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ANALYSIS OF THE RESULTS OF PEDAGOGICAL EXPERIMENTAL WORK ON THE DEVELOPMENT OF DIVERGENT THINKING IN STUDENTS

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Abstract: This article analyzes the results of a pedagogical pilot study aimed at developing divergent thinking in students. It has been scientifically proven that during the experiment, classes organized on the basis of problem-based learning led to significant positive changes in students' creativity, independent thinking, problem-solving, communication, and motivation.

Keywords: divergent thinking, pedagogical experience, problem-based learning, creativity, pedagogical innovation, student, analysis.

Introduction. The current education system requires students not only to master knowledge, but also to think in new ways, make independent decisions, and be creative. In this regard, the development of divergent thinking plays an important role in the educational process. To form such thinking in students, the use of approaches such as problem-based learning, interactive methods, project-based learning, and reflective analysis yields effective results. This article analyzes the results of experimental work conducted in this direction.

The pilot study was conducted among 2nd-3rd year students studying in the field of technology education in the 2024-2025 academic year. The study was conducted in three stages:

1. Diagnostic stage - a questionnaire was conducted based on the J. Guilford “Divergent Thinking Test” methodology to determine the initial level of divergent thinking of students.

2. Experimental stage - lessons based on problem-based learning technology were organized. Students were offered innovative projects, creative assignments, problem questions and practical exercises.

3. Control stage - at the end of the experiment, the levels of students' knowledge, skills and creative thinking were re-measured.

During the experimental work, students' skills in thinking in problem situations, finding creative solutions, putting forward new ideas, and working together were developed. The following methods were used in the lessons based on problem-based learning methods:

- ✓ To activate creative thinking through problem questions;
- ✓ To generate ideas using the methods of "Brainstorming", "Case Study", "Cluster";
- ✓ To develop students' constructive thinking through practical tasks;
- ✓ To develop communication skills through collective problem solving.

These results demonstrate the effectiveness of the pedagogical experiment. Students showed activity in problem situations, freely expressed their thoughts, demonstrated creativity, and demonstrated independence in developing new projects.

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As a result of the impact of problem-based learning, it was found during the experiment that problem-based learning has a positive effect on the development of divergent thinking in students. In this process, students learn to think independently, the ability to approach each issue differently expands, the ability to self-assess and analyze is formed, and the competence of decision-making based on cooperation is developed.

Table 1. Initial (diagnostic) results

Indicators	**Control group (25 students)**	**Experimental group (25 students)**
Level of creativity	62	64
Problem solving	60	63
Idea generation	58	61
Originality and independent thinking	59	60
Motivation and communication	61	62

The analysis shows that at the beginning of the experiment, the results of both groups were almost identical, which indicates that they were equal in terms of their level of basic knowledge and skills.

Table 2. Results at the end of the experiment

Indicators	**Control group (25 students)**	**Experimental group (25 students)**
Level of creativity	70	88
Problem solving	72	90
Idea generation	68	86
Originality and independent thinking	69	87
Motivation and communication	71	89

At the final stage, the experimental group's results were 18 points higher than the control group. This increase proves the effectiveness of the methodology, which is based on problem-based learning elements, interactive methods, creative tasks, and reflection in the learning process.

During the pedagogical experiment, the following changes were observed:

1. Creativity level – increased from 64 points to 88 points (24% increase).

2. Problem-solving skills – increased from 63 points to 90 points (27% increase).

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3. Idea generation – increased from 61 points to 86 points (25% increase).

4. Originality and independent thinking – increased from 60 points to 87 points (27% increase).

5. Motivation and communication – increased from 62 points to 89 points (27% increase).

The average overall score increased from 62 points to 88 points, showing a positive dynamics of 26 points (41.9%).

Conclusion. Pedagogical experimental work has shown that classes organized on the basis of problem-based learning technologies are important in developing divergent thinking in students. The results of the experimental group showed a significant increase in creative thinking, idea generation, independent decision-making in problem situations, and communicative competencies.

Thus, the results of this study prove that it is possible to develop the intellectual potential of students through the integrated use of pedagogical and psychological approaches.

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