

WAYS TO DEVELOP STUDENTS' CREATIVE THINKING SKILLS BASED ON AN INTEGRATIVE APPROACH

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Abstract

This article comprehensively analyzes the theoretical and practical aspects of developing students' creative thinking skills based on an integrative approach. The study substantiates the didactic potential of interdisciplinary integration, problem-based learning technologies, project-based learning, and digital learning tools in the formation and development of students' creative potential. It also reveals mechanisms for developing independent, critical, and creative thinking competencies in students through the effective integration of modern pedagogical technologies into the educational process. The results of the study show that an integrative approach is an important factor in increasing the effectiveness of education.

Keywords: Integrative approach, creative thinking skills, creative competence, interdisciplinary integration, problem-based learning technologies, digital learning tools, innovative learning environments, independent and critical thinking.

Introduction

In the context of the acceleration of globalization processes and the widespread development of digital transformation, one of the priority tasks facing the education system is to form a competent person who is creative, independent-thinking, able to put forward innovative ideas and apply a creative approach in his work. Today, the development of society is not limited to the acquisition of traditional reproductive knowledge, but also requires students to perform high-level cognitive activities, such as analyzing problem situations, developing alternative solutions, and making informed decisions.

In the context of these requirements, the integrative approach is of particular importance as one of the effective means of modernizing the educational process. This approach ensures the systematicity and integrity of students' knowledge by harmonizing the content, methods and technologies of education. At the same time, by strengthening interdisciplinary connections, it serves to develop students' creative thinking skills and reveal their intellectual and creative potential. Therefore, the introduction of the integrative approach into educational practice is considered an important pedagogical condition for the formation of independent, critical and creative thinking competencies in students. In the studies conducted by D.K. Toshpulatova and N.A. Atakhanova, a number of studies were conducted on the development of children's creative thinking based on an integrative approach and applied to the educational process [1]. L.S. Vygotsky studied and analyzed the formation of imagination and creativity in childhood



and recommended a number of approaches for children's creative thinking [2]. In the study conducted by D.K. Toshpulatova, the role of mental arithmetic in increasing mathematical literacy in primary school was studied and a number of methods were developed for conducting these studies [3]. In another study conducted by D.K. Toshpulatova, she conducted research on the effective development of logical thinking of primary school students based on an integrative approach and created a number of scientific innovations [4]. Another scientific research work conducted by D.T. Miraliyeva and D.N. Adilova conducted a global comparative study on assessment systems and quality control in education, comparing international assessment systems and criteria [5]. R.Kh. Djuraev and his team conducted a series of studies on the role of assessment in improving the quality of education [6].

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In this study, a comprehensive methodological approach was used to determine the effectiveness of an integrative approach in developing students' creative thinking skills. In the process of the study, a scientific study was conducted based on a combination of theoretical and empirical methods. The theoretical basis of the study is the scientific concepts of an integrative approach, creative thinking and a competency-based approach in pedagogy and psychology. In particular, the impact of interdisciplinary integration, problem-based learning and project-based learning technologies on students' cognitive activity was analyzed.

The empirical research used observation, pedagogical experimental work, questionnaires and interviews. Experimental work was organized in secondary general education institutions, which aimed to determine the level of creative thinking of students, assess the effectiveness of didactic tasks and exercises developed on the basis of an integrative approach. During the research, educational tasks based on interdisciplinary integration, problem situations and elements of project activities were introduced into the educational process. Also, the independent activity of students was activated through the use of digital educational tools (multimedia resources, interactive platforms).

Comparative analysis, generalization, and statistical methods were used to process the results, which made it possible to scientifically substantiate the effectiveness of the integrated approach in developing students' creative thinking skills.

RESULTS AND DISCUSSION

The pedagogical essence of the integrative approach is characterized by its orientation towards organizing knowledge on the basis of interdisciplinary connections within the framework of the modern educational paradigm. This approach ensures the systematic and complex formation of knowledge in students, rather than fragmentary.

The results of the study showed that the implementation of an integrated approach to the educational process serves to ensure the integrity of educational content, strengthen the connection between theory and practice, and increase the cognitive activity of students. In addition, it was found that the integration process has a significant impact on the development of high-level cognitive activity in students - in particular, analytical, synthetic and critical thinking. In particular, the use of STEAM (Science, Technology, Engineering, Arts,



Mathematics) educational elements has emerged as an important didactic tool that increases the practical effectiveness of the integrated approach.

The study also comprehensively analyzed the factors influencing the formation and development of creative thinking skills. According to the results, it was established that creative thinking is inextricably linked with students' unconventional approach to problem situations, the ability to develop new ideas and propose innovative solutions. At the same time, it was found that creative thinking is manifested through the following components: independent thinking, in-depth analysis of the problem, development of alternative solutions, generation of creative ideas, and effective use of imagination and fantasy.

Analysis of methods for developing creative thinking based on an integrative approach has shown that interdisciplinary integration forms the competence of students to transfer knowledge and apply it in different contexts. For example, tasks organized on the basis of the integration of natural sciences and exact sciences significantly develop students' analytical and synthesis skills. The use of problem-based educational technologies activates students' independent research activities, involving them in the process of identifying, analyzing and developing a solution to the problem.

This, in turn, contributes to the development of creative thinking. The use of the project-based learning method has been shown to be an important factor in developing research competencies in students, as well as in revealing their creative potential. The ideas developed by students within the framework of practical projects showed an increased level of innovative thinking (Figure 1).

