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EDUCATIONAL TECHNOLOGIES OF SITUATIONAL MODELING FOR THE FORMATION OF JUNIOR SCHOOLCHILDREN'S ENVIRONMENTAL AWARENESS: EXPERIENCE DURING THE WAR

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The key technologies of situational modeling for the formation of junior schoolchildren's environmental awareness are considered in the article. It is determined that it is advisable to use educational technologies of situational modeling for junior schoolchildren's environmental awareness formation, namely simulations or simulation games, simplified court hearings (court prose), public hearings, role-playing (role play, skit play, dramatization). To apply situational modeling technologies, the teacher should create a problematic situation of environmental content, and children - during the discussion - should suggest a possible solution that will contribute to their environmental awareness. It is established that educational technologies of situational modeling develop children's critical thinking, ability to express their thoughts, and find an approach to solving particular environmental and situational problems. They also offer ways of rational use, protection, and preservation of the environment that are effective in primary school for pupils' awareness. Educational technologies of situational modeling, i.e., the Green City of the Future simulation game, were practically used to develop environmental awareness of junior schoolchildren and their parents, who were internally displaced persons during the war. It is determined that interactive technologies complement the traditional approach to learning because students become active participants in the educational process in modern realities. They are at the center of the interaction of its participants, have the opportunity to show their knowledge and determine their level, and learn to work in a team. While forming environmental competence and responsibility, primary school teachers and pupils design a new system of values that includes knowledge of nature, patterns of behavior that improve the environmental situation and interaction with the environment, conserve environmental resources and increase their environmental awareness. Play activities are designed to figuratively and easily explain to the child the essence of environmental issues and the reasons for their occurrence to help meaningfully

perceive the world around us and the changes taking place in it, especially during martial law. Simulation games are easily integrated into the usual course of classes or leisure activities, making them more diverse and productive for all participants in the educational process.

Keywords: situational modeling technologies, simulation game, environmental awareness, educational process, junior schoolchildren.

У статті розглянуто основні технології ситуативного моделювання для формування екологічної свідомості молодших школярів. Визначено, що для формування екологічної свідомості молодших школярів доцільно застосовувати освітні технології ситуативного моделювання: симуляції або імітаційні ігри, спрощене судове слухання (суд prose), громадські слухання, розігрування ситуації за ролями (рольова гра, програвання сценки, драматизація). Для застосування технологій ситуативного моделювання вчитель має створити проблемну ситуацію екологічного змісту, а діти – у ході обговорення – запропонувати можливе рішення, що сприятиме формуванню екологічної свідомості. Встановлено, що ефективними в початковій школі для формування екосвідомості учнів є освітні технології ситуативного моделювання, що розвивають критичне мислення дітей, вміння висловлювати свої думки, знаходити підхід до вирішення певних екологічних ситуаційних проблем, пропонують власні шляхи раціонального використання, охорони та збереження довкілля. Практично застосовано освітні технології ситуативного моделювання, зокрема, імітаційну гру Зелене місто майбутнього для формування екосвідомості молодших школярів та їх батьків з категорії вимушено переміщених осіб у воєнний період. Визначено, що інтерактивні технології доповнюють традиційний підхід до навчання, оскільки в сучасних реаліях здобувачі освіти стають активними учасниками освітнього процесу, перебувають у центрі взаємодії його учасників, мають змогу проявити свої знання та визначити для себе їхній рівень, навчитися працювати в команді. В процесі формування екологічної компетентності та власної відповідальності вчителі і учні початкової школи формують нову систему цінностей, що має у собі знання про природу, моделі поведінки, що сприяють поліпшенню екологічної ситуації та взаємодії з навколишнім середовищем, збереженню екологічних ресурсів підвищуючи власну екосвідомість. Ігрова діяльність покликана образно і легко пояснити дитині суть екологічних проблем, причини їх появи, допомогти осмислено сприймати світ навколо нас і зміни, що відбуваються в ньому, особливо під час запровадження військового стану. Імітаційні ігри легко інтегруються у звичний хід заняття чи проведення дозвілля, роблять їх більш різноманітними і ефективними для всіх учасників освітнього процесу.

Ключові слова: технології ситуативного моделювання, імітаційна гра, екологічна свідомість, освітній процес, молодші школярі.

