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THE SECONDARY SCHOOL LEARNERS' INTERACTION (FORMS 5 - 12) WITH NATURE: THE SEMANTIC STRUCTURE OF ATTITUDES IN TERMS OF LIFE PROTECTION

Vincentas Lamanauskas, Irena Gailienė, Rytis Vilkonis

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Abstract. *The theoretical and practical facts prove that humankind increasingly devalue life primarily implementing personal needs and goals. Thus, the major objective of the learners' science (self) education is fostering respect for nature and life. Although the issue is rather vital, the schoolchildren's interaction with nature is poorly investigated in Lithuanian as well as in other European countries. The object of the latter research is disclosing attitudes towards life protection in the process of the interaction with nature. The article deals with the semantic structure and the main peculiarities of the learners' attitudes towards life protection on the basis of which the factors determining the attitudes could be predicted and an effective system of educational support could be developed. 1787 teenagers participated in the survey. A quantitative and qualitative assessment indicates that more than a half of the respondents (64% of the answers) have positive attitudes towards the protection of single plants and animals' species. Less than a half of the surveyed participants expressed neutral and negative attitudes (19% and 17% of the answers respectively). Despite the fact that quite a few learners support an idea about life protection, a semantic assessment of the attitude structure shows that the utilitarian, pragmatic and egocentric components of emotions are mainly prevailing. However, an expression of the ethic and value-based components remains weak and more diffusive. The learners' attitudes towards life protection are full of semantic conversions. Hence, the obtained results presuppose the necessity of educational intervention.*

Key words: *science education, interaction with nature, respect for life, attitudes, semantic categories.*

Vincentas Lamanauskas, Irena Gailienė, Rytis Vilkonis
University of Siauliai, Faculty of Education, Lithuania

Introduction

A global crisis started in the 20th century is a new stage of the relationship between human and nature. Č. Kalenda (2000) suggests that ecologically negative appearances caused by anthropogenetic activity are systematic, regular and resulted from human origin and his/her relation with a real world (Kalenda, 2000). A man expresses a personal relationship with natural environment evaluating its components and acknowledging the wholeness of the ecologic values that can have influence on the educational process. In 2002, the world community agreed on putting collective efforts to consolidate general willingness in order to promote humankind development and to ensure global prosperity and peace (Johannesburg Declaration on Sustainable Development, 2002). This year, the United Nations announced that the following ten year period would be an education decade aimed at sustainable development. The objective of sustainable development is to guarantee a desirable quality of personal life, to strive for public welfare and safety wisely coordinating the needs of economy, public development and environment protection. The programme offers that the basic points are disclosing interrelationship and interdependence among the events and cherishing cultural and natural variety. The process of strategy implementation focuses on the role of a teacher and his/her competence (Laurinčiukienė, 2005). The authors of

the article concentrate on the aspects of animate nature protection, natural variety and consumerism habits. To solve these problems and to successfully implement the programme of sustainable development, the attitudes of the young generation such as fostering respect for human life, animate nature and life in general have to be adopted. Research carried out in Lithuania (110 teachers took part in the survey) indicates that the major reasons for aggressive behaviour with nature are as follows (Lamanauskas, Lukošiūtė, Savickaitė, 2004):

- unacceptable behaviour of adults and other children (32.3%);
- violence through the mass media (28.8%);
- inappropriate upbringing in the family (20.9%);
- personal characteristics (12.0%).

Recently, the experts in the field of science education emphasize that the moral issues (Sjųberg, 2004), strengthening the intellectual and moral components of science education (Fensham, 2004), primary focus on the diagnostics of the interaction (interrelationship) with nature and correction in a broad sense (Lamanauskas, 2003) are very important areas of science education. Although the studies of brutality and aggression in terms of animals are rather weighty, it is not enough to study only individual cases (Dadds, Whiting, Bunn, Fraser, Charlson, Pirola-Merlo, 2004). Our basic concept formulates that the interaction with nature can be changed into the educational means immediately providing the children adequate support in the educational process.

I.Stonkuvienė (2004) has researched the interrelationship between individual and nature. The author states that in the first half of the 20th century, on the basis of morality standards, customary attitudes of a community, national experience and the folklore transferred from generation to generation, the educators (parents, grandparents, neighbours) fostered a close and harmonious relationship with nature. An emotional-value-based-cognitive component which is nature perception is an exceptional one. The interaction between natural and public components can produce unwanted ecological changes and different crises at all levels (Meçečko, 2002). A. Gaigalas (2001) notices that people loose their interrelation with nature because computers and robots separate natural environment from society. They can hardly understand nature and have no sense of behaviour. The computer-based technologies work through the school community gradually increasing impact on the young generation educational process. The youth of today can hardly recognize the plants and animals of the closest environment (Vilkonis, 1998) and starts feeling the antipathy to those they have already known (Lamanauskas, Vilkonis, Savickaitė, 2005a).

The authors of the article assume that the presented information dealing with the prevailing Lithuanian teenagers' peculiarities of the interaction with nature, the predominating value-base attitudes towards natural environment, experience of the interaction with nature and the evaluations of gained experience should create conditions for the teacher to more purposefully model the educational process, to link life and education content (stressed in the didactic provisions for sustainable education development), to predict the process of the future discussions, to make preparations appropriately reacting and to apply personal experience in the process of fostering value-based attitudes. Thus far, no accurate information discussing these questions has been found in Lithuania. However, quite a lot have been done in the fields of philosophy and ethnology.

