

A. A. Kamziyeva

Karaganda, Kazakhstan, E. A. Buketov Karaganda University

A. A. Камзиева

г. Караганда, Казахстан, Карагандинский университет имени академика Е. А. Букетова

TEACHING ENGLISH IN PRIMARY SCHOOL ON THE STEM EDUCATION

STEM-ОБРАЗОВАНИЕ КАК СРЕДСТВО ПРЕПОДАВАНИЯ АНГЛИЙСКОГО ЯЗЫКА В НАЧАЛЬНОЙ ШКОЛЕ

Образование является важным фактором развития человеческого капитала и инновационной экономики. STEM – это новая методика обучения школьников и основной тренд в мировом образовании. Статья «STEM-образование как средство преподавания английского языка в начальной школе» посвящена развитию STEM-практики в начальной школе, которые направлены на ранее пробуждение в детях интереса к науке, технологиям, инженерному искусству и математике. В статье также рассматривается лего-конструирование. Технические достижения всё быстрее проникают во все сферы человеческой жизнедеятельности и вызывают интерес детей к современной технике. Конструктор LEGO помогает детям воплощать в жизнь свои задумки, строить и фантазировать, увлеченно работая и видя итоговый результат. Отмечено, что у детей младшего возраста в процессе лего-конструирования развивается творческое конструкторское мышление.

English is the most important tool of interpersonal and intercultural relations, which allows us to develop international relations of our country. Qualitative changes in the international relations of the state make it necessary to demand English in practical and intellectual activities.

Many researches show the proper of teaching English situated with the context of studying other subjects which are familiar to students in their living and culture settings. The authentic learning not only makes students motivated but also brings about the convenience in learning any other language except the mother tongue. By joining into universal and diverse learning activities, students feel more interested and motivated than boring actions as remembering words and grammar structures.

Thus, the students' skills are developed generally and diversely due to the active and collaborative learning [1].

Teaching English in primary schools means teaching students aged 6–12 years, regarded as young learners. As they are still young, they will come to the class with different levels of English knowledge. Some may come with excellent English; others may know nothing about English at all. This condition causes a difference among students' motivation in learning English. Some of them feel that English is easy and enjoyable, while others think that English is difficult and tedious [2]. Furthermore, students who are very interested in English need to be facilitated to experience an appropriate English lesson, while those who are not interested in learning English need to be motivated and supported more by showing that English is exciting and fun. Consequently, if schools have appropriate facilities, such as English books, media and competent teachers, they can facilitate and support pupils well to learn English.

The necessity of learning English as a foreign language is increasing with English becoming an international language. The knowledge of English is important as Kazakhstan is a representative of the world community and a part of the global arena, and also due to the fact that all information including education, science, culture is mostly given in English at present time [3].

Education in the twenty-first century demands skills in science, technology, engineering, and mathematics (STEM) to deal with challenging complex situations, and these capabilities need to be developed as early as primary school (NRC 2015) [2]. Early interest and appropriate experiences can impact and foster interest in STEM. The main aspects in STEM are integrated approaches to teaching and learning and teacher preparation to be focused on producing a responsible generation.

STEM is an acronym of Science, Technology, Engineering and Mathematics. The aim of STEM education is to equip pupils with a broad mix of skills and interdisciplinary knowledge. Students are engaged in the practices, cross-cutting concepts, and core ideas of science in order to develop critical thinking skills. Students enjoy activities as discovery or working as a scientist or implementing design as a technologist or an engineer. Playing role in the context appropriated to their lives and views, student's interest and learning efficiency is explicit. The acronym "STEM" was first proposed by the American bacteriologist R. Colwell in the 1990s, but began to be used actively

starting the 2000s.

Currently, STEM education is now implemented in the education systems of many countries, such as the United States, China, Korea, Japan and Germany (MoNE, 2016), although STEM education is a new branch of the country's education system. Kazakhstan has also started active development of STEM education. The proof for this is the marked transition to the updated content of school education within the context of STEM within the framework of the State program for education and science development for 2016–2019. The implementation of the new educational policy entails the inclusion of STEM- elements in the curriculum, designed to develop new technologies, scientific innovation, mathematical modeling. In addition, starting from 2016–2017 academic year, it is planned to begin equipping all schools with information and communication technologies, digital educational resources, providing access to Internet [1].

