

# THE IMPORTANCE OF SCIENCE AND EDUCATION IN DEVELOPING DESIGN ABILITY IN PRESCHOOL AND PRIMARY SCHOOL CHILDREN

<sup>1</sup>Madinakhon Alimova Iskandar qizi, <sup>2</sup>Egamberdiev N.B.

<sup>1</sup>“TIAME” NRU researcher

<sup>2</sup>Professor

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**Abstract.** *This article focuses on the importance of science and education in the development of the ability to design in children of preschool and primary school age. In particular, the importance of science and education is highlighted by aspects such as teaching a child to robotics and developing such skills.*

**Keywords:** *science, education, robotics, primary general education, global processes, social situation.*

## INTRODUCTION.

The current socio-cultural situation is characterized by the rapid development of science and education, the accumulation of social and humanitarian knowledge, and mainly the rapid development of education. Socialization of science and education in the conditions of developing global processes is a component of interrelated processes that reflect the direction, dynamics, scope and contradictions of social development. Sustainable social development in the global world is ensured by social management and modern technologies. The new stage of social development requires other methods of measuring the social state of society, a different ethics of social relations, a different nature of interdisciplinary interaction of traditional scientific fields. Children are definitely the primary participants in such processes. That is why it is important to pay attention to the important aspects of science and education in the child's development. The content and tasks of science and education are always directed to the individual of the learner, which is of great importance in achieving the intended goal. The transition from ideological ideas about the content and tasks of science and education to a fundamentally new view of the goals of science and education and the possibilities of their implementation in modern social reality requires deep philosophical work to understand the phenomenon of science and education. Addressing the problem of science and education is also related to the conditions associated with changes in the socio-cultural realities of modern society. Since the child also "lives" in socio-cultural realities, science and education are of special importance in his development.

## RESEARCH METHODOLOGY.

Developing the design skills of preschool and primary school-aged children will be effectively implemented if a model of continuity of preschool and primary general education is developed. In-depth study of the design skills of preschool children and the description of the set of pedagogical conditions for its effective operation is very important.

This model should have:

- construction on the basis of system-activity, integrative, ecological approaches;
- implementation of the project taking into account the principles of continuity of personal development, integration, dialectics, free choice, uneven interaction of age;

- to include five interrelated components (target, theoretical-methodical, procedural-additional, diagnostic, effective) that perform developmental, guiding, organizational, regulatory and evaluation-effective functions.

The theoretical and methodological basis of creating a model of continuity of preschool and primary general education in the development of children's ability to design are systematic-activity, integrative and ecological approaches. It is a systematic-active approach to modeling the process of continuity in the development of robotics, in the development of design skills of preschool and elementary school children, as well as in the division of stages in the development methodology. The use of this approach is due to the fact that consistency and activity are the main characteristics of the objective reality of the pedagogical process.

The integrative approach allows to consider education as a process and result of pedagogical integration (interdisciplinary, interpersonal, intrapersonal).

The integrated approach also opens doors of opportunity to ensure the continuity of communication in the goals, tasks, content, and methods of teaching and educating children of preschool and primary school age in the increasingly robotic educational space.

An integrated goal means the dialectical unity of students' knowledge, skills and abilities, their personal or professional qualities, etc. The integration of educational content is expressed in the coordination of the plans and programs of the studied subject with related and auxiliary subjects. And it is very important to establish interdisciplinary relations between them. The integration of forms and methods optimizes the achievement of goals and shows that they are consciously selected and complement each other. For example, LEGO technology, which is built on the basis of integrated principles, combines elements of play and experience. Thus, LEGO games are also ways of learning and orienting a child in the real world.

### **RESEARCH RESULTS.**

The continuity of preschool and primary education in the development of children's ability to design requires the creation of such a unified educational space that helps to develop the child's abilities and potentials in the context of this problem. In the development of robotics, an ecological approach based on understanding the phenomenon of the educational environment - its content, structure, formation and development laws plays an important role. Psychologists understand the educational environment as a system of influence on the personality of students and teachers. For example, V. A. Yasvin defines the educational environment as a system of influences and conditions for the formation of a person according to a certain law, as well as development opportunities available in the social and spatial environment. He also emphasizes the decisive role of the educational environment in the formation of personality. At the same time, according to V. A. Yasvin, the person himself has the ability to influence the educational environment.

An ecological approach to learning through educational robotics fosters integration not only in science, technology, engineering, and mathematics (STEM) fields, but also in other fields, including literacy, social studies, and the arts, and provides learners with ways to collaborate. And in the process, this approach focuses on the development of cooperation and self-expression skills, problem-solving skills, critical and innovative thinking.

It is very important to clarify the pedagogical conditions for the effective functioning of the model of organizing the continuity of preschool and primary general education in the development of design skills of children of preschool and primary school age. These are:

- \* a single developing robotic space reflecting regional characteristics was established (an example is the introduction of the "ARTEL" robotics school);
- \* design skills contribute to children's intellectual development;
- \* mutual cooperation with children's parents on creation of single robotic projects was ensured.

### **CONCLUSION.**

Each of the pedagogical conditions should be studied in detail for the effective functioning of the model of organizing the continuity of preschool and primary general education in the development of the design skills of preschool and primary school-age children. The environment that develops the educational subject is one of the most important conditions for the development of a child's personality. From the point of view of the implementation of continuity, the integral result of the introduction of preschool and primary general education standards is the creation of a favorable developing educational environment.

The standard of preschool education clarifies the term "developing environment", which becomes a subject-spatial developing environment that shows the educational potential of organizing group space, as well as the area adjacent to the organization, materials, equipment. And it is an inventory for the development of children at each age stage.

In an organized subject-spatial developing environment, children develop the ability to learn independently through leading types of activities. The organization of a subject-spatial developing environment in the organization of children's preschool education takes into account that the leading activity of preschool children is play. Children get acquainted with the world of technology, its features and diversity through technical and robotic games. The method of projects helps to ensure the transition from the leading activity of a preschool child in the game to the leading educational activity of a younger student.

So, the design process affects the development of the mind as a whole. As the child's design experience grows and becomes more complex, objective actions gradually turn into mental operations. With the development of these operations, the child's interaction with the world becomes increasingly intellectual. It is no exaggeration to say that the project method implemented in educational robotics also ensures intellectual development.

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