Introduction. The environmental crisis caused by human activities is the impetus for solving green issues in today's world. However, due to geopolitical wars, the ecological crisis could be a global catastrophe if the effectiveness of environmental professionals is low and the environmental education system is not a priority. A crucial principle of this system is the continuity of environmental education, which means the interconnected process of education, upbringing, and human development throughout life. Green issues must be solved by forming individual and collective environmental awareness, starting from primary school.

The current situation in Ukraine, namely a full-scale war that has been going on since February 2022, has led to many children who have become IDPs or refugees from the war zone. These children have experienced traumatic events, the consequences of which will long affect their mental health, behavior, and ability to build constructive social relationships. Therefore, many children need adults' special care and assistance, as well as peers' understanding. The task of ensuring a comfortable stay for such children in educational institutions rests primarily with psychologists, but without teachers' understanding and assistance, no correctional work is productive enough. As a result, it must be supported by the general atmosphere of educational institutions, which only a teacher can create (Smit, Dyrehrov & Yule, 2022).

Modern educational technologies provide individualization and differentiation of learning and consider students' abilities, level of knowledge, and development. Pupils' creative activity promotes the development of motivation and the ability to self-realization, forms the ability to solve problems, draw conclusions and develop quality communication skills.

The peculiarity of interactive learning is that the learning process occurs through the constant interaction of all pupils. The teacher acts as an organizer of the learning process, a consultant. The participants' mutual efforts in the educational process can achieve high learning outcomes when mutual responsibility for the work results is shared among all pupils, which significantly increases the environmental awareness level (Isakova, 2019).

Literature review. Analysis of recent research and publications. Active implementation of ideas of ecological education and upbringing at the present stage of Ukrainian society development is regulated by the National Doctrine of Education Development of Ukraine in the XXI century, the Concept of New Ukrainian School, State Standard of Primary Education, Concept of Environmental Education in Ukraine, Concept of Continuing Environmental Education in Ukraine, National Strategy for Education Development in Ukraine. Analysis of normative documents indicates that the issue of environmental education is relevant (Vlasenko, 2019; Derzhavnyi standart pochatkovoi osvity, 2018; Kontseptsiia ekolohichnoi osvity Ukrainy, 2002; Kontseptsiia Novoi ukrainskoi shkoly, 2016).

The peculiarity of interactive learning is that the learning process happens through the constant interaction of all pupils. Therefore, searching for effective methods of providing psychological assistance to children, adolescents, and students in acutely stressful situations is necessary and, to a great degree, crucial. At the same time, the issue of children's and adolescents' trauma consequences and ways to overcome them are studied less than in adults. Developing programs and technologies

of psychological support for children experiencing violence are studied by Ukrainian and foreign authors, i.e., S. Maksymenko, V. Osodlo, H. Lazos, Ya. Ovsiannikova, H. Remschmidt, J. Mendell, D. Finkelhor and others. Analysis of various forms of traumatic stress display, causes, and consequences for children of different ages can create more effective technologies for psychological assistance to victims of extreme events (Osodlo & Sinishina, 2017).

The analysis of psychological and pedagogical literature shows the growing interest in the interactive learning technologies used in the educational process of the New Ukrainian School. The following scientists thoroughly described technologies of situational modeling: N. Pobirchenko, G. Kobernyk, O. Bida, O. Komar, I. Osadchenko, O. Pometun, and L. Pirozhenko, O. Shenderuk, and V. Perminova, P. Shevchuk and P. Fendrich. Scholars M. Verzilin, O. Zakhlibny, I. Zvereva, B. Johanzen, E. Prusov, E. Girusov, and M. Khrolenko Padalka R. studied the issue of ecological education and environmental awareness. The usage of interactive technologies in the educational process for environmental awareness formation was considered by I. Kryazh, A. Liovochkina, E. Greze, O. Mameshina, O. Palamarchuk.

