

Environmental Education and Its Impact on Children

Martina Rajšp and Samo Fošnarič
Faculty of Education, University of Maribor

Abstract

We can perceive environmental education also as an education for a nicer and better life. We know for the latter one that we will have to change it drastically if we want to preserve our planet for future generations. In this article we firstly introduce the concept of environmental education and stress the importance of environmental literacy. Secondly, we present the results of the research that has been carried out on a sample of 56 teachers of the first triad and their 823 pupils. We identify the presence of environmental education in the process of planning annual school action plans, of performing environmental education and the willingness of younger pupils to cohabitate with nature. Finally, our results show that the more the teachers plan their environmental activities, the more they perform them. The more they perform positive environmental activities, the more pupils are environmentally active in their own free time.

Key words: *cohabitating with nature; environmental education; first school triad; process of performing; process of planning.*

Introduction

Man is, as every other being on Earth, dependent on the environment (environment is the nature that surrounds us, as well as all other physical, chemical, biological and social influence from our surroundings (National Institute of Environmental Health Sciences, 2009) – but often his actions are directed against it. The gap between civilization and the environment (Agenda 21, 1992; Matas et al., 1992; Miller, 1992; Tarman, 1994; Botkin, & Keller, 1995; Marentič Požarnik, 1997; Mannion, 1999; Smaka Kincl et al., 2008) is shown through different types of pollution, excessive exploitation and environmental abuse.

The concept of education and the Slovene school legislation, which have been accepted before the end of the last century, bring many fundamental changes, primarily children`s

rights. The main changes are connected to those rights and should be provided for by the National curriculum for certain subjects. In terms of guidelines and recommendations issued by the Council of Europe, it is necessary to increase environmental education in educational programs, and to include the consideration and respect for the environment as a basic principle of all school subjects. Planned environmental literacy has to be included (as a new educational paradigm) in the educational system, based on systematical thinking as it is inevitably important if we want to understand the complex interdependency of ecological systems, social and other systems (Orr, 1992, 2005; Capra, 2005; Lepičnik Vodopivec, 2006; Bahor, 2009). This is the basic principle of thinking and acting in society. Developing young children's sensitivity for responsible interaction with the environment is essential throughout their education. Integration of environmental content into all other fields is also essential. Developing environmental literacy therefore means developing all other literacy types as well.

Children will certainly face life in a co-natural way as adults. Education for co-natural sustainability means that it is necessary to connect development and environmental education. The United Nations organization recognized the meaning of education for co-natural sustainability long ago, and it has become one of the four priority fields for realizing accordant development. Environmental education (as an education for sustainable development) is structured differently around Europe, with both governmental and non-governmental organizations involved in this education. Individual institutions have to take care of educating teachers, preparing different materials, supporting schools with different projects (e.g. Eco School), and to advise and help with the program. Every country has at least one (governmental or non-governmental) institution, which is in charge of environmental education and looks after teacher education, prepares materials, leads or guides, and advises individual projects. There are three ways (Zupan et al., 2007) to include environmental education into school systems in different countries:

- Environmental education as a subject
- Environmental education as part of a subject
- Environmental education as cross-curricular field.

The Slovene school system has placed environmental education as an interdisciplinary field at all stages of education, and it is also part of subjects.

Let us stress that we are not satisfied with the speed of forming and developing environmental education in Slovenia. Efforts to redefine environmental education are unsatisfactory. On the basis of those facts, we can define first steps to improve the quality of environmental education in Slovene schools. These steps allow us to see the problem clearer and, at the same time, they help us to plan future guidelines.

Aims of the Empirical Research

In terms of the research problem, we carried out an empirical research. The aim of the research was to determine:

- the presence of environmental education in the planning work in the first triad of Slovenian primary school
- the presence of environmental education in the process of implementing the work in the first triad of Slovenian primary school
- the willingness of children from the first triad of Slovenian primary school to cohabitate with nature

Methodology

Research Pattern

The research, conducted in the year 2010/2011, is based on two random samples, 56 teachers of the first triad of Maribor primary schools and their 823 pupils. This non-random pattern represents the simple random pattern from the hypothetical population, at the level of inferential statistic usage.

Relevant Characteristics of the Interviewed Teachers

Teachers with a university degree prevailed (78.6%), others (21.4%) had higher education. There were 51.8% of teachers with the title counselor, one fourth (25.0%) were mentors and 7.1% had the highest expert title - expert counselor. There were 16.1% of them who had no expert title. The length of employment is balanced: 33.9% employed 15 years or less, between 16 and 25 years in employment there are 30.4%, and 35.7% of teachers worked more than 25 years.

Relevant Characteristics of Interviewed Pupils

Among 823 pupils, 421 (51.2%) interviewed were boys and 402 (48.8%) interviewed were girls. In the research there were 287 (34.9%) pupils of first, 280 (34.0%) of second and 256 (31.1%) of third class.

The Procedure of Assembling Data

Interview and Inquiry Realization

We collected the data in January and February 2011 in two ways:

- Survey questions, related to planning and performing activities that are placed among five fields connected with nature (play, exercise, obligation, danger, aesthetics);
- Bounded interviews of pupils from the first triad, using a marking scale of alternative judgment (“check list”), where we were able to see the children’s willingness to cohabitate with nature. Questions on the “check list” have been linked to the activities of children at the outdoor school, falling into five areas (play, exercise, obligation, danger, and aesthetics).

Content and Methodological Characteristics of Interview and Inquiry

a. Content – formal features of the survey

- Survey for teachers was anonymous and had 38 closed type and 3 open type questions.
- Marking scale of alternative judgments (“check list”) for pupils.

b. Measure characteristics

- *Validity*: the survey for teachers and the marking scale of alternative judgments were composed using general measurements. Rational validation followed. Both surveys were thoroughly reviewed by pragmatists and methodology experts.
- *Reliability*: we have examined that characteristic by repeat method, which showed that directions and all the questions were adequate (precise enough, univocal ...). Results of the pilot study were not included in the definite research. We examined the reliability of the survey using the Cronbach coefficient α , which has shown that the instrument is reliable from the reliability point of view ($\alpha = 0.862$).
- *Objectivity*: most of the questions in the survey for teachers and all the questions on the marking scale of alternative judgments are closed type (this allows the objective comprehension of answers). Answers for two of the questions have been categorized objectively.

Data Processing Procedures

Data were analyzed with a computer program for statistical analysis, SPSS. Tabular and graphical surveys of frequency distribution and χ^2 test were used. In the case of low frequency (over 20% of theoretical frequency less than 5) the alternative χ^2 test (Likelihood Ratio) was used, and in the case of table 2 X 2 the χ^2 test with Yates' correction for continuity (or Yates' chi-squared test) was used also in certain situations when we were testing for independence in a contingency table.

Empirical research is based on descriptive and causal non-experimental methods of empirical pedagogic research, as we wanted to examine the actual content of environmental education in the first three years of Slovenian primary school, and at the same time to determine a cause-consequence relationship between individual factors (environmental education planning, implementation of environmental education and the willingness of children to live in harmony with nature).

Findings

The findings are structured into five complexes. The first three gathered findings depend on the presence of environmental education in the process of planning, performing, and on the link with both mentioned processes in the first triad of primary school in the field of playing, exercising and working in nature, the danger of nature, and the aesthetic activity of experiencing nature. Chapter four gathered and presented findings that are connected with children's willingness to cohabitate with nature. In the last chapter the relation between performing environmental education by teachers and willingness of children to cohabitate with nature were gathered and presented.

Presence of Environmental Education in the Process of Planning the Educational Work in Different Fields

School legislation obligates teachers to plan their regular educational work for many reasons (Kovač, & Strel, 2002):

- for optimal realization of curriculum and at the same time to avoid improvisation and routine work;
- for professional responsibility, because reasons “for” and answers “what for” are given in the annual action plan;
- for teacher`s safety, professional competence, relaxation, and certainty;
- to evaluate work easily.

We ascertain that interviewed teachers plan environmental education activities in their annual school action plan, which belong in all five monitoring fields.

Play on the Grass

Most of the interviewed teachers plan children`s play in nature in their annual school action plans, most of the time they plan free child`s play on the grass (80.4%) and playing hide and seek (69.6%), as shown in Table 1.

Table 1.

