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THE CHARACTERISTICS OF THE LEARNERS' (FORMS 5 TO 12) INTERACTION WITH NATURE: THE EVALUATION ASPECTS OF BEHAVIOURAL SITUATIONS

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Introduction

The history of Lithuanian educational idea has not exhaustively covered interaction with nature. Only different aspects of interaction, for example birds (Dundulienė, 1982), various kinds of animals, for instance grass-snakes (Dundulienė, 1979) have been analyzed. The trees mentioned in the ancient Lithuanians' religions (Dundulienė, 1979) and the symbols of trees used in songs (Stundžienė, 1996), R. Makarskaitė (1998) examined the aspects of the interrelation between human and nature in Lithuanian mythology and creation. A conclusion that the cults of nature and mythological visions have changed in the process of human life including the conditions of activity can be drawn. However, a part of religions more or less have survived and are reflected in the living folk traditions, customs, every day life and creation.

The questions about interaction with nature are very unlike and have a complex character. It is supposed to be that a man must strive for stronger relationships with nature and thus to accept it as a value (Kovalkov, Kraiko, 1999). On the other hand, not only individual issues about interaction with nature but also the interaction between nature and particular groups of people and nature and the whole society are relevant. I. Stonkuvienė (2004) researched relationships between individuals and nature in terms of the rural community. She investigated the positions on nature as well as the attitudes towards fostering a harmonious interrelation between individual and nature of the people who were born in the Lithuanian rural area in the first half of the 20th century. The author draws a conclusion that on the basis of moral rules, traditional attitudes of a community, nationwide gained experience and folklore that were transferred from generation to generation the educators (parents,

Abstract. *It seems logical to stimulate the young generation's wish to protect and love nature. The negative outcomes for today's natural environment such as soil pollution, animate and inanimate nature devastation etc. can be clearly noticed. Due to computers, robots and various kinds of technologies, humans have virtually lost their interrelation with nature. Our inability to kindly interact with nature can be treated as an obvious result of unacceptable behaviour. Consequently, ecology-based education is a crucial aspect of socialisation and has an enormous influence on the young generation, because a modern society is deeply influenced by the approach to nature, the natural environment and behaviour towards it. However, we must understand modern human manners of interaction with nature and the ways affecting behaviour. The authors agree that only in-depth assessment of the mechanisms of interaction with nature can provide opportunities to apply the means of educational correction when training the young generation. The article deals with the characteristics of the learners' (forms 5 to 12) interaction with nature in terms of behavioural situations.*
Key words: *natural science education, human's interaction with nature, comprehensive school.*

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grandparents, neighbours) developed a strong and fragile relationship between child and nature. Sensation of nature is an exceptional emotional value-based component of the above mentioned relationships. The interaction between natural and public components can cause unacceptable ecologic changes and various crises at all levels (Mešečko, 2002).

Interaction with nature always has an emotional shade, is individual and can be expressed by the actions and other practical activities. Experience gained in early childhood is an extremely important component for formation of emotional value-based relation with nature. Ethnopedagogy explains that child sensitiveness and respect for life must be fostered since the early days. Psychologists maintain that the interrelation between knowledge and emotions is rather complex i.e. interrelation (interaction) with nature cannot be based on the basis of knowledge only. Information must be reinforced on the grounds of individual purport, comprehension, experience, compassion etc. The researchers emphasize that harmonious interrelation with nature is only possible in the process of formation of ecologic mentality and culture (Samersova, Koçel, Petrova, 2005; Pavlov, 2004) and development of a modern conception of science world (Lamanauskas, 2003a). A. Gaigalas (2001) mentions that computers and robots create distance between human and nature, and therefore people loose interrelation with nature. They are not able to understand nature and have no perception of behaviour. Computer based technologies enter the school and show an increasing interest in the young generation's educational process. The present Lithuanian youth not only has difficulties in identifying the plants and animals of their own country (Vilkonis, 1998) but also starts feeling antipathy to those they have already known (Lamanauskas, Vilkonis, Savickaitė, 2005). The process of natural science and moral education needs to be advanced, and therefore research in this field is extremely relevant. V.Jasvin (2000), M.Pupinš (1996) I. Salite (1988), etc. pursued a detailed investigation into the mentioned issues. For example, research conducted by N.Gagarina in 1995 seems to be of a particular interest (Jasvin, 2000). 325 schoolchildren aged from 7 to 18 were surveyed. Both sides the boys and the girls agreed that a birch and a rose were the most pleasing objects. An interesting point is that the elder the boys the greater liking for the rose (approx. 70%). Meanwhile, younger girls more frequently point to the rose as the most exiting plant. The schoolchildren of all age groups referred to the nettle (from 20 to 50%) and cactus (from 20 to 40%) as the most antipathetic plants. Research undertaken by the same author revealed that the most pleasant animals were a dog, a cat, a lion and a tiger. The dog dominates over other animals (45 - 80%). The most antipathetic animals became rats and mice. They were mentioned by 40% of the boys and 60% of the girls. M.Pupinš (1996) surveyed the eight-formers after the taken course on zoology and discovered that 48% of the respondents found snakes as the most antipathetic animals while cockroaches were given 28% and rats 21%. In terms of this aspect, the results of our investigation seem to be rather interesting. The following conclusions have been drawn after assessment (Lamanauskas, Vilkonis, Savickaitė, 2005):

