and originally undivided. Thus, the process of the correlation awareness is rather complex and hardly achievable. The decision is possible only if the points are thoroughly examined in a close correlation. On the other side, the mentioned issues cannot be the only scientists' concern. This is a business of the whole society and school as "the scale of human activity started reaching the elemental natural processes. The ideal of partnership between nature and human being changed when the latter has become the lord of nature in reality... The ecology era is considered to have been started because neither science nor practice can dispose of ecology problems. The bearing between human being and biosphere is a relevant question for both sides: to be or not to be?" (Minkevičius, 1987). These arguments have to comprehensively be discussed by secondary school pupils. Natural science education, obviously, must solidify the ecology world outlook. Prof. J. Vaitkevičius thinks that one-sided, wrong way of natural science education, the insufficient perception of the phenomenon of nature and human being anticipates the social cataclysms of humankind. Therefore, "the goal of nature comprehension is the development of children's abilities to aware a natural world and to communicate with it" (The General curricula, 1997). On the other side, it seems to be not enough. A wider point of view would have been helpful. The knowledge of ecology allows us to partially foresee the outcomes of our actions (Pleijelis, 1994). The formulation of a complex concept is acclaimed to be important, i.e. when nature is understood as a cultural value and a tangible property.

The investigation of ecology education issues inevitably helps to grasp that:

- ecology education has transformed extracurricular activities and coteries into single subjects and curricula in the whole educational system;
- a tendency to attract more pupils for solving local ecology problems can be noticed (for example, environment clearing and sprouting, etc.);
- ecology matters are directly related to the questions about education;
- most of the researchers (Lisejev, 2000; Šapokienė, 1998; Gedrovics, 1999; etc.)

prefer the development of the learners' mentality of ecology as they find it an exclusive social-pedagogic issue urgent in the 21st century;

- ecology education develops a new worldview which in turn requires a qualitatively new thinking. A national science paradigm, science methodology principles, natural science education methodology is a triad which requires deep analysis in a new century. Ecology teaching is the basis of ecology education (Vuitovich, Suchorukov, 2003).
- learners' acquaintance with natural and environmental laws is still prevailing in the educational system (from preschool educational institutions to universities). However, the acquaintance with the interaction laws between nature and environment which is the entire co-evolution system is virtually not implemented (the idea of the union Human Being – Society – Nature).

Different authors present various forms of ecology education, outline the tasks and ways of implementation. Nevertheless, the objectives of general ecology education are differently introduced in the proceedings of the majority of the authors. According to Rimkevičienė, *ecology education* /EE/ is the establishment of the correlation with the outward things, an environment, a spiritual relation with nature and people (Rimkevičienė, 1996). Šapokienė describes the main task of natural science education in a broad sense and states that the goal of ecology education is to form ecology conscience, worldview, to develop the responsibility for the environmental line, to promote an idea to act for the benefit of environment getting in touch with nature and a social environment (Šapokienė, 1995). Pupils' *ecology literacy* promotion (Orr, 1992; Tarasova, 2000) and *ecology culture* formation (Akvileva, Klepinina, 2001) are introduced as the fundamental propositions of ecology education. In her study about Russian ecology education Tarasova notices two objective disadvantages – teachers feel lack of a coherent ecology education curriculum and primary school teachers are short of methodological literature that discusses ecology education issues provided with the interdisciplinary method.

“Ecological literacy, further, implies a broad understanding of how people and societies relate to each other and to natural systems, and how they might do so sustainably. It presumes both an awareness of the interrelatedness of life and knowledge of how the world works as a physical system... Ecological literacy presumes that we understand our place in the story of evolution” (Orr, 1992, p.92).

The teachers, that have wide teaching experience at school, more frequently accentuate the following tasks of ecology education: *children and society's ecology education, the development of a healthy lifestyle, research work at school* (Obelevičius, 1995). The competence aspect is very important. Competence developing plays a primary role in the process of ecology education, i.e. the activity is based on knowledge, abilities and responsibilities and is used to save and improve the environment (Salickaitė-Bunikienė, 1998; Motiejūnienė, 1998). Ecology education relates to criminality prevention (Kliminskienė, 1999).

