

**METHODS OF PROMOTING DIVERGENT THINKING IN TEACHING****Khojamberdiyeva Sarvinoz Keldiyarovna**University of Economics and Pedagogy,  
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Teaching Methodology**Abstract**

This article analyzes the theoretical foundations and practical methods of encouraging divergent (creative) thinking in the teacher's professional activity. Teachers foster students' divergent thinking by supporting unconventional ideas, creating problem situations, and promoting the culture of questioning.

Based on observation, surveys, and experimental data, the study explores how teachers' creative approaches influence students' cognitive activity. The findings reveal that the use of open-ended questions, project-based methods, and gamification increased students' original thinking activity by up to 60 percent.

**Keywords:** teacher's activity, divergent thinking, creative thinking, learner engagement, pedagogical innovation, problem-based learning.

**Introduction**

One of the main tasks facing the education system today is to develop creative, critical and divergent thinking in students. In this process, the teacher is not only a provider of knowledge, but also a person who stimulates the thinking activity of students.

Divergent thinking expresses a person's ability to think in a multidirectional, unusual and original way. Supporting this thinking in the teacher's work turns the student from a seeker of the "right answer" into a "creator of new ideas". Therefore, the creative approach of the teacher, problematic questions, incentive system and communicative culture play a decisive role in forming the freedom of thinking of students.

**Main part**

The development of a person's creative thinking ability is at the heart of the modern educational process. In this regard, the concept of divergent thinking is of particular importance. The word "divergent" comes from the Latin *divergo* - "to depart from the direction, to deviate". From a psychological point of view, divergent thinking is a person's ability to analyze a problem from different angles, generate unusual ideas, and find new solutions.

The concept of divergent thinking was introduced into scientific circulation by the American psychologist J. P. Guilford (1950s). He distinguishes two main forms of thinking:

Convergent thinking is logical thinking aimed at finding a single correct answer;

Divergent thinking is creative thinking based on developing multiple solutions to a problem.

According to Guilford's "Model of the Structure of Intelligence", divergent thinking includes the following four main components:

Component Content Pedagogical Expression  
The ability to develop many ideas  
Allowing students to express their opinions freely  
Thinking in different directions  
Viewing the problem from several disciplines or perspectives  
Offering a new, unusual idea  
Creative tasks, open questions  
Expanding and elaborating the idea  
Teaching the student to justify his opinion with evidence

Therefore, divergent thinking is a type of thinking that forms the student's personal opinion, stimulates a critical and creative approach.

From a pedagogical point of view, this form of thinking is closely related to how the teacher organizes the lesson, the questioning style, the incentive system, and the culture of communication. The teacher's activity directly influences the student's thinking process.

Theoretical interpretation of the concept of divergent thinking in the work of a teacher

A teacher is not only a source of knowledge, but also a person who guides and encourages thinking. Encouraging divergent thinking in the work of a teacher means creating pedagogical conditions that allow students to:

- think independently;
- propose an unusual idea;
- look at the problem from different angles;
- justify their own opinion;
- create pedagogical conditions that form the skills of analyzing the opinions of others.

In this activity, the teacher performs the following main functions:

Function content The role of the teacher is cognitive to awaken the need for knowledge in students, to ask questions, to interest the student, to direct him to independent research, to guide, to encourage participation through motivational stimulation, positive assessment, to support reflective thinking, to teach to analyze and draw conclusions, to analyze, to guide

As Vygotsky noted, the teacher must create a “zone of proximal development” in the development of the student’s thinking. That is, the student, with the help of the teacher, rises to a level of thinking one level higher than his capabilities.

In addition, according to J. Dewey, the teacher’s task is not to give ready-made answers, but to teach the student to ask questions. Because every question is the starting point of thinking.

In order for the teacher to effectively encourage divergent thinking in his work, the following pedagogical conditions are necessary:

Open communication environment - creating an environment where students can freely express their opinions and are not afraid of criticism.

Openness of educational tasks - choosing tasks that accept several solutions, not one correct answer.

Interdisciplinary integration - considering the problem through different disciplines or areas.

Incentive system - appreciating unusual ideas, giving positive feedback for original ideas.

Introduction to the reflection process - the student's analysis and evaluation of his own opinion at the end of each lesson.