Planning games in nature according to the education, obtained title and seniority of interviewed teacher

			None	One	Two / three	SUM	χ^2	P
education	higher	f	1	4	7	12	0.672	0.715
		f%	8.3	33.3	58.3	100		
	university	f	6	10	28	44	3.377	0.760
		f%	13.6	22.7	63.6	100		
obtained title	without title	f	2	2	5	9	13.528	0.009
		f%	22.2	22.2	55.6	100		
	mentor	f	2	2	10	14	13.528	0.009
		f%	14.3	14.3	71.4	100		
	advisor	f	2	9	18	29	13.528	0.009
		f%	6.9	31.0	62.1	100		
	councillor	f	1	1	2	4	13.528	0.009
		f%	25.0	25.0	50.0	100		
seniority	up to 15 years	f	3	2	15	20	13.528	0.009
		f%	15.0	10.0	75.0	100		
	from 16 to 25 years	f	0	9	8	17	13.528	0.009
		f%	0	52.9	47.1	100		
	over 25 years	f	4	3	12	19	13.528	0.009
		f%	21.1	15.8	63.2	100		

Table 1 also shows that teachers with more work experience more frequently plan that kind of play in nature ($P = 0.009$). We ascertain that teachers do plan a playing in nature activity, however, based on the school legislation (Bela knjiga o vzgoji in

izobraževanju [Schools White Paper], 1995; Okoljska vzgoja kot medpredmetno področje v programih osnovne in srednjih šol (osnutek) [Environmental education as a cross-curriculum field in primary and secondary schools (draft)], 1997; National curriculum for the first triad; *Učni načrt za okoljsko vzgojo, izbirni predmet* [Curriculum for Environmental education – elective subject], 1999) we think that those identified percentages are too low.

Exercise in Nature

Table 2 shows that within exercising in nature almost all of the interviewed teachers (96.4%) plan taking a walk in the woods with their pupils.

Table 2.

Planning activities in the nature according to the education, obtained title and seniority of interviewed teacher

			None	One	Two / three	sum	χ^2	P
education	higher	f	0	0	12	12	13.189	0.001
		f %	0.0	0.0	100	100		
	university	f	2	19	23	44		
		f %	4.5	43.2	52.3	100		
obtained title	without title	f	1	8	0	9	34.136	0.000
		f %	11.1	88.9	0.0	100		
	mentor	f	0	8	6	14		
		f %	0.0	57.1	42.9	100		
	advisor	f	1	3	25	29		
		f %	3.4	10.3	86.2	100		
councillor	f	0	0	4	4			
f %	0.0	0.0	100	100				
seniority	up to 15 years	f	1	19	0	20	71.528	0.000
		f %	5.0	95.0	0.0	100		
	from 16 to 25 years	f	0	0	17	17		
		f %	0.0	0.0	100	100		
	over 25 years	f	1	0	18	19		
		f %	5.3	0.0	94.7	100		

Teachers with a university degree more frequently plan that kind of activity ($P = 0.001$), this includes teachers with a higher expert title ($P = 0.000$) and longer work experience ($P = 0.000$). Children should gain the majority of locomotive experience in the first school years, because this is the period when they are the most sensitive for environmental influence. Later they could comprehend and incorporate more complex motive patterns. Parents and teachers should provide children with opportunities to develop motive capabilities, basic motive concepts, and to adopt basic elements of different sport activities. Through these actions, children will gradually accept sport activity as a lasting value, which will help them to preserve their health and will relax them from all of the psychological tensions in their lives.

Working Commitments in Nature

The teachers interviewed do not favor working commitments in nature. The results indicate that teachers with a longer work experience more often do plan working commitments in their annual school plans ($P = 0.050$), as shown in Table 3.

Table 3.

Planning playing activities in nature according to the education, obtained title and seniority of interviewed teacher

			None	One	Two / three	SUM	χ^2	P		
education	higher	f	0	9	3	12	2.044	0.360		
		f %	0	75.0	25.0	100				
	university	f	4	31	9	44				
		f %	9.1	70.5	20.5	100				
obtained title	without title	f	1	5	3	9			9.928	0.128
		f %	11.1	55.6	33.3	100				
	mentor	f	1	13	0	14				
		f %	7.1	92.9	0	100				
	advisor	f	2	20	7	29				
		f %	6.9	69.0	24.1	100				
	councillor	f	0	2	2	4				
		f %	0	50.0	50.0	100				
seniority	up to 15 years	f	2	14	4	20	9.500	0.050		
		f %	10.0	70.0	20.0	100				
	from 16 to 25 years	f	0	16	1	17				
		f %	0	94.1	5.9	100				
	over 25 years	f	2	10	7	19				
		f %	10.5	52.6	36.8	100				

The Slovenian Foundation of Environmental Education in Europe and FEE International (DOVES) connects Slovenia with the strategic union of responsible countries, linked with FEE International (Foundation for Environmental Education) aiming to promote sustainable development through environmental education. They are mainly active through environmental education programmes, like working with young people, and numerous education institutions are collaborating with their Eco-School project as a way of living. With their clear guidelines, Eco-School project tries to raise environmental awareness among young people and identifies concrete tasks to be completed. Among them there are different working commitments in and for nature. Because most of the teachers are working in primary schools which are taking part in Eco-School project as a way of living, we presumed that they will be more favourable in their annual school plans towards working commitments – work, which children have the psychophysical capacity to do when they know why they do it.

Dangers of Nature

In nature, we can find edible or inedible plants and animals, but we can also come across such that can cause severe disturbance or even death. Among those are harmful/

poisonous plants and some animals that secrete toxic substances from the special glands on the surface of the body when bitten.

The interviewed teachers plan in their annual school plans to preventively talk about the dangers in nature. Most of the time it is about the consequences of a tick bite (85.7%).

This is also shown in Table 4.

Table 4.

Numbers (f) and percentage composition (f%) of the surveyed teachers in response to questions about the planning the discussion about dangers of nature

STATEMENT	ANSWER	f	f%
In my annual work plan I prepared: - discussion about toadstool,	YES	36	64.3
	NO	20	35.7
	SUM	56	100.0
- discussion about mosquito,	YES	34	60.7
	NO	22	39.3
	SUM	56	100.0
- discussion on the implications of the tick bite.	YES	48	85.7
	NO	8	14.3
	SUM	56	100.0

Aesthetic Experience of Nature

We think that nature is the largest source of beauty and provides us with an aesthetic pleasure, which we do not accept only with sight, but also through hearing, smell, taste and the sense of touch. Therefore, facing nature's beauty is an important motivation for younger children in developing their interest for the environment. Teachers also mentioned activities which can contribute to experiencing nature aesthetically.

We have found, as seen in Table 5, that the main activity teachers plan is to make a collage from dried leaves (78.6%).

Table 5.

Number (f) and percentage composition (f%) of surveyed teachers in response to questions about the planning activities that contribute to the aesthetic experience of nature

STATEMENT	ANSWER	f	f%
In my annual work plan I prepared: - child care for flowers in the classroom,	YES	40	71.4
	NO	16	28.6
	SUM	56	100.0
- making collages of dried leaves,	YES	44	78.6
	NO	12	21.4
	SUM	56	100.0
- making jewelry from natural materials.	YES	35	62.5
	NO	21	37.5
	SUM	56	100.0

In informal conversations after the interview, many teachers told us that they used Mathematics when making jewelry from natural materials, where they thread the colored wooden beads with dotted patterns. Only one teacher mentioned the making of jewelry out of modeling clay for Women's Day.

Projects Connected with Nature

Although project work belongs to modern didactical systems, one quarter of the interviewed teachers did not plan this in their annual school plans. All other teachers did, and all of the planned projects are connected with environmental education.

Table 6 shows the responses of the interviewed teachers.

Table 6.

Number (f) and percentage composition (f%) of surveyed teachers in response to the questions associated with the planning of the project connected with nature

	f	f %
FOREST	6	10.7
MY PLACE	17	30.4
MEADOW	4	7.1
BEEHIVES	4	7.1
ECO DAY	11	19.6
DID NOT PLAN THE PROJECT	14	25.0
SUM	56	100.0

Presence of Environmental Education in the Process of Implementing Educational Work in Different Fields

Teachers should enable their students to carry out cognitive, conative and affective goals. Pupils ought to gain knowledge, skills and capabilities which would allow them to understand the (social and natural) environment and life itself. At the same time, they should develop a responsible relation with the nature and living beings. Teachers should lead students through activities, including, but not limited to, perception, observation, classification, counting, measuring, noting down, inferring, and communicating.

We ascertain that interviewed teachers do implement environment-based activities that belong to all five study fields.

Play in Nature

Children`s attitude towards nature can be observed through their play in nature. Table 7 shows us the frequency of the implementation of offered games in nature.

Two thirds of teachers rarely, or frequently, allow their pupils to play in nature during lessons. Most of the time it is about playing on the grass (100%) and playing hide and seek in the bushes (89.3%). Only 5.4% of teachers allow their pupils to climb trees. Low percentages do not surprise us because teachers stated in their informal interviews that the reason for not letting their pupils climb trees is because they want to preserve the trees (when climbing, the branches break and the bark peels,...). Teachers allow pupils to develop their physical activities by allowing them to climb frames in the gym (many schools have climbing walls) and in the playground.

Table 7.