This research reveals the latest peculiarities of the Lithuanian teenagers' interaction with natural environment, experience of their interaction (negative in particular) with nature, evaluations of practice and the learners' attitudes towards animate nature protection. Having known the different age groups children's attitudes towards life protection, the educational process based on the attitude towards respect for nature can be more effectively modelled. The process of fostering harmonious relations with nature could embrace the whole system of education including objectives, content, techniques, means etc. The main emphasis is put on the emotional-value-based-ethical component of education rather than conveying knowledge about nature. The relation between education and nature always remains twofold – human education is under the influence of nature while the latter depends on different human aspects. In terms of nature, three central positions can be distinguished: submission (human is weaker, entirely depends on nature, and therefore submits to natural forces), domination (human being is a lord ruling over

nature etc.) and harmony (human is an integral part of the elements of natural environment and is involved in the surroundings). Throughout different historical-cultural periods, these three positions (types of the interaction with nature) and their wide variations have been individually expressed.

The object of research is a quantitative and qualitative expression of the attitudes towards life protection of the comprehensive school learners' (forms 5 to 12). ***The goal*** of research is to disclose the peculiarities of valency and semantic structure in terms of the schoolchildren's attitudes towards life protection and to assess the general and specific semantic tendencies of the attitudes according to the diversity of natural subjects.

The outline of research drew that the schoolchildren's attitudes towards life protection would be differentiated in terms of positivism-negativism. Moreover, it was predicted that the semantic attitude structure would present general as well as specific convergent components agreeably to the different natural subjects attention to which would be devoted by the respondents.

The following most important **research questions** have been framed:

- how clearly the schoolchildren's attitudes towards life protection in terms of positivism-negativism have been differentiated;
- what format and tendencies are included into the semantic content of the learners' attitudes towards life protection;
- what semantic components predominate into the learners' attitudes towards life protection and what factors could determine domination of one or another component;
- what format of educational impact and educational intervention could help in changing the valency and semantics of the learners' attitudes;

Methodology of Research

General Characteristics of Research

Integrated - quantitative/qualitative research involved analysis of the learners' attitudes towards life protection. The questioning technique (questionnaire) in writing form was applied. The schoolchildren were provided the closed and opened type questions the content of which was targeted at stereotypically negatively evaluated animals (snake, frog) or to the practically evaluated natural subjects (fur bearing animals, rare vanishing species of plants). Using the closed-type questions and the answers on the rank scale provided, the valency components (positivism, neutrality and negativism) of the respondents' attitudes towards life protection were established. The statistical methods were employed to process the data. The opened-type questions were used to find out the semantic content of the schoolchildren's attitudes – the notional determinants of attitude valency functioning in the field of individual consciousness. The content assessment of the respondents' answers was practiced to mark the notional units – subcategories that indirectly were combined into the larger notional units – categories reflecting the structural components of the attitudes. The subcategories of each category were ranked depending on the frequency of expression.

Sample and Respondents of Research

Research was carried out in January-May, 2005. 1787 schoolchildren of Lithuanian comprehensive secondary school from forms 5 to 12 participated in the survey (Table 1). When a sample capacity does not exceed 1500-2000 respondents (Dobrenkov, Kravčenko, 2004) a sample bias is less than 3%. The other sources prove that when a sample capacity is 1500 people, a sample bias ranges from 1 to 1.5% (Gallup, 1978). Thus, to obtain reliable data, the sample capacity of this research can accepted as fully sufficient.

Table 1. Characteristics of the respondents (*N=1787).

Social demographic features		N/%
Sex	Girls	937/52.4
	Boys	765/42.8
Age	Younger teenagers (forms 5 to 8)	931/52.3
	Older teenagers (forms 9 to 12)	850/47.7
Location	City site	378/21.2
	Regional centre	703/31.5
	Rural area	706/39.5

* A part (85/4,8%) of the respondents did not indicate their sex

Research Instrument

The ***instrument*** of research is a questionnaire compiled from questions, behavioural situations and statements. The nominal, dichotomy and ranking scales were applied. The majority of the questions in the questionnaire ask for additional comments, belong to the questions of the half-closed type and contain a three-level scale providing such versions of the answers as *Yes, because*…, *I'm not sure as*…, *No, because*… . As this research is integrated one, the received data is examined in different aspects and sections. The peculiarities of the interaction with nature in terms of behavioural situations were previously published (Lamanauskas, Vilkonis, 2005b). This part of research deals with the assessment of the semantic structure of the attitudes towards life protection. Therefore, the teenagers' attitudes towards the wild animals (snake) and wild plants (kept in the conservation area) having no practical value as well as the dead animals holding their practical value (fur bearing animals and frogs) in terms of life protection have been studied.

The attitude indication including their positivism and negativism is acclaimed to be an important factor outlining how the learners evaluate the single subjects of animate nature and life in general, reveal their intentions (indirectly) and certain likelihood of behaviour. However, in terms of the educational effect, the cognition and assessment of various causalities is supposed to be more consequential. In order to identify the schoolchildren's attitudes towards the reasoned factors and the semantics of content, the semantic categorization of their answers to the opened-type questions was performed i.e. all the answers were grouped according to the single notional units and subcategories; to establish the semantic structure of the attitudes towards the natural subjects, the subcategories were generally combined and categories accentuated. At a later stage, extra research could help with developing an appropriate model of a positive interaction with nature the key component of which is educational support (correction) for the schoolchildren in the educational process.