For teachers and psychologists, the organization of assistance to victims of the socio-political crisis has become a new challenge. It should be emphasized that the most effective form of psychosocial care for people who have experienced traumatic events is individual. However, we should note that it is quite a time-consuming process, which limits its application in the educational institution and directs teachers and psychologists to group forms of work, namely situational modeling technology. Its usage of which allows teachers to reach more people in need. Through the game, children express those experiences, emotions, and feelings that can or can not reveal in everyday life. The game is free from pressure and adult supervision. Children play not only for fun but also to overcome negative emotions (Baidyk et al., 2020). The purpose of the paper is to reveal the educational technologies of situational modeling for the formation of junior schoolchildren's environmental awareness in the conditions of the war period.

Methods. The methodological basis of the paper is the following: work dedicated to the issue of interactive learning, in particular, situational modeling technologies, the conceptual provisions of the New Ukrainian School, and the principles of personality-oriented, competence, and activity approaches in environmental education. A set of methods has been used in research. Thus, theoretical analysis of psychological and pedagogical literature has been used to clarify the main concepts of the study, namely situational modeling technology, simulation game, and environmental awareness. Synthesis and generalization have allowed the author to substantiate the urgency of the researched issue and formulate conclusions. Pedagogical observation has been made to determine the effectiveness of educational technologies of situational modeling, which should be used in primary school children's environmental consciousness formation. It has allowed revealing the purpose of the study. Besides, the research has ensured the continued testing of practical results in organizing pupils' leisure activities, especially during the war.

Results and Discussion. Environmental issues are global and affect all of humanity. At the present stage of society's development, environmental education and

environmental awareness are becoming particularly acute. The main reason is total environmental irresponsibility. Therefore, it is necessary to pay attention to children's environmental education in modern schools from the beginning of training (Guide, 2017).

In modern Ukrainian education, there have been changes related to the modernization of the content and structure of primary education, i.e., the concept of the New Ukrainian School. Environmental competence is the basis for pupils' environmental culture and consciousness formation. In the State Standard of Primary Education, one of the critical competencies is environmental competence, which involves awareness of environmental management, compliance with environmental behavior, conservation of natural resources, and understanding the importance of nature conservation for sustainable development. This approach contributes to the self-realization of the pupils' personalities in life, their social adaptation, and constructive social activities. It is a condition for Ukrainian citizens' formation (Gosstandart, 2018).

Requirements for pupils' compulsory learning outcomes and competencies are determined by educational fields, including natural sciences. The purpose of natural education is the formation of competencies in the field of natural sciences, engineering and technology, environmental and other key competencies by mastering knowledge, skills, and methods of activity, and developing skills. They ensure successful interaction with nature and form the basis of the scientific worldview and critical thinking, responsible, safe, and environmental behavior in the world based on awareness of the principles of sustainable development.

Undoubtedly, the natural education sector is the most environmentally friendly, which is implemented in the integrated course 'I explore the world,' according to the State Standard of Primary School and the concept of the New Ukrainian School, where each content line is permeated with ideas of children's holistic perception, awareness of the need for their harmonious interaction. We are convinced that such a thorough penetration of environmental ideas into the content of educational areas of primary school will build a clear strategy for greening education in our country.

The organization of the educational process in the New Ukrainian School, following the State Standard of Primary Education and the Concept of Environmental Education, using interactive methods, is to model life situations, use role-playing environmental games, and joint problem solving based on analysis of circumstances and situations. Interactive teaching methods are usually divided into two groups: group and frontal. These methods are used in different lessons and stages of the lesson for different purposes and are currently the most used (Tchaikovsky, 2018).

O. Pometun and L. Pirozhenko (2006) propose classifying interactive learning technologies according to the forms of learning (models) in which interactive technologies are implemented. Depending on the purpose of the lesson and the forms of organization of pupils' learning activities, they are divided into the following four groups:

1. Interactive technologies of cooperative learning (work in pairs; rotational (variable) threes; two - four - all together; carousel; work in small groups; aquarium).

2. Technologies of collective-group learning (discussion of the problem in a general circle; microphone; unfinished sentences; brainstorming; Brownian motion; openwork saw (mosaic); situation analysis (case-method); problem-solving; decision tree).

3. Technologies for modeling situations (simulations or simulation games; simplified court hearings (court prose); public hearings; role-playing (role-playing, dramatization)).

4. Technologies for processing discussion questions (PRESS method; borrowing position, changing position; the continuous scale of opinions (continuum, endless chain); discussion; discussion in the style of a television talk show; evaluation discussion; debate).