Number (f) and percentage composition (f%) of surveyed teachers in response to questions on the implementation of the games in nature

STATEMENT	ANSWER	f	f %
Children in my class are playing on the grass.	Often	48	85.7
	Rarely	8	14.3
	Never	0	0
	SUM	56	100
Children in my class are playing hide and seek in the bushes.	Often	21	37.5
	Rarely	29	51.8
	Never	6	10.7
	SUM	56	100
Children in my class (under my supervision) climb a tree.	Often	3	5.4
	Rarely	20	35.7
	Never	33	58.9
	SUM	56	100

Exercise in Nature

Recreation or exercising in nature during regular lessons has to be sporting, professional and relaxing, and certainly safe and strengthening. All teachers (100%) take their pupils for a walk in the woods during lesson time, while less than half of the teachers interviewed (46.5%) enable their pupils to swim/bathe in nature.

We can see from Table 8 that teachers with a lower expert title, or without it, do this activity more often (P = 0.027).

Table 8.

Implementations of exercise in nature, according to the education, obtained title and seniority of the surveyed teacher

			never	rarely / often	SUM	χ^2	P
education	higher	f	0	12	12	1.493	0.222
		f %	0	100.0	100		
	university	f	3	41	44		
		f %	6.8	93.2	100		
obtained title	without title	f	0	9	9	9.152	0.027
		f %	0	100	100		
	mentor	f	0	14	14		
		f %	0	100	100		
	advisor	f	1	28	29		
		f %	3.4	96.6	100		
councillor	f	2	2	4			
	f %	50.0	50.0	100			
seniority	up to 15 years	f	0	20	20	3.004	0.223
		f %	0	100	100		
	from 16 to 25 years	f	1	16	17		
		f %	5.9	94.1	100		
	over 25 years	f	2	17	19		
		f %	10.5	89.5	100		

Working Commitments in Nature

According to the results of the empirical research we can determine that pupils from every single interviewed teacher rarely or often implement working commitment in nature. The most common working commitment implemented is bird feeding (91.8%).

Dangers of Nature

Every year the media report about the numerous unfortunate consequences of consuming poisonous plants or problems connected with animal bites. Children with a lack of knowledge are the most endangered. Therefore, it is essential to teach children about nature's threats. Teachers devote most of their attention in the classroom to talk about safety. All of them discuss the consequences of a tick bite with their pupils. Almost all teachers also discuss with children issues related to protecting themselves from mosquito bites (94.6%) and from toadstool (89.3%).

Teachers with higher expert title ($P = 0.025$) and with a longer working experience ($P = 0.006$) more often talk about nature's threats with their pupils. We can see that from Table 9.

Table 9.

Implementing working commitments in nature, according to the education, obtained title and seniority of the surveyed teacher

			rarely	often	SUM	χ^2	P
education	higher	f f%	6 50.0	6 50.0	12 100	0.996	0.318
	university	f f%	29 65.9	15 34.1	44 100		
obtained title	without title	f f%	6 66.7	3 33.3	9 100	4.737	0.192
	mentor	f f%	7 50.0	7 50.0	14 100		
	advisor	f f%	18 62.1	11 37.9	29 100		
	councillor	f f%	4 100	0 0	4 100		
seniority	up to 15 years	f f%	12 60.0	8 40.0	20 100	0.441	0.802
	from 16 to 25 years	f f%	10 58.8	7 41.2	17 100		
	over 25 years	f f%	13 68.4	6 31.6	19 100		

Aesthetic Experience of Nature

Allowing activities that contribute to experiencing nature aesthetically, teachers give their pupils a chance to develop sensitivity and love for oneself, for the others and the environment. Pupils gradually realize relations in the environment and at the same time they are actively involved and learn to act responsibly. The interviewed

teachers allow activities which help children to experience nature aesthetically – most of the time their pupils take care of a flower/ flowers or other plants in the classroom (85.7%).

Research Results in the Process of Planning and Implementing Environmental Education in Regular Education Work in Various Fields

We have precisely studied the connection between the process of planning and the process of implementing environmental education in regular education work in the play field in nature, exercising in nature, work commitment in nature, nature`s threats and activities of experiencing nature aesthetically. We expected that teachers who plan those activities will more frequently implement those activities, and vice-versa, those teachers who plan them less or never, would implement them less or never as well.

The results are shown in Table 10.

Table 10.

Planning environmental activities (play in nature, exercise in nature, working commitments in nature, nature`s threats, and activities of experiencing nature aesthetically) in annual school action plans with regard to implement them

				PLANNING		χ^2	P
				None	One. two. three		
IMPLEMENTING	PLAY IN NATURE	never	f	0	19	6.305	0.110
			f%	0	38.8		
		rarely/ often	f	7	30		
			f%	100	61.2		
	EXERCISE IN NATURE	never	f	0	3	0.224	0.636
			f%	0	100		
		rarely/ often	f	2	51		
			f%	100	94.4		
	WORKING COMMITMENTS IN NATURE	rarely	f	2	33	0.279	0.598
			f%	50.0	63.5		
		often	f	2	19		
			f%	50.0	36.5		
	NATURE`S THREATS	never	f	3	18	0.435	0.509
			f%	50.0	36.0		
	rarely/ often	f	3	32			
		f%	50.0	64.0			
AESTHETIC EXPERIENCE OF NATURE	never	f	1	14	0.007	0.933	
		f%	25.0	26.9			
	rarely/ often	f	3	38			
		f%	75.0	73.1			

We will present the identified tendencies and frequency distribution, which show the statistical relationship. Tendency difference ($P = 0.110$) is shown in play in nature. Teachers who plan activities in nature more frequently implement them as well. Frequency with other activities shows that a greater number of activities, like exercising in nature, discussions about nature`s threats and experiencing nature aesthetically, is implemented if teachers plan them more often in their annual school action plans.

It is worth mentioning the relation between planning and implementing working commitments in nature. Of the teachers interviewed, 63.5% do not perform those

activities, although a lot of activities were planned. We assume that teachers did not have the practical opportunities to implement the activities (e.g. there was no snow).

We conclude that planning is an important phase in the class, however, deviations are possible and allowed in compliance with teacher's autonomy and unpredictable circumstances.

Pupils' Willingness to Cohabitate with Nature

Rapid science and technology development, hectic way of life, and rapid population growth in urban settlements are the main reasons for disconnecting human population from the natural environment. Children nowadays spend less time in nature than their parents did. Statistics show that children spend six hours daily sitting in front of computers, TVs, video games and mobile phones, in closed spaces, although the time spent in nature would help them with learning, memory, confidence, and would keep environmental awareness high.

We determine that the interviewed children are performing various environmental activities in their free time, which belong to all five research areas.

Play in Nature

Playing on grass is one of the basic ways which consciously and subconsciously influence ecological experiences and arouse environmental interests of young children. Indicative data of our research are related to "play on grass". That kind of activity is likely to be done by most of the interviewed pupils (96.1%), while approximately half of the pupils (65.9%) are skilled in climbing trees. Children from second grade are a bit more likely to play in nature ($P = 0.005$) – the results are shown in Table 11.

Table 11.

Implementing playing in nature, according to the gender and class of the surveyed pupils

			NONE	ONE	TWO	ALL THREE	SUM	χ^2	P
GENDER	boy	f	11	100	208	102	421	7.358	0.061
		f%	2.6	23.8	49.4	24.2	100		
	girl	f	6	127	176	93	402		
		f%	2.1	27.6	46.7	23.1	100		
CLASS	first	f	10	85	123	69	287	18.552	0.005
		f%	3.5	29.6	42.9	24.0	100		
	second	f	4	85	116	75	280		
		f%	1.4	30.4	41.4	26.8	100		
	third	f	3	57	145	51	256		
		f%	1.2	22.3	56.6	19.9	100		

Exercising in Nature

Forming a relation between children and nature is often conditioned by different activities. One of them is related with exercise,

High level of motive capabilities ensures children the adequate level of motive competence, which is the basis for successful learning and effective usage of motive skills, involving in

different sports activities as well as handling numerous everyday tasks. Therefore, the crucial importance is to enable children various motive activities that would definitely give smaller amount of those who are deprived from exercise. (Matejek, & Planinšec, 2012, p. 125)

There are only a few of them who do not like to exercise in nature. Only 2.7% of pupils do not like to cycle and/or to drive a scooter, 5.3% do not like to swim in nature and 13.9% do not like to go for a walk in the woods.

Tasks in Nature

If we want our children to grow into mature and responsible humans, we have to give them certain tasks which are psycho-physically appropriate. Because there are many daily tasks among families that are related with nature, we gave our students three tasks with a question to complete. With regard to implementing activities from other areas, the percentages of tasks in nature are lower. Pupils help with fruit and vegetable picking (77.6%), with cleaning the snow (75.2%) and in winter they are providing food for birds (68.5%).

Dangers of Nature

Despite the satisfaction provided by outdoor activities, they should never completely forget about nature's threats. Sixty percent of interviewed children, as seen in Table 12, mostly from the third grade ($P = 0.000$), know of nature's threats and act with caution.

Table 12.

