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NEW LIFE FOR THE WASTE – FORMATION SKILLS FOR SUSTAINABLE DEVELOPMENT IN PRESCHOOL AGE

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Abstract: The article explores the possibilities for forming competences for sustainable development in preschool education through practical activities based on the reuse and recycling of waste materials. The theoretical framework presents key international and national policies that position education for sustainable development as an essential element of modern pedagogical practice. The results of a practical task implemented with 23 students in the Master's Degree Program in Preschool and Primary School Pedagogy, who created educational toys from waste materials, are presented. The activity allows students to apply the principles of recycling and eco-design, while simultaneously developing professional skills such as planning, creativity, teamwork and pedagogical reflection. Two exemplary student models are analyzed, showing how waste can be transformed into significant educational resources, supporting environmental awareness, social responsibility and sustainable behavior in preschool children. The results confirm that the "new life for the waste" concept is an effective approach for integrating education for sustainable development into the training of future educators.

Keywords: *sustainable development competences, preschool education, green toys.*

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Introduction

In the context of continuous social, technological and economic changes, education is becoming a key factor in preparing generations capable of navigating the complexities of the modern world with confidence. Today's children will live and work in a reality that requires not only knowledge, but also skills for critical thinking, adaptability, social engagement and a responsible attitude towards their surrounding environment.

Quality education is the foundation on which equal societies, sustainable development and active citizens, ready to contribute to the common good, are built. It is an investment that brings long-term benefits - both for the individual and for the future of the entire society [1]. In this context, the integration of education for sustainable development (ESD) into curricula is no longer a recommendation, but a necessity. In order to form attitudes and behaviors that support sustainable development, the process must begin in early childhood. It is precisely preschool institutions that have the key role in laying the foundations of skills for a healthy lifestyle, environmental culture, social responsibility and activity. They are the first environment in which children learn to understand the world, interact with it, and take responsibility for their own choices [2].

Methodology

The purpose of this article is to present some ideas for the developing of competences for sustainable development in kindergarten.

The tasks to be solved in it are:

- To reveal the theoretical aspects of competences for sustainable development in kindergarten
- To demonstrate innovative ideas of students for making toys from waste materials.

This study involved 23 students in the Master's degree program in Preschool and Primary School Pedagogy, studying at Burgas State University "Prof. Dr. Assen Zlatarov", Republic of Bulgaria.

Discussion

The UN concept of sustainable development proposes a balanced interaction between the natural environment, society and the economy. According to this report, progress is sustainable when current generations use resources in a way that does not limit the ability of future generations to meet their needs. The main idea is that human development and environmental protection are not opposing processes, but mutually reinforcing – progress must go hand in hand with care for natural and social systems [3]. From a pedagogical perspective, research indicates that sustainable attitudes and ecological awareness are most effectively formed through experiential and project-based learning tasks that engage learners in creative transformation, reflection, and socially meaningful action, rather than through abstract ecological instruction alone [4]. In this context, ESD is seen as the next stage in the evolution of environmental education. While the traditional environmental approach emphasizes the reaction to risks and

threats, ESD focuses on preparing people for active participation in the transformation of society. It develops skills that allow everyone to participate in the processes of social change and contribute to the creation of a more sustainable future [5]. The UN concept of sustainable development finds a pedagogical continuation in the position of Gyurov and Stoyanova (2019), who view sustainable development as an attitude towards natural objects, requiring systematic and complex thinking. They add that education for sustainable development implies the development of sustainable intellectual skills and practical actions as an element that is fully consistent with the idea of active participation in social transformation [6].

The conceptual framework outlined in this way fits into the broader international policies formulated over the past decade. In 2015, at the Sustainable Development Summit, the United Nations adopted the global program "Transforming our world: The 2030 Agenda for Sustainable Development", which defined seventeen sustainable development goals. The fourth goal – "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" – emphasizes the need for a new educational paradigm, oriented towards building relevant knowledge, skills and competences in future generations [7]. In line with this vision, the 2018 EU Council Recommendation on Key Competences for Lifelong Learning establishes a renewed framework that defines the competences necessary for active participation in modern society and provides a recommendation for the implementation of competences for sustainable development at every stage of education [8]

At the national level, these principles are reflected in the Law on Preschool and School Education, which regulates general education. The goals of sustainable development are most clearly manifested in the content of the ninth key competence – skills to support sustainable development and for a healthy lifestyle and sport. This competence is implemented in an integrated manner with the others within the framework of pedagogical interaction in preschool age [9].