The organization of interactive learning involves the following technologies: modeling life situations, using role-playing games, joint problem solving based on the situation, and analysis of circumstances. One of the types of interactive technologies is situational modeling technology, in which learning is realized in the form of games. The model of learning in the game is a model when pupils join the educational process through the game.

In their research, O. Shenderuk and V. Perminova consider situational modeling technologies that help pupils obtain and assimilate a much more significant amount of educational material, contribute to the growth of their activity, and work in a team. Such situational modeling technologies include imitation, simulation, and role-play (Isakova, 2019).

Imitations are procedures with the performance of precise known actions that reproduce and imitate any phenomena of the surrounding reality. Participants of the imitation react to a specific situation within a given program and follow the instructions. Pupils can perform actions in micro-groups, pairs, or individually. All participants get a similar result at the end of the imitation, but it is not always the same; it is impossible to predict. Significantly, these results are collectively analyzed and discussed.

In order to successfully conduct an imitation game, the teacher must choose a topic for the imitation, clearly plan all the actions necessary for it, consider all pupils' participation, give them complete information, make a small introduction before the imitation and prepare questions for reflection (Tchaikovsky, 2018).

Learning is a purposeful process, and the game has an uncertain outcome. Therefore, the teacher must subordinate games to a specific didactic purpose when used in teaching. A simulation is a form of role-playing game. Pupils demonstrate certain situations created by the teacher in a simplified form. The teacher should divide the pupils' roles while preparing for the simulation and discuss with each performer the sequence of actions and expressions. It is worth emphasizing the need to follow a scenario and regulations similar to such a procedure in real life. In other words, any simulation is a miniversion of reality (Isakova, 2019).

According to the game model, the participants of the educational process are in different conditions than in the conditions of traditional learning. Pupils can act at their discretion, but these actions are limited to specific rules of the game. Usually, the game model of learning is implemented in four stages: 1) organizational one (introducing

pupils to the topic, acquaintance with the rules; 2) preparatory one (presentation of the game scenario, the definition of game tasks, roles, approximate ways of solving problems; 3) basic one (playing the game); 4) final one (discussion of the results of the game, reflection, exchange of emotions and thoughts).

During the educational process organization, situational modeling technologies can be used to form the junior schoolchildren's environmental awareness, namely simulations or imitation games, simplified court hearings (court prose), public hearings, and role-playing (role play, dramatization). All these forms can be divided into four types (Fig. 1).

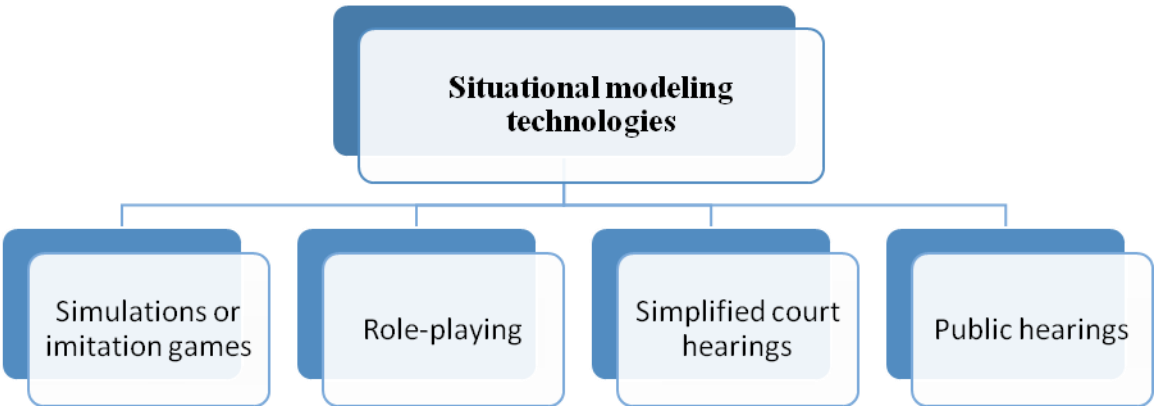

Fig. 1. Classification of situational modeling technologies

Simulation or imitation games. Imitation games develop imagination and critical thinking skills and promote the practical application of the ability to solve environmental problems. Simulation allows pupils to deeply understand the environmental issues from the inside, forming their environmental awareness.