Implementation of actions to protect oneself against the dangers of nature, according to the gender and class of the surveyed pupils

			NONE	ONE	TWO	ALL THREE	SUM	χ^2	P
GENDER	boy	f	13	39	116	253	421	2.979	0.395
		f%	3.1	9.3	27.6	60.1	100		
	girl	f	7	30	107	258	402		
		f%	1.7	7.5	26.6	64.2	100		
CLASS	first	f	8	39	81	159	287	27.998	0.000
		f%	2.8	13.6	28.2	55.4	100		
	second	f	11	19	72	178	280		
		f%	3.9	6.8	25.7	63.6	100		
	third	f	1	11	70	174	256		
		f%	0.4	4.3	27.3	68.0	100		

Aesthetic Experience of Nature

Facing nature's beauty is an important way for motivating younger children to develop their ecological interests as well as implementing them, which helps with experiencing nature aesthetically. Most of them like to produce goods from natural materials (93.8%) and they take care of a plant/ plants at home (76.9%). As seen in Table 13 this is more often done by girls ($P = 0.000$) and by second and third grade pupils ($P = 0.019$).

Table 13.

Implementation of activities that contribute to the aesthetic experience of nature in relation to gender and class of the surveyed pupils

			NONE	ONE	TWO	ALL THREE	SUM	χ^2	P
GENDER	boy	f	13	86	160	162	421	20.752	0.000
		f%	3.1	20.4	38.0	38.5	100		
	girl	f	2	53	148	199	402		
		f%	0.5	13.2	36.8	49.5	100		
CLASS	first	f	6	60	119	102	287	15.229	0.019
		f%	2.1	20.9	41.5	35.5	100		
	second	f	5	46	93	136	280		
		f%	1.8	16.4	33.2	48.6	100		
	third	f	4	33	96	123	256		
		f%	1.6	12.9	37.5	48.0	100		

In informal discussions pupils checked many times if any of the material is natural. The least dilemmas were with wood, cones, fruit and vegetables, paper, metal, and plastic. Often they asked by source of glass and styrofoam.

Research Results of the Link between the Process of Implementing Environmental Education in Regular Education in Different Fields and Willingness of Children to Cohabitate with Nature

We have precisely studied the connection between the process of implementing environmental education in regular education work and willingness of children to cohabitate with nature. We assumed that the frequency of implementing environmental activities by children, when absent from the lesson, depends on the frequency of implementing identical classroom activities.

We have detected the existence of a statistically distinctive connection ($P = 0.011$) in the case of activities connected with nature's threats. Children pay attention that they protect themselves against nature's threats in their home environment more often, if they discuss it at school. With all other activities (play in nature, exercising in nature, tasks in nature and experiencing nature aesthetically) there are no typical statistical connections; however, larger frequency of home activities is seen when implementing them more often in school.

We can conclude that the process of implementing environmental activities during regular school lessons has an important role for implementing those activities at home.

The results are shown in Table 14.

Table 14.

Implementing environmental activities (play in nature, exercise in nature, nature`s threats, and activities of experiencing nature aesthetically) by children in their own free time, with regard to implementing them in the classroom

				IMPLEMENTING ENVIRONMENTAL ACTIVITIES - children		χ^2	P
				None	One. two. three		
IMPLEMENTING ENVIRONMENTAL ACTIVITIES DURING SCHOOL TIME	PLAY IN NATURE	never	f f%	1 100	18 32.7	0.117	0.732
		rarely/ often	f f%	0 0	37 67.3		
	EXERCISING IN NATURE	never	f f%	0 0	3 5.4	/	/
		rarely/ often	f f%	0 0	53 94.6		
	WORKING COMMITMENTS IN NATURE	rarely	f f%	0 0	35 64.8	1.244	0.265
		often	f f%	2 100	19 35.2		
	NATURE'S THREATS	never	f f%	5 23.8	16 31.4	6.456	0.011
		rarely/ often	f f%	0 0	35 68.6		
	EXPERIENCING NATURE	never	f f%	1 100	14 25.5	0.280	0.597
		rarely/ often	f f%	0 0	41 74.5		

Instead of a Conclusion

Activities relating to the protection of our planet Earth and its goods are becoming more and more important, because air, water and soil pollution constantly remind us that we have crossed the line with nature, mostly with our arrogant and inconsiderate attitude. The result is always the same – unwanted environmental changes and associated increase of environmental pollution. Nature and humanity, which depend on the ecosystems, are in danger. Only human’s responsibility and thorough knowledge of the environment, can lead nature out of that danger.

The Republic of Slovenia has accepted the National Environmental Action Programme (NPVO) whose goal is to improve environment and quality of life, as well as to protect natural resources. Slovenian strategy precisely defines the set vision and set goals of Slovenian development and defines five development priorities with action plans. The main driver of development is the overall welfare of every individual, and that is why the strategy does not only focus on economic issues but also on social, environmental, political, legal and cultural issues.

The goal of the present study was to find a link between the existing legislation, theoretical knowledge and experiences, and their link with daily practice in Slovenian

primary schools in terms of planning, and (consequently) the implementation of environmental education. The latter is a continuous process in which the individual and society are aware of their environment and all their knowledge, skills and guidance are addressed to current and future environmental problems (Benedict, 1991; Hogan, 1994; Lachecki, & Kasperson, 1995; Dashefsky, 1995; Botkin, & Keller, 1995; Cornell, 1998; Raven et al., 2006; Hoggan, 2009).

The basis of our research is a new concept of education and new legislation, which are formed due to the requirement of society democratization. Their foundation is human rights; in their contexts are also children's rights which should not be restricted in the name of pedagogical and psychological science and well-established rituals in school. In legal terms, this is ensured by the Elementary School Act (2006).

After carrying out the empirical study, it is clear to us that we cannot generalize the results, as we have found that the surveyed teachers are aware of the importance of the planning process of environmental education, and the implementation of environmental activities is directly proportional to increasing their plans. Also, it is important that students who implemented several positive environmental activities at school are more environmentally active at home in their spare time. We are satisfied that statistically significant differences according to gender and class the surveyed students attended at the time are not shown.

In the end, let us only suggest that environmental education should be in (all) educational programs designed and implemented (and consequently also evaluated) in accordance with the principles of structuring the school system, based on the children's rights, taking into account the school legislation, in the child's constant interaction with the environment and for the environment, professional and systematic, relevant and consistent, and last (but not list): ensure to all pupils the maximum conditions of lasting knowledge. Environmental education, which will emerge from the above, will give students the opportunity to develop their own strategies, creative thinking and critical judgment. This represents the beginning of the development of lifelong skills (Fošnarič, & Rajšp, 2009).

References

- Agenda 2 /online/*. (1992). Retrieved on 7th September 2006 from <http://www.un.org/esa/sustdev/documents/agenda21/index.htm>
- Bahor, M. (2009). *Ekološka pismenost [Ecological literacy]/online/*. Retrieved on 28th September 2010 from <http://www.pef.uni-lj.si/ceps/dejavnosti/sp/27-10-2009/Bahor.pdf>
- Bela knjiga o vzgoji in izobraževanju [White paper on Education]*. (1995). Ljubljana: Ministrstvo za šolstvo, znanost in sport.

- Benedict, F. (Ed.) (1991). *Environmental Education for Our Common Future. A Handbook for Teachers in Europe*. Oslo: Norwegian University Press.
- Botkin, D., & Keller, E. (1995). *Environmental Science: Earth as a Living Planet*. New York: John Wiley & Sons, Inc.
- Capra, F. (2005). Speaking Nature's language: Principles for Sustainability. In M. K. Stone, & Z. Barlow (Eds.), *Ecological Literacy" Educating Our Children for a Sustainable World"* (pp. ix-xi). San Francisco: Sierra Club Books.
- Cornell, J. (1998). *Sharing Nature with Children*. Nevada: DAWN Publications.
- Dashevsky, H. S. (1995). *Kids can make a difference!* New York: TAB Books.
- Fošnarič, S., & Rajšp, M. (2009). Okoljske aktivnosti mlajših učencev v kontekstu trajnostnega razvoja [Environmental activities of younger students in the context of sustainable development]. In M. Duh (Ed.), *"Edukacija za trajnostni razvoj" [Education for sustainable development]* (pp. 173 – 184). Maribor: Založba PEF, Pedagoška fakulteta Univerze v Mariboru and Rakičan: RIS Dvorec Rakičan.
- Hogan, K. (1994). *Eco – inquiry; A guide to ecological learning experiences for the upper elementary/middle grades*. Dubuque: Kendall/Hunt publishing Company.
- Hoggan, J. (2009). *Climate cover – up*. Vancouver/Toronto/Berkeley: D&M.Publisher. Inc.
- Kovač, M., & Strel, J. (2002). *Kurikulum [Curriculum]* /online/. Retrieved on 22nd October 2010 from http://www.student-info.net/sis-mapa/skupina_doc/fsport/knjiznica_datoteke/1232584700_bjkWwOF_5_kurikulum4.11_.ppt
- Lachecki, M., & Kasperson, J. (1995). *More Teaching Kids to love the Earth*. Duluth: Pfeifer – Hamilton.
- Lepičnik Vodopivec, J. (2006). Okoljska vzgoja v vrtcu [*Environmental education in kindergarten*]. Ljubljana: AWTS.
- Mannion, A.M. (1999). *Natural Environmental Change*. London and New York: Routledge.
- Marentič Požarnik, B. (1997). *Okoljska vzgoja kot medpredmetno področje v programih osnovne in srednjih šol [Environmental education as a field of interdisciplinary programs in primary and secondary schools]* /online/. Retrieved on 6th September 2006 from http://www.zrss.si/doc/OKO_Okoljska_osnovni_dokument.doc
- Matas, M., Simončič, V., & Šobot, S. (1992). *Zaštitna okoliša za danes i sutra. [Protecting the environment today for tomorrow]*. Zagreb: Školska knjiga.
- Matejek, Č., & Planinšec, J. (2012). Fizično ogroženi otroci v severovzhodni Sloveniji [Physically vulnerable children in northeastern Slovenia]. In M. Duh (Ed.), *"Ekološka in etična zavest skozi samooskrbo odnosov do narave in družbe" [Organic and ethical awareness through self-care education relationship to nature and society]* (pp.119-127). Maribor: Založba PEF, Pedagoška fakulteta Univerze v Mariboru in Rakičan: RIS Dvorec Rakičan
- Miller, T. (1992). *Living in the Environment*. Belmont California: Wadsworth Publishing Company.
- Okoljska vzgoja kot medpredmetno področje v programih osnovne in srednjih šol (osnutek) [Environmental education as a field of interdisciplinary programs in elementary and secondary schools (draft)]* (1997). Ljubljana: Zavod republike Slovenije za šolstvo.
- Orr, D.W. (1992): *Ecological Literacy: Education and the transition to a postmodern world*. SUNY Press.

