

ECOLOGICAL KNOWLEDGE, EDUCATION AND THE DIGITAL ECONOMY IN PRESCHOOL EDUCATION

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ABSTRACT

The article analyzes the state of environmental science, enlightenment and the digital economy, as well as the prospects for reforming the system of preschool education in Uzbekistan in terms of world experience and makes relevant recommendations.

Keywords: Preschool education, ecology, science, enlightenment, digital economy, world experience, situation, prospects, public policy, recommendations.

INTRODUCTION

In his petition to the OliyMajlis on December 24, 2019, President of the Republic of Uzbekistan Sh.M.Mirziyoev said, "As we aim to turn Uzbekistan into a developed country, we can achieve this only through accelerated reforms, science and innovation. To do this, first of all, we need to nurture a new generation of knowledgeable and qualified personnel who will emerge as enterprising reformers, think strategically. That is why we have started to reform all aspects of education, from kindergarten to university" [1, 2020]. Therefore, in Uzbekistan 2020 was called "The year of science, enlightenment and the development of the digital economy".

The changes in education in our country began with the profound reform of preschool education. Although it is recognized as a separate type of national education by the Education Act [2, 2019] and as a primary link in National Training [3], by 2017, only 27% of the 2.4 million children aged 3-7 were enrolled in 4,940 public and 269 private kindergartens was covered. In order to solve this problem, on September 30, 2017, the Ministry of Preschool Education was established for the first time in Uzbekistan by Presidential Decree No. PD-5198.

THE MAIN FINDINGS AND RESULTS

The main functional task of the Ministry is to increase the coverage of children in preschool education institutions (from 2019 it was given the status of preschool education institutions (Preschool Education Institutions)). At the beginning of 2019, the number of Preschool Education Institutions exceeded 7,500. Of these, 3,400 were involved in non-governmental, including 783 private, more than 2,000 families, 419 public-private partnership kindergartens, and the coverage was 44.5% (Figure 1). In 2019 alone, 5,722 state and non-state children's pre-school educational institutions were established in Uzbekistan, and by the end of 2019, 52% of children aged 3-7 were enrolled in pre-school education institutions [1]. By June 2020, the

number of Preschool Education Institutions had exceeded 14,200. In it, growth was mainly due to family and corporate kindergartens [4, 2020].