Results of Research

A qualitative statistical assessment of the data reveals that more than a half (64%) of the surveyed respondents have expressed the positive attitudes towards life protection, 19% of the schoolchildren's answers reflect the neutral attitudes and even the sixth part 17% (!) of the teenagers have no position on respect for life as they do not support the ideas of animate nature protection. The interpretation of the results and the efforts devoted to answer the question why so many learners do not think of life and do not intend to save it frame the additional hypothetic questions: what kinds of socium impact are the strongest – the mass media, behaviour and attitudes of the peers and adults, ethno/pseudo culture, traditions etc.; what impact on the schoolchildren's attitudes

can have the internal psychological and psychosocial problems caused by their micro environment – suffering from violence, alienation in the family etc. It was proved that when getting older and more matured the learners' attitudes towards life protection became more positive. However, certain tendencies can also be noticed as the number of the positive tendencies towards the animals having no immediate practical value in terms of the animal life protection is increasing while the number of the negative attitudes is decreasing. The girls rather than the boys' attitudes towards animate nature protection have been found more statistically favourable. The girls have an extremely negative position on the animal extermination whereas quite a few boys (three times more than girls) could sacrifice the life of an animal in the name of knowledge about it. A prediction that the differences between the sexes can be influenced by the prevalent publicly stereotyped evaluation of the social roles and various boys and girls' suspense can be made. The examination of the relation between the learners' attitudes towards life protection and the location of a living place (city site, small town, rural area) reveals that the relationship between these variables is unambiguous. Although the general tendencies of data distribution show that the schoolchildren living in the rural area and small towns mainly support an idea of protecting any life, a larger number of the teenagers staying in the rural area rather than in the small towns or the city site have spoken against animal extermination in order to produce clothing (Lamanauskas, Vilkonis, Gailienė, 2005c).

The establishment and cognition of attitude positivism and negativism is an important factor in the context of the educational process. However, the analogies with medicine terminology suggest that a quantitative expression of the attitudes reflects only a *symptom* but does not explain the determinants of *that* i.e. motivation for one or another attitude and the question dealing with causality *why* remain unclear. It should be emphasized that both types of the attitudes positive and negative ones can have not only different but also similar motivation and very wide connotations. In this case, the positive attitudes towards life protection can be emphasized because a positive attitude can pertain to relatively negative motivation and negative connotations when an objective to protect life is achieved through the individual egoistic-pragmatic targets and interests rather than through the ethical-value-based principles. Therefore, in terms of the learners' science (self) education, the results of the conducted qualitative research seem to be rather weighty as they reflect the semantic content of the schoolchildren's attitudes towards life protection.

The respondents were provided questions related to life protection of the stereotypically unfriendly evaluated animals, for example, an opened-type question *what will you do if you see a snake in the forest?* or a half-closed question *do you think snakes have to be killed?* Along the answers given in the rank scale, the learners were asked to make comments on their opinions. The semantic content of the answers is presented in Tables 2 and 3. The categories and subcategories are ranked on the basis of the frequency of the meaning expression.

Table 2. The semantic content of the respondents' behaviour in the forest having seen a snake (N/%).

Categories	Subcategories*	N/%	
Passive self-defence	Not to move, to wait until a snake moves away, to keep staying calmly, not to spite a snake.	642/39.1	1069/65.1
	Not to do anything, simply to pass away; to stay aside and not to pay attention; not to loose control, not to spite a snake; not to show you are afraid of a snake.	380/23.2	
	Should be terribly frightened, afraid of a snake and shouldn't now how to act.	28/1.7	
	In most of the cases, the snakes are not dangerous in Lithuania; you just need to keep away.	10/0.6	
	To pretend that you are dead	6/0.4	
	Should start praying.	3/0.2	

Categories	Subcategories*	N/%	
Active self-defence	To run out of the forest as soon as possible or simply to run forward; start shouting; to run as fast as you can; to run making noises and screaming.	384/23.4	442/26.9
	Should call for help (for example, the local nature protection authorities); should tell the others; should call for emergency service; a vet needs or a forester need to be found etc.	45/2.7	
	To climb a tree.	10/0.6	
	Stay at home if you are afraid; should walk into the other forest.	1/0.1	
	Should stuff into a bottle as it was shown on TV.	2/0.1	
Aggressive behaviour	To grab and kill; to take a knife and chop up; to take a stake and kill; to make shoes from leather; to fry on the fire; to eat; to bite off the head, to boil and eat.	63/3.8	67/4.2
	To urinate on the snake's head (wisdom of the ancient Indians)	2/0.1	
	Should catch and start frightening the others	1/0.1	
	To poison (poisonous gas is an effective means)	1/0.1	
Interest in gaining new information	To watch it; to try to identify; should be interesting to observe; we should be lucky the snakes haven't disappeared; should be interesting to examine; to pat a snake; to inspect.	48/2.9	63/3.8
	To carry back home.	15/0.9	
		In total	**1641/100**

* The respondents failed to answer or having no position were not ascribed to any of the categories

An assessment of the semantic content of the learners' behaviour showing relationship with a snake reveals that their consciousness records a danger to human life. A passive or active self-defence predominates in the semantics of the respondents' answers, and therefore a demand of safety becomes a clear motive of behaviour. However, the most typical way of the schoolchildren's reaction is numbness, passiveness etc. Such reactions are usually determined by the emotions of fear carrying reflectively programmed stasis as an initial form of defence. Nevertheless, the content of the subcategories discloses certain elements of knowledge and information about how to act in case you saw a snake. Some children answered that the snakes in Lithuania were not dangerous if having an idea of how to behave in one or another case. Although the percentage of similar answers is rather low (0.6%), the development of ecologic consciousness should follow exactly this direction. Meanwhile, the mass media simply 'drives in' a danger caused by snakes and very rarely show the peculiarities of their existence and functioning.