Ecology education is a permanent process, thus it has to coherently take place in all forms of comprehensive school. Every age range is useful for ecology education. Therefore, we cannot think that if something has been lost in primary school, we will have a chance improve. Full attention should be turned to primary school pupils as they receive propaedeutic, systemized and integral knowledge about nature which is the basis for the adaptation of information and attitudes (for example, environment protection) as well as for humanistic, aesthetic and cognitive motivation. Knowledge (information) about ecology could effectively be implemented only if suitable material facilities of training existed. Primary ecology education is a coexisting part of an immediate interest in nature, fauna and flora care, inhabited locality

protection, responsibility for the results of human activity in nature. The sampling, adaptation and implementation of the content of ecology education using particular means (material facilities) are the foremost stages of integration. It could be justly maintained that

ecology is an integral component of primary natural science education

The major result of ecology education is individual ecology education that includes ***cognitive*** (systemic knowledge), ***valuable*** (understanding of values, the models of behaviour in nature etc., a concept of respect to nature), ***and practice*** (practical environment protection work, participation in various actions, etc.) fields.

The outset of the 21st century and the present ecology situation in the world requires mainly a different approach towards permanent human education and training. According to Prof. J. Vaitkevičius, 21st century is the one when human being turns back to nature and humankind, when human spirituality and wisdom will be enthroned and the unity idea HUMAN BEING – NATURE – WISDOM will be implemented along mind and intellect (Vaitkevičius, 1996). In 1992 in Rio de Janeiro, most of the countries (including Lithuania) signed “Declaration about the Environment and Enlargement” and “Agenda for 21st century”. A central principle is *long-term sustainable development*. In 1996, the Seimas of the Republic of Lithuania passed the scenario and the strategy of environment protection. “*The development and improvement of the knowledge about ecology and environment protection integration into the educational process*” (...) is an important task along the other basic propositions raised for comprehensive school.

Recently scientists and teachers practitioners have intensively discussed the issues of ecology education at school. We cannot, obviously, rely on single actions and desultory work. ***Systematization*** (created and properly adopted system of ecology education for all stages of comprehensive school, close attention in which is paid to the preschool and primary school levels) and ***strategy contemplation*** (the ways and methods to reach required results) seem are considered to be the most important fields. Some authors suppose (Simonova, 1998; Yasvin, 2000; Osipova, 2001 etc.) that ecology education has to be pointed to the development of a responsible correlation with a socio-natural environment. An extremely important ***normative aspect*** of the content of ecology education is human morality and his/her activity in nature and socium (Simonova, 1998).

Moreover, ecology education is supposed to be a hinge and an obligatory constituent educational part of general schoolchildren’s education. The development of responsibility for environment surviving, the formation of a spiritual correlation with nature, the meaning of the ecologic ideal are underlined by Lithuanian scientists (Kalenda, 1992; Rimkevičienė, 1996; Šapokienė, 1997, etc.). Teachers themselves more frequently accentuate the role of the family in the process of ecology education. Children continually observe and see parents’ attitude towards nature as well as try to imagine their correlation with nature. Therefore, on the basis of work experience teachers comprehend that they have to feel concern about both pupils and their parents’ ecology education and ecologic culture fostering (Miežienė, 1998; Maziliauskienė, 1998). According to Kulbis, the most valuable qualities are spontaneous children’s activities and self-sufficient endeavour to master educational values provided by an environment. It is important to envisage and perceive their value, to trust in their real impact on the personality, to grow into the general treasury of nature and socium values, to develop ability to create them (Kulbis, 1998).

“Ecology consciousness rapidly advances and ripens at school age. A child or youth’s view towards nature is based on feelings, romantic love for nature, constant search for natural beauty, spiritual fare as well as on the knowledge of nature at this age range. Children are tend to spiritualize nature and its certain phenomena and give them life (the speech of trees, animals, birds, etc.). Hence, these individual features must be upheld in the growth of the child or pupil’s ecology consciousness (Vaitkevičius, 2000; p.77).

Primary ecology education should correspond to the focal points of the 21st century. Virtually applying a certain model of implementation, ecology education should follow three directions (the basic principles of ecology education are *consistency*, *systematization* and *complexity*) (Lamanauskas, 2003).

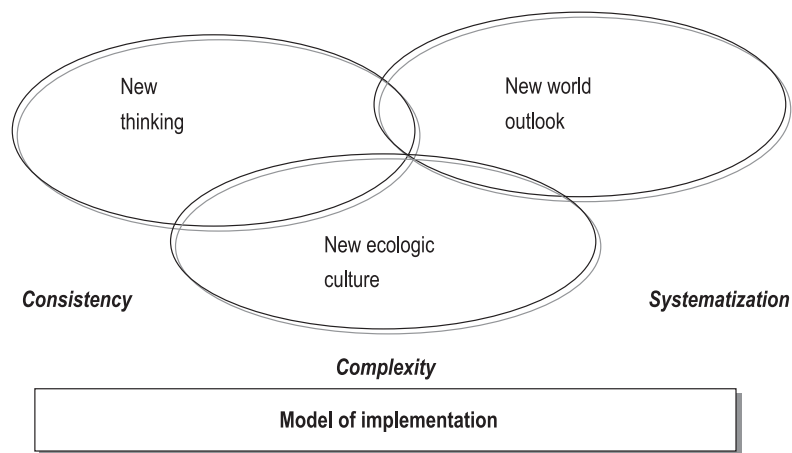


Figure 1. The model of the implementation of ecology education.