- Orr, D.W. (2005). Foreword. In M. K. Stone, & Z. Barlow (Eds.), "Ecological Literacy, Educating Our Children for a Sustainable World" (pp. ix-xi). San Francisco: Sierra Club Books.
- Učni načrt za okoljsko vzgojo, izbirni predmet [The curriculum for environmental studies, elective course]. (1999). Ljubljana: Ministrstvo za šolstvo in šport, Zavod Republike Slovenije za šolstvo.
- Raven, P., Berg, L.R., & Hassenzuhl, D.M. (2006). *Environment*. U.S.A.: Wiley.
- Smaka – Kincl, V., et al. (2007). *Ecoprofit International* /online/. Retrieved on 15th January 2008 from <http://www.maribor.si/zvo/uploadedfiles/102/1clanek%20Eko%20dnevi%20slo.pdf>
- Tarman, K. (Ed.). (1994). *Človek in njegovo okolje: celostno razumevanje okolja – izziv na pragu trtjega tisočletja* [Man and his environment: a comprehensive understanding of the environment - a challenge to the threshold of the third millennium]. Ljubljana: Zavod Republike Slovenije za šolstvo in šport
- Zakon o osnovni šoli [Elementary School Act].(2006). Ljubljana: Ministrstvo za šolstvo, znanost in sport.
- Zupan, A., Marentič Požarnik, B., Vovk Korže, A., & Orel, M. (2007). *Okoljska vzgoja kot vzgoja in izobraževanje za trajnostni razvoj* [Environmental education and education for sustainable development]/online/. Retrieved on 1st October 2010 from http://www.zrss.si/pdf/_RAZLIKE_IN_ANALIZE_GIM_25012008.pdf

Martina Rajšp

Faculty of Education, University of Maribor
Koroška cesta 160, 2000 Maribor, Slovenia
tina.rajsp@uni-mb.si

Samo Fošnarič

Faculty of Education, University of Maribor
Koroška cesta 160, 2000 Maribor, Slovenia
samo.fosnarc@uni-mb.si

Odgoj i obrazovanje za okoliš i njegov utjecaj na djecu

Sažetak

Obrazovanje za okoliš možemo poimati kao obrazovanje za ljepši i bolji život. Znamo da ako naš planet želimo očuvati za buduće generacije, da onda moramo drastično promijeniti stil života. U ovome radu objasnit ćemo koncept obrazovanja za okoliš i staviti naglasak na važnost ekološke pismenosti. Nadalje, predstaviti ćemo rezultate istraživanja koje je provedeno na uzorku od 56 nastavnika u prvoj trijadi s ukupno 823 učenika. Identificirali smo prisutnost obrazovanja za okoliš u procesu godišnjeg akcijskog planiranja škola, realizacije obrazovanja za okoliš i spremnost mlađih učenika da kohabitiraju s prirodom. Napokon, naši rezultati ukazuju na to da što učestalije nastavnici planiraju aktivnosti vezane uz okoliš, da ih više i izvode. Kod brojnijeg izvođenja aktivnosti u okolišu, učenici postaju svjesni okoliša i u slobodno vrijeme.

Ključne riječi: kohabitacija s prirodom; odgoj i obrazovanje za okoliš; proces izvođenja; proces planiranja; prva trijada.

Uvod

Čovjek je, kao i svako drugo biće na Zemlji, ovisan o svome okolišu (okoliš je priroda koja nas okružuje, kao i svi drugi fizički, kemijski, biološki i društveni utjecaji) (National Institute of Environmental Health Sciences, 2009) – ali često su čovjekove aktivnosti usmjerene protiv njega. Jaz između civilizacije i okoliša (Agenda 21, 1992; Matas i sur., 1992; Miller, 1992; Tarman, 1994; Botkin, i Keller, 1995; Marentič Požarnik, 1997; Mannion, 1999; Smaka Kincl i sur. 2008) prikazan je preko različitih vrsta onečišćenja, prekomjernog iskorištavanja i zlostavljanja okoliša.

Koncept obrazovanja i slovenski školski zakoni, koji su prihvaćeni prije kraja prošloga stoljeća, donose mnoge fundamentalne promjene, a prije svega su to prava djece. Glavne promjene vezane su uz ta prava i moraju biti predviđene nacionalnim kurikulumom za određene predmete. U smislu smjernica i prijedloga Vijeća Europe nužno je povećati programe za odgoj i obrazovanje za okoliš te uvrstiti razmatranje i uvažavanje okoliša kao osnovnog principa svih školskih predmeta. Planirana ekološka pismenost mora biti uključena (kao nova obrazovna paradigma) u obrazovni sustav, utemeljena na sustavnom razmišljanju jer je neminovno važna ako želimo razumjeti

složenost međuovisnosti ekoloških sustava, društvenih sustava i drugih sustava (Orr, 1992, 2005; Capra, 2005; Lepičnik Vodopivec, 2006; Bahor, 2009). To je osnovni princip razmišljanja i djelovanja u društvu. Razvijanje osjećaja za odgovorno ponašanje u prirodi kod mlađe djece ključno je za njihovo cjelokupno obrazovanje. Integracija sadržaja o okolišu u sva druga područja od iznimne je važnosti. Prema tome, razvijanje ekološke pismenosti znači razvijanje i svih ostalih oblika pismenosti.

Djeca će se svakako suočiti sa životom u prirodi kao odrasle osobe. Obrazovanje za održavanje suživota s prirodom podrazumijeva da je potrebno združiti razvoj i odgoj i obrazovanje o okolišu. Još je davno Organizacija ujedinjenih naroda prepoznala značenje odgoja i obrazovanja za održavanje suživota s prirodom pa je to područje postalo jedno od četiri prioriteta područja za ostvarivanje uzajamnog napretka. Odgoj i obrazovanje za okoliš (kao obrazovanje za održivi razvoj) različito je strukturiran u europskim zemljama, ali vladine i nevladine organizacije uključene su odgoj i obrazovanje za okoliš. Pojedinačne institucije moraju se pobrinuti za obrazovanje nastavnika, pripremu različitih materijala kako bi podržale škole u različitim projektima (npr.: Eko škola) i kako bi savjetovale i pomogle u ostvarenju programa. Svaka država ima najmanje jednu (vladinu ili nevladinu) instituciju koja je nadležna za odgoj i obrazovanje za okoliš i koja se brine za obrazovanje nastavnika, pripremu materijala, za vođenje ili upravljanje, kao i savjetovanje u vezi s individualnim projektima. Postoje tri načina (Zupan i sur., 2007) na koji se odgoj i obrazovanje za okoliš mogu uključiti u školske sustave u različitim zemljama:

- Odgoj i obrazovanje za okoliš kao školski predmet
- Odgoj i obrazovanje za okoliš kao dio školskog predmeta
- Odgoj i obrazovanje za okoliš kao međukurikulska područje.

Slovenski sustav obrazovanja smjestio je odgoj i obrazovanje za okoliš u interdisciplinarno područje u svim stupnjevima obrazovanja kao dio predmeta.

Pri tome moramo napomenuti da nismo zadovoljni brzinom stvaranja i razvoja odgoja i obrazovanja za okoliš u Sloveniji. Nastojanja za redefiniranjem odgoja i obrazovanja za okoliš nisu zadovoljavajuća. Na osnovi tih činjenica možemo definirati prve korake u poboljšanju kvalitete odgoja i obrazovanja za okoliš u školama u Sloveniji. Ti koraci omogućuju nam da problem uvidimo jasnije i istodobno nam pomažu u planiranju daljnjih smjernica.