Table 2 indicates that running away, avoidance and call for help are usually characteristic of an active self-defence as one fourth of the respondents agree on this issue.

Rather unusual ways of the schoolchildren's behaviour with snakes become clear in categories 3 and 4. The semantics of these categories is diametrically opposing. If one part of the learners is interested in gaining knowledge about a snake and is expressed by the positive connotations, the other part is affected by the aggression of doubtful origin. Though only 4.2% of the survey participants sounded aggressively in terms of snakes, however, a relative evaluation showed that even from one to four hundred learners could do serious harm to nature. Hence, the children stating aggressive intentions can be ascribed to the risk group that needs psychological and pedagogical support.

Table 3. The semantic content of the respondents' attitudes towards snake extermination (N/%).

Categories	Subcategories*	N/%	
Positive utilitarianism	Snakes are also wanted; there are different kinds of snakes; having exterminated snakes, harmony with nature will be broken; ecologic balance can be disturbed; snakes are needful for the forest eco-system.	468/28.9	618/38.1
	Snake poison is necessary to produce medicine; snakes help people to feel better.	58/3.6	
	Snakes in Lithuania are not poisonous; there aren't many snakes in Lithuania; they can quickly disappear.	56/3.4	
	They are interesting as make the Zoo attractive; interesting to watch them; snakes are interesting and unique animals.	22/1.3	
	Snakes bring luck; they are disappearing; I'd like to have it as a pet; they are peaceful animals.	14/0.9	
Controversial emotional experience	Snakes did nothing wrong; they don't make any troubles; snakes are innocent; different species of animals live in the world.	137/8.4	396/24.4
	I'm afraid of snakes; I don't like them; snakes are repellent and repulsive; they cause harm to nature.	79/4.9	
	I'm afraid of snakes; snakes do nothing wrong if you don't touch them; they only bite if necessary.	79/4.9	
	Snakes are beautiful; they are nice.	56/3.4	
	Life wouldn't be interesting without snakes; they have to live; I feel pity about snakes; I see no reason to kill them.	45/2.8	
Ethical life evaluation	Snakes don't cause much harm; let them live; they want to live as we do; they have a right to survive; snakes also have home and family.	306/18.9	350/21.6
	Don't want to torture animals; extermination as well as killing means the same.	20/1.2	
	They are created by God, and therefore cannot be killed.	18/1.1	
	Nature itself makes selection; we have no power to make decisions of who must live or die.	6/0.4	
Negative utilitarianism	Snakes are poisonous, and thus can be dangerous for people; they can bite; they kill a lot of people; should be better not to see them at all; they do harm to humankind.	249/15.4	255/15.9
	Should be no interest to play; 'bints' can be threatened.	4/0.2	
	Meat is delicious; superb food.	3/0.2	
	Snake's skin is used for producing expensive brief-bags, purses, wallets etc.	2/0.1	
		In total	**1622/100**

* The respondents failed to answer or having no position (9.2%) were not ascribed to any of the categories

The respondents' motivation for behaviour towards snakes differs from the semantic content of their attitudes towards snake protection. A safety request expressed in the emotion of fair predominates in behaviour while the semantics of the attitudes strongly stresses utilitarian content. Two categories of the utilitarian meanings were distinguished. The meanings of positive utilitarianism deal with snake protection, aimed at preserving harmony in nature, finding these creatures useful, believing in their power to bring people luck or due to the spectacular view. The category of negative utilitarianism includes totally egoistic objectives such as *skin and meat are useful, possibility of playing* etc. Although positive rather than negative semantics of positive utilitarianism of the schoolchildren's attitudes towards snake protection is prevailing, however, the expression of positivism is rather simple and general and can be interpreted as *snakes can also be useful to somebody*. An interesting point is that the learners really have no idea of why snakes are needed and what their purpose in the ecologic system and nature is. In this case, the assessment of science education content is essential and can be changed if required.

Two more fundamental components - controversial emotions as well as ethical and implicit life evaluation - stand out in the structure of the learners' attitudes towards snake protection. Having revised the subcategories of the component of the controversial emotions, the situations facing fear mixed with regret and repulsion mingled with delight can be encountered. Almost one fourth of the respondents' answers felt into this category i.e. only semantics at emotional level is predominating in the field of their individual consciousness. In terms of development, semantics at emotional level alienates from the ethical-moral level that is based on emotions as well as on rationality.

One fifth of the learners' answers were ascribed to the ethical evaluation component of snake protection. The answers' semantics mainly reflects knowledge and perception that any living creature has a right to live. However, in this case as well as in case of positive utilitarianism, diffusion of the ethical meanings (even poorness) conveying only statements can be clearly noticed. Therefore, science and ecology education should be clearly aimed at developing the ethical moral meanings of life protection and respect for life.

