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## USE OF SMART EQUIPMENT IN THE PROCESS OF ENVIRONMENTAL EDUCATION

**Abdullaeva Nasiba Absolomovna**

[0000-0002-6248-6064].

Fergana State University, teacher

**Tojiboyeva Shahribonu**

Fergana State University, student

**Abstract:** Amid growing environmental challenges, there is an increasing need to modernize methods of environmental education. In Uzbekistan, SMART equipment is being actively integrated into the educational environment, including programs focused on ecological awareness. This article explores the theoretical and practical aspects of the digitalization of environmental education, analyzes statistics on the technological equipment of schools in Uzbekistan, and presents the “Green School” project as an example of successful integration of SMART technologies and a sustainable approach into the educational process.

**Keywords:** SMART equipment, environmental education, digitalization of education, sustainable development, “Green School” project.

Environmental education is an essential component of the sustainable development strategy aimed at fostering a conscious and responsible attitude toward the environment among the younger generation. In the 21st century, technology has become a vital tool in addressing the goals of environmental awareness. One such tool is SMART equipment, which makes the learning process more visual, interactive, and effective. In Uzbekistan, under the national strategy *Digital Uzbekistan–2030*, digital technologies are being actively introduced into the educational process. However, the use of SMART technologies in environmental education remains a new and promising field that requires systematization and methodological support.

Theoretical Foundations of Environmental Education and SMART Learning. SMART learning refers to the use of intelligent and digital technologies (interactive whiteboards, tablets, projectors, touch panels, VR/AR, etc.). These tools create new conditions for developing ecological awareness through:

- Digital laboratories and ecosystem modeling;
- Online monitoring of the environment;
- Project-based and research activities using digital tools;
- Interactive learning platforms focused on ecology.

Analysis of Digitalization in Education and Environmental Education in Uzbekistan According to the Ministry of Preschool and School Education of the Republic of Uzbekistan, by 2024:



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– Over 85% of urban schools are equipped with SMART boards and multimedia equipment;

– In rural areas, this figure stands at approximately 41%;

– 56% of teachers have completed digital training programs;

– However, only 22% of schools incorporate ecological topics using SMART equipment.

According to the Environmental Monitoring Center:

– Only 36% of students can describe the main causes of climate change;

– 63% express interest in ecological projects, but rarely engage in digital initiatives.

“Green School” Project: SMART Approach in Action. The “*Green School*” project, implemented in 2023–2024 in 45 pilot schools in Andijan, Fergana, and Bukhara regions, aims to develop students’ skills in sustainable consumption and energy saving. The project is initiated by the Ministry of Preschool and School Education in collaboration with international partners, including Japanese experts.

Project objectives:

– Increase students’ environmental literacy;

– Develop skills in digital resource monitoring;

– Promote behavioral habits for reducing waste, water, and electricity use.

– Main components:

– Installation of SMART systems for monitoring energy and water consumption;

– Training with experts such as *Yuki Yanagida* (Japan);

– Conducting digital lessons;

– Implementation of electronic resource tracking journals;

– Development of methodological materials on energy efficiency.

– Results:

– Over 500 students participated;

– Up to 15% electricity savings achieved;

– Increased interest in eco-projects and digital literacy among students.

Advantages of the SMART Approach in Environmental Education

– Data visualization (e.g., real-time water consumption levels);

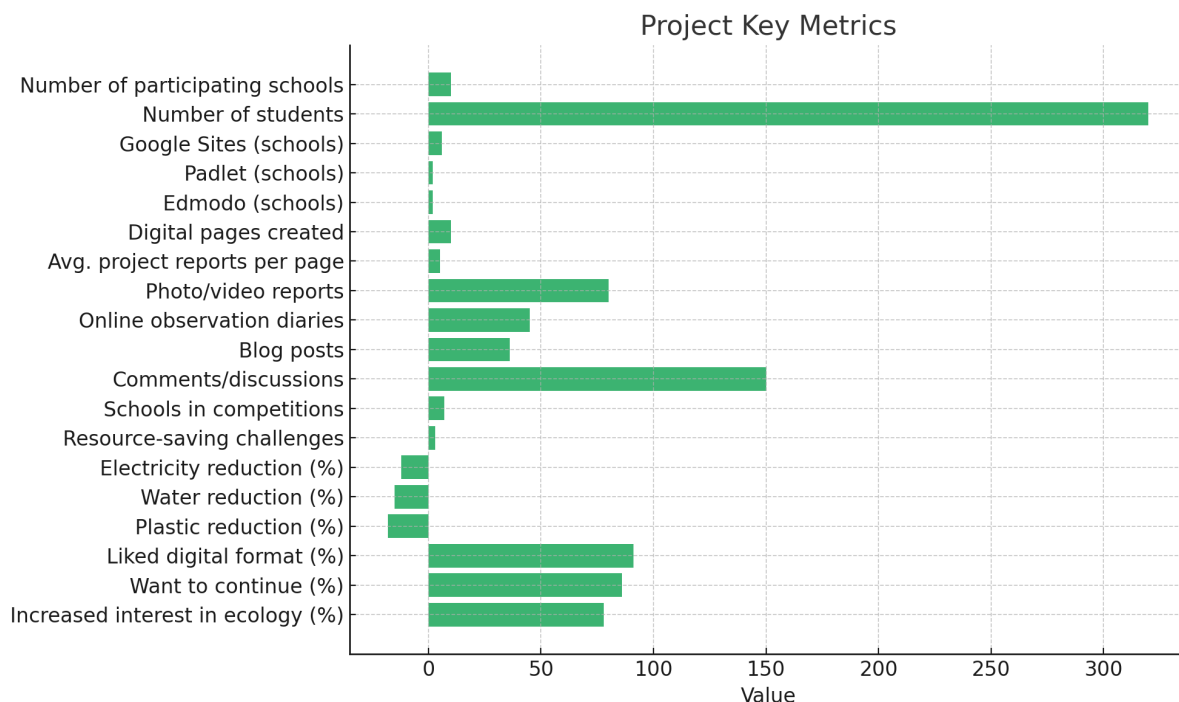
– Motivation and engagement through interactive and gamified lessons;

– 21st-century skills: ICT literacy, critical thinking;

– Platforms for experience exchange among schools and students.



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The integration of SMART equipment into environmental education is not merely an upgrade of the educational process but a meaningful contribution to the development of a responsible generation capable of addressing future environmental challenges. The “*Green School*” project demonstrates that even with limited resources, effective educational technologies can be implemented, fostering practical skills in sustainable consumption and resource management among students. Expanding such initiatives and supporting them with appropriate methodology will allow for a transformation of the entire environmental education system in Uzbekistan.

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