СУЧАСНА ПЕДАГОГІЧНА ОСВІТА: ПРОБЛЕМИ ТА ПЕРСПЕКТИВИ

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EDUCATION FOR SUSTAINABLE DEVELOPMENT AS A GUARANTEE OF QUALITATIVE PRIMARY EDUCATION IN A NEW UKRAINIAN SCHOOL

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Resume:
The article provides rational importance of education for sustainable development in modern society. The authors identify the subject and the aim of the research: peculiarities of the implementation of theoretical principles of education for sustainable development in Ukraine and evaluation of pedagogical influence of the use of author's methodological concept of advanced environmental education on the development of primary schoolchildren's environmental competence. The article represents experimental materials, according to which the authors make conclusion that education for sustainable development and advanced environmental education as its key part occupy the dominant position in the New Ukrainian School, as they provide high quality of primary education and prepare young learners for life in sustainable models of balanced development.

Анотація:
Дубяга Світлана, Шевченко Юлія, Мелаш Валентина. Освіта для сталого розвитку як запорука якісної початкової освіти в Новій українській школі.
У статті розкрито раціональне значення освіти для сталого розвитку в сучасному суспільстві. Висвітлено особливості впровадження теоретичних засад освіти для сталого розвитку в Україні та надано оцінку педагогічного впливу використання авторської методологічної концепції екологічної освіти на розвиток екологічної компетентності молодших школярів. Презентовано експериментальні матеріали, згідно з якими автори статті доходять висновку, що освіта для сталого розвитку та випереджувальна екологічна освіта як її ключова частина посідають провідне місце в Новій українській школі, оскільки забезпечують високу якість початкової освіти та готують молодших школярів до життя в стійких моделях збалансованого розвитку.

Аннотация:
Дубяга Светлана, Шевченко Юлия, Мелаш Валентина. Образование для устойчивого развития как залог качественного начального образования в Новой украинской школе.
В статье раскрыто рациональное значение образования для устойчивого развития в современном обществе. Определены особенности внедрения теоретических основ образования для устойчивого развития в Украине и дана оценка педагогического воздействия использования авторской методологической концепции экологического образования на развитие экологической компетентности младших школьников. Представлены экспериментальные материалы, согласно которым авторы делают вывод, что образование для устойчивого развития и опережающее экологическое образование как его ключевая часть занимают ведущее место в Новой украинской школе, поскольку обеспечивают высокое качество начального образования и готовят младших школьников к жизни в устойчивых моделях сбалансированного развития.

Key words:
education for sustainable development; advanced environmental education; environmental competence; New Ukrainian School.

Ключові слова:
освіта для сталого розвитку; випереджувальна екологічна освіта; екологічна компетентність; педагогіка розширення можливостей; Нова українська школа.

Ключевые слова:
образование для устойчивого развития; экологическое образование; экологическая компетентность; педагогика расширения возможностей; Новая украинская школа.

Setting of the problem. The beginning of the 21st century was marked not only by the unprecedented technological breakthrough and expansion of human capabilities, but also by dangerous environmental tendencies, which significantly worsen living conditions of people. In order to eliminate the risks and threats for civilization and ensure its stable and efficient functioning, the world community has developed a strategy for sustainable development, based on the integrity of the natural environment and economic viability. The society has recognized the fact that only provided that people pay attention to the sustainable development it becomes possible to create an optimally comfortable environment for the existence of every single person in the social, economic, ecological and spiritual spheres of life. Ukraine has also chosen the path of sustainable development.

The establishment of a balanced interaction between social and natural environments requires, first, the development of eco-centric worldviews of society. Thus, education has turned into a leading factor and effective means of achieving the sustainable development aims. People's personal development, enhancement of their worldview and competencies take place in the process of education.

Under these conditions, advanced environmental education is becoming a priority, as it opens up to the younger generation the possibility of harmonious interaction with the world of nature. It goes in line with the development of nature conservation values, people's eco-centric attitude towards themselves and environment, eco-balanced lifestyle, and active civic position. All these issues are necessary factors, contributing to our sustainable future [1].