In terms of education, the semantics of the schoolchildren's attitudes towards frog dissection is rather eloquent. In this case, only three notional categories have been defined. However, the first predominating one should be relevant not only to the experts in the field of science education but also to the teachers of others subjects, parents etc. The egoistic and sometimes even sadistic emotions prevail in the semantics of almost a half of the surveyed learners' answers about a frog's life. Thus, first of all, the children think not about a frog's life or about torturing it but about their unpleasant experience. It is supposed to be that such meanings are worked out by the egocentric individual values based on western culture the dominant values in which are interest, power, competitive ability etc. and where life as an unqualified value is *'pushed back'* to the initial stages of hierarchy.

Table 4. The semantic content of the respondents' attitudes towards a frog's life protection (N/%).

Categories	Subcategories*	N/%	
Egoistic, sadistic emotions	Very repellent and disgusting; makes me want to vomit.	662/40.6	778/47.7
	Should be creepy; looks terrible; makes me frightened.	54/3.3	
	Should be an attraction; should be a slaughter; makes me interesting; torturing is an interesting occupation; should be fun.	46/2.9	
	I'm afraid of blood; I can't stand blood.	12/0.7	
	Don't want to feel dirty; unhygienic.	4/0.2	

Categories	Subcategories*	N/%	
Ethical, emotional opposition	Feel regret about animals; it's cruel; frogs also want to live; we can't be killers; it's mocking.	374/22.9	627/38.4
	Don't like it as it is repulsive; it's abnormal; wouldn't like to behave in such a way; feels negative emotions.	133/8.2	
	Couldn't chop a living animal; couldn't kill; couldn't do that.	92/5.6	
	Can disappear; frogs are useful animals; they are a part of nature.	24/1.5	
	The majority shouldn't contradict.	4/0.2	
Cognitive interest contraversions	Should be interesting to find out more information (I want to know how it looks like); will study medicine; shouldn't be boring to learn; needs to examine their structure; we'd better master the new material.	203/12.4	227/13.4
	Other ways are also possible; not necessary to act like that; there are museums and books.	13/0.8	
	The biology course book is enough; see no need to do that in order to learn.	11/0.7	
		In total	**1605/100**

* The respondents failed to answer or having no position (10.2%) were not ascribed to any of the categories

The examination of the subcategories of the cognitive interest contraversions reveals exotica of the semantics of the schoolchildren's attitudes. Even 12.4% of the respondents should sacrifice a frog's life due to gaining knowledge about the animal, and only a small part of the surveyed participants agree that information can be acquired applying other techniques.

More positive semantics can be found in the category of ethical emotional opposition. Nevertheless, the revision of the subcategories shows that they contain only a small part of ethical expression. Consequently, the emotions that are not a solid basis of life protection are relatively more noticeable.

Contrastive semantics in comparison with the attitudes towards a frog's life is observed in the case of life protection of the fur-bearing animals. The category of ethical emotional relation the subcategories of which reflect outrage at life extermination, pleasure in loving animals and responsibility expression is prevailing here. Nonetheless, the category of ethical emotional relation lacks the semantics of the values meeting the morality standards. The semantic contrast between frog and fur-bearing animals' life protection can be interpreted indicating a different learners' relationship with the following subjects of nature: in case of experimentation with frogs, the learners have a proximate visual of egoistic (likely reflects reality) emotions whereas the schoolchildren's relation with the phenomenon of fur-bearing animals' extermination is very distant from their experience, Hence, the socially eligible semantics of the attitudes (inessentially reflecting reality) stands out.

Table 5. The semantic content of the respondents' attitudes towards fur-bearing animals protection (N/%).

Categories	Subcategories*	N/%	
Ethical, emotional relation	It's killing, hunting; we can't afford to harm animals; animal exploitation; it's cruel; scorn for animals; animals also want to survive; it's massacre.	767/51.2	795/53.1
	Animals are beautiful, killing those needs to be forbidden; why to kill them.	14/1.0	
	This is an idea of the rich; a trivial thing; spoiled.	12/0.8	
	Prohibition won't be effective; sense of responsibility must be heightened.	2/0.1	
Negative utilitarianism	Not to ban as it's economically effective; what kind of clothing will we wear; this is business; such a life; animals are bred with a special purpose.	99/6.6	319/21.3
	No, I like my fur coat; it's in vogue and stylish; warm and cute; elegant.	80/5.3	
	Let them smarten if they like as it's nothing wrong; it's cute; all women want to be pretty; such women look sexual; attractiveness requires victims.	74/4.9	
	This is a way of life (for example, people should freeze in Siberia).	66/4.4	
Positive utilitarianism	Cannot be killed; the number of animals should increase; the number of animals is decreasing; they're disappearing.	126/8.5	252/16.8
	Must be forbidden; there are other ways of dressing (for example, artificial, synthetic fur); fur imitations; have their own fur; fur looks silly.	111/7.4	
	Must be banned as rare species are exterminated; animals must be protected.	15/1.0	
Maintaining traditions	Cannot see anything wrong; have no negative impact on nature; a normal way of life; animal fortune.	60/4.0	131/8.7
	If banned, illegal business should grow; impossible to ban; poaching should outspread.	54/3.6	
	People's behaviour hasn't changed since the ancient times; a normal way of life; this is evolution of the world.	13/0.9	
	If banned, women would be more furious.	4/0.3	
		In total	**1497/100**

* The respondents failed to answer or having no position (16.2%) were not ascribed to any of the categories

The semantics of the attitudes towards a snake's life as well as towards fur-bearing animals' protection discloses the categories of positive and negative utilitarianism. Nevertheless, in this case, unlike the attitudes towards snakes, the learners' semantics more frequently faces negative rather than positive utilitarianism.