STEM primary teachers are facilitators that provide the materials and allow their students to become creative in varied activities. Groups work together – they experiment, observe, and use critical thinking to conclude the question. Teachers do not give answers to STEM activities. They ask open-ended questions and promote the process, as it's more important than the end product [4]. As the importance of critical thinking and creative thinking grows, STEM offers children a safe and fun way to communicate the concepts of science, mathematics, engineering and technology in a kind and funny way.

Lev Vygotsky, a proponent of situated learning, argued that playing makes a crucial contribution to the development of human cultural environment, whereby associations of symbols and symbolic experiences with culturally defined meanings can be transferred in the form of scaffolding instruction: the learning situation involves initial hand-holding by teachers, but with motivational triggers, students will construct their own thinking and problem solving (Weisberg et al, 2013) [5].

Fostering play as an interactive, enjoyable and voluntary exploration during the most rapid period of children's development from birth to eight years of age is crucial for healthy cognitive, emotional and physical growth [4].

LEGO is the most popular designer in the world. Kids like it because it is possible to make completely different structures from one block. And if LEGO combines the installation of a structure and a chemical experiment – a great project will appear in the framework of STEM-education. Play is an important companion of childhood. LEGO

– allows kids to learn by playing and learning in the game. LEGO-designer teaches a child to work with the head and arms equally.

Scientists have concluded that LEGO promotes the development of motor skills and fine motor skills. The child develops the ability to sort small objects, distinguish them by shape, color and size. The development of fine motor skills of hands is directly related to the development of thinking and speech. Thanks to the participation of an adult, children learn new words (shapes, names of building materials, parts) and their characteristics. They learn to use them correctly in speech.

Free play, according to sociologists, allows children to set goals and solve problems, and derive meaning from their own experiences [5]. As a site of interaction, playtime induces social skills, where self and relational roles are laid out within conditions of possibilities.

In English lessons, new materials were approved with the use of LEGO constructor: «Traffics», «Colors», «Fruits and Vegetables», «Numbers and score», «Furniture». For example, in the didactic game «Christmas trees» children build a New Year's tree by building green blocks. If you want to learn numbers for young learners, you can tell children the required number of constructors in English. For example, you can create a project that will involve not only the construction of the house, but also family members. It is possible to supply this vocabulary with the topic «Family». For example, «Who is this?», «This is my father. This is my mother».

Through natural play children should collect all the necessary vocabulary to develop their STEM skills.

1. Lego boosts children's motor development.
2. Allows kids to think in three dimensions.
3. Provides tools that develop lateral thinking in a fun environment.
4. Encourages creativity.
5. Develops problem-solving, organization, and planning by construction.
6. Enhances communication and critical thinking.
7. Improves literacy as kids work with instructions.

STEM training is an innovative methodology that allows to reach a new level of improving the skills of children. STEM education creates critical thinkers, increases science literacy, and enables the next generation of innovators.

One of the main tasks of modern education is to create conditions for the comprehensive development of schoolchildren, taking into account the capabilities of everyone, therefore STEM-education is the ideal option.

References

1. Byhee, B.W., 2010. Advancing STEM Education: A 2020 Vision. *Technology and Engineering Teacher*, 70 (1), pp. 30–35.
2. Cameron, L., Teaching language to young learners. New York: Cambridge University Press, 2001., pp. 20–25.
3. Council, N. R., 2009. Engineering in K-12 education: Understanding the status and improving the prospects. National Academies Press.
4. Han, T., 2015. Foreign Language Learning Strategies in the Context of STEM Education. *Gist Education and Learning Research Journal*, 11, pp. 79–102.
5. English teacher Online (Электронный ресурс) // <https://englishteacheronline.org/how-to-teach-with-lego>.