Ciljevi empirijskog istraživanja

U vezi s problemom istraživanja proveli smo empirijsko istraživanje. Cilj istraživanja bio je ustanoviti:

- prisutnost odgoja i obrazovanja za okoliš kod planiranja rada u prvoj trijadi osnovnih škola u Sloveniji
- prisutnost odgoja i obrazovanja za okoliš u procesu implementacije rada u prvoj trijadi osnovnih škola u Sloveniji
- spremnost učenika iz prve trijade slovenskih osnovnih škola na suživot s prirodom.

Metodologija

Uzorak

Uzorak se sastoji od dva nasumična uzorka, 56 nastavnika iz prve trijade osnovnih škola u Mariboru i njihovih 823 učenika u školskoj godini 2010./2011.. Taj nenasumični uzorak predstavlja jednostavan nasumični uzorak iz hipotetske populacije na razini korištenja statistike zaključivanja.

Bitne karakteristike intervjuiranih nastavnika

Najviše je nastavnika sa sveučilišnom diplomom (78,6 %) i drugih (21,4 %) visokoobrazovanih. Iz uzorka 51,8 % nastavnika imalo je status savjetnika, jedna četvrtina (25,0 %) status mentora i 7,1 % imali su najviši status – stručni savjetnik. Od ukupnog broja 16,1 % nije imalo nikakav stručni status. Dužina iskustva u radu bila je podjednaka: 33,9 % zaposleni su 15 i manje godina, 30,4 % između 16 i 25 godina, a 35,7 % nastavnika radi više od 25 godina.

Bitne karakteristike intervjuiranih učenika

Među 823 učenika, 423 (51,2 %) bili su dječaci, a 402 djevojčice (48,8 %). U istraživanju smo imali 287 (34,9 %) učenika iz prvoga, 280 (34,0 %) učenika iz drugoga i 256 (31,1 %) iz trećega razreda.

Metoda prikupljanja podataka

Intervju i upitnik

Podatke smo prikupili u siječnju i veljači 2011 na dva načina:

- Upitnik vezan uz planiranje i izvođenje aktivnosti koje se nalaze unutar pet područja povezanih s prirodom (igra, vježba, obveze, opasnosti, estetika);
- Vezani intervjui učenika u prvoj trijadi korištenjem liste (*check list*) alternativne prirode kako bismo mogli vidjeti spremnost djece na suživot s prirodom. Pitanja su bila vezana uz aktivnosti djece izvan škole, a smještena su unutar pet područja (igra, vježba, obveze, opasnosti, estetika).

Sadržajno-metodološke karakteristike intervjua i upitnika

a. Sadržaj – formalni dio istraživanja

- Upitnik za nastavnike bio je anonimn i sadržavao je 38 pitanja zatvorenog tipa i tri pitanja otvorenoga tipa.
- Ljestvica alternativnog mišljenja (*check lista*) za učenike.

b. Karakteristike mjerenja

- *Valjanost*: upitnik za nastavnike i skala alternativnog mišljenja nastala je korištenjem općih mjerenja, a uslijedila je racionalna valjanost. Oba načina istraživanja pomno su proučena od praktičara i stručnjaka u metodologiji istraživanja.
- *Pouzdanost*: proučili smo karakteristike metode ponavljanja koja su pokazala da su usmjerenja i sva pitanja bila primjerena (dovoljno precizna, jednoznačna, ...).

Rezultati preliminarnog istraživanja nisu uključeni u konačno istraživanje. Istražili smo pouzdanost koristeći se Cronbach α koeficijentom koji je pokazao da je instrument pouzdan s obzirom na mjerenje pouzdanosti ($\alpha = 0,862$).

- *Objektivnost*: većina pitanja u upitniku za nastavnike i sva pitanja na skali alternativnog odgovora bila su zatvorenog tipa (što pridonosi objektivnosti odgovora). Odgovori za dva pitanja bili su kategorizirani objektivno.

Metode obrade podataka

Podatci su obrađeni koristeći se računalnim programom za statističku obradu, SPSS, tabličnim i grafičkim prikazom frekvencije distribucije, kao i χ^2 test. U slučaju niske frekvencije (više od 20% teorijske frekvencije manje od 5), bio je iskorišten alternativni χ^2 test (Likelihood Ratio), a u slučaju Tablice 2x2 iskorišten je χ^2 test s Yatesov hi-kvadrat testom za korekciju za neprekidnost, također i u slučajevima kada je testiranje ovisnosti u tablicama analize sigurnosti.

Empirijsko istraživanje utemeljeno je na deskriptivnim i uzročno neeksperimentalnim metodama empirijskog istraživanja u pedagogiji jer smo željeli istražiti sam sadržaj odgoja i obrazovanja za okoliš u prve tri godine osnovnog obrazovanja u Sloveniji. U isto smo vrijeme htjeli ustanoviti postoji li uzročno-posljedična veza između individualnih faktora (planiranje odgoja i obrazovanja za okoliš, implementacija obrazovanja za okoliš i spremnost djece na život u skladu s prirodom).

Rezultati

Rezultati su strukturirani u pet složenih poglavlja. Prva tri rezultati su koji ovise o prisutnosti obrazovanja za okoliš u procesu planiranja, izvođenja nastave i vezi između navedenih procesa u prvoj trijadi osnovnih škola u području igre, vježbe, obveza, opasnosti u prirodi i estetskih aktivnosti doživljaja prirode. Četvrto poglavlje donosi rezultate koji su povezani sa spremnošću djece na suživot s prirodom. U posljednjem poglavlju prikazan je odnos između provedbe obrazovanja za okoliš od nastavnika i spremnosti učenika na suživot s prirodom.

Prisutnost obrazovanja za okoliš u procesu planiranja obrazovnog rada u različitim područjima

Školski zakoni nalažu nastavnicima planiranje redovitog obrazovnog rada (Kovač, i Strel, 2002):

- Za optimalnu realizaciju kurikula i istodobno kako bi se smanjila improvizacija i rutinski rad;
- Za profesionalnu odgovornost, jer su razlozi “za” i odgovori “zato” dani u godišnjem planu rada;
- Za osiguranje, profesionalnu kompetenciju, opuštenost i sigurnost nastavnika;
- Za lakšu evaluaciju posla.

Ustanovili smo da intervjuirani nastavnici planiraju aktivnosti vezane uz obrazovanje za okoliš u svojim godišnjim akcijskim planovima koji su dio pet promatranih područja.

Igra na travi

Većina intervjuiranih nastavnika planira dječju igru u prirodi u svojim godišnjim planovima aktivnosti, a najčešće planiraju slobodnu igru djece na travi (80,4%) i igru skrivača (69,6%), kako je prikazano u tablici 1.

Tablica 1.

Tablica 1 također pokazuje kako nastavnici s više radnog iskustva češće planiraju igru u prirodi ($P = 0,009$). Ustanovili smo da nastavnici planiraju igranje u prirodi, ali prema školskim zakonima (Bela knjiga o vzgoji in izobraževanju, 1995; Obrazovanje za okoliš kao među-kurikulsko područje u osnovnoj i srednjoj školi, 1997; nacionalni kurikulum za prvu trijadu; [Kurikul za obrazovanje za okoliš – izborni predmet], 1999) pa smatramo da su postotci preniski.

Vježbe u prirodi

Tablica 2 pokazuje da kod vježbanja u prirodi gotovo svi intervjuirani nastavnici (96,4%) planiraju odlazak u šetnju u šumu sa svojim učenicima.

Tablica 2.

Nastavnici sa sveučilišnom diplomom češće planiraju takvu aktivnost ($P = 0,001$), a to podrazumijeva nastavnike s dodatnim statusom ($P = 0,000$) i duže iskustvo u radu ($P = 0,000$). Djeca bi trebala većinu lokomotornih iskustava u prvim godinama primarnog obrazovanja jer je to razdoblje u kojem su najosjetljivija na utjecaje okoliša. Poslije mogu razumjeti i uključiti složenije motoričke uzorke. Roditelji i djeca trebali bi omogućiti djeci da razviju motoričke sposobnosti, osnovne motoričke koncepte i usvoje osnovne elemente različitih sportskih aktivnosti. Preko tih aktivnosti djeca postupno prihvate sportsku aktivnost kao dugotrajnu vrijednost koja im omogućuje da zadrže dobro zdravlje, opušta ih i oslobađa psihičkih napetosti.

Radne obveze u prirodi

Intervjuirani nastavnici nemaju naklonost za izvođenje radnih obaveza u prirodi. Rezultati ukazuju na to da često nastavnici s više radnog iskustva planiraju radne obveze u prirodi u svojim godišnjim planovima ($P = 0,050$), kao što je prikazano u tablici 3.

Tablica 3.