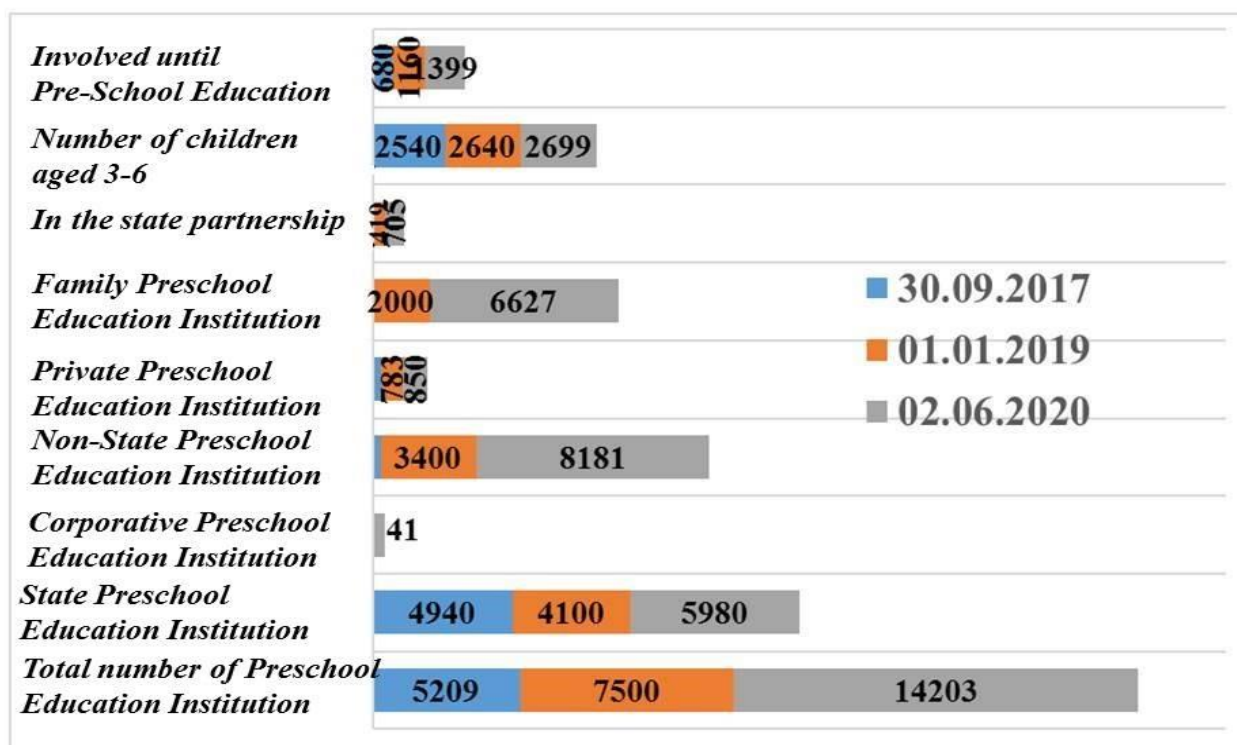


Figure 1. Dynamics of enrollment of young children in preschool education institutions

In accordance with the Law of the Republic of Uzbekistan on Preschool Education and Training, adopted on December 16, 2019, from June 16, 2020, the Organization of Preschool Education will cover the following groups of children: infancy (up to 1 year); early childhood (1-3 years); young age (up to 3-4 years); average age (up to 4-5 years); older age (5-7 years) [5, 2019]. There is an opportunity to send children to 4 types of Preschool Education: general type; multi-industry specialized; have inclusive groups; joint type. Mode of operation of the Preschool Education Organization: short-term group (3-4 hours per day); full-time group (9, 10.5 and 12 hours per day); a group that will be around day and night. The Preschool Education Organization can operate in the form of state and non-state property, including sole proprietorship and family property covering up to 25 children. The main goal of the pre-school education reform is to cover children under the age of 7 more broadly and more in the Preschool Education Organization.

Now it is expedient to turn the Preschool Education Organization into a "teaching and upbringing" link, rather than a "training" stage of the national personnel system, and to organize primary education from the Preschool Education Organization. It is planned to produce 90% by 2024. 1.8 billion soums are allocated from the national budget for this purpose.





Chapter 3 of the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated May 27, 2019 No 434 "On the Concept of Development of Environmental Education in the Republic of Uzbekistan" sets 11 tasks for the development of environmental education. To implement these tasks, on August 6, 2019, the Ministry of Preschool Education and the State Committee for Ecology and Environmental Protection adopted a joint resolution on measures to develop environmental education and upbringing in the Preschool Education Organization. The content and essence of these tasks are aimed at bringing environmental education in the

Preschool Education Organization to the level of modern requirements, including the establishment of environmental science, enlightenment and the digital economy.

In the training of personnel, a pertinent question arises in the direction in which preschool education should develop environmental science, enlightenment and the digital economy. First of all, we need to clarify the existing word, word combination of science, enlightenment and digital economy. The explanatory dictionary of the Uzbek language gives 3 different definitions of the word science [6, 2019]. But in science, its 1st variant, that is, *the definition of knowledge, skills, information that is achieved through study, research, analysis, comes closer to science*. Closer to why, the fact that the “human information” given in the later versions of the zero dictionaries does not mean that it has yet become scientific. S.I. Ojegov's dictionary, which is the most popular in Russian, states that the perception of being through *knowledge [consciousness]* [7]. The free encyclopedia “Wikipedia” is *the result of scientific activity or the acquisition of information by an individual to find a solution to a problem* [8, 2004]. In general, the word science is reflected differently in different literatures. In our view, *knowledge is a social, or rather humane, category of human society, which is the conscious understanding, knowledge, and understanding of being*.

Ecological knowledge in preschool education is the ability of children to consciously understand, know and comprehend the natural environment with the help of adults. The main purpose of this is to educate children, or rather children, in the Preschool Education Organization, because according to the Law of the Republic of Uzbekistan on Preschool Education and Upbringing adopted on December 16, 2019, the Preschool Education Organization is not only educational, but educational stage of the national education system. At this stage, we need to create the first elements of environmental education and upbringing for children, that is, environmental culture.