An interesting point is that the attitudes towards the fur-bearing animals emphasize maintaining traditions i.e. the category the major semantic element of which is a position that *people's behaviour hasn't changed since the ancient times*. This category reflects the principles of conventional morality and prevents from ignoring order, social standards etc. accepted by the society. Therefore, in terms of life protection, the category discussing traditions should not be ascribed to positive semantics.

The problem of the rare, vanishing plants protection does not seem to be a burning question to the schoolchildren and does not sufficiently relate to their experience because 24% (!) of those have no position on the discussed issue.

Table 6. The semantic content of the respondents' attitudes towards the rare, vanishing plants protection (N/%).

Categories	Subcategories*	N/%	
Antagonism of values	Vanishing plants must be protected; what would happen if the plants disappeared; it's essential; we must protect what we have; they are created to live; the plants are important for the eco-system; absence of people creates a Paradise on Earth.	729/53.7	858/63.2
	The plants are beautiful; must be banned; there will be nothing to admire for; beauty of nature is over human curiosity.	46/3.4	
	One day we'll loose them, and that's why I have some doubts; you can't protect yourself all the time; everything changes around.	34/2.5	
	I'm not responsible for what's going on; too many various kinds of plants; what's the difference; not necessary to protect; shouldn't miss any of the vanished plants.	28/2.1	
	Depends on the plants; the new plants should grow, nothing wrong will happen.	21/1.5	
Prominence of a human factor	A man destroys everything and doesn't care about that; a man is like a pest; too much has been destroyed by a man; humans only bring disasters; humans are cruel.	164/12.1	286/21.1
	Lithuanians still have no idea of how to act in such places; i mportance is irrelevant; not everyone realizes it's a vanishing species of plants.	43/3.2	
	Not everyone is wicked and destroys plants; some people do not cause harm to nature.	30/2.2	
	Only righteous people not breaking or destroying nature are allowed; depends on the people; no need to ban if behaved in an acceptable way.	26/1.9	
	People don't know which species of plants are under danger and which are not; they don't understand the importance of the rare plants.	23/1.7	
Controversial utilitarianism	People want to know the unseen plants; it's interesting; people try to understand the world; why to protect if you cannot see.	124/9.1	213/15.7
	Nothing will change; will keep walking; it's impossible; forbidden fruit attracts.	39/2.8	
	Should be boring; where to spend free time; people want to stay in nature; what's more to do.	20/1.5	
	Earth is for humans and nobody has a right to impose a ban; I go where I want.	15/1.1	
	There are some more beautiful places in nature; people can move to another place.	9/0.7	
	The plants can be bred; when one species is under danger of extinction, the other arrives; other ways of protection are also possible.	6/0.4	
		In total	**1357/100**

* The respondents failed to answer or having no position (24%) were not ascribed to any of the categories

The category of antagonism of values is predominating in the semantics of the surveyed respondents. However, the content of the subcategories uncovers that a number of the learners find the rare plants aesthetical and ethical while a small part of those agree that it the rare plants is not the value to be preserved. One fifth of the schoolchildren believe that protection crucially depends on people and their behaviour in nature (prominence of a human factor). Most frequently unacceptable human behaviour and lack of knowledge about the ways of protection of the vanishing plants are highlighted. A component of controversial utilitarianism embracing two observed directions - positivism (to know, admire etc.) and negativism (to have a rest, no to abridge human rights etc.) - become evident in the semantics of the attitudes towards protection of the vanishing plants.

In conclusion, the emotional and utilitarian consumer-based component in particular are clearly predominating in the semantics of the learners' attitudes towards life protection, whereas the ethical value-based component which is a purpose in the context of life protection is rather weak and reveals a diffusive character. The obtained results suggest that the semantic content of the schoolchildren's attitudes is affected by their experience and a degree of immediacy achieved in relation to the single subjects of nature. Thus, when developing and designing the learners' science (self) education systems and establishing the programmes for fostering respect for life, C.Rogers (1994) ideas of successful learning should be properly implemented. The epicentre of the concepts is awareness of a child's experience carrying on responsibility for personal feelings, actions and fulfilling a wish and objective to move forward. In the context of respect for life development, N.Grendstad (1990) ideas seem to be extremely valuable as they promote the learning process putting forward individual meanings and relations towards environmental subjects, events and phenomena. None of the learners can feel indifferent to nature and life if s/he personally discovers, ponders, experiences and accepts these beliefs. However, such learning and educational support should start yet in the early childhood.

Conclusions and Discussions

The undertaken research on the comprehensive school learners' (forms from 5 to 12) attitudes towards life protection has revealed the facts and tendencies relevant to the content alteration of science education, to the organization and efficacy of the educational process and to the development of the schoolchildren's world outlook/environment perception. Nonetheless, the results of research suggest a number of opened questions that require an exhaustive theoretical and empirical decision.

