# LEARNERS' INTERACTION WITH NATURE: SOME EDUCATIONAL ISSUES

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***Dear Readers!***

Theoretic and empiric research conducted by a number of scientists has indicated that a well-grounded content of teaching and a purposefully planed process of natural science education create opportunities for pupils to better understand an environment, to perceive themselves as active members of the ever-changing world and to take responsibility for the future of our planet. Though there have been plenty of local ecology crises throughout the history of mankind, today we can clearly face a new global ecology crisis approaching. It requires a new organization of the evolutionary process of the world that is the basis for the renovation of the correlation among Human Being, Nature and Society.

Three basic traditions of the correlation with nature have been settled throughout history:

- the West Tradition – the person is called to dominate over a nature and to supervise it;
- the East Tradition – the person aspires to harmony with a nature;
- the Southeast tradition – the person submits to a nature.

Today we are facing a simple but complex question – ***which one is the most relevant to a new century.***

The necessity of creating a new morality and ethics under new conditions was raised in the past century. It should have been based on qualitatively new relations between Human Being and Nature. Hence, it could be affirmed that natural science education is a very auspicious field of individual self-expression. On the other hand, investigations have revealed that the problem of natural science education exists. Frequently the pupils' knowledge about nature is shallow, insufficient and ineffective at different age range. Moreover, the reaction of behaviour to the same stimulus highly differ (a child can be aggressive, sadistic, pragmatic, practical, cognitive, aesthetic, ethic and indifferent) even in an equivalent situation (for example, children have noticed a creeping beetle on the path).

"Any activity, every action of human being is purposefully guided even if we are not able to suitably clearly perceive it. Very often the actions of human being are fated by the processes of sub-consciousness, one of the most important parts of which is a certain result, aim or motive" (Auškelis, 1999).

The task of the teacher is ability to make judgments and predictions of possible behaviour in terms of natural phenomena and to appropriately correct it. It directly relates to motivation which produces human energy and sets the pattern of his/her behaviour and activity. The process of

motivation includes the interaction of two characters – a teacher and a learner. Intrinsic motivation of schoolchildren interacts with extrinsic motivation of the teacher.


**Figure 1. Interaction of motivation.**

Various theories of motivation interpret the same phenomenon rather differently. For example, the behaviouristic approach states that the intrinsic motivation of learning does not exist. However, it should be noticed that children actively investigate various objects of their environment and manipulate them since early childhood. E.Deci (1995) maintains that pupils themselves accept a challenge to become more competent and knowledgeable. Schoolchildren introduce themselves into the educational process rather than passively wait until being involved by someone (p. 19-20).

Therefore, striving to make the process of natural science education more effective and to achieve better results, it is not enough to advance the content of education or the juridical documents regulating the process of education. The increase of teacher qualification is an extremely important point. It could be performed only by having assessed professional competence of prospective teachers in order to purposefully develop it (Raven, 1999; Lamanauskas, 2001; Makarskaitė, 2001).

Primary school is a fundamental period in the whole system of comprehensive education. The world of nature is highly relevant for children at junior school age. First, it is a spring of feelings and imagination. The interaction with nature becomes more intensive at this age range. On the other hand, this sort of interaction is not famous for his deep, real or general character (Yasvin, 2000, p.202). The foundation of pupils' natural science literacy comes originally from primary school where the junior pupils study considerably a long time which is a four year period and or even longer. This is the most advantageous period of time to provide propaedeutic natural science knowledge and to form positive affective value-based relations with nature. The interaction between nature and child has a cognitive implication when the latter accumulates experience, structures it and affords favourable opportunities to develop children's psychic abilities such as senses, perception, imagination, thinking, creativity, etc. For years the school interaction involved only personal observation of nature and the indication of the obtained results in the calendar. The main drawback is that this activity is not purposefully and systematically arranged. Most frequently it is not developed if a child skips a grade.