In Ukraine, which is currently experiencing economic, social, environmental crises and military actions, the issue of education for sustainable development is extremely relevant. In order to prepare students for the implementation of a policy of rigid resource conservation, rational management, environmentally friendly behavior and healthy lifestyles Ukrainian schools are introducing a mass reform based on humanism and democratic ideals. This reform is aimed at the advanced environmental education for sustainable development [2].

It should be mentioned that a distinctive feature of the advanced environmental education is a transition from an informative knowledge-based approach to a competence-based one. The latter is a personal- and practice orientated approach, which is characterized by integrative and systemic learning, and therefore requires the development of appropriate didactic and methodological support as well as modernization of the existing teaching methods and techniques.

The scientific research has been carried out according to the educational content of the student scientific laboratory "Environmental Education for Sustainable Development" (Head of the Laboratory – V. D. Melash, Candidate of Pedagogical Sciences, Associate Professor of the Department of Primary Education of Bohdan Khmelnytsky Melitopol State Pedagogical University).

Formulation of the goals of the article. The research aim is to study the peculiarities of providing theoretical foundations for the education for sustainable development in Ukraine; to evaluate pedagogical influence of the implementation of author's methodological concept of advanced environmental education on the development of primary schoolchildren's environmental competence.

Presentation of the main research material .As a result of theoretical and analytical work, we have highlighted the relevance and characteristic features of education for sustainable development in Ukraine, which, in accordance with the global trends, consists of environmental, economic and social components. It allows teachers to develop learners' holistic worldview, helps schoolchildren to realize the interconnectedness, interdependence of social, cultural, economic and environmental issues. The tendencies of the education for sustainable development in Ukraine have been also emphasized: humanism and democracy as the leading principles of education; priority of autonomous learning and self-development in the methodology of teaching; development of learners' ability to make responsible decisions and act independently; extension of the network of schools, where the principles of education for sustainable development are being implemented; attracting highly potential teachers and scholars from different countries to create an appropriate set of methodological tools to meet the educational needs of schools; cooperation of educational establishments, public environmental organizations, experts in the sphere of consumption, etc. All these factors indicate specificity and significance of education for sustainable development.

It has been proved that advanced environmental education, as the basic component of education for sustainable development, has all the features of quality primary education, declared by the Concept of the New Ukrainian School. Among them: 1) comprehensive and timely involvement of children of primary school age into the learning process; 2) taking into account the diverse pre-school achievements; 3) creation of educational environment in accordance with modern and health-forming requirements; 4) priority of the methods of leaner-centered and competence-based education; 5) integrated systematic content of educational materials; 6) adherence to technological effectiveness in the teaching methods; 7) monitoring of the progress and evaluation of the results of educational activities; 8) high level of teacher training.

It has been revealed that outcome of the advanced environmental education is the formation of primary schoolchildren's environmental competence, which is of key importance for ensuring the behavioral style and actions of the younger generation. It meets the needs of sustainable development of civilization, and, therefore, becomes a guarantee of the eco-safe future of the country.

The methodological component of the research is represented by the author's set of methodological tools for sustainable development, aimed at the formation of primary schoolchildren's environmental competence. This set of methodological tools, developed by the authors, includes: analysis of methodological features of the Ukrainian model of primary education for sustainable development; indicative thematic content of the course "My Happy Planet. Lessons for Sustainable Development" for the learners in their year 4 of primary school; recommendations on how to teach them.

It should be noted that the designed set of methodological tools is based on the principles of empowerment pedagogy, or "pedagogy of inspiration for action", when learning is carried out according to an algorithm that takes into account the structure of human activity: Action → Motive (care, anxiety) → Search (research) → Knowledge (autonomous learning, cognition) → Next action.

In this case, the pedagogical guidance of learning is carried out through:

1) assistance of learners in formulating their intentions (motives);

2) purposeful questions;

3) effective and constructive feedback.

In this scientific work we represent detailed lesson plans with the methodology of delivering lessons-

meetings: 1. "We study the need for careful treatment of plants". 2. "How to take care of the flora". 3. "Explore the life of "green inhabitants" of the city park and offer "green aid". 4. We value and preserve "green clothes of the planet" (We carry out the project work "Plants – green friends of people").

At the piloting stage of our research, we identified the impact of lessons for sustainable development on the quality of the advanced environmental education. The piloting was carried out in secondary school № 15 of Dnipro city, 23 learners in their year 4 of primary school took part in this work.

