Development of educational robotics in Turkmenistan

unicef
for every child

Educational Robotics

- a multidisciplinary pedagogic approach that develops problem-solving, social-emotional learning and collaboration skills
- nurtures children's curiosity and improves learning in STEAM subjects
- enhances children's readiness for the 21st century modern economy

Major advantages of the project

- builds upon national efforts in increasing the quality of education through digitalization and innovative education methods
- provides a unique opportunity to incorporate gender and disability inclusion, green skills, interactive and learned-centred teaching practices in education
- generates long-term, transformative, and sustainable results that are integrated into the education system at multiple levels.

Duration

- May 2023 – February 2024

Impact

- Enhanced national capacity for quality teaching in STEAM subjects
- Increased awareness of educators, learners, parents, and communities of the benefits of Educational Robotics for inclusive and competency-based education

Background

Educational robotics is an interdisciplinary activity that integrates science, technology, engineering, arts, and mathematics (STEAM), based on active student learning. Many countries have national programs for the development of STEAM education.

Robotics presents students with technologies of the 21st century, contributes to the development of their communication skills, develops team-working skills, independence in decision-making, and reveals their creative potential. Educational robotics can be introduced to an education system for children of pre-school and school age. In the context of Turkmenistan, educational robotics will help create an integrated learning experience for subjects such as "Mathematics", "Physics", "Biology", "Chemistry", "Foundations of modern technologies", "Informatics", "Art of illustration", "Foundations", "Work", "Foundations of constructing" in the national curriculum.

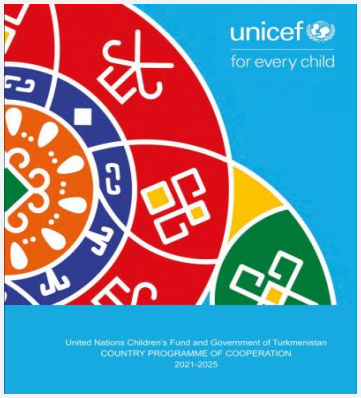
Educational Robotics in the National Educational Policy context

Integration of robotics in education and science is a national policy priority for Turkmenistan. Establishment of technology parks in Ashgabat and velayat centres for extra-curricular education on nano, bio, information technologies and robotics is planned in accordance with the Presidential Program of Social-Economic Development of Turkmenistan in 2022-2028.

Development of educational robotics is included as an activity in the Concept of Developing Digital Education System of Turkmenistan and the Concept of Development of Teaching Subjects related to Natural and Exact Sciences (NES). The Plan of Activities to implement NES includes Activity 11 "Integration of experimental work in educational processes by using interactive-multimedia applications for using and managing digital education technologies, preparing animated and 3D shapes and through virtual technologies", and Activity 12 "Developing experimenting-construction skills, robotics project design skills of youth in natural and exact sciences subjects and to enhance teaching of these subjects".

Development of educational robotics in Turkmenistan

unicef
for every child



UNICEF Country Programme:

The long-term vision of the quality and inclusive education component in UNICEF country programme is that by 2025, all boys and girls in Turkmenistan, including those with disabilities, enjoy quality inclusive education and learning opportunities that develop their competencies and foster their well-being, resilience, and integration, enabling them to fully participate in and contribute to a modern economy.

UNICEF Points of Contact:

Mohammad Fayyazi, UNICEF Representative in Turkmenistan, mfayyazi@unicef.org

Alexandru Nartea, Deputy Representative, UNICEF Turkmenistan anartea@unicef.org

Nazar Mammedov, Education Specialist, UNICEF Turkmenistan, nmammedov@unicef.org

Pedagogic Benefits of Educational Robotics

Educational robotics has many benefits for development of children:

- Encouraging children's interest in STEAM (science, technology, engineering, arts, and mathematics) subjects
- Developing children's multidisciplinary study, teamworking and collaboration, problem-solving and computer programming skills
- Robotics encourages kids to learn valuable life and career skills.

Educational Robotics as Instrument of Improving Learning

The objective of the project is to strengthen national capacity in educational robotics in Turkmenistan as an instrument of developing competency-based education and enhancing integrative learning experiences at schools for better learning results.

Activities

- The project has several components that together achieve the main objective of improving learning at school through engaging learners in STEAM subjects.
- Development of a teacher's manual and an elective course on Educational Robotics will strengthen pre-service and in-service teacher training systems.
- Production of the video lessons on educational robotics and delivery of a training on educational robotics to a group of 25 teachers from Turkmenistan.
- Establishment of a model of Educational Robotics club at secondary schools to demonstrate how robotic clubs can function.
- Educational Robotics contest was organized to promote the significance of educational robotics for effective learning in the country and to galvanize interest of learners, parents, and communities across the country.

Partners

Ministry of Education, UNICEF, National Institute of Education, Innovation Information Centre, Turkmen-Indian Center of Information Technologies, Higher Education Institutions of Turkmenistan, Youth Organization, Women's Union international partners NGOs.