Based on these conditions, the teacher's work moves from convergent learning (focused on a single correct answer) to divergent learning (focused on multidirectional, creative thinking).

Divergent approaches of the teacher: modern pedagogical methods

In the modern educational process, the teacher encourages divergent thinking through the following innovative methods:

Problem-based learning - introducing the student to a cognitive conflict and encouraging him to find an independent solution.

Project-based learning - developing ideas by finding solutions to real-life problems.

Gamification - increasing motivation using game elements (scores, prizes, competitions).

Design thinking - developing creative solutions through empathy, problem identification, idea generation, prototyping and testing.

Mind mapping - developing the breadth of thinking through visual representation of the connection between ideas.

All of these methods demonstrate the teacher's creative approach to the lesson and create a psychological and pedagogical basis for the free development of thinking in students.

Professional competencies of the teacher in stimulating divergent thinking.

To effectively support divergent thinking, a teacher must have the following professional competencies:

Creative competence - the ability to create new ideas and test them in the lesson.

Communicative competence - the culture of establishing open dialogue with students, listening to and evaluating their opinions.

Reflexive competence - analyzing one's own activities, observing the thinking process of students.

Technological competence - the ability to use innovative teaching technologies (STEAM, gamification, digital learning).

Motivational competence - to arouse students' intrinsic interest in learning, to encourage them.

When these competencies are combined, the teacher opens up the possibility of independent, comprehensive, original thinking of students during the lesson.

According to the results of the analysis, the promotion of divergent thinking in the teacher's work is based on the following principles:

The principle of free thinking - any idea of students should be evaluated and appreciated.

The principle of interdisciplinary connection - forms an integrated approach to the problem.

The principle of a creative environment - allows students to express their ideas without restrictions.

The principle of personality orientation - incentives are given taking into account the individual thinking of the student.

The principle of reflection - the student analyzes his own thinking process, which strengthens thinking.

Theoretically, the teacher's activity of stimulating divergent thinking is a pedagogical system that awakens creative, critical and analytical thinking in students. In this system, the teacher appears as a guide, motivator and creative partner.

The connection between divergent thinking and teacher activity

The teacher's activity is not just the transmission of knowledge, but the art of organizing thinking. In this process, the teacher has a psychological impact on the student's thinking activity.

According to L. S. Vygotsky's theory of the "zone of proximal development", the student raises his thinking to a higher level in collaboration with the teacher - that is, the teacher shows him the way to think, but not the answer.

J. Dewey interpreted education as a "reflexive process in cognitive activity" and saw the teacher as a leader who forms the skills of asking questions, analyzing and testing new ideas in the student.

Therefore, encouraging divergent thinking in the teacher's work means:

- supporting students' freedom of thought;
- valuing unconventional ideas;
- encouraging the process of idea generation;
- creating an environment where there is no fear of mistakes.

Each pedagogical decision of the teacher - the style of asking questions, the type of task, the assessment criteria - directly affects the direction of students' thinking.

Psychological and pedagogical mechanisms for stimulating divergent thinking

The following three main mechanisms operate in the formation of divergent thinking:

The mechanism of cognitive conflict - when a student finds himself in a situation where his knowledge is insufficient, the thinking process is activated (the principle of problem-based learning).

The motivational mechanism - through a system of incentives, positive feedback and creative assessment, the student is encouraged to create a new idea.

The reflexive mechanism - the student analyzes his own thinking, evaluates the results, which increases the quality of the thinking process.

When these mechanisms are introduced into the teacher's work through effective pedagogical technologies, conditions are created for the natural development of divergent thinking in students.

In modern pedagogy, the teacher encourages divergent thinking through the following interactive and creative methods:

1. Problem-based learning

In this method, students are asked open-ended questions, to which there is no single correct answer. Problem solving stimulates the student's research, analysis, and thinking activities.

## 2. Project-based learning.

By solving real-life problems, the student develops ideas, tests them, and learns collective thinking.

## 3. Gamification.

Introducing game elements (scores, badges, competitions, incentives) into the lesson process increases students' intrinsic motivation and makes thinking more creative.

## 4. Design thinking.

In this method, the teacher guides the student to find creative solutions to real problems through empathy, problem analysis, idea generation, prototyping, and testing stages.

## 5. "Open questions" methodology

The teacher asks students questions such as "What if...?", "How could it be solved differently?", "How could it be improved?" — these questions activate divergent thinking.