Slovenska Zaklada za Obrazovanje o Okolišu u Europi i FEE International (DOVES) povezuju Sloveniju sa strateškom unijom odgovornih zemalja koje su povezane putem *FEE (International Foundation for Environmental Education)* s ciljem promoviranja održiva razvoja posredstvom obrazovanja o okolišu. Oni su primarno aktivni u programima obrazovanja o okolišu, poput rada s mladim ljudima i u brojnim obrazovnim institucijama koje surađuju s njihovim Eko-škola projektom, pokušavaju razviti ekološku osviještenost među mladima te identificiraju konkretne zadatke koji se moraju izvršiti. Među njima ima različitih radnih obaveza u prirodi i za prirodu. Zbog

toga što većina nastavnika radi u osnovnim školama koje sudjeluju u projektima Ekoškole kao način života, pretpostavili smo da će biti naklonjeniji radnim obvezama u prirodi u svojim školskim planovima – rad, djeca koja imaju psihofizičke sposobnosti raditi kada znaju što trebaju raditi.

Opasnosti u prirodi

U prirodi možemo naići na jestive ili nejestive biljke i životinje, ali možemo naići na neke koje mogu prilično ugroziti zdravlje, pa i izazvati smrt. Među njima su neke opasne/otrovne biljke i neke životinje koje izlučuju otrovne supstance iz posebnih žlijezda na površinu tijela kada ugrizu.

Intervjuirani nastavnici u svojim godišnjim školskim planovima preventivno govore o opasnostima u prirodi. Većinom se govori o posljedicama ugriza krpelja (85,7%).

To je također prikazano u tablici 4.

Tablica 4.

Estetski doživljaj prirode

Mislimo da je priroda najveći izvor ljepote i daje nam izrazito estetsko zadovoljstvo, koje ne doživljavamo samo putem osjeta vida, već i sluha, njuha, okusa i dodira. Prema tome, suočavanje s ljepotama prirode važna je motivacija za mlađu djecu u razvijanju zanimanja za prirodu. Nastavnici su također spomenuli aktivnosti koje mogu doprinijeti estetskom doživljaju prirode.

Saznali smo, kao što je vidljivo u tablici 5, da je glavna aktivnost nastavnika napraviti kolaž od suhoga lišća (78,6%).

Tablica 5.

Prilikom neformalnih razgovora nakon intervjua mnogi su nam nastavnici rekli da su se koristili matematikom kad su radili nakit od prirodnih materijala jer su morali nizati bojane drvene kuglice prema točkastom uzorku. Samo je jedan nastavnik spomenuo izradu nakita od glinamola za Dan žena.

Projekt vezan uz prirodu

Iako rad u projektu pripada novijim didaktičkim alatima, jedna četvrtina intervjuiranih nastavnika nisu planirali projektni rad u svojim godišnjim školskim planovima. Svi drugi studenti jesu, a svi planirani projekti povezani su s obrazovanjem za okoliš.

Tablica 6 prikazuje odgovore intervjuiranih nastavnika.

Tablica 6.

Prisutnost Obrazovanja za Okoliš u procesu implementacije obrazovnog rada u drugim područjima

Nastavnici bi trebali omogućiti učenicima da izvode svoje kognitivne, konativne i afektivne ciljeve. Učenici moraju dobiti znanje, vještine i mogućnosti koje će im

omogućiti da bolje shvaćaju (društveni i prirodni) okoliš i sam život. U isto vrijeme moraju razviti osjećaj za odgovoran odnos s prirodom i sa živim bićima. Nastavnici bi trebali voditi studente kroz aktivnosti, uključujući, ali ne ograničavajući se na percepciju, promatranje, brojanje, mjerenje, zapisivanje, inferenciju i komunikaciju.

Ustanovili smo da intervjuirani nastavnici implementiraju aktivnosti u prirodi koje pokrivaju svih pet proučavanih područja.

Igra u prirodi

Stavovi djece prema prirodi mogu se promatrati kroz njihovu igru u prirodi. Tablica 7 donosi rezultate učestalosti implementacije ponuđenih igara u prirodi.

Tablica 7.

Dvije trećine nastavnika rijetko ili često dopušta svojim učenicima igru u prirodi za vrijeme nastave. Uglavnom je to igra u travi (100%) i igra skrivača u grmlju (89,3%). Samo 5,4% nastavnika dopušta svojim učenicima penjanje na drveće. Mali postotci nas ne iznenađuju jer su nastavnici u neformalnom dijelu intervjua rekli da su razlozi za nedopuštanje učenicima penjanje na drveće zaštita drveća (lomljenje grana, guljenje kore...). Nastavnici dopuštaju učenicima da razviju svoje fizičke aktivnosti omogućujući im da se penju na okvire u dvorani (mnoge škole imaju zidove za penjanje) i na igralištu.

Vježba u prirodi

Rekreacija ili vježba u prirodi u vrijeme redovite nastave mora biti sportskog karaktera, profesionalno i opuštajuće te svakako sigurno i osnažujuće. Svi nastavnici (100%) vode svoje učenike u šetnje kroz šumu u vrijeme nastave, dok manji broj intervjuiranih nastavnika (46,5%) omogućuje svojim učenicima da plivaju/kupaju se u prirodi.

Iz tablice 8 vidimo da nastavnici s nižim dodatnim statusom ili bez njega tu aktivnost češće prakticiraju ($P = 0,027$).

Tablica 8.

Radne obveze u prirodi

Prema rezultatima empirijskog istraživanja možemo odrediti da učenici svakog od intervjuiranih nastavnika rijetko ili često primjenjuju radne obveze u prirodi. Najčešća radna obaveza je hranjenje ptica (91,8%).

Opasnosti u prirodi

Svake godine mediji izvještavaju o brojnim, nezgodnim posljedicama konzumiranja otrovnih biljaka ili probleme vezane uz ugrize životinja. Djeca nemaju znanja i najviše su ugrožena. Prema tome, važno je naučiti djecu o opasnostima prirode. Nastavnice posvećuju većinu svoga vremena u razredu govoreći o sigurnosti. Svi razgovaraju o posljedicama ugriza krpelja sa svojim učenicima. Gotovo svi nastavnici također

razgovaraju s učenicima o zaštiti od ugriza komaraca (94,6%) i nejestivih gljiva (89,3%).

Nastavnici s visokom stručnom spremom ($P = 0,025$) i s dužim radnim stažem ($P = 0,006$) češće razgovaraju o opasnostima u prirodi sa svojim učenicima. To vidimo iz tablice 9.

Tablica 9.

Estetski doživljaj prirode

Omogućujući aktivnosti koje doprinose estetskom doživljavanju prirode, nastavnici djeci omogućuju da razviju osjetljivost i ljubav za samoga sebe, za druge i za okoliš. Učenici postupno shvaćaju odnose u prirodi i istodobno su aktivno uključeni i uče o odgovornosti. Intervjuirani nastavnici dopuštaju aktivnosti koje omogućuju učenicima da dožive prirodu preko estetike – većinu vremena njihovi se učenici brinu o cvijetu/cvijecu ili drugom bilju u razredu (85,7%).

Rezultati istraživanja o procesu planiranja i implementacije obrazovanja za okoliš u redoviti nastavni rad u različitim poljima

Proučavali smo vezu između planiranja i implementacije obrazovanja za okoliš u redovitom obrazovanju na igralištu u prirodi, posredstvom vježbe u prirodi, radne obveze u prirodi, opasnosti prirode i aktivnosti estetskog doživljavanja prirode. Očekujemo da će nastavnici koji su planirali te aktivnosti učestalije primjenjivati takve aktivnosti i obrnuto, oni koji su ih manje planirali, rijetko će ih ili nikada primjenjivati.

Rezultati su prikazani u tablici 10.

Tablica 10.

Izdvojili bismo spomenute tendencije i frekvencije distribucije koji ukazuju na statističke odnose. Razlike u tendenciji ($P = 0,110$) prikazane su kod igre u prirodi. Nastavnici koji planiraju aktivnosti u prirodi puno ih češće ostvaruju. Frekvencije ostalih aktivnosti pokazuju da su i aktivnosti poput vježbanja u prirodi, razgovora o opasnostima prirode i estetskog doživljavanja prirode također uključene ako ih nastavnici planiraju češće u svojim godišnjim planovima.

Vrijedno je spomenuti odnos između planiranja i realizacije radnih obveza u prirodi. Od ukupnog broja intervjuiranih nastavnika njih 63,5% ne odrađuju te aktivnosti iako je podosta njih planirano. Pretpostavljamo da nastavnici nemaju mogućnosti za implementiranje takvih aktivnosti (npr. nije bilo snijega).

Zaključujemo da je planiranje jako bitan dio onoga što se zbiva u razredu, međutim odmaci su mogući i dopušteni u skladu s autonomijom nastavnika i nepredvidivim okolnostima.