1. The assessment of the differentiation of the learners' attitudes towards life protection in terms of the qualitative positivism-negativism shows that more than a half of the respondents have expressed their positive attitudes towards life protection. 19% of the participants' attitudes are neutral and 17% of those clearly indicate that they do not appreciate life and are not tend to respect and protect it. The neutral and negative attitudes can be caused by the schoolchildren's internal factors of micro-environment as well as by the mass media and social learning in general. However, these hypothetic versions can be examined conducting additional empirical research.

2. A semantic assessment of the learners' attitudes towards life protection indicates that a general structure of the attitudes includes emotional, cognitive, utilitarian and ethical-value-based components, though in the schoolchildren's semantic field, most frequently the emotional and utilitarian components are predominating. Meanwhile, the ethical-value-based components are rather weak and reveal a diffusive character. A presumption that semantics having a utilitarian or consumer nature and a format of egoistic emotions or egoistic cognitive interest is created by a western individualistic culture aimed at egocentric values can be made. In the meantime, an objective of the educational impact is the development of the

clearly discerned and highly experienced moral senses broadening individual experience in the process of the learners' interaction with animate nature.

3. Depending on the single subjects of nature as well as on the degree of immediacy of the learners' relation with these subjects, the specific semantic components or elements of the schoolchildren's attitude structure show up. The respondents' position on protecting a snake's life is the most negative, and therefore the most important point is finding out the methods and motivation of their behaviour if noticed a snake and the semantic content of the attitudes towards a snakes' life. The essential differences are typical of the semantics of behaviour and attitudes. The self-defence reactions the basis of which is a need for fear experience are prevailing in the participants' behaviour. Meanwhile, the senses of the attitudes towards protecting a snake's life heighten either positive or negative utilitarianism. The learners' answers indicate that they do not understand a mission of the snake's need and functioning in the ecologic system. The ethical moral senses the basic element of which is anyone's right to survive are prevailing only in the fifth part of the respondents' semantic field. Hence, a purpose of the educational impact is broadening schoolchildren's knowledge and more intensive integration of the ethical values in the process of science education.

4. The contrastive semantics of the learners' attitudes towards frogs and fur-bearing animals' life protection suggests that in case of a frog dissection, almost a half of the respondents first of all think of unpleasant experience (a category of the egoistic sadistic emotions) they can get rather than of life protection. The question on the fur-bearing animals finds that almost a similar amount of the schoolchildren stress the semantics of the ethical emotional relation expressed by outrage, intolerance and a wish to shoulder responsibility. Such controversies of the semantic attitudes can be interpreted indicating the degree of immediacy reached in relation with the single objects of nature. In order the ethical value-based elements could be fixated in the semantics of the learners' attitudes, teachers and parents should concentrate on the development of socio/eco centred (ecology-based centrism) values.

5. Research proves that a real situation is mainly opposing to the central ideological positions defended by Johannesburg Declaration on Sustainable Development and the national documents. On the other hand, the educational reform taking place in Lithuania since 1990 has not produced any positive results dealing with the discussed question. Basically, the anthropocentric attitudes of the young generation are predominating, though education policy and practice have been focused on the development of the humanistic and eco-centric values. The analysed situation creates more questions than answers, and thus only confirms the necessity of conducting more detailed and extensive research in the field.

References

Dadds M.R., Whiting C., Bunn P., Fraser J.A., Charlson J.H., Pirola-Merlo A. (2004). Measurement of Cruelty in Children: The Cruelty to Animals Inventory. *Journal of Abnormal Child Psychology*, Vol. 32, No. 3, p.321-334.

Gaigalas A. (2001). Gamtosauginiankų rūpesčiai. *Mokslas ir gyvenimas*, Nr. 6.

Gallup G. (1978). *The Gallup poll: Public opinion*. Wilmington.

Grendstad N.M. (1990). *A lære er a oppdage*. Didakta Norsk Forlag. Oslo.

Fensham P.J. (2004). Increasing the relevance of science and technology education for all students in the 21st century. *Science Education International*, Vol.15, No.1, p. 7-26.

Lamanauskas V. (2003). *Natural Science Education in Contemporary School*. Siauliai: Siauliai University Press.

Lamanauskas V., Lukošiūtė J., Savickaitė K. (2004). Pradinių klasių mokytojų požiūris į pagarbos gyvybei ugdymą. *Ugdymo psichologija*, Nr. 11-12, p. 218-225.

Lamanauskas V., Vilkonis R., Savickaitė K. (2005a). 5-12 klasių moksleivių sąveikos su gamta ypatumai: simpatijos ir antipatijos gyviesiems organizmams aspektas. *Gamtamokslinis ugdymas/Natural Science Education*, Nr. 2(13), p. 11-19.

Lamanauskas V., Vilkonis R. (2005b). The characteristics of the learners' (forms 5 to 12) interaction

with nature: the evaluation aspects of behavioural situations. *Journal of Baltic Science Education*, No. 2(8), p. 55-68.

Lamanauskas V., Vilkonis R., Gailienė I. (2005c). 5-12 klasių mokinių sąveika su gamta: nuostatų gyvybės išsaugojimo atžvilgiu aspektas. *Gamtamokslinis ugdymas/Natural Science Education*, 3(14), p. 15-26.