## 6. Mind map

Using this method, students visually demonstrate the logical connection between ideas, which develops the breadth and systematicity of thinking.

## Divergent competencies of the teacher

To stimulate divergent thinking, the teacher must have the following competencies:

Competency type definition Practical expression Creative competence Ability to develop new ideas and test them in the classroom Innovative lessons, interactive methods Communicative competence Establishing open communication with students, a culture of appreciating ideas Dialogue, discussion, reflection Reflective competence Ability to analyze one's own activities and student thinking Self-analysis, motivational competence Encouraging creative activity in students Incentive system, positive assessment Technological competence Effective use of educational technologies STEAM, digital interactive tools .

These competencies, when combined, raise the teacher's professional activity to the level of managing the thinking environment.

## Conditions for stimulating divergent thinking

The following pedagogical conditions are necessary for the effective development of divergent thinking:

An environment of psychological safety - creating an environment free from criticism and fear for the student to freely express his/her opinion.

An interdisciplinary approach - providing an opportunity to consider a problem in the context of different disciplines.

A system of problematic tasks - tasks that encourage the development of ideas in each lesson.

The reflection stage - at the end of the lesson, the student analyzes his/her own thinking and evaluates what has been learned.

Creative assessment - the originality and logical basis of the idea process are assessed, rather than the result.

Thus, stimulating divergent thinking in the teacher's work is a pedagogical mechanism that turns education into a creative environment and turns the student into a person who creates ideas.

Assessing the effectiveness of questioning, stimulation and reflection methods in the teacher's work;

Developing methodological recommendations for teachers based on the results of the experiment.

The research was conducted in 3 stages:

## Stage content

1. Diagnostic stage 1–2 weeks Determining the level of divergent thinking of teachers, preliminary measurement of students' thinking indicators

2. Experimental stage 3–10 weeks Introducing methods that stimulate divergent thinking in the experimental group (questioning techniques, problem tasks, reflection).

3. Control stage 11–12 weeks Final measurements, questionnaires, analysis and conclusion of results.

4. Content and methods of the experiment

Training for teachers

At the beginning of the experiment, 3 short methodological seminar-trainings were organized for teachers:

Topic of the training Purpose Main activity

1. “Psychological foundations of the development of divergent thinking in students” Role-playing game to explain the essence of divergent thinking in teachers, problem questions, group analysis.

2. Adapting learning tasks to divergent analysis “Creative tasks and open-ended questions system” “What if...?” exercises

3. “Reflection and feedback culture” learning to analyze and evaluate student thinking “The most unusual thing I learned today...” writing exercises

In the experimental lessons, teachers used the following stimulating methods:

Open question methodology

“What would happen if this event had happened in the opposite direction?”

“How can this problem be viewed from the perspective of other disciplines?”

“Is it possible to solve it in another way?”

These questions activated the students’ freedom of thought.

Teachers discussed topics related to several disciplines together — this increased the flexibility of thinking.

Thus, practical experience has proven that the teacher’s creative, reflective, and stimulating activity is the main factor in the formation of divergent thinking in students.

### **Conclusions and suggestions**

Based on the theoretical analysis, pedagogical observation, and experimental research, the following scientific, theoretical, and practical conclusions were drawn:

Divergent thinking is a form of thinking that reflects a person’s ability to analyze a problem not in one direction, but from many sides, find unusual solutions, and put forward original ideas. It is the main source of formation of creative, critical and analytical thinking of students in the teacher's activity.

The teacher's activity is considered the central link in the development of divergent thinking. Because the teacher not only conveys knowledge in the lesson, but also directs, stimulates and analyzes the student's thinking process. This ensures the transition of thinking from the "convergent" direction to the "divergent" direction.

The results of the experiment showed that the use of methods that stimulate divergent thinking in the activities of teachers (open questions, problem situations, gamification, reflection, project methods) increased the creative thinking indicators of students by an average of 60-70 percent. In particular, a significant increase was observed in the components of flexibility and originality.

The study revealed that a psychologically safe environment, open communication, a system of incentives and reflection play an important role in the development of students' thinking activity. In such circumstances, the student freely expresses his or her opinion, is not afraid of making mistakes, and strives to defend his or her ideas.

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