The primary school teacher is expected to show competence in teaching natural sciences. The fact has been underlined by plenty of researchers. They exceptionally highlight the understanding of modern natural science concepts and ability to respectively make them comprehensible by pupils (Wenham, 1995; Ovens, 2000; etc.). Qualter raises a crucial question which is *How did you get to be a good primary science teacher?* (Qualter, 1999). Research reveals that mere objective information is not enough and that the knowledge of pedagogy is also necessary. The latter includes the content of teaching, curricula, dominance in the classroom, the organization of the educational process and the common knowledge of pupils and value-based aspects of teaching (Shulman, 1987).

The following propositions could be specified:

- effective natural science education does not require conformable psychological substantiation;
- the interaction with nature varies and remains specific within the various periods of life;
- the mission of the teacher is to wisely manage an evolutionary process of the "real" interaction with nature/particularly in primary school;
- an important task of the education system is the framing of the world concept on the

basis of the contemporary natural science world view (*natural science concept of the world*). The holistic concept of natural phenomena is a solid core of all levels and stages of the education system.

- all levels of natural science education system (the aspects of teaching content and practical activities) have to guarantee the continuity of formulation the concept of animate and inanimate nature as the whole system;
- individual responsibility of the young generation for the future of our planet is the essential (prior) task of natural science education;
- there is a lack of research intended for the interaction with nature in different periods of ontogenesis in Lithuania.

The question about the typology of the interaction with nature is a complex one. The opinions of the researchers vary. Kalmykov A.A., and Kalmykova A. V. specify four types of the interaction with nature (Kalmykov, 2000; Kalmykova, 2000):

1.Ego-orientated natural centrism.
2.Eco-orientated natural centrism.
3.Ego-orientated anthropocentrism.
4.Eco-orientated anthropocentrism.

Some researchers from the US specify nine types of the interaction with nature (Reiton, 1996; Langenau, 1996):

1.Naturalistic
2.Ecologic
3.Humanistic
4.Moral
5.Scientific
6.Utilitarian
7.Ambitious
8.Negative
9.Aesthetic

According to the results of the introduced scientists, the moral (more than 20%) and utilitarian (up to 15%) types of the motivation of the interaction with nature are very clear in the American population. Our results shows that the aesthetic attitude is predominating (37.1%). Nature is perceived as a source of beauty. The next agreeably to importance is the pragmatic attitude (28.4%). The ethical (16.6%) and cognitive (17.9%) attitudes are in the weakest position (Lamanauskas, 2003). Following Kavtaradze, the most dangerous phenomenon is that contemporary ecology education is filled with the spirit of pragmatism, because nature protection is accentuated more than that of environment (Kavtaradze, 1990). In this case, individual teacher's motivation of the interaction with nature plays an extremely important role. The teacher transfers his/her knowledge and experience to pupils. Thus, it should be relevant to make ready a scientifically motivated methodology of natural science education process for primary school. It is supposed to rapidly develop a non pragmatic and humane correlation with nature in the process of natural science education. The problem is most frequently connected with the content of education (curricula, textbooks, other sources of information).

The undertaken theoretic assessment of the issue discloses the diverse typology of the motivation of the interaction with nature. It is obvious, that the ignorance of the cognitive interaction with nature (cognitive motivation) reduces the effectiveness and the quality of primary natural science education. It should be acknowledged that the primary school teachers have limited possibilities in the field of contemporary natural science. On the other hand, nature cognition closely correlates with the knowledge of human being and society (Solopov, 1999). In this case, we can appeal to the ideas of the foreign researchers who see necessity to apply the assessment

of multidisciplinary natural history and technology problems, to refuse the simple assessment of facts (eliminate teaching of "factoids"), to research (study) the topics and concepts of natural history in the integrated context (Powell and Anderson, 2002) and to strengthen pupils'motivation in terms of natural sciences (Woolnough, 1999; Lamanauskas, 2001).