While children were learning the lessons for sustainable development, we were monitoring and analyzing the dynamics of the development of components of primary schoolchildren's environmental competence: 1) needs-motivational; 2) cognitive; 3) practical-active; 4) emotional-volitional; 5) value-thematic.

We used the characteristic features, offered by D.S. Ermakov, in order to identify the level of these components development. The data is shown in table. 1

Table 1

Characteristic features of levels of development of environmental competence components

Components of environmental competence	Levels of environmental competence			
	1st level low	2nd level medium	3rd level sufficient	4th level high
needs-motivational	Learner does not understand why he or she should take part in the environmental activities	Learner does not want to take part in the environmental activities	Learner wants to take part in the environmental activities, but doesn't realize their aim	Learner wants to take part in the environmental activities
cognitive	Learner does not realize what knowledge he or she needs for the implementation of nature-friendly activities	Learner realizes that he or she hasn't got enough knowledge for the implementation of nature-friendly activities	Learner isn't sure that he or she has enough knowledge for the implementation of nature-friendly activities	Learner realizes that he or she has got enough knowledge for the implementation of nature-friendly activities
practical-activistic	Learner does not know how to put the nature conservation action in life	Learner thinks that he or she doesn't have enough abilities and skills to put the nature conservation action in life	Learner has doubts as for his or her abilities and skills to put the nature conservation action in life	Learner is sure that he or she has got abilities and skills to put the nature conservation action in life
emotional-volitional	Learner does not realize what feelings and emotions he or she can experience while carrying out the nature-friendly activities	Learner doesn't feel any specific emotions while carrying out the nature-friendly activities	Learner does not realize how strong his or her feelings and emotions are while carrying out the nature-friendly activities	Learner realizes and appreciates strong feelings and emotions he or she experiences while carrying out the nature-friendly activities
value-thematic	Learner does not think about importance of environmentally appropriate actions for people and nature	Learner does not understand why people and nature need environmentally appropriate actions	Learner realizes that people and nature need environmentally appropriate actions, but doesn't fully understand why	Learner understands why people and nature need environmentally appropriate actions

The fourth level represents a high environmental competence (conscious). The learner understands what to do and how to do; gradually the schoolchild can notice, analyze and solve the problem. He or she is able to think over his or her actions, quite confidently applies ecological knowledge and skills in the behavior and environmentally oriented activities.

The third level is sufficient environmental competence (unconscious). At the same time, the learner focuses attention primarily not on the problem itself, but on the ways, he or she can solve

it, therefore, the learner does environmentally appropriate actions unconsciously, automatically.

The second level is a medium competence (conscious incompetence). This level is characterized by the fact that learner's actions do not meet the environmental requirements and he or she realizes this fact; the learner's values and beliefs are not reflected in his or her environmental activities.

The first level is a low competence (unconscious incompetence). The learner does not even realize that his or her actions are not always environmentally friendly and they sometimes do not go in line with requirements of the ecological imperative. Since environmental activity is not significant for the learner, the acquisition of environmental norms of behavior can be complicated. The learner does not see the need for improving his or her behavior, so he or she does not want to do it.

At the ascertaining stage of the experiment, it was found out that the first (low) and the second (medium) levels of environmental competence prevail among the learners in their fourth year of study in primary school (73%).

At this stage of the experiment, we also found out the initial level of the development of learners' environmental competence. We have analyzed the responses of primary schoolchildren to the questions of the following questionnaire:

1. What do you like to read about?

a) beauty of the surrounding nature;

b) how to take care of plants and pets;

c) wildlife;

d) people's actions, which contribute to the protection, preservation and increase of natural resources.

2. When you take shower, how long do you do it?

a) 5 min;

b) 7 min;

c) 10 min;

g) 15 min.

3. I turn off the light when I go out of the room:

a) almost never;

b) in half of the cases;

c) more often than in half of the cases;

d) almost always.

4. You prefer handmade things from the scratch in order to:

a) save money on a new bike;

b) please your friends and take care of them;

c) turn the useless materials into a useful and beautiful thing;

d) save resources and give the second life to materials.

5. If you notice that rubbish is lit in the garbage can, what will you do?

a) call firefighters;

b) apply for help to adults;

c) try to put out the fire yourself;

d) leave it as it is, because you don't care.