- It has been established that the most pleasing plants for the Lithuanian students aged from 12 to 18 are the herbs and bushes not growing and blooming in Lithuania whereas the most antipathetic ones are the herbs, blooming, stinging, edgy and sticky plants that can be found in our country.
- It has been discovered that the most pleasing animals for the Lithuanian students aged from 12 to 18 are domesticated, carnivorous, vertebrate animals living in Lithuania while the most antipathetic – wild carnivorous, vertebrate animals met in our country.
- Sympathy/antipathy for plants and animals depends on the age and sex but is not influenced by the place of living.

This research tried to disclose different aspects of interrelation with nature i.e. to make known a general view of the issue. The major problem is that most frequently we state the cases of unacceptable behaviour towards nature but primarily do not know (or knowledge is limited) the reasons of such behaviour and the ways to control it. Having disclosed the peculiarities of human's behaviour of different children's age groups we can build the systems of psychological-educational correction and directly apply them in the educational process. This integrated research



reveals the various peculiarities of interaction with nature. The article presents the results of research in terms of different behavioural situations. *The object of research* is the learners' (forms 5 to 12) peculiarities of interaction with nature. *The aim of research* is to bring out the crucial peculiarities of interaction with nature of the schoolchildren of modern Lithuanian comprehensive school.

Methodology of Research

Research was carried out in January-May, 2005. 1787 schoolchildren of forms 5 to 12, including 937 (52, 4%) girls, 765 (42, 8%) boys and 85 (4, 8%) of those who did not indicate their sex, of Lithuanian comprehensive school participated in the study. Sampling was structured applying the stochastic method of group selection i.e. a consecutive "bunch" system. The population was rather large (all Lithuanian learners of forms 5 to 12), and therefore agreeably to the principle of locality (sampling included the schools from all regions of Lithuania) the schools were randomly chosen. In total, the schoolchildren of 25 schools took part in the survey. The characteristics of the respondents are given in Table 1.

Table 1. Distribution of the respondents agreeably to the sex and form (N/%).

Sex	Form								In total
	V	VI	VII	VIII	IX	X	XI	XII	
Girls	76/59.4	168/50.9	114/45.8	114/65.9	138/58.2	149/55.0	95/54.9	81/59.1	935/55.1
Boys	52/40.6	162/49.1	135/54.2	59/34.1	99/41.8	122/45.0	78/45.1	56/40.9	763/44.9
	128/100	330/100	249/100	173/100	237/100	271/100	173/100	137/100	1698/100

Depending on locality, the distribution of the respondents shows that 378 (21.2%) of those learn in schools of the five biggest Lithuanian cities, 703 (31.5%) – in the regional centre and 706 (39.5%) – in the rural area. When sampling capacity is between 1500 and 2000, the bias of capacity does not exceed 3% (Dobrenkov, Kravčenko, 2004). Other reliable sources state that when taking capacity is 1500 respondents, the bias of capacity deviate from 1% to 1.5% (Gallup, 1978). Thus, in order to obtain accurate data, taking capacity of the undertaken research can be fully accepted.

The instrument of research is a questionnaire that includes questions, behavioural situations and statements. The nominal, dichotomy and rank scales were applied trying to establish the following points:

- what kind of living organisms (plants and animals) are the most pleasant/antipathetic and why;
- what experience connected with unacceptable behaviour towards nature is gained by the respondents (did they observe or participate in different intolerable situations towards the objects of nature) and what is their position on this issue;
- what type of the interaction between nature and the respondents is predominating (ethical, aesthetical, cognitive or pragmatic);
- what natural phenomena expressing positive emotions are the most refreshing for the respondents;
- what is the respondents' point of view towards descriptions of nature in fiction in general;
- what is the respondents' viewpoint towards natural objects protection.

