



USE OF DIGITAL TOOLS IN DEVELOPING CREATIVE THINKING OF PRIMARY SCHOOL STUDENTS

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Abstract

This article explores the role and significance of modern digital tools in fostering creative thinking among primary school students. The paper analyzes the pedagogical potential of integrating traditional teaching methods with digital technologies. During the research, methodological recommendations were developed to enhance students' independent thinking and their ability to find unconventional solutions in problem-solving situations. The findings suggest that a digital learning environment serves as an effective platform for unlocking the creative potential of young learners.

Keywords: Creative thinking, digital tools, primary education, ICT integration, innovative pedagogy, intellectual potential, digital literacy.

Introduction

BOSHLANG‘ICH SINIF O‘QUVCHILARI KREATIV TAFAKKURINI RIVOJLANTIRISHDA RAQAMLI VOSITALARDAN FOYDALANISH

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Annotatsiya:

Ushbu maqolada boshlang‘ich sinf o‘quvchilarining kreativ tafakkurini shakllantirishda zamonaviy raqamli vositalarning o‘rni va ahamiyati tadqiq etilgan. Maqolada an’anaviy ta’lim usullarini raqamli texnologiyalar bilan integratsiya qilishning pedagogik imkoniyatlari tahlil qilinadi. Tadqiqot davomida o‘quvchilarning mustaqil fikrlashi va muammoli vaziyatlarda noodatij yechimlar topish qobiliyatini oshiruvchi metodik tavsiyalar ishlab chiqilgan. Natijalar raqamli



ta'lim muhiti o'quvchilarning ijodiy salohiyatini yuzaga chiqarishda samarali vosita ekanligini ko'rsatadi.

Kalit so'zlar: kreativ tafakkur, raqamli vositalar, boshlang'ich ta'lim, AKT integratsiyasi, innovatsion pedagogika, intellektual salohiyat, raqamli savodxonlik.

In order to achieve higher results in the education system, developed and influential countries in the world are widely using various digitalization technologies based on the organization of learning situations. In particular, in countries such as the USA, Germany, France, England, high efficiency is achieved in developing creative thinking in primary school students in in-depth schools and classes aimed at developing creative thinking, as well as within the framework of various programs. The development of the modern information society sets the task of educating not only an educated, but also an independent and creatively thinking person for the education system. In particular, the primary school period is the most important stage in which creative potential and intellectual foundation are formed in a child. Today, the process of digitalization of education is becoming not just the use of technical means, but also a strategic factor in developing creative thinking of students. Although there are many traditional methods in pedagogical theory to increase the creativity of primary school students, the methodology for the systematic use of the didactic capabilities of digital technologies has not been sufficiently developed. In most cases, digital tools are limited to providing only demonstration in the lesson, which does not fully reveal the student's creative activity. Therefore, determining the place of digital tools as a "cognitive instrument" that forms creative thinking is a relevant scientific and pedagogical problem.

The purpose of the study. To improve the theoretical and practical foundations of using digital tools in the lesson process to increase the creative activity of primary school students, to form in them the skills of finding unusual (divergent) solutions to problem situations.

The novelty of the study. This work identifies the pedagogical conditions of the digital educational environment that affect the development of the student's personality and substantiates modern criteria for assessing creative thinking.

According to the research of psychologist and pedagogical scientist J. Gilford, divergent thinking is considered the basis of creativity. In his opinion, creativity is the



ability to find several original and unusual solutions to one problem. Guilford proposed to evaluate creativity by four main criteria: fluency of thought, flexibility, originality and elaboration [3, 433]. This idea is stated very clearly. Because children have abilities that we do not think about. Developing their abilities, cultivating their thinking, we must take the view that not all children have the same thinking, but each child can find a solution that suits him.

In pedagogical theory, the primary school age (6-10 years) is considered the most dynamic period of human cognitive development. During this period, the child undergoes a transition from visual-figurative thinking to logical thinking. As a theoretical basis for the development of creativity, we took the model of the American psychologist J. Guilford "Structure of Intelligence". According to Guilford, the core of creativity is divergent thinking, which is the ability to find not one, but many, dissimilar solutions to a problem.

In order to develop divergent thinking in a digital educational environment, the four main criteria put forward by Guilford (fluency, adaptability, originality and perfection) can be modeled through digital tools as follows:

Fluency of thought: Digital platforms (for example, MindMeister or interactive whiteboards) allow the student to visually summarize a large number of ideas in a short time.

Flexibility: With the help of virtual simulations, the student quickly moves from one situation to another and can see different sides of the problem.

Originality: Digital design and multimedia tools allow the child to go beyond the traditional pen and paper and create a completely new virtual product.

Creative-didactic classification of digital tools.