In the regions and countries that are in the top 20 "ecologically clean" and developed countries, [9, 2012] educational work begins with the formation of the potential of "ecologically cultured person" in preschool education. The main goal is to create the first elements of ecological culture in children through environmental education and upbringing in the Preschool Education Organization (Fig. 2).

Countries	The content of environmental education in the organization of preschool education
Finland 	Systematically it starts at the age of 5 and is conducted in specially organized local “Nature Centers”
Sweden 	A nationwide information system has been set up in collaboration with the Environmental Protection Society and the National Agency for Education
Denmark 	Introduced into the entire system of pedagogical professional education and is mandatory in the training of teachers in the field of preschool education
Austria 	There is a regular seminar for preschool teachers, retraining and advanced training courses






 Norway	Kindergarten teachers must have special environmental training
 German	Children's perception and knowledge of the environment, preparation for nature conservation, the formation of environmentally responsible behavior
 Japan	The training of a person with a high environmental culture is reflected in preschool education programs in the field of environment
 USA	In the process of forming children's careful and responsible attitude to the environment, it is carried out in conjunction with the general public and non-governmental organizations.
 Russia	May 12 has been declared "Environmental Education Day" and relevant holidays will be held at the Preschool Education Organization

Figure 2. Environmental education and upbringing in the preschool education organization

In general, in Western Europe, children try to create all the conditions for environmental education and upbringing from the age of three by interacting with and caring for wild and domestic animals on private farms.

Environmental education in Uzbekistan is integrated into general secondary education in such disciplines as Biology, Geography, History, Natural Sciences and is not conducted by environmental educators. In secondary special and vocational education, environmental education is not fully introduced and is often taught by related science teachers due to the small number of hours. A similar situation is in Higher Education. Admission to study in the field of ecology and environmental protection is not through taking a test in Biology and Geography, but through a test in Mathematics and Chemistry. In order to use the world experience and eliminate such nonenvironmental education, the above-mentioned joint resolution of the Ministry of Ecology and Environmental Protection and the Ministry of Preschool Education called for the implementation of the following measures to establish environmental science in preschool education [10]:

- ✓ Make appropriate additions to the state curriculum "First Step" on environmental education and training;
- ✓ creation of educational literature taking into account the age of children;
- ✓ Organization of "environmental corners" and their effective use in the educational process;
- ✓ holding a holiday dedicated to the main days of the year "Ecological Calendar";
- ✓ Introduction of training modules on "Actual problems of ecology" in advanced training and retraining courses for managers and specialists, etc.

In preschool education, the main task of this Joint Resolution is to not only acquaint children with nature, but also to make them environmentally friendly in the current state curricula "Bolajon" and "Ilk Kadam" until 2018 [10]. This means that while introducing children to nature, they are tasked *with protecting the local ecosystems (living: habitat, space, home) that they encounter in their daily lives, using their natural resources wisely, and acquiring the information they need to recover.*

At the stage of preschool education in Uzbekistan, environmental science is radically different from other types of education. Its educational literature should belong to educators, methodologists, speech pathologists, psychologists, ie educators (table 1). It cannot be said that 90-95% of the specialists who come to the Institute for Retraining and Advanced Training of Managers and Specialists of Preschool Education Institutions have the knowledge, skills and qualifications related to environmental science.

Table 1: Recommended environmental science for teachers and children in preschool education

For educators	For kids
Ecology is a field of science that studies the laws between living things in certain ecosystems and their natural environment (rational use, protection, restoration), a field of education that forms knowledge, skills and abilities, a network of practices that optimize these laws of justice	Ecology is an effort to use the nature of the place where you live wisely, to preserve it, and to restore what has been damaged
Ecosystem - the habitat of all living things, including humans, in a particular system (global, regional, national and local)	Where we live is the room we live in, the house, the street, the garden, the neighborhood, the village, the city
Rational use is the scientifically based use of natural resources in ecosystems	Rational use of nature is an effort to use nature wisely
Conservation is the preservation of the natural properties of matter and energy metabolism that take place in ecosystems	Nature conservation is an effort to preserve "Mother Nature"
Restoration is the restoration of damaged ecosystems on a scientific basis	Restoring nature is an effort to improve degraded nature
Ecological consciousness is the realization that ecosystems are the only living space for people, including organisms	Ecological consciousness is an understanding of how important "Mother Nature" is in our lives
Ecological culture is the level of practical application of knowledge, skills and abilities acquired through environmental education	Ecological culture is the degree to which ecological consciousness can be put into practice