Thus, this is integrated research, and therefore the article deals with the assessment results of research data in terms of unacceptable behaviour towards nature considering the aspects of experience and evaluation of the observed situations. The situations have been chosen depending



on the ethno-pedagogical study conducted in Lithuania. One situational group observes interrelation with the objects of animate, the other one – with the objects of inanimate nature. The results in terms of sympathy/antipathy towards living organisms were analysed in earlier publications (Lamanauskas, Vilkonis, Savickaitė, 2005).

The methods of research are analysis of science literature, inquiry (questionnaire), a systemic and comparative analysis etc. In order to process the data of research, the statistical program batch SPSS has been applied. Deviations between the analysed qualities are established using the criterion chi (χ^2) and Fisher's multifunctional criterion ϕ . The qualities have also been grouped considering ranks and notional categories.

Results of Research

The peculiarities of interaction with nature in terms of behavioural situations are highly interesting and useful. The respondents were asked to point out if they had ever seen (observed) people torturing or mocking an animal, spitting in a lake or stream, burning dry grass, destroying a nest or urinating on the fire.

Table 2. The situations observed by the respondents in terms of the sex (N/%).

Experience of observed behaviour	Girls	Boys	Total	χ^2 ; df=1	p
Tortured an animal	661/70.5	483/63.1	1144/67.2	10.486	.001
Mocked an animal	355/37.9	317/41.4	672/39.5	2.223	.136
Spat in a lake or stream	471/50.3	452/59.1	923/54.2	13.194	.000
Burned dry grass	434/46.3	424/55.4	858/50.4	13.972	.000
Destroyed a nest	152/16.2	169/22.1	321/18.9	9.481	.002
Urinated on the fire	111/11.8	273/35.7	384/22.6	137.565	.000

The table shows that the majority of the observed situations are related to torturing animals and burning dry grass. The smallest number of the situations is about destroying nests. Comparisons according to the sex reveal statistically significant deviations (except mocking an animal). The boys more frequently observed urination on the fire while the girls more often watched torture of animals. According to the place of living, fundamental deviations have not been established. Due to very low frequency some more situations were presented but not included into analysis of the main data.

The respondents not only pointed out if they had or had not observed the presented situations but also made their evaluations and expressed their thoughts and sensation. The obtained results are rather interesting. Not all situations were pondered and given an opinion by the respondents. The situation *somebody tortured an animal* was explained by 58.5%, the situation *somebody mocked an animal* by 30.3%, the situation *somebody spat in a lake or stream* by 35.3%, the situation *somebody burned dry grass* by 31.2%, the situation *somebody destroyed a bird's nest* by 11.5%, the situation *somebody urinated on the fire* by 14.2% of the respondents. The comments most frequently have been made on the first four behavioural situations. More than a half of the participants made comments on the situation '*somebody tortured an animal*'. Let's have a look at situation 1 (Table 3).



Table 3. The comments on the situation 'somebody tortured an animal' (N/%).

Comment on a situation	Sex		In total	Fisher's criterion		
	Girls	Boys		$\Phi_1 - \Phi_2$	$\Phi_{\text{empir.}}$	p
Compassion towards the animal, a wish to help	296/48.1	154/39.8	450/44.9	0.168	2.58	=0.004
Repulsion, anger, dissatisfaction, nasty feelings	123/20.0	68/17.6	191/19.0	0.061	0.93	>0.05
Wanted to torture such a man and give the cane, filled with hate	83/13.5	73/18.9	156/15.6	0.148	2.27	0.011
It was terrible and brutal	42/6.8	27/7.0	69/6.9	0.008	0.12	>0.05
The man is heartless, sadistic and savage	37/6.0	23/5.9	60/6.0	0.004	0.06	>0.05
Unacceptable behaviour, it must be stopped	17/2.8	24/6.2	41/4.1	0.167	2.57	=0.004
Aggression against torturers	4/0.6	10/2.6	14/1.4	Restriction of criterion application		
I thought the God would punish them	9/1.5	4/1.0	13/1.3			
Nothing wrong	4/0.6	3/0.8	7/0.7			
It was a fun	1/0.2	1/0.3	2/0.2			

This situation faced the greatest number of comments that were subdivided into ten notional categories. The boys as well as the girls feel compassion towards the animal and a wish to help but the number of the girls in this category is larger. The next position is taken by repulsion, anger etc. which are pointed out by the girls whereas the boys declare an intention to torture such a man or to take revenge on him/her. The situation encounters a high level of aggression i.e. 'an eye for an eye and a tooth for a tooth'. The boys rather than the girls feel more intense aggression against torturers. Due to insufficient number of the elements in sub-sampling, Fisher's index was not calculated in the last four positions. The criterion χ^2 also dictates statistically significant deviations ($\chi^2=22.53$; $df=9$; $p<0.007$). Depending on the place of living, statistically significant deviations have not been established. The young learners (60.2% of the fifth-formers) rather than their older colleagues (27.7% of the school-leavers) are filled with compassion towards the tortured animals. Repulsion and anger are rising up to form 12.