6. Looking through the book on mushrooms, you will pay special attention to the following:

a) how mushrooms grow;

b) what significance they have for nature;

c) how to prepare mushrooms for winter;

d) how beautiful they are.

7. If your family has got plants, it means that you will:

a) take care of them and fight the pests if there are any;

b) take photos of how they look like and grow;

c) take care of plants;

d) plant some of them on your own.

8. Your old TV is still working rather well, but parents want to buy a new one. What do you think is the best thing to do?

a) not to buy a new TV while the old one is still working;

b) give the old TV to other people who do not have it;

c) bring the old TV to the commission store;

d) make a terrarium from the frame body of the TV and give spare parts to the TV repair shop.

9. Your friend is going to wash the car with a hose in the yard. What do you recommend him in order to save water?

a) offer your help;

b) offer to use a bucket of water and a sponge;

c) tell him to go to car wash;

d) do not interfere, because it is not your business.

10. There was an old lime tree on the magnificent meadow – a true paradise for bird families. The owner bought this piece of land for the relaxation in nature, so that nobody and nothing could disturb him. He cut the wild grass, planted gourmet grasses. However, moles often messed everything around. In order to rest in the shadow and hide from the rain the owner built the gazebo straight on the moles' holes. In your opinion did the owner do everything right? Comment on what you would do.

The results of the analysis of the learners' responses are presented in Table 2.

Thus, at the ascertaining stage of the experiment (Table 2) 33% of learners in their 4th year of primary school have unconscious incompetence (they do not understand that their daily behavior does not always correspond to the ecological imperative, they do not reflect on the environmental consequences of their actions, therefore they do not consider it necessary to make their behavior an ecologically-friendly one and change the character of their activity). Conscious incompetence has been identified among 40,0% of schoolchildren (they do not take part in any environmental event, their activities do not meet environmental requirements, rules and norms. 20,9% of respondents demonstrate the level of unconscious competence (these learners are characterized by

environmentally appropriate activities, performed automatically).And only 6,1% of learners displayed a high level of environmental competence (they believe that environmental problems need to be solved, know how to do it, in what direction it is necessary to act, they fully implement acquired knowledge and skills into ecological activity).

Table 2

The state of the development of primary schoolchildren's environmental competence (at the ascertaining stage of the experiment)

Components of environmental competence	Levels of environmental competence							
	4th high		3rd sufficient		2nd medium		1st low	
	Number of learners	%	Number of learners	%	Number of learners	%	Number of learners	%
needs-motivational	1	4,3	3	13,0	10	43,5	9	39,1
cognitive	2	8,7	6	26,1	11	47,8	4	17,4
practical-activistic	1	4,3	4	17,4	9	39,1	9	39,1
emotional-volitional	1	4,3	5	21,7	8	34,8	9	39,1
value-thematic	2	8,7	6	26,1	8	34,8	7	30,4
On average	**6,1**		**20,9**		**40,0**		**33,0**	

Thus, at the ascertaining stage of the experiment (Table 2) 33% of learners in their 4th year of primary school have unconscious incompetence (they do not understand that their daily behavior does not always correspond to the ecological imperative, they do not reflect on the environmental consequences of their actions, therefore they do not consider it necessary to make their behavior an ecologically-friendly one and change the character of their activity). Conscious incompetence has been identified among 40,0% of schoolchildren (they do not take part in any environmental event, their activities do not meet environmental requirements, rules and norms. 20,9% of respondents demonstrate the level of unconscious competence (these learners are characterized by environmentally appropriate activities, performed automatically).And only 6,1% of learners displayed a high level of environmental competence (they believe that environmental problems need to be solved, know how to do it, in what direction it is necessary to act, they fully implement acquired knowledge and skills into ecological activity).

Consequently, at the ascertaining stage of the experiment, learners with low and medium levels of environmental competence (73%) prevail. They are characterized by indifferent attitude towards existing environmental problems, they do not have the desire to carry out nature-conservation activities and there is no need to change their lifestyles towards sustainable development, the ecologically unbalanced behavior prevails.