The latest research shows that a prevailing approach to the mental peculiarities of the children aged from 7 to 12 (*specific visual thinking, objective-sensual activities, etc.*) is not completely correct, and therefore the further progress is supposed to be achieved (*the elements of logic-abstract thinking, behaviour in a socio-natural environment, etc.*) /Davydov, Muchina, Deriabo etc. /.

I suppose that *the excitation of emotions, humanism, the development of ethic interaction with nature, etc.* should be considered to be the principal moments of the junior pupils’ (6 – 12 years old) ecology education. Ecology education combines two major components (Figure 2).

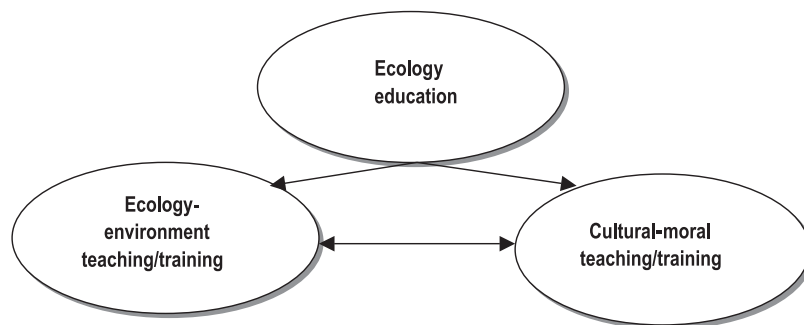


Figure 2. Components of ecology education.

Teaching at school should wider apply the following methods and forms of ecology education (the renovation of content from constructive to value-based one, etc.):

- ecology situations (description, presentation, examination, questioning, value-based concepts, etc.)
- tasks and propositions of ecology (description, presentation, discussions, etc.);
- complex excursions and expeditions to nature (ecologic tourism) (complex impact on pupils when fostering their ecologic culture; experience gained in excursions and expeditions is introduced as integrating material during all classes);
- discussions about ecology ethics (normative, value-based aspects);
- fairy tales on ecology (widely employed using creative elements in the lower forms of primary schools, etc.);
- projects and models on ecology (encouragement of pupils' psychic development, etc.);
- didactic games and play roles;
- creative-practic activities (performing different actions, for example, "Protecting Birds and Animals", "A Nesting-Box Fiesta" etc.);
- Ecologic-psychologic training (expressly completed pedagogic-corrective and concluding tasks).

Three purposeful methods of ecology education have to be highlighted – *eco-games* (the improvement of knowledge about natural history and environment protection, the advancement of knowledge of practical activities and skills when playing a game), *eco-ways* (a means for gaining knowledge about animate and inanimate nature, rational supply usage, sharpening senses and sensual perception of nature), *eco-debates* (strictly structured discussions as most of the topics on ecology are very diverse). Primary school pupils prefer playing eco-games but eco-debates should not be avoided either.

Most of the teachers are looking for the so called non-traditional methods as they consider that the existing patterns are very traditional, and therefore are little effective. Basically, it is a wrong attitude because the essence is not the methods or forms that are used. The most important points are the focus, priorities, directions (*objective, value, normative, etc.*), objectives, tasks and content that we choose. A frequent search for the assumed "innovations" is not effective and even useless in the whole educational process. In this case, the teacher's attitude and competence in the ecology education field is a fundamental feature. Last of all, fragmentary ecology education is also useless and poorly effective. Ecology education should be coherent and fragmentary in primary school. Individual planning of ecology education for the whole four-year period, the teacher's disposition to broaden experience and raise qualification in the field, community and parents' involvement into the activity of ecology education helps to reach the objective. Yasvin and Deriabo (1996) seem to be right that a particular system of ecology education rather than the experts of environment protection will overcome the ecology crisis in our planet. In a broad sense, it must be noticed that the previous ecology-environment protection education is extremely important. On the contrary, the opponents uphold the idea that ecology education is hardly possible in the preschool and primary school period. In fact, an early school age is supposed to be a positive feature of ecology education. Therefore, we cannot refuse the period of individual ontogenesis as it is relevant for effective ecology education.

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