The practical application of the concept of sustainable development in the training of students – future teachers is key to the formation of sustainable professional attitudes. In this sense, in our practical work on the subject "Development of Natural Science Competences" with 23 2nd year students, Master's degree students studying in the specialty "Preschool and Primary School Pedagogy", we developed the idea of "green toys" as a concrete example of integrating the principles of sustainable development into pedagogical practice. By using waste materials intended for disposal (plastic bottle caps, candy wrappers, cardboard, toilet paper rolls, bags and many others), the students created functional and safe toys for children. This activity allowed them to practically understand the principles of the circular economy, reuse and eco-design, as well as to develop skills in creativity, planning and evaluation of educational resources [10]. In this way, they not only mastered the concept of sustainable development, but also gained confidence in their ability to create accessible, sustainable and pedagogically significant materials for work in preschool age.

Before the actual work of making the products began, the students were organized into small teams of 4-5 people, with the groups formed at their own will. This approach allowed them to work in a comfortable social environment, to distribute roles according to their individual strengths, and to develop skills for collaboration and collective decision-making. The students were not given any prior criteria regarding the type of product, its shape or purpose, nor were they given specific waste materials to use. The only condition was to select objects that would normally be thrown away in everyday life.

This lack of predetermined restrictions gave them the freedom to be creative, experiment, and apply the principles of recycling in a real situation. After making their products, each group had to present the product in a structured way:

- give it a title
- formulate the main idea behind its creation
- describe in detail the steps of making
- list the materials used.

This stage aimed to develop skills for reflection, argumentation and pedagogical justification of the choice of materials and construction. The presentation of the products also stimulated students to think about how their "green toys" can be used in the educational process, what skills they support and how they contribute to the formation of competences for sustainable development in children.

This paper presents two of the best models.

Title: Winnie the Pooh becomes a Pirate (Created by R. Stoyanova, S. Cholakova, D. Dimitrova, P. Dimova)

Idea: By creating this resource, children will learn/apply the concept of recycling and reusing various waste materials. At the same time, they will have the opportunity to use their imagination to invent and tell their own stories inspired by the various elements of the resource.

Winnie the Pooh and his friends Piglet, Rabbit, Owl, Christopher Robin, Kanga and Roo discover an abandoned pirate ship and set off on a long journey across the ocean. During their journey, they meet various sea creatures and even come across a mermaid. Together with their new friends, they set off in search of a mysterious treasure chest hidden by pirates on the ocean floor.

Steps:

1. Paint the bottom of the shoebox with blue paint and after it dries, glue blue plastic caps on it. This forms the ocean and the ocean floor.
2. Paint the walls of the shoebox with paints in different colors to create a sense of a horizon above the ocean. Cut the bottom of different plastic bags into strips/fringes, 1 cm wide. Glue the bags along the top edge of the box so that the fringes fall on both the inner and outer walls of the box.
3. From a 10-egg carton, we use only the base for a ship, painting it with selected colored paints. We thread two sushi sticks through the base to serve as masts. We glue pirate stickers on small pieces of colored paper. We thread the masts through the sheets so that they serve as ship sails. We fix the position of the masts and sails by tying them to the bow and stern of the ship with ribbons. We place small figures in the egg carton/ship.
4. From empty toilet paper rolls we make a shark, crab and octopus.
   - Shark – cut out a mouth and teeth, add a fin and tail from cardboard, color it gray, and the teeth – white and draw eyes and gills
   - crab – color the roll red, attach small white plastic caps on it for eyes, on which we glue smaller black circles from cardboard, cut out clips and legs from cardboard, which we glue;

- octopus – cut one end of the roll into strips so that we get octopus tentacles, color it blue-purple, glue small white circles from cardboard for eyes, and inside them – even smaller black ones;