At the formative stage of the experiment, learners were taught the course "Happy Planet. Lessons for Sustainable Development" according to the method called the inspiration for action. With the help of a developed set of methodological tools we taught children to appreciate, respect, preserve the resources, living conditions and biodiversity of the planet, and be involved into environmental conservation activities within a zone of their responsibility. At the same time, the learners expanded their knowledge, as well as their experience of reasonable consumption and environmentally sound management; they learnt to act in accordance with the requirements of sustainable development. Acquired environmental competence has been realized through the appropriate pattern of behavior and environmental activities. In particular, they conspicuously used water, electricity, collected secondary raw materials, cleaned garbage, looked after flowerbeds next to their school, fed wintering birds, greened up their city, were the members of teams of agitators, etc.

In order to identify the levels of the development of primary schoolchildren's environmental competence at the control stage of the experiment the learners were offered to answer the following questions:

1. What topic about animals are you most interested in?

a) features of animal life;

b) animal care;

c) importance of animals for nature and human life;

d) conservation and protection of animals.

2. Explain your behavior: You have purchased a kitten in order to:

a) play;

b) hunt for mice;

c) take care of a pet;

d) first play and then give it to someone as a gift or just give it away.

3. In the cold season I monitor if the doors and windows are closed tightly.

a) almost never;

b) in half of the cases;

c) more often than in half of the cases;

d) almost always.

4. You came across a person who tears up medicinal plants by the roots, because it is easier and faster to collect raw materials. What are your actions?

a) explain that in this case valuable perennial plants are destroyed;

b) inform the police or the city executive committee;

c) write an article providing an advice on how we should collect herbs properly;

d) you will be outraged, but won't react.

5. If you worked in a forestry, what kind of activity would you prefer to do:

a) monitor the growth of trees;

b) manage the extract of valuable wood;

c) show visitors the beauty of forest plants in blossom;

d) compile a register of plants and animals that grow and inhabit your forest.

6. In the Dnipropetrovsk region, due to thoughtless and soulless management, the biodiversity of plants is being decreased. What is your attitude towards this fact?

a) it is a concern to you and you want to change a dangerous situation;

b) it disturbs you, but you do not know what to do;

c) you are aware of the problem, but do not consider it necessary to solve it;

d) you don't care, because this situation isn't your business.

7. I turn off the devices, which I do not use:

a) almost never;

b) in half of the cases;

c) more often than in half of the cases;

d) almost always.

8. I collect used paper because I can:

a) use its other side for writing;

b) save the life of trees;

c) clean home and reduce the amount of garbage;

d) make paper trash-worthy and earn some money.

9. What will you do when you find a toadstool while picking up mushrooms?

a) tear it out, since these mushrooms are poisonous for people;

b) admire its beauty and elegance;

c) cut it in order to tell your friends that it must not be eaten;

d) leave it as it is in order not to violate interrelationships in nature.

10. When you wash and brush your teeth, you do not leave the tap open all the time:

a) almost never;

b) in half of the cases;

c) more often than in half of the cases;

d) almost always.

The results of diagnosing the state of the formation of schoolchildren's environmental competence at the control stage of the experiment are presented in Table 3.

At the control stage of the experiment (Table 3), 14,8% of learners have got the low level of environmental competence, 30,4% of respondents have got the medium level, 37,4% of the total number of learners have got a sufficient level of environmental competence, while 17,4% of children are characterized by a high level of environmental competence.

Table 3

The state of the development of primary schoolchildren's environmental competence(at the control stage of the experiment)

Component of environmental competence	**Levels of environmental competence**							
	4th high		3rd sufficient		2nd medium		1st low	
	Number of learners	%	Number of learners	%	Number of learners	%	Number of learners	%
needs-motivational	3	13,0	7	30,4	9	39,1	4	17,4
cognitive	4	17,4	9	39,1	8	34,8	2	8,7
practical-activistic	5	21,7	8	34,8	6	26,1	4	17,4
emotional-volitional	5	21,7	10	43,5	5	21,7	3	13,0
value-thematic	3	13,0	9	39,1	7	30,4	4	17,4
On average	**17,4**		**37,4**		**30,4**		**14,8**	

Consequently, we can say that there exists a positive dynamics of indicators of the development of primary schoolchildren's environmental competence (54,8% of schoolchildren with a sufficient and high level of environmental competence at the control stage, while at the ascertaining stage it was 27%). The detailed analysis of the effects of the experimental factor is presented in Table 3.