The comments on the second behavioural situation are also very constructive. 9 notional categories have been pointed out.

Table 4. The comments on the situation 'somebody mocked an animal' (N/%).

Comment on a situation	Sex		In total	Fisher's criterion		
	Girls	Boys		$\Phi_1 - \Phi_2$	$\Phi_{\text{empir.}}$	p
Felt compassion towards the animal	161/52.1	85/40.3	246/47.3	0.237	2.65	=0.003
Wanted to mock and laugh at such a man	48/15.5	35/16.6	83/16.0	0.03	0.33	>0.05
Felt ugliness and anger	41/13.3	34/16.1	75/14.4	0.079	0.88	>0.05
Unacceptable and unethical behaviour	17/5.5	26/12.3	43/8.3	0.244	2.73	=0.002
It is stupid and moronic behaviour	18/5.8	12/5.7	30/5.8	0.004	0.04	>0.05
A man has no idea about his/her actions, and thus s/he is innocent and I feel compassion towards him/her	9/2.9	8/3.8	17/3.3	0.05	0.56	>0.05



Comment on a situation	Sex		In total	Fisher's criterion		
	Girls	Boys		$\Phi_1 - \Phi_2$	$\Phi_{\text{empir.}}$	p
It's all right. it's just an animal.	5/1.6	5/2.4	10/1.9	0.057	0.63	>0.05
It was a fun to watch.	4/1.3	5/2.4	9/1.7	Restriction of criterion application		
Felt that some people do not love animals.	6/1.9	1/0.5	7/1.3			

Assessment of the above situation shows that less statistically significant deviations between the boys and girls' commentaries have been established. The girls rather than the boys feel compassion towards the mocked animal. However, the girls far less than the boys find such behaviour unacceptable and unethical. Similar amount of boys and girls would like to mock and laugh at such a man themselves i.e. to behave in an analogous way. In this case, the criterion χ^2 does not indicate statistically significant deviations ($\chi^2=15.06$; $df=8$; $p>0.05$). According to the location, some significant deviations can be noticed. For instance, more schoolchildren of the city site rather than the rural area accept and tolerate such behaviour. More learners of the rural area rather than the city site state that people do not love animals. It is supposed to be that love for animals is more important for those living in the rural area. However, far more students of the rural area rather than the city site (15.6%) speak about intention to revenge and mock the unacceptably behaving people. The situation expresses a thought that the respondents do not think that in this case their behaviour could also be evaluated as intolerable. The deepest compassion is felt by the pupils of the forms 7 to 9, the shallowest – by the school-leavers. Nevertheless, the feelings of repulsion and anger gradually increasing from form 5 to 12 (from 7.5% to 30.0% respectively).

The next situation '*somebody spat in a lake or stream*' is presented by 9 notional categories.

Table 5. The comments on the situation '*somebody spat in a lake or stream*' (N/%).

Comment on a situation	Sex		In total	Fisher's criterion		
	Girls	Boys		$\Phi_1 - \Phi_2$	$\Phi_{\text{empir.}}$	p
It should be unpleasant to swim, this is not pleasing and unattractive in general	142/38.7	88/35.9	230/37.6	0.058	0.70	>0.05
Anger, repulsion, disgust	129/35.1	61/24.9	190/31.0	0.223	2.70	=0.002
It's all right, it's natural and nothing to be condemned	33/9.0	44/18.0	77/12.6	0.267	3.23	<0.000
Very bad and stupid behaviour, impolite	39/10.6	30/12.2	69/11.3	0.051	0.61	>0.05
Nature pollution	12/3.3	12/4.9	24/3.9	Restriction of criterion application		
No respect for nature	8/2.2	2/0.8	10/1.6			
Interesting	3/0.8	4/1.6	7/1.1			
The tongue of such man need to be pulled away	1/0.3	4/1.6	5/0.8			

The evaluation of the situation reveals that pragmatic interest is prevailing. It is stated that swimming should be unpleasant. Far more girls than boys feel anger and repulsion. Whereas, 18% of the boys think this is not condemned behaviour. Moreover, differently from the girls, they find it more interesting. According to the frequency of mentioning, the boys find this category in the third place. The criterion χ^2 also fixates statistically significant deviations ($\chi^2=21.85$; $df=7$; $p=0.003$). More girls than boys understand such behaviour as disrespect to nature. Depending on the form, some deviations can be noticed. For example, 16.7% of the fifth-formers refer to nature



pollution, whereas the schoolchildren of the senior forms i.e. the eleventh-formers and school-leavers did not mention anything. The older learners stressed it was nothing to be condemned, though no such positions could be found among the fifth-formers. Agreeably to the place of living, certain deviations can be marked. For example, 17.08% of the city site students see nothing to be condemned while the percentage of the learners of the rural area reaches only 8.5%. Moreover, more pupils of the rural area rather than the city site suppose it is nature pollution and more frequently feel anger and repulsion.