Rogers C.R., Freiberg H.J. (1994). *Freedom to Learn* (3rd Ed). Columbus, OH: Merrill/Machmillan.

Sjøberg S. (2004). Science and Technology in the New Millennium: Friend or Foe? In.: *Science and Technology Education for a Diverse World - dilemmas, needs and partnerships* (Proceedings of the 11th IOSTE Symposium, July 25-30). Poland, p.19-20.

Stonkuvienė I. (2004). Asmens ir gamtos santykiai kaimo bendruomenės požiūriu. *Acta Paedagogica Vilnensia*, T.12, p. 183-197.

Vilkonis K. (1998). Kiek pažinti augalai. In: *Natural Science Education at a Secondary School. The Fourth National Scientific Conference.* Vilnius: Žaliasis pasaulis, p. 152-159.

Добреньков В.И., Кравченко А.И. (2004). *Методы социологического исследования.* Москва.

Ковальков М.П., Крайко Б.Н. (1999). Экологическое образование и воспитание – важнейшие направления устойчивого развития Беларуси. В кн.: *Актуальные проблемы экологического образования и воспитания.* Минск, с. 38-47.

Мешечко Е.Н. (2002). Социальная экология и проблемы общего экологического образования. В.кн: *Экологическое образование и воспитание: проблемы и пути решения* (сборник материалов международной научно-практической конференции). Брест, 2002. С. 35-45.

Резюме

ОСОБЕННОСТИ ОТНОШЕНИЙ УЧАЩИХСЯ 5-12 КЛАССОВ К ПРИРОДЕ: СЕМАНТИЧЕСКАЯ СТРУКТУРА УСТАНОВОК В АСПЕКТЕ СОХРАНЕНИЯ ЖИЗНИ

Винцентас Ламанаускас, Ирена Гайлене, Ритис Вилконис

Теоретические и практические факты доказывают, что человечество все более и более обесценивает свою жизнь стремясь к достижению личных целей и потребностей. Таким образом, главная цель естественнонаучного образования (самообразования) учащихся состоит в том, чтобы способствовать формированию уважения (положительных отношений) к природе и жизни.

Хотя проблема формирования уважительного отношения к природе актуальна, взаимодействие школьников с природой плохо исследовано в Литовской Республике, а так же и в других европейских странах.

Объект исследования – особенности отношений учащихся к природе. Исследование комплексное. Цель данного субисследования - раскрыть отношения учащихся к защите жизни в процессе взаимодействия с природой. Некоторые результаты данного комплексного исследования уже опубликованы раньше (Lamanauskas V., Vilkonis R. The Characteristics of the Learners' (Forms 5 to 12) Interaction with Nature: the Main Issues and Work Towards Producing Solutions in the Educational Process. In.: (Eds) S.Yoong, M.Ismail, A N. Md. Zain, F.Salleh, F.S.Fook, L.Ch.Sam and M.Ng Lee Yan. *Science and Technology Education in the Service of Humankind* (Proceedings of the XII IOSTE Symposium, 30 July-4 August, 2006). Penang, Malaysia: Zillion Circle (M) Sdn.Bhd., 2006, p. 573-580. /ISBN 983-2700-39-6).

Статья представляет анализ семантической структуры установок учащихся в аспекте сохранения жизни. Основная мысль исследования заключается в том, чтобы при помощи рассматриваемой структуры прогнозировать те факторы, которые могли бы определять отношения учащихся к природе и жизни на основе модели эффективной системы образовательной поддержки. Всего в данном исследовании приняли участие 1787 подростков.

Количественный и качественный анализ материала исследования указывает на то, что более, чем половина респондентов (64% всех ответов) имеет положительное отношение к защите/сохранению отдельных видов растений и животных. Менее чем половина из опрошенных респондентов выразила нейтральные и отрицательные отношения (19% и 17% ответов соответственно).

Несмотря на то, что довольно много учащихся поддерживают идею о защите/сохранении жизни, семантическая оценка структуры их отношений показывает, что утилитарные,

прагматические и эгоцентрические компоненты установок среди них преобладают.

Выражение этических и ценностных компонентов остается слабо выраженным явлением и имеет диффузный характер. Отношение учащихся к защите/сохранению жизни полны семантических преобразований. Полученные результаты исследования предполагают необходимость образовательного вмешательства.

Ключевые слова: естественнонаучное образование, взаимодействие с природой, уважение к жизни, отношения, семантические категории.

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Vincentas Lamanauskas	Professor of Education at the University of Siauliai, a doctor of social sciences (education), the chairman of a public scientific methodic centre "Scientia Educologica". P. Visinskio Street 25-119, LT-76351 Siauliai, Lithuania. Phone: +370 687 95668 E-mail: vincentas@osf.su.lt; vincentaslamanauskas@yahoo.com
Irena Gailienė	Senior Researcher at the University of Siauliai, Faculty of Education, Department of Psychology, a doctor of social sciences (psychology). P. Visinskio Street 25, LT-76351 Siauliai, Lithuania. Phone: +370 611 11389 E-mail: gailiene@splius.lt
Rytis Vilkonis	Senior Researcher at the University of Siauliai, Faculty of Education, a doctor of social sciences (education). P. Visinskio Street 25-119, LT-76351 Siauliai, Lithuania. Phone: +370 650 14299 E-mail: vilkonis@yahoo.com