Table 4 shows that the group of learners with a high (by 11,3%) and sufficient (by 16,5%) levels of environmental competence has significantly increased, and the number of children with an average (by 9,6%) and low (by 18,2%) level of

environmental competence development has decreased.

Thus, we have achieved a high pedagogical result due to the impact of experimental factor(educational, up-bringing and developmental influence of content and methods of delivering lessons for sustainable development).

The number of highly and sufficiently competent learners, who are well aware of the ecological laws and realities of the modern world, capable, willing and able to identify and solve environmental problems in the immediate environment, and have a rather well developed ecological thinking, has increased by 27,8%.

Table 4

Comparison of the development of learners' environmental competence levels at the ascertaining and control stages of the experiment

Component of environmental competence	Option	Levels of environmental competence			
		4th high	3rd sufficient	2nd medium	1st low
needs-motivational	He	4,3	13,0	43,5	39,1
	Ke	13,0	30,4	39,1	17,4
	De	+8,7	+17,4	-4,4	-21,7
cognitive	He	8,7	26,1	47,8	17,4
	Ke	17,4	39,1	34,8	8,7
	De	+8,7	+13,0	-13,0	-8,7
practical-activistic	He	4,3	17,4	39,1	39,1
	Ke	21,7	34,8	26,1	17,4
	De	+17,4	+17,4	-13,0	-21,7
emotional-volitional	He	4,3	21,7	34,8	39,1
	Ke	21,7	43,5	21,7	13,0
	De	+17,4	+21,8	-13,1	-26,1
value-thematic	He	8,7	26,1	34,8	30,4
	Ke	13,0	39,1	30,4	17,4
	De	+4,3	+13	-4,3	-13
On average	He	6,1	20,9	40,0	33,0
	Ke	17,4	37,4	30,4	14,8
	De	+11,3	+16,5	-9,6	-18,2

Note: He – identification of knowledge level at the ascertaining stage of the experiment;

Ke – identification of knowledge level at the control stage of the experiment;

De – pedagogical effect.

At the same time, the highest indicators of the growth of levels of emotional-volitional (by 39,2%), practical-active (by 34,8%) and needs-motivational (by 26,1%) components of environmental competence have been recorded.

These results prove that cognitive, environmental, resource-saving, and propagandistic activities of primary schoolchildren (year 4) stimulate the motivation of children to act purposefully in the field of protection, preservation and restoration of the environment; develop learners' non-pragmatic values; teach and orient children for the participation in a variety of environmental conservation activities.

As a result of the influence of experimental factor, at the control stage of the experiment the number of schoolchildren with a sufficient (37,4%) and high (17,4%) levels of environmental competence has significantly increased.

It has to be mentioned that we have proven a significant pedagogical effect of the use of author's set of methodological materials, as the number of learners, who are well-informed about ecological realities, capable, willing and able to identify and solve environmental problems, and have a developed eco-centric consciousness, has increased by 27,8%. At the same time, the highest indicators of the growth of levels of emotional-volitional (by 39,2%), practical-active (by 34,8%) and needs-motivational (by 26,1%) components of environmental competence have been recorded.

Conclusions. Based on the results of this study, we have made several conclusions. Education for sustainable development and advanced environmental education as its key element occupy the dominant position in the New Ukrainian School, as they provide high quality of primary education and prepare young people for life in sustainable models of balanced development.

The quality of advanced environmental education is determined by the level of formation of learners' environmental competence. We should say that the formation of environmental competence requires the organization of education, which is built on the principles of learner-centeredness, pedagogy of partnership and empowerment-pedagogy.

We have designed a complex of methodological support of advanced environmental education for sustainable development in primary school and experimentally proved its effectiveness. According to the results of the experiment, its pedagogical effect is quite high (has been increased by 27,8%).

The results, we have obtained after carrying out the experiment, confirmed high pedagogical effect of the developed methodological support of advanced environmental education for sustainable development in primary school. It allows us to recommend primary school teachers to use it in the educational process. It will help to turn learners' environmental competence, which has been developed at the lessons-meetings, into a powerful and efficient accelerator of environmentally friendly behavior and activities, based on the active environment preservation position.

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