Though executive liability for burning dry grass can be applied, it is a rather frequent phenomenon in Lithuania. The schoolchildren of the rural area often are not only observers but also participants of such a phenomenon. 9 notional categories of comments have been singled out. The comments on this situation have been made approximately by one third of all respondents.

Table 6. The comments on the situation 'somebody burned dry grass' (N/%).

Comment on a situation	Sex		In total	Fisher's criterion		
	Girls	Boys		$\Phi_1 - \Phi_2$	$\Phi_{\text{empir.}}$	p
Feel compassion towards burning and dying insects and other animals	106/32.3	45/21.6	151/28.2	0.242	2.72	=0.002
It's dangerous as it can cause a fire	42/12.8	37/17.8	79/14.7	0.139	1.56	>0.05
It's all right, dry grass needs to be burned as it's necessary	31/9.5	42/20.2	73/13.6	0.305	3.44	<0.000
Devastation of nature	50/15.2	16/7.7	66/12.3	0.239	2.69	=0.002
Very bad behaviour	35/10.7	26/12.5	61/11.4	0.057	0.64	>0.05
It's stupid, awkward, people have no other occupation	23/7.0	22/10.6	45/8.4	0.127	1.43	>0.05
Anger, hate, a wish to revenge	15/4.6	10/4.8	25/4.7			
It was unpleasant, scary, looks very poor	18/5.5	6/2.9	24/4.5			
Wanted to call the police as it was a crime	8/2.4	4/1.9	12/2.2			

The girls much more than the boys feel compassion towards the animals dying in the fire. The next position pointed by the girls is devastation of nature whereas the boys at this point agree that everything is all right and that grass needs to be burned in order to grow a new one. The girls more frequently than the boys find such a situation unpleasant and scary. Besides, the criterion χ^2 dictates statistically significant deviations ($\chi^2=28.37$; $df=8$; $p<0.000$). The boys usually call this type of behaviour stupid and awkward as people seem to be having no other occupation. According to the form of the respondents, some significant deviations exist. The schoolchildren of forms 6 to 9, on the contrary to the elder learners, more often name it as devastation of nature. Moreover, the older students (23.6% of the eleventh-formers and 20% of the school-leavers) do not find anything wrong analysing such behaviour and state that grass needs to be burned whereas the fifth-formers do not support such idea. The younger learners rather than the older ones emphasize that it is a very bad way of behaviour and that it arouses sick feelings. An interesting point is that depending on the place of living, statistically significant deviations can be established ($\chi^2=44.44$; $df=16$; $p<0.000$). The schoolchildren of the rural area and regional centre take a strong position and maintain that it is devastation of nature and feel compassion towards burning and dying insects. Our presumption that the learners of the rural area will support an idea about burning grass has not been approved. 16.7% of the schoolchildren of the city site and 9% of those of the rural area suppose that burning dry grass is necessary. More students of the rural area rather than city site call such activity stupid and awkward.

The situation that describes taking and destroying the nests of birds is frequently observed.



Literature indicates that this is a typical feature of the teenagers with high level of aggression. 8 notional categories have been marked.

Table 7. The comments on the situation 'somebody destroyed a nest' (N/%).

Comment on a situation	Sex		In total	Fisher's criterion		
	Girls	Boys		$\Phi_1 - \Phi_2$	$\Phi_{\text{empir.}}$	p
Feel compassion towards birds that lost their home	50/41.3	29/38.7	79/40.3	0.053	0.36	>0.05
It's cruel, repulsive, heartless	32/26.4	9/12.0	41/20.9	0.372	2.52	=0.004
Feel anger and hate	15/12.4	13/17.3	28/14.3	0.138	0.93	>0.05
Very bad behaviour	5/4.1	11/14.7	16/8.2	0.379	2.57	=0.004
Will fall sick, become freckled	4/3.3	5/6.7	9/4.6			
I couldn't act like that	5/4.1	3/4.0	8/4.1			
Wanted to warn and explain	6/5.0	2/2.7	8/4.1			
It's incomprehensible as it must be enough space for all of us	4/3.3	3/4.0	7/3.6			

The boys as well as the girls feel compassion towards birds that lost their home but the girls have a stronger feeling of remorse. The next position taken by the girls is cruelty and heartlessness while the boys feel anger and hate. Many more boys than girls underline that it is very bad behaviour. More girls than boys tried to warn people and explain them it was not acceptable. Depending on the sex, the criterion χ^2 does not indicate statistically significant deviations. According to the form the respondents learn and the place of living no deviations have been found.