In preschool education, the "Environmental Corner" should be different from the previous "Nature Corner". It should reflect not only animate or inanimate nature, but also that animate and inanimate environment as our habitat, as shown in Figure 3, and reflect three different situations: ecosystem protection, rational use of ecosystem resources, and restoration of degraded ecosystems. . For example, the project work "Little ecologist" prepared by the students of our Institute under my guidance can be taken as a background or ideological concept in the organization of the "Ecological Corner". The methodology of using the exhibition stand can be found on the website of the Institute for Retraining and Advanced Training of Managers and Specialists of Preschool Education Institutions.

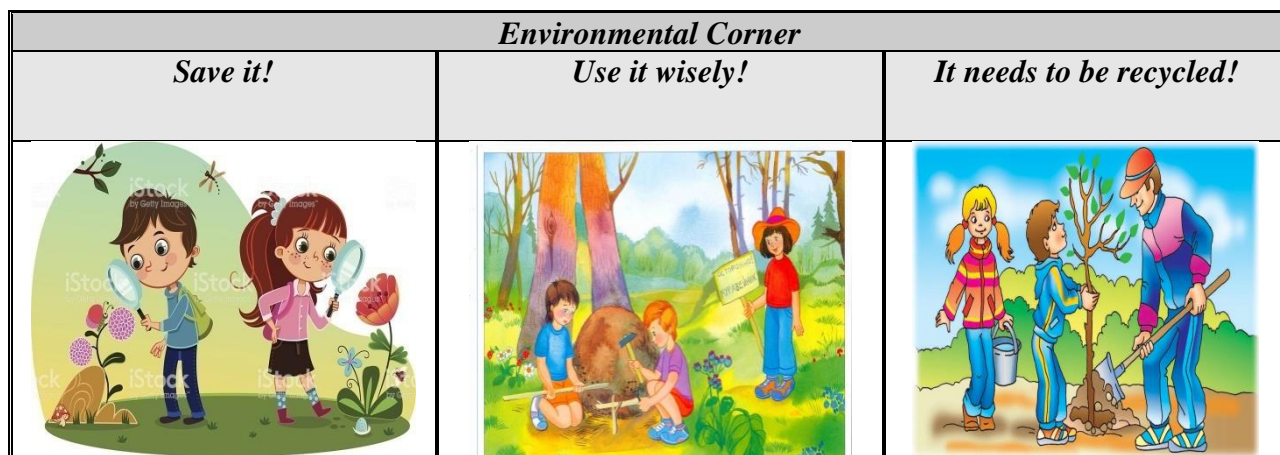


Figure 3. The content of the "Environmental Corner" organized in preschool education

It is recommended to develop an existing "Ecological Calendar" exhibition posters for the celebration or morning activities dedicated to the main ecological calendar days of the year (Figure 4).