It is important to make adequate diagnostics of motivation. The diagnostics is obligatory in terms of research. It is hugely important for the building a process of primary natural science education. The correction of the motivation development of the psycho-pedagogical interaction with nature of primary school teachers and students has to be directed towards the intensification of cognitive motivation. On the other hand, the attitudes and motivation are directly interconnected. The attitude can be described as a simple derivative of individual dispositions, as the complete personal readiness to react to the environment impact. Attitudes are one of the most important sources of motivation. In the light of relevancy, the attitude appears as the dispositional motive. In this case, we could discuss the diagnostics of the motivation of the interaction with nature, though attitudes are insufficiently conscious readiness to purposefully react towards the environment impact. On the other hand, the intensification of all motives is important for the educational process. I would like to attract your attention towards the application of the term „motivation". On the one hand, it indicates a personal system of individual motives while on the other hand – the system of the actions directed towards the intensification, correction, etc. of the motivation of the other people. I suppose that the continuous intensification of nature study motives is the underlying function of primary schooling. The motives of nature study should be systematically and continually fostered.

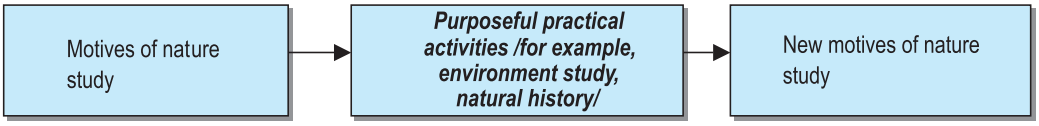


**Figure 2. The motives: systemic approach.**

The child's motives of nature study continually resume, become more advanced and revive individually at higher level. Motivation could be accepted as a productive factor of the internalization of the child's values. Therefore, value-based orientation of the child is increasing and lays down conditions for establishing motives of a higher level. The child's cognitive experience is accumulated through purposeful practical research activities in terms of nature. His/her natural science literacy and the morality of behaviour in nature are broadened and improved. For example, this period, obviously, is very important for the children aged from 9 to 10 as this is the time when moral consciousness of the child is raising. The ten year pupils usually have their individual moral attitudes adopted.

Evidently, the teacher directly influences the evolution of schoolchildren's correlation with nature. Hence, his/her knowledge in the field should be extensive. The process of primary school teacher training should devote close attention to the modules structure and the content of science studies as well as to the methodology of teaching. For example, the only subjects of ecology are not enough to be included into the curricula of studies. The course in ecology of higher school has to help the prospective teachers to understand general issues about ecology and teach them how the obtained knowledge should be applied to professional activities with pupils (Mironov, 2001). The statement on the global issues about ecology draws a conclusion that reasons are human being and his/her inappropriate behaviour in nature (correlation with nature). However, human being is an object of pedagogy impact. Hence, the correlation between human being and nature can and has to be pedagogically optimized. The modules of studies such as *Natural Science Concept of the Universe, The Holistic Concept of Natural Phenomena, Integrated Primary Natural Science Education, The Pedagogy of Ecology, The Philosophy of Ecology, Bio-ethics, etc*. play an important role. The primary school teachers should be attached conditions to work (certain courses and workshops (a system of ecology training) and to advance a professional qualification from in

terms of the correlation with nature. Summer "***Green Camps***" is a very effective form (the length of time is 3 - 5 days). Teachers directly gain and broaden their natural science experience: they participate in natural history activities, learn to observe natural phenomena, get acquainted with the innovations of the methodology of nature and environment observation and experimentation in primary school, launch projects, etc. An individual project is an important component of the camp. Every participant carries out the project in the camp. The camp usually ends with a mini-conference that discusses work results, provides opportunity to share individual experience and outlines the activities of the next school year (Lamanauskas, 2003).

Finally, I want to point out some actual moments. A child faces nature very early, and therefore s/he needs to acknowledge it. We should help children to know it, to make them engaged in the environment they live, to approve their close interaction with natural phenomena and to explain the complexity of natural objects from earliest childhood. After all, it is not enough to say „I love nature". S/he has to admire, feel and confess it. The better a man perceives nature, the stronger becomes his/her correlation with the environment. The man turns into individuality. A human personality cannot progress if isolated from an animate environment. This cohesion should be fostered on the basis of peace from the early days.

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