The situation 'somebody urinated on the fire' is more rarely discussed in scientific literature dealing with the issues of interaction with nature. However, along the process of our research 9 notional categories have been marked.

Table 8. The comments on the situation 'somebody urinated on the fire' (N/%).

Comment on a situation	Sex		In total	Fisher's criterion		
	Girls	Boys		$\Phi_1 - \Phi_2$	$\Phi_{\text{empir.}}$	p
It's all right. You can't leave the burning fire.	22/21.2	64/44.8	86/34.8	0.51	3.95	<0.000
Disgusting, stupid, low-minded	40/38.5	25/17.5	65/26.3	0.476	3.68	<0.000
Very bad behaviour, impolite action	11/10.6	22/15.4	33/13.4	0.144	1.11	>0.05
A real looser, ill-mannered	11/10.6	13/9.1	24/9.7	0.05	0.38	>0.05
It was funny	8/7.7	10/7.0	18/7.3	0.026	0.20	>0.05
Probably s/he was drunk, perverted behaviour	5/4.8	3/2.1	8/3.2			
Wanted to see their 'cocks' burning	4/3.8	3/2.1	7/2.8			
Disrespect for fire	2/1.9	1/0.7	3/1.2			
Will piss in his/her own bed at night	1/1.0	2/1.4	3/1.2			

The majority of the boys maintain that they see nothing wrong as the fire must go out. The girls first of all find the situation disgusting, stupid and low-minded. Nevertheless, more boys than girls see such behaviour bad and impolite. The girls stress that probably it can be an action of a drunken man and that such behaviour is ill-mannered. It can be stated that in



regard with such behaviour, the boys are more tolerant than the girls. The criterion χ^2 show statistically significant deviations ($\chi^2=23.77$; $df=8$; $p<0.003$). The older learners underline that everything is all right (for example, it was highlighted only by 18.8% of the fifth-formers but by 63% of the school-leavers). The younger students rather than the older ones tend to evaluate such behaviour as disgusting and low-minded. Moreover, the younger schoolchildren describe such person as a looser and ill-mannered whereas neither eleventh-formers nor school-leavers accept such position. Depending on the place of living, statistically significant deviations have not been found.

The other important indicator is behaviour of the respondents themselves. Along the evaluation of behaviour of other people, some of the respondents agree that they themselves perform in a similar way. The latter answers have not been included into assessment of comments the results of which are provided in Table 9.

Table 9. Behaviour of the respondents in different situations (N/%).

Experience of personal behaviour	Girls	Boys	Total	χ^2 ; $df=1$	p
Tortured an animal	242/25.8	328/43.1	570/33.6	56.191	0.000
Spat in the lake or stream	214/22.8	452/59.4	666/39.2	235.419	0.000
Urinated on the fire	13/1.4	168/22.1	181/10.7	188.742	0.000
Burned dry grass	132/14.1	248/32.6	380/22.4	82.331	0.000
Broke a tree	546/58.4	497/65.3	1043/61.5	8.468	0.004
Destroyed a bird's nest	28/3.0	65/8.5	93/5.5	24.945	0.000

Agreeably to the sex, statistically significant deviations can be established. In all cases, behaviour of the boys is worse than that of the girls. For example, 22.1% of the boys urinated on the fire whereas the girls make only 1.4%. Most frequently the girls and the boys say they break trees. It can be stated that a general tendency has been established – the boys are more pragmatic, cruel and aggressive than the girls. Depending on the respondents' place of location, fundamental deviations except for spitting in the lake or stream have not been established. In this case, the schoolchildren of the city site are much more active than their colleagues of the rural area ($\chi^2=18.32$; $df=2$; $p<0.000$).

The respondents express their position on the people that are cruel to the animals, for example, beat, torture and mock them. The participants of the survey were asked to evaluate if such people could be good and kind to other people (Table 10).

Table 10. The respondents' position on the people behaviour of which towards animals can be defined as unacceptable: can they be kind to other people (N/%).