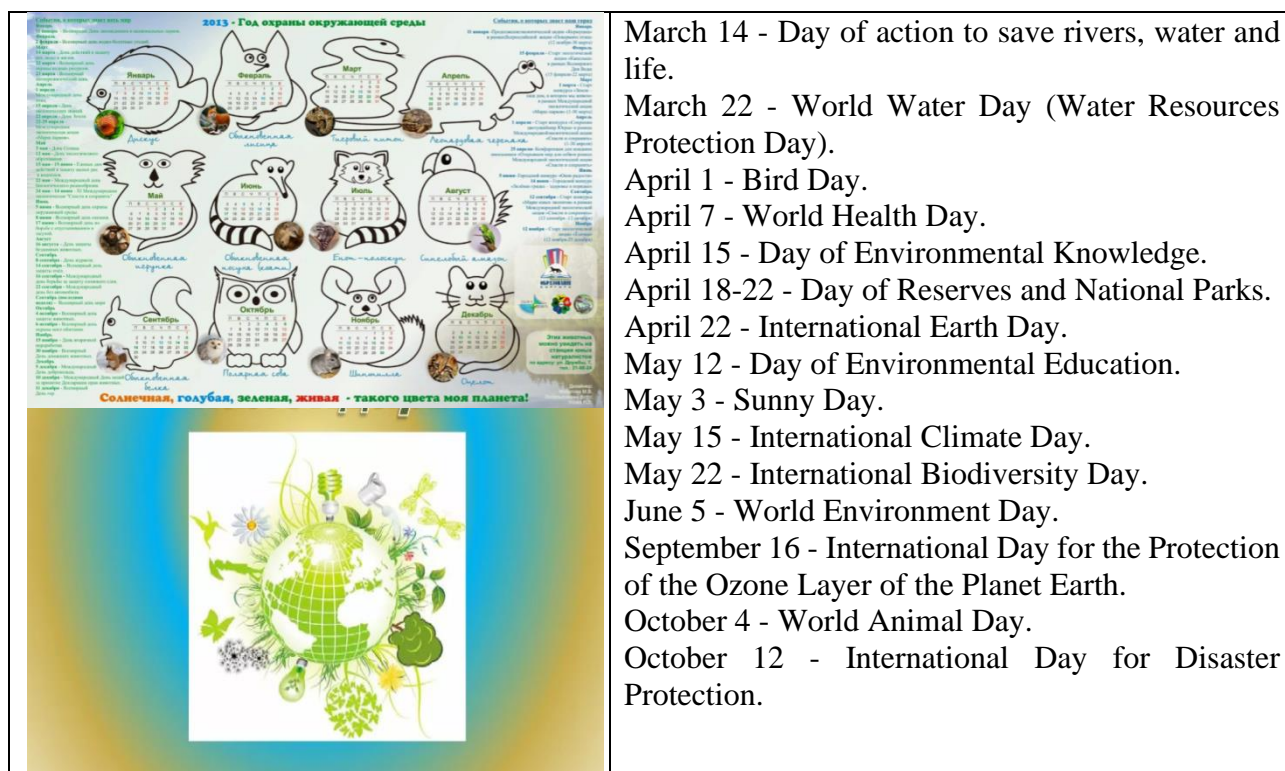


Figure 4. An example of a poster exhibition "Ecological Calendar" dedicated to the days of the ecological calendar

Establishing Environmental Days It is recommended to develop a "Calendar Schedule" based on the local conditions in which the Preschool Education Organization is located and to hold celebrations or events on those days. For example, in kindergartens located in the desert zone: Sun, climate, biodiversity, desertification and drought days should be included in the calendar and action plan. In kindergartens in mountainous areas: It is advisable to include in the calendar plan such days as the protection of the ozone layer of the planet Earth, the day of nature reserves,

the protection of animals, protection from natural disasters. Because in the daily activities of children or in their eyes, this state of the environment, process or event takes place.

Just because a person, including a child, has become ecologically knowledgeable does not mean that they have yet reached the level of ecologically cultured. In order to reach this level, the child must receive ecologically enlightened, that is, modern environmental education in the Preschool Education Organization. We know that environmental enlightenment can be inculcated in children through education, and spirituality through education [11, 2019]. The purpose of recognizing 2020 together with the words "*science*" and "*enlightenment*" is to prepare the Uzbek people, including our youth, not only ecologically knowledgeable, but also ecologically educated, skilled and qualified to meet modern requirements. The goal of environmental education in preschool education is to provide children with basic environmental knowledge and skills to contribute to environmental safety on a different scale.

In order to formulate the initial knowledge and skills of children in the organization of preschool education, it is desirable to introduce the educational module "environmental education and training in preschool" into the curriculum of 2 hours of theoretical, 4 hours of portable and 4 hours of practical training on the actual problems of ecology into the qualification courses of managers and specialists. Theoretical training-the concept, content and essence of environmental education and training are revealed.

The mobile training will be conducted through the study and exchange of best practices in the Preschool Education Organization, which is organized at the level of environmental requirements. Then, based on the knowledge and experience gained, in the practical training, each trainee develops and presents a promising program, plan and "road map" for the implementation of environmental education in their area or in the Preschool Education Organization. Qualification project work should be aimed at the organization, conduct and popularization of environmental education and training in the Preschool Education Organization, the creation of stands and models, the development of guidelines, recommendations, the development of various options for infographic multimedia.