Spremnost učenika na suživot s prirodom

Brz razvoj znanosti i tehnologije, ubrzan način života, ubrzan rast broja stanovnika u urbanim mjestima glavni su razlozi razilaženja od prirodnog okoliša. Djeca danas

provode puno manje vremena u prirodi nego njihovi roditelji. Statistike pokazuju da djeca provode šest sati dnevno sjedeći pred računalom, televizorom, igrajući videoigrice ili se zabavljajući na mobilnom uređaju u zatvorenom prostoru iako bi im vrijeme provedeno u prirodi pomoglo u učenju, pamćenju, samopouzdanju i njihovu bi osviještenost o okolišu podiglo na višu razinu.

Možemo reći da su intervjuirana djeca izvodila različite aktivnosti u prirodi u slobodno vrijeme, a koje se ubrajaju u pet kategorija koje smo proučavali.

Igra u prirodi

Igra na travi jedna je od osnovnih igara koje uvijek svjesno i nesvjesno utječu na ekološko iskustvo i potiču ekološku zainteresiranost male djece. Podaci iz našega istraživanja vezani uz igru na travi dobri su pokazatelji za točnost te tvrdnje. Takvu aktivnost često izvodi većina intervjuiranih učenika (96,1%), polovina učenika (65,9%) vješta je u penjanju na drveće. Učenici drugoga razreda češće se igraju u prirodi ($P = 0,005$) – rezultati su prikazani u tablici 11.

Tablica 11.

Vježbanje u prirodi

Stvaranje veze između djeteta i prirode često je uvjetovano različitim aktivnostima. Jedna od njih vezana je uz vježbu:

Visok stupanj motoričkih sposobnosti omogućuje djeci adekvatan stupanj motoričke kompetencije koja je osnova za uspješno učenje i efektivno korištenje motoričkih sposobnosti prisutne u drugim sportskim aktivnostima, kao i kod rješavanja svakodnevnih zadataka. Prema tome, od iznimne je važnosti omogućiti djeci izloženost različitim motoričkim aktivnostima jer su rezultati znatno bolji od onih koji su lišeni motoričkih aktivnosti (Matejek, i Planinšec, 2012, str. 125)

Samo je nekoliko učenika reklo da ne voli vježbati u prirodi. 2,7 % učenika ne voli voziti bicikl i/ili voziti romobil, a 5,3% učenika ne voli plivati u prirodi, 13,9% učenika ne voli ići u šetnje u prirodi.

Obveze u prirodi

Ako želimo da naša djeca izrastu u ozbiljne i odgovorne ljude, moramo im dati određene zadatke koji su u skladu s njihovim psihofizičkim sposobnostima. Zato što postoji mnogo svakodnevnih zadataka u obitelji koje su vezane uz prirodu, dajemo našim studentima tri zadatka s pitanjem koje moraju riješiti. S obzirom na realizaciju aktivnosti iz drugih područja, postotak obveza u prirodi je manji. Učenici pomažu branjem voća i povrća (77,6%) čišćenjem snijega (75,2%) i u zimsko doba osiguravaju hranu za ptice (68,5%).

Opasnosti u prirodi

Unatoč zadovoljstvu koje aktivnosti u prirodi pružaju, ne bismo nikada trebali zaboraviti na opasnosti koje iz prirode vrebaju. Šezdeset posto intervjuirane djece,

kao što je prikazano u tablici 12 a većinom iz trećega razreda ($P = 0,000$), znaju koje su opasnosti u prirodi i ponašaju se oprezno.

Tablica 12.

Estetski doživljaj prirode

Suočavanje s ljepotom prirode važan je motivator za mladu djecu u razvijanju njihova interesa za ekologiju, kao i primjenu i pomaže im doživjeti ljepotu prirode. Većina ih voli izrađivati stvari od prirodnih materijala (93,8%) i vode brigu o biljkama kod kuće (76,9%). Kao što to pokazuje tablica 13, češće to čine djevojčice ($P = 0,000$) i to u drugim i trećim razredima ($P = 0,019$).

Tablica 13.

Kod neformalnog razgovora učenici su označili koji materijali su prirodni. Najmanje kolebanja bilo je kod drvenog materijala, češera, voća, povrća, papira, metala i plastike. Često su pitali za podrijetlo stakla i stiropora.

Rezultati istraživanja poveznice između procesa implementacije obrazovanja za okoliš u redovitom obrazovanju u različitim područjima i spremnosti učenika za suživot s prirodom

Istražili smo vezu između primjene obrazovanja za okoliš u redovitoj nastavi i spremnosti učenika za suživot s prirodom. Pretpostavili smo da učestalost primjene ekoloških aktivnosti djece, kada ih nema na nastavi, ovisi o frekvenciji primjene identične aktivnosti u razredu.

Uočili smo da postoji statistički značajna veza ($P = 0,011$) kod aktivnosti povezanih s opasnostima u prirodi. Djeca se brinu o zaštiti protiv opasnosti u prirodi u kućnom okruženju više ako o tome razgovaraju u školi. Što se ostalih aktivnosti tiče (igra u prirodi, vježba u prirodi, estetski doživljaj prirode) ne postoje tipične statističke veze. Međutim učestalost aktivnosti kod kuće vidljiva je kada se one češće primjenjuju u školi.

Možemo zaključiti da primjena aktivnosti u prirodi u vrijeme redovitih nastavnih sati ima važnu ulogu u realizaciji istih aktivnosti kod kuće.

Rezultati su prikazani u tablici 14.

Tablica 14.

Umjesto zaključka

Aktivnosti koje su vezane uz zaštitu našeg planeta zemlje i njegovih dobara postaju sve važnije jer su onečišćenja zraka, vode, zemlje stalni podsjetnici na to da smo davno prešli granicu tolerancije prirode, često svojim arogantnim ponašanjem i neobazrivošću za prirodu. Rezultat je uvijek isti – neželjene promjene u prirodi vezane uz povećano onečišćenje okoliša. Priroda i društvo koji ovise o ekosustavu u opasnosti su. Samo ljudska odgovornost i dobro poznavanje prirode mogu prirodu izvući iz daljnjih opasnosti.

Republika Slovenija prihvatila je Nacionalni akcijski program o okolišu (NPVO) čiji je cilj poboljšati kvalitetu života i zaštitu prirodnih resursa. Slovenska strategija jasno definira zadanu viziju i ciljeve slovenskog razvoja i definira pet prioriteta za razvoj s akcijskim planovima. Glavni pokretač takvog razvoja je opća dobrobit svakog pojedinca i zato se ta strategija ne odnosi isključivo na ekonomska pitanja već na društvena, politička, pravna i kulturološka.

Cilj ovoga istraživanja bio je pronaći vezu između postojećih zakona, teorijskog znanja i iskustava u svakodnevnoj praksi u slovenskim osnovnim školama, a u vezi s planiranjem i (posljedično) implementacijom obrazovanja za okoliš. To je trajan proces u kojem su individua i društvo svjesni svoje okoline, a sve znanje, vještine i vodstvo usmjeravaju se prema trenutnim i budućim problemima (Benedict, 1991; Hogan, 1994; Lachecki, i Kasperson, 1995; Dashefsky, 1995; Botkin, i Keller, 1995; Cornell, 1998; Raven i sur., 2006; Hoggan, 2009).

Temelj za ovo istraživanje je novi koncept obrazovanja i novo zakonodavstvo koje je osnovano uvjetom demokratizacije društva. Njihovo je polazište u ljudskim pravima; u tom kontekstu u pravima djece, koja ne bi trebala biti ograničena u ime pedagoških i psihologijskih znanosti te već dobro utvrđenim školskim ritualima. S obzirom na zakon, Zakon o osnovnim školama to podržava (2006).

Nakon empirijskog istraživanja jasno je da ne možemo generalizirati na osnovi rezultata, jer smo ustanovili da su intervjuirani nastavnici svjesni važnosti implementiranja procesa obrazovanja za okoliš, a implementiranje aktivnosti u prirodi izravno se proporcionalno povećava kod povećanja takvih aktivnosti prilikom planiranja. Također je važno napomenuti da su učenici, koji su realizirali nekoliko pozitivnih aktivnosti u školi, isto tako više aktivni u pitanju prirode i okoliša u svome domu u slobodno vrijeme. Zadovoljni smo što nema statistički značajnih razlika u odnosu na spol i razred koji su učenici pohađali u vrijeme ispitivanja.

Napokon, možemo samo predložiti da obrazovanje za okoliš treba biti osigurano i ostvareno u (svim) obrazovanim programima (a posljedično i evaluirano) u skladu s principima strukture školskoga sustava, a počevši s pravima djece te uzimajući u obzir školsko zakonodavstvo, stalnu interakciju s okolinom djece i sam okoliš; ono mora biti profesionalno, sustavno i trajno kako bi omogućilo učenicima maksimum uvjeta za stjecanje trajnih znanja. Obrazovanje za okoliš koje proizlazi iz takva sustava omogućit će učenicima razvoj vlastitih strategija, kreativno razmišljanje i kritičko prosuđivanje. To predstavlja početak razvoja cjeloživotnih vještina (Fošnarič, i Rajšp, 2009).