5. From various materials left over from previous activities, for example in Construction and Technology or such unnecessary ones at home, we make a mermaid, a turtle and a treasure chest.
   - Mermaid – we form the body from a small piece of cardboard, at one end we attach with tape hair made of yarn, tied in tails with rubber bands, and at the other end we attach again with tape a small rolled up blue sheet of paper for a tail; on it we glue white dots of textile (pearls) and pebbles for the face; we draw the mermaid's face with felt-tip pens;
   - Turtle – we cut out green cardboard in the shape of a turtle and draw its legs and face with felt-tip pens, and for the shell we use the bottom of a plastic bottle; inside the shell we place multi-colored balls of textile; we assemble the body and shell of the turtle, fastening them to each other with a colored ribbon;
   - Treasure chest – on an empty cream box, we draw different shapes with glitter and/or varnish; inside we add small balls of yellow tissue paper to imitate a golden treasure.

Materials: shoe box, plastic bags, plastic caps, egg carton, empty toilet paper rolls, leftover construction and modeling materials (cardboard, colored sheets, yarn, textile pompoms and ribbons, tissue paper, glitter), pirate stickers, sushi sticks/skewers, mini figures of Winnie the Pooh and his friends, cream box, scissors, glue, paints and a brush, tape, felt-tip pens.

Figure 1. Winnie the Pooh becomes a Pirate.

Source: Blaga Dimova. All rights reserved

Title: Save the Ocean – save the Life (Created by V. Balkanska, N. Faik, G. Bekirova, D. Sultanova, N. Trendafilova)

Idea: This project shows how ocean pollution with waste affects marine animals, especially whales and fish. Every day, thousands of tons of plastic enter the oceans – bags, bottles, packaging and other garbage. Whales often swallow this waste thinking it is food. According to research, some whales eat up to 43 kilograms of plastic a day. This prevents them from eating normally, causes them pain, and sometimes even leads to death. Plastic harms not only whales, but also fish, turtles and seabirds. It breaks down into microparticles that pollute the water and enter the food chain – even human food.

Steps and materials:

- The whale is hand-drawn with paints and markers.
- Real waste is glued onto the painted body – plastic caps, packaging, foil, nets, aluminum foil, medicine blisters, cups and more.
- The blue sea is made with paint, and colorful cutouts of sea animals (fish, seahorses, starfish) are added around the whale.

Message: if we want the oceans to remain full of life, not trash, we must reduce the use of plastic and always throw away waste in the right place. Everyone can make a small change to protect the sea and its inhabitants.

Figure 2. Save the Ocean – save the Life

Source: Blaga Dimova. All rights reserved

The students' practical developments are clear evidence that giving new life to waste can be both useful, aesthetically appealing and pedagogically significant. Working with waste materials not only stimulates creative thinking, but also supports the development of key professional skills – planning, teamwork, pedagogical reflection and skills for creating educational resources at low cost. By completing the task, the students understand how the principles of recycling and eco-design can be integrated into everyday pedagogical practice. Their "green toys" become an example of accessible, sustainable and pedagogically significant materials that support the development of ecological culture, social responsibility and a valuable attitude towards nature in preschool children.

The presented models confirm that the principles of education for sustainable development can be successfully integrated into the training of future educators through practical tasks based on real environmental problems. The theoretical concepts discussed in the article find their concrete manifestation

in the students' creative solutions, which demonstrate the ability to apply their knowledge in the context of sustainability, reuse, and ecological thinking. This shows that practical activities are a key tool for building professional attitudes oriented towards sustainable development.

Conclusion

The results of the practical task conducted show that the idea of “new life for the waste” can be realistically and pedagogically significantly applied in the training of future teachers. Giving new life to waste becomes not just a creative task, but first and foremost a means of forming competencies for sustainable development in kindergarten, sustainable professional attitudes, environmental sensitivity and skills for creating accessible educational resources. International experience also confirms that sustainable results are achieved most easily when educational institutions and professional organizations work together and share their knowledge, skills and good practices [11]. By making “green toys”, children understand the principles of recycling and eco-design, making them part of their future pedagogical practice. These activities support the development of competencies for sustainable development, ecological culture, social responsibility and a value-based attitude towards nature in preschool children. In this way, the concept of "new life for the waste" is being established as an effective approach for integrating education for sustainable development into the training of future educators.

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