It simplified court hearings. Simplified court technology enables pupils to understand the court decision-making process, analyze, think critically, and make decisions about the rational use, protection, and preservation of the environment.

Public hearings. Modeling a public hearing through simulated environmental games allows pupils to understand the purpose and procedure of the hearing, as well as the roles and responsibilities of members of government agencies, committees, and commissions. In addition, pupils gain practical experience in identifying and explaining the interests and values associated with the subject of the hearing, thus shaping eco-thinking and eco-culture.

Role-playing (Role-playing, Scene Play, Dramatization). Role-playing games help determine the pupils' attitude to a particular life situation, gain their own experience in the game, awareness of the place and role of man in the ecological world.

The technology of role-playing ecological games aims to show the attitude to a specific life situation, to help learn something through experience and feelings. The experience gained in the environmental game can be even more productive than the experience gained in practice because role-playing environmental games allow pupils to visualize the consequences of decisions, test different options for such decisions, and increase the scope of reality. It is necessary for every participant in the role-playing

ecological game to know their role, content, and purpose of the game. It is essential to remember that any game is not as easy as it seems, as it is preceded by the long training of both teachers and pupils.

Integrating the ecological component with basic subjects expands the scope of natural knowledge. It displays their connection with life, which increases pupils' interest in learning because the formation of a responsible attitude to nature is possible only in constant interaction with nature and its awareness. Therefore, environmental education is one of the most crucial tasks in forming a sense of pupils' environmental awareness and responsibility. At the same time, environmental awareness of teachers and students is one of the dynamic components of education that is developing in our time and is considered in the world and Ukrainian practice as the essential measure to overcome environmental hazards.

Students are taught compulsory and optional educational components in higher educational institutions. At Poltava V.G. Korolenko National Pedagogical, future primary school teachers study compulsory disciplines, in particular, "Fundamentals of Natural Sciences", "General and Age Psychology", "Methods of Teaching Natural Education", "Educational Field Practice" and elective courses, i.e., "Environmental education in primary school", "Ecological environment". Environmental awareness is realized through developing and implementing relevant topics and modules in compulsory and elective educational components.

During the academic year, students participating in the research group "Modern trends in environmental education in primary school" conduct their research. The result of the work is the preparation of reports and speeches at scientific conferences, seminars, eco-forums, and webinars; publication of articles to the collections of scientific works of students and undergraduates of the Department of Primary Education, Natural and Mathematical Disciplines and Methods of their Teaching and the Faculty of Psychology and Pedagogy; writing qualifying papers; organization of eco-leisure activities; development of didactic equipment for the eco-educational environment of primary school.

During and after the stressful events of the war, ordinary life can seem chaotic. Therefore, it is crucial to restoring daily routine as far as possible to develop a child's sense of security, peace, and stability. It can be the return of children to the educational process at school or regular attendance at clubs or other play activities. At home, it can mean a regular family meal and the usual routine before going to bed. The child's world becomes more predictable and understandable when daily procedures are preserved as much as possible.

Children also need time to play and participate in fun activities, even during the war. The game is part of normal development. During the war, it can also help children distract and relax. For some children, the game can be a means of expressing complex memories. For all the horrors of war, adults sometimes have to tell children that it is okay to have fun and feel good and happy. Children need time to spend with their peers. It is also a part of pupils' normal development, and they should be encouraged to behave as usual. Sometimes it is easier for children if they are involved in community service, especially in the form of games. It can significantly impact counteracting feelings of helplessness, helping to actively overcome them, and

allowing children to achieve something and start looking to the future. Sometimes children who participate in such activities identify themselves as helpers and learn by looking for peaceful ways to resolve the conflict in the future (Kisarchuk, 2015; Levchenko, Panok & Trubavina, 2015; Baidyk et al., 2020).

Based on the educational and scientific laboratory of Innovative educational solutions of the Department of Primary Education, Natural and Mathematical Disciplines and Methods of their Teaching of Poltava V.G. Korolenko National Pedagogical University in connection with martial law in Ukraine, activities for children in need of support and psychological relief. Lecturers and students joined the organization of leisure for children and their parents who needed help and support.

