

Juraxanov Dilshodbek Makhammadali o'g'li, Assistant

Namangan Engineering and Technology Institute

**MAKER EDUCATION: ENCOURAGING CREATIVITY AND
INNOVATION**

Abstract Maker Education, part of the broader Maker Movement, emphasizes hands-on, often collaborative learning experiences that foster creativity, innovation, and practical problem-solving skills. This educational approach integrates elements of science, technology, engineering, arts, and math (STEAM), encouraging learners to design, build, and tinker with physical and digital creations. Maker Education aims to develop critical thinking, resilience, and the ability to work collaboratively, preparing students for the demands of the 21st century. It champions the idea of learning through making, where the process of creation is as valuable as the end product.

Keywords Maker Education, Maker Movement, Hands-On Learning, STEAM, Creativity, Innovation, Problem-Solving, Critical Thinking, Collaborative Learning, Digital Creations.

Жураханов Дилшодбек Махаммадали оглы Ассистент

Наманганский инженерно-технологический институт

**ОБРАЗОВАНИЕ СОЗДАТЕЛЕЙ: ПООЩРЕНИЕ ТВОРЧЕСТВА И
ИННОВАЦИЙ**

Аннотация Maker Education, часть более широкого движения Maker, делает акцент на практическом, часто совместном обучении, которое способствует творчеству, инновациям и практическим навыкам решения проблем. Этот образовательный подход объединяет элементы науки, технологии, инженерии, искусства и математики (STEAM), поощряя учащихся проектировать, создавать и возиться с физическими и цифровыми творениями. Maker Education нацелен на развитие критического

мышления, жизнестойкости и способности к совместной работе, подготавливая студентов к требованиям 21 века. Она отстаивает идею обучения через создание, где процесс создания так же ценен, как и конечный продукт.

***Ключевые слова** Maker Education, Maker Movement, практическое обучение, STEAM, Креативность, Инновации, Решение проблем, Критическое мышление, совместное обучение, Цифровые творения.*

Maker Education is an innovative educational approach rooted in the Maker Movement, which values hands-on learning, experimentation, and the DIY (do-it-yourself) ethos. This approach is multidisciplinary, combining aspects of STEAM education with an emphasis on creativity and practical skills. It encourages students to become active creators, rather than passive consumers, of technology and art. Maker Education facilitates learning through projects that involve building, designing, and tinkering, helping students develop a wide range of skills including problem-solving, critical thinking, and collaboration.

Philosophical Foundations: Maker Education is based on constructivist and constructionist theories of learning, which posit that learners construct knowledge most effectively through making and doing.

Key Elements in Maker Education: These include hands-on projects, interdisciplinary learning, collaborative workspaces like maker labs and fab labs, and the use of technology and tools ranging from traditional crafts to digital fabrication technologies.

Role of Educators: Educators in Maker Education act as facilitators or guides, providing resources and support while encouraging students to take ownership of their learning through exploration and experimentation.

Benefits of Maker Education: Benefits include enhanced creativity, improved technical skills, greater engagement and motivation in learning, and the

development of a growth mindset. It also fosters resilience as students learn from trial and error.

Challenges and Barriers: Challenges include ensuring equitable access to maker spaces and resources, integrating Maker Education into traditional curricula, and providing adequate training and support for educators.

Impact on Student Learning: Maker Education has been shown to positively impact student learning by making abstract concepts tangible, fostering a deeper understanding of subject matter, and enhancing student creativity and innovation.

Maker Education represents a shift in educational paradigms, placing a greater emphasis on active, hands-on learning. By combining elements of STEAM with a focus on creativity and practical skills, it prepares students for the challenges of the 21st century, fostering not just academic skills but also resilience, problem-solving abilities, and a lifelong love for learning. As technology and the global economy continue to evolve, the principles of Maker Education will be increasingly important in equipping students with the skills and mindset needed for future success.

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