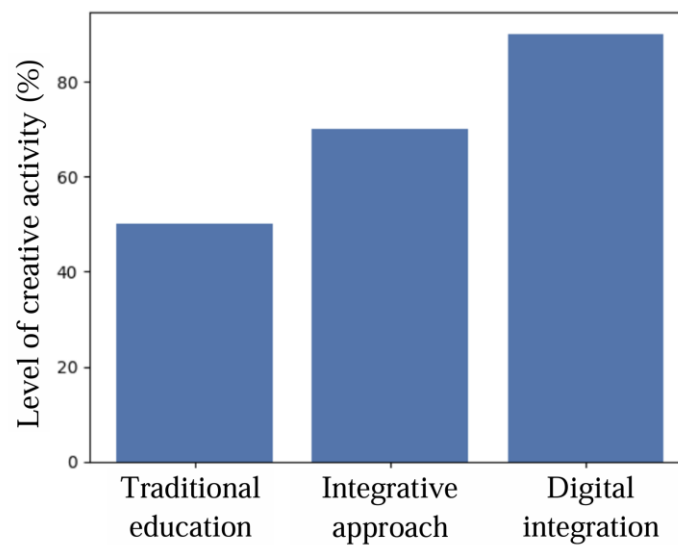


Figure 1. Increased creative activity based on an integrative and digital approach

The results of this diagram show that the educational process organized on the basis of an integrated approach significantly increases the creative activity of students. In particular, an integrated educational environment enriched with digital technologies shows the highest results. It was also found that the integration of information and communication technologies and digital learning tools expands students' independent learning activities and stimulates their



creative exploration. The use of interactive platforms, virtual laboratories, and multimedia tools significantly increased students' engagement in the learning process.

Creative methods - approaches such as "Brainstorming", "Case-study", "Mind map", "SCAMPER" (Substitute, Combine, Adapt, Modify / Magnify, Put to other uses, Eliminate, Rearrange / Reverse) are important because they develop students' divergent thinking and expand their opportunities to develop new and original ideas.

A comparative analysis of the research results showed that the educational process organized on the basis of an integrative approach increases students' motivation for learning, develops independent and critical thinking skills, strengthens problem-solving competence, and forms teamwork skills (Figure 2).

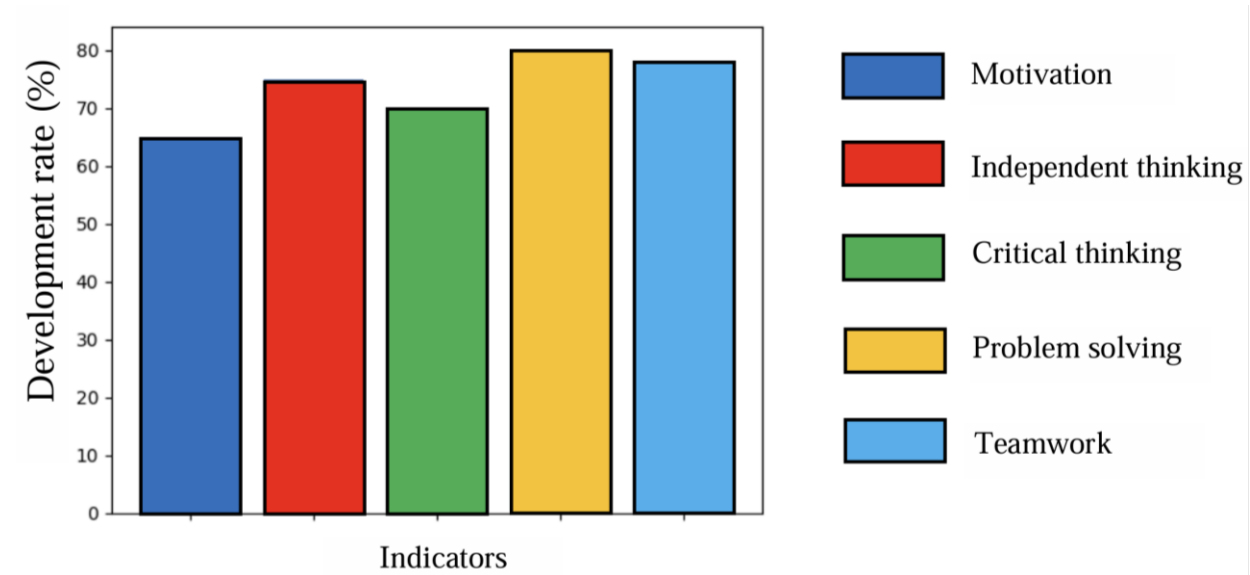


Figure 2. Development of competencies as a result of an integrative approach

This graph reflects the impact of the educational process organized on the basis of an integrated approach on various competencies of students. According to the results, it is observed that problem-solving skills and teamwork are especially high. At the same time, it was found that independent and critical thinking and learning motivation have significantly increased.

In particular, it has been empirically confirmed that an educational environment integrated with digital technologies significantly increases students' creative activity. This once again proves the relevance and practical importance of the integrated approach in the modern education system.

CONCLUSION

Based on the results of the study, it can be concluded that the integrative approach is an effective pedagogical tool for developing students' creative thinking skills. This approach serves the systematic and holistic formation of knowledge by ensuring interdisciplinary connections and creates favorable didactic conditions for the development of independent, critical and creative thinking competencies in students. Also, during the research process, it was found that the educational environment organized on the basis of the integrative approach



has a positive effect on increasing the level of cognitive activity, problem-solving ability and development of innovative ideas in students.

The purposeful and systematic use of integrated technologies, digital educational tools, and creative methods in educational practice is one of the important factors in the future training of highly intellectually capable, competitive, and innovative thinking personnel. In this regard, the widespread introduction of an integrated approach to the education system and its methodological improvement are considered to be one of the relevant directions of modern pedagogy.

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