It is expedient that in the 4-month course of retraining in the field of preschool education the educational module "Environmental education and upbringing" is given as 12 hours, in the 6-month courses as an 18-hour training module. We believe that the ratio between theoretical, practical, and portable training is 1 (knowledge): 1 (skill): 1 (qualification) in a way that suits our pedagogical experience. It is difficult to say that the level of environmental awareness of the listeners who come to retraining today is in demand. Paragraph 3.b of the Resolution of the President of the Republic of Uzbekistan dated May 18, 2019 No PD-4321 "On measures to further improve the infrastructure of the digital economy and e-government" states that "the introduction of information systems in public administration development and implementation, as well as coordination of the activities of government agencies and organizations. ***The digital economy*** is an economic activity based on digital technologies, namely the development and provision of digital goods and services related to electronic business and Commerce [12, 2019]. For the first time this idea was brought to science by Nicholas Negroponte, professor of the Technological University of Massachusetts, USA, in 1995 [13]. He considered it desirable to express the volume not in terms of the physical state and the dimensions of motion, but by numbers.

N. Negroponte proved that all objects (objects) and people (subjects) involved in economic relations can be represented in the form of digital technologies and controlled electronically

[14]. This allows the economy to create, share, and transfer large volumes of databases at very high speeds over desired distances. For example, the Preschool Education Organization urgently needed to create an "Environmental Corner". To find a solution to this problem in a fast-paced way, we use the digital economy by performing the following algorithms, that is, a series of "steps" in the workplace via the Internet:

Step 1, go to the portal "Education Service" and get acquainted with the various options for creating an "Environmental Corner" through the "Database";

Step 2, depending on where we place the "Environmental Corner" in our Preschool Organization, we select a specific option and analyze all its parameters and develop a draft order;

Step 3, get acquainted with all the details of the company that prepares the "Environmental Corner", evaluate its capabilities, study the conditions and determine the level of warranty;

Step 4, we will send the order to the relevant business site and get a response from it promptly;

Step 5, we will conclude the contract in electronic form and transfer the appropriate financial amount through the bank where our account is located or start executing the order through the bank guarantee from the deposit account;

Step 6, we will monitor and monitor the implementation process of the bend, ie the project "Environmental Corner", the ways of implementation, the materials and equipment used, the level of safety, the warranty period via the Internet;

Step 7, the control allows you to pinpoint the exact day when the fold is ready and ensures that it is delivered to the Preschool on time through an electronic contract with the transport company.

In order to carry out all operations remotely through the digital economy, of course, we need to have a fast Internet network and information technology at the national, regional, local and local levels, and create a bank of digital information and services. That is why the "digital economy" is often called the "*Internet economy*".

The President of the Republic of Uzbekistan has repeatedly called for digital transformation of the economy, development of national information technologies and investment in order to increase GDP by at least 30% and sharply reduce corruption through the implementation of the state program "Digital Uzbekistan-2030". stressed. The introduction of the digital economy in preschool education is a resource that improves the quality of education and upbringing in the form of "Telebogcha" (TV Kindergarten). It is the activity of a human society, which allows to accelerate the development of education through the digitization of educational, methodological, scientific and pedagogical, organizational, legal, financial and economic, personnel, logistics. For the transition to digital environmental education and training in the Organization of Preschool Education at the Institute for Retraining and Advanced Training of Managers and Specialists of Preschool Education Institutions is recommended to conduct qualitative project work and research on the following topics:

1. Creation of a digital electronic catalog on the development of environmental education in preschool education.

2. Development of an infographic multimedia tool on the topic "Little ecologist".

3. Development of an infographic multimedia tool to ensure environmental safety in the 5 development centers of the Preschool Education Organization.

4. Development of an infographic multimedia tool on the fauna included in the Red Book of the Republic of Uzbekistan.

5. Development of an infographic multimedia tool on the flora included in the Red Book of the Republic of Uzbekistan.

6. Creation of the project of the standard infographic stand on the organization of "Ecological corner" in the organization of preschool education.

7. Create infographic calendar posters dedicated to environmental dates, taking into account local conditions.

8. Development of an infographic multimedia tool on the theme "Mother Nature".

9. Development of an infographic stent project on "Ecology and Environmental Protection" for advanced training and retraining courses, etc.

CONCLUSION

To conclude, the introduction of digital economy, which brings environmental education and upbringing to a new level in preschool education, education that shapes the environmental awareness of children and teachers, the application of modern information technology in environmental management.

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