Gender	Yes, they can	No clear position	No, they can't	χ^2 ; $df=2$	p
Girls	103/11.1	443/47.7	383/41.2	37.929	0.000
Boys	155/20.6	367/48.9	229/30.5		
Total	258/15.4	810/48.2	612/36.4		

In this case, statistically significant deviations can be established. The boys are more tolerant towards cruel behaviour in respect of animals. Only one third of the boys and 41.2% of the girls suppose that such people can be kind to others. An interesting point is that here we have a number of doubting respondents, including both sexes – boys and girls i.e. they have no clear position on the evaluation of persons. It is acclaimed to be a certain failure in traditional human values. In terms of the respondents' place of living, statistically significant deviations have not been noticed.



Discussion

The fact that a major part of the learners at least once observed the other people's aggressive and disrespectful behaviour towards nature indicates that Lithuanian children grow, broaden world outlook and build their value-based system in the social environment providing a number of examples containing disrespectful and even aggressive behaviour towards nature. The issue about how this environment impact makes on individuality arises. On the basis of the theory of social learning (Bandura, 1974) we can maintain that a greater part of the young generation yet in childhood inherit the models of disrespectful behaviour towards nature from the social cultural environment irrespectively of motivation. It has been established that in order to save the model of behaviour in long-term memory, attention paid by the observer is a sufficient factor. Dealing with the feelings experienced by the children in the process of observation of the mentioned behaviour and the fact they remember the situations and empathy caused by these circumstances, we can state that enough attention is devoted to learn the observed models of behaviour. The fact proving that disrespectful and even aggressive behaviour towards the objects of nature is negatively evaluated by the majority of schoolchildren lays down the precondition that the learned models of behaviour will not be used in the future practise. Scrupulous attention must be devoted to the factor that unacceptable behaviour towards inanimate nature is admitted and even accepted as a standard by a major part of the students. It should be underlined that the previous generations had a much stronger viewpoint on the man's cruel behaviour towards animals and highlighted that they could not carry good for people in any way. Respect for life was one of the key objectives of education. A presumption that a demand of the young generation for inanimate nature protection is stronger than that for animate nature protection can be made. However, the burning issues about ecology deal with inanimate nature (air and water pollution, soil pollution and degradation, climate alterations, decline of the ozone layer etc.) and the factors causing them are directly related to man's economic activities and every day growing demand *'to pay any money to obtain it'*. The restriction of the latter demand, the need *'to be'* in harmony and coordination of individual requirements on natural environment is one of the preconditions to provide solutions protecting nature from destructive economic activities and encouraging to invest in ecologically cleaner technologies. The solutions of a similar format are frequently connected with restriction of the need *'to have'*, and therefore an important point is the world outlook of those making and influencing decisions, relation to environment and nature in a broad sense. The situation that a fairly substantial part of Lithuanian schoolchildren accept disrespectful behaviour towards nature and that tolerance for such actions is increasing suggests an assumption that moral and natural science education in Lithuanian comprehensive school is insufficient i.e. has no power to balance the impact of social-cultural environment. The latter constantly presents to children a number of models demonstrating disrespect and even aggression towards nature, and thus formal education which is a purposeful and professional one obtains an exceptional value in the process of shaping value-based attitudes of the young generation. Lithuanian comprehensive school follows the general programmes of natural science and moral education. The integrated programme of moral education schedules to develop a respectful viewpoint towards nature, whereas the programme of natural science education seeks to create conditions helping the learners to perceive nature integrity and harmony and to comprehend human place and role in nature. Therefore, a very important point is the role realized by a certain teacher implementing the tasks raised by the programmes and directly participating in the educational process. The previously conducted research indicates that a practical aesthetic interrelation with nature is characteristic of the women teachers of Lithuanian comprehensive school (the majority of teachers in Lithuania are women), and thus a precondition that this position is used establishing the human place and role in nature can be made. Consequently, another assumption stating that decreasing respect for inanimate nature is an outcome and result of



social learning as well as of formal education can be drawn. V.A. Yasvin (2000) claims that despite the anthropocentric world outlook and pragmatism (prevailed in the Western civilization for a long time) are changed by the new ideas (V.I.Vernadskij learning about the noosphere, formation of the ethical-aesthetical attitude towards nature protection etc.), the anthropocentric, pragmatic point of view towards nature is deeply-rooted and often reflected by the speeches of the professionals dealing with the area of public ecology education. The explained situation can be attributed to the comprehension school teachers implementing educational programmes. All the above mentioned preconditions should be examined more properly and carefully but the further process of research will be determined by a detailed assessment of all the data collected during the latter study. The research findings presented in the article indicate that in order to improve education of the young generation, the process of fostering value-based relations and sensual perception of nature should be devoted more attention. The educational process should be also based on personal schoolchildren's experience of interaction with nature as well as on its reflection, open discussion and problem-based teaching. The learners should also be provided an opportunity to express their thoughts through the discussions in the peer groups reaching wise decisions and building new behavioural models that should influence individual choices and behaviour in analogical situations at a later stage.