During the spring period of 2022, based on the laboratory mentioned above, an educational and game event, "Ecological City of the Future", was held. It was organized by a lecturer (specialist in environmental psychology) and students majoring in 013 Primary Education for IDPs and their parents. In a fascinating and interactive form, the communication took place, during which the participants learned about nature and the importance of the ecological environment for a healthy future for humanity. Furthermore, the children tried themselves as "environmental inspectors" and performed the board game task - to help the residents of the Green City consciously solve problems that arise during the construction and operation of urban infrastructure.

The main principle of the game "The Green City of the Future" is learning through play. In the teamwork process, ideas were expressed on the preservation, restoration, and rational use of the environment. As a result, the children received a lot of great emotions, new acquaintances, and many prizes, including thematic coloring worksheets "Save the World" which contained useful information on sorting and recycling household waste to preserve the ecological cleanliness of the Green City of the future. The event's conclusion was the following slogan: 'Love the world where one lives, and then sincerely want it to be clean and charming!' Thus, while playing, children played different life situations, tried different roles, shared awareness, and solved green issues, which became increasingly essential during martial law.

The place and role of simulation games in the formation of junior schoolchildren's environmental awareness are that pupils gain knowledge, learn the rules of behavior in nature and everyday life, present in the process of research, understanding, compassion, expression, and their attitude to research. In addition, it develops a specific view of the presence of nature in human life and its preservation. The simulation game provides many opportunities to learn and meet pupils' needs and goals.

The organization of interactive learning involves the simulation of various life situations, joint problem solving based on the analysis of circumstances and situations, and the use of role-playing games. Using certain simulation games, resorting to the gradual complication of the game material, the teacher develops pupils' thorough, conscious knowledge, skills, abilities, and behaviour patterns in certain situations. In this case, the pupils' knowledge and skills become their personal experience.

Organized activities involve purposeful work on the formation of pupils' environmental awareness and give space for teachers' creative thinking. For example,

by using simulation and role-playing games in the classroom, we create an emotional atmosphere, form a positive attitude towards all living things and nature in general, and increase the intellectual level of children and the desire for the intended use of nature. Using simulation games in the work of environmental education, we thus stimulate the pupils' desire and need to work independently and express themselves in various forms of work and creativity to demonstrate environmental awareness.

The ecological education of the individual is displayed in their ability to make decisions and act based on a hierarchy of socially and personally significant values and needs, using the acquired knowledge and skills. Building citizens' ability to make decisions and act in the interests of environmental protection is a leading global trend in the development of environmental education, which requires a reorientation of the main focus on providing knowledge to work on the problem and find crucial solutions.

Recently, environmental competence has been a primary criterion in the world and an integrated indicator of the quality of environmental education in the formation of primary school pupils' environmental awareness, which is implemented during the study of the integrated course "I explore the world".

Conclusion. Educational technologies of situational modeling are effective in primary school for pupils' environmental awareness. They develop children's critical thinking and ability to express their thoughts, find an approach to solving specific environmental and situational problems, and offer their ways of rational use, protection, and preservation of the environment. Through the game, children express those experiences, emotions, and feelings that they can not or do not know how to show in everyday life. Children play not only for fun but also to overcome the negative emotions and fears experienced as a result of hostilities. The situational modeling technologies that can be used to form environmental awareness include simulations or imitation games, simplified court hearings (court prose), public hearings, and role-playing (role play, dramatization). To apply these techniques, the teacher must create a problematic situation of environmental content, and children - during the discussion - to suggest a possible solution that will contribute to the formation of environmental awareness. Thus, using situational modeling technologies encourages pupils to interact in group work actively, develops creative thinking, and forms the motivation for relevant educational and cognitive activities to develop environmental awareness. In forming environmental competence and responsibility, primary school teachers and pupils design a new system of values that includes knowledge of nature, patterns of behavior that improve the environmental situation and interaction with the environment, conserve environmental resources and increase their environmental awareness. Play activities are designed to explain the essence of green issues to the child figuratively and efficiently and the reasons for their occurrence. They help meaningfully perceive the world around us and the changes taking place in it, especially during martial law.

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