As part of our research, we divided digital tools used in primary education into three groups according to the degree of impact on creativity:

- Creative-constructive tools: (for example, Scratch Junior, Minecraft Education). These tools turn the student from a passive consumer into an active "creator". The child builds his own algorithm using logical blocks, which combines his algorithmic and creative thinking. If we could use these tools more widely, we would have significantly increased the effectiveness of children's creative thinking
- Interactive-gamification tools: (Wordwall, Nearpod, Kahoot). These platforms create an environment of "learning through play" (Edutainment) in the lesson.



Competition and unexpected questions encourage the student to make quick and unusual decisions.

- Visual-cognitive tools: Multimedia presentations, VR (virtual reality) elements. They expand the student's imagination and help them visually understand phenomena that cannot be seen in real life (for example, the universe or the microworld). In recent years, the multimedia field has also developed very rapidly. It is precisely the multimedia field that greatly contributes to the speed of children's thinking.

Methodology for organizing a creative lesson in a digital environment.

The use of digital tools in primary grades must be aimed at a specific pedagogical goal, not just a technological process. The principle of "Digital Heuristics" is the leading one in the methodology we propose. In this case, the teacher does not provide ready-made information, but directs the student to independent research through a digital quest or problem assignment.

In our research, we assigned primary school students to organize a virtual trip through a digital map in the lesson "The World Around Us" and draw a model of a "green city" using digital tools to solve the ecological problem of that area. In this process, the child synthesizes both computer literacy and the ability to find creative solutions. As a result, we saw that this study encouraged children to be creative. According to K. Robinson's approach, "Digital tools increase the child's ability to take creative risks in the lesson, because mistakes are easily corrected in a digital environment. [4, 151]. This idea is very suitable for today's digital education conditions. Because in the computerized era, children can learn quickly based on modern technologies, and even if they make a mistake, they can quickly correct it. At this point, I would like to quote another scholar's opinion. S. Papert substantiated the connection between digital education and creativity in his fundamental work: "The computer is a tool that develops a child's thinking, which allows a primary school student to perform cognitive modeling [6, 19]. Of course, I think this idea is also the right approach, because if children learn modern technologies and techniques from a young age and apply them in their work and studies, they will easily master any new technologies in the future.

If the above new methods and technologies are used, we can achieve the following efficiency:



1. Cognitive efficiency (Knowledge and skills)

Digital tools increase the speed of information processing in students by 15-20%. If in traditional lessons the student is only a passive receiver, in a digital environment he becomes an active participant. This ensures long-term retention of knowledge in memory.

2. Motivational efficiency

Gamification elements significantly increase students' interest in the lesson. The desire to "win" or "reach a new level" when completing creative tasks encourages the child to look for solutions to more difficult problems.

3. Assessment efficiency (Monitoring)

With the help of digital tools, it is possible to monitor the growth of creativity of each student in real time. For example, how many times the child changed the virtual model or how many different solutions he proposed can be analyzed through automated systems (LMS).

We also conducted our own small study in the Khojaly district of the Republic of Karakalpakstan. As part of our study, we used digital tools as a 'thinking laboratory' for students, based on the constructionist approach of S. Peipert. As K. Robinson noted, the education system should not stifle creativity in children, but rather stimulate it with the help of technology. Our experimental work showed that through digital platforms, students' divergent thinking indicators (originality and flexibility) recorded higher results than traditional groups.

The theoretical and practical analyses conducted showed that the role of digital tools in developing creative thinking of primary school students is incomparable. The following conclusions were drawn as a result of the study:

- Theoretical relevance: J. Gilford's divergent thinking model acquires new meaning in the digital environment. Digital tools allow the student to try dozens of options at the same time (fluency) and look at the problem from different angles (flexibility), forming the fundamental qualities of creativity.
- Pedagogical environment: As the ideas of S. Peipert and K. Robinson have proven, digital technologies act as a "safe creative laboratory" for the student. In this environment, the disappearance of the fear of making mistakes serves as the main driver for the child's original ideas to emerge.



- Systemic approach: Digital tools are not just technical assistants, but, as R. Sternberg described, a tool for "investing" intellectual potential and creating new knowledge.

Based on the results of the study, we can recommend the following recommendations for the primary education system to all primary school teachers and parents:

Methodological integration: Use digital tools in the lesson process not only for demonstration purposes, but also to solve problematic-heuristic situations in students;

The role of the teacher: The task of the teacher should change from providing ready-made information to moderating (directing) the student's creative search in the digital environment;

Software: Increase the number of tools in schools that remove students from passive consumerism and show them as "creators" (for example, graphic editors, simple algorithmic platforms).

This study we conducted covered only primary grades, we believe that it would be appropriate to test this methodology in higher grades in the future.

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