Conclusions

1. The major part of Lithuanian schoolchildren has experience of observed aggressive and unacceptable behaviour towards nature. Mainly, they deplore aggressive and unacceptable behaviour towards the objects of animate and inanimate nature: the feelings of compassion, repulsion and aggression in respect of their colleagues are predominating.
2. In regard with other people's aggressive and unacceptable behaviour towards animals observed by schoolchildren, the evaluations significantly deviate in terms of the sex; compassion and repulsion prevail among the girls while the boys pay attention towards aggression and compassion in respect of irresponsibly behaving people; if the boys wanted to repay agreeably to the maxim 'an eye for an eye, a tooth for a tooth', the girls preferred a wish to explain and to warn; moreover, the girls' evaluations reflect a broader attitude towards the issue and deeper comprehension of negative impact on nature.
3. In respect of other people's aggressive and unacceptable behaviour towards animals observed by the students, the evaluations deviate in terms of the learners' place of living; the schoolchildren of the city site are more liberal discussing unacceptable behaviour towards animals but the evaluations of animal torture in terms of the place of living do not differ. Moreover, in comparison with the students of the city site, the learners of the rural area are more familiar with aggression in respect of aggressively behaving people.
4. Disrespect for inanimate nature compared to disrespect for animate nature is approved more thoroughly by Lithuanian schoolchildren; moreover, pragmatism is prevailing in the evaluations of behaviour towards the objects of inanimate nature.
5. In regard with other people's unacceptable behaviour towards the objects of inanimate nature observed by the schoolchildren, the evaluations deviate in terms of the sex; twice more boys compared to girls notice nothing wrong if spitting at water or urinating on the fire; a pragmatic evaluation is a more dominant feature among the boys.
6. In respect of other people's unacceptable behaviour towards the objects of inanimate nature observed by the schoolchildren, the evaluations also deviate in terms of the place of living; the learners of the rural area compared to those of the city site, are less tolerant towards disruptive behaviour causing harm to nature.



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Резюме

ОСОБЕННОСТИ ОТНОШЕНИЙ УЧАЩИХСЯ 5-12 КЛАССОВ К ПРИРОДЕ: АСПЕКТЫ ОЦЕНИВАНИЯ СИТУАЦИЙ ПОВЕДЕНИЯ

Винцентас Ламанаускас, Ритис Вилконис

Объект исследования – особенности отношений учащихся 5-12 классов к природе. Цель исследования – выявить особенности отношений к природе учащихся общеобразовательной школы Литвы.

Инструмент исследования – анкета, составленная из вопросов, ситуаций поведения в природе и с разными природными объектами и утверждениями. Употреблялись номинальные, дихотомические и ранговые шкалы измерения. Для статистической обработки данных исследования применялся программный пакет SPSS. Для установления различий между анализируемыми признаками применялся критерий хи-квадрат (χ^2) и многофункциональный критерий Фишера ϕ .

В исследовании приняли участие 1787 учащихся 5-12 классов общеобразовательной школы Литвы. Методы исследования - анализ научной литературы, письменный опрос (анкетирование), системный и сравнительный анализ.

Проанализировав результаты исследования, установлено, что большинство учащихся общеобразовательной школы Литвы имеют личный опыт наблюдения за агрессивным или неуважительным поведением с природными объектами. В принципе учащиеся осуждают такое поведение: доминируют жалость, отвращение и агрессивность к людям, поведение которых с природными объектами агрессивное. Оценки значимо различаются по аспектам пола и места проживания (город/село). Девочки наиболее глубоко понимают данную проблему, в их оценках доминируют жалость, отвращение, страх. Им хотелось бы объяснять, учить таких людей. Среди мальчиков доминируют жалость и



агрессивность. Им хотелось бы, чтобы люди, которые агрессивно обращаются с природными объектами (чаще – живой природы), почувствовали сами те же действия по принципу «Око за око, зуб за зуб». Если мучение животных однозначно негативно оценивается большинством, то учащиеся городских школ наиболее толерантно относятся к неуважительному поведению с природными объектами. Так же установлено, что неуважительное поведение с объектами неживой природы допускается значительно большей частью учащихся в связи с прагматическим отношением к природе.

Ключевые слова: естественнонаучное образование, отношения человека к природе, школа общего образования.

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