# Development of creative competence of future teachers using innovative technology of the case study

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**Abstract.** The article covers issues related to the promotion of the necessary ideas and proposals for the organization of all stages of education based on innovative pedagogical technologies, as well as providing deep and fundamental knowledge to future teachers, as well as teaching comprehensive creative thinking. Using the innovative technology of the case study, the project of an educational exercise that develops students' creative thinking skills aimed at solving various problem situations is presented.

## 1 Introduction

The process of technologization of educational spheres is rapidly growing. It is not for nothing that current pedagogues believe that modern interactive methods and technologies fully guarantee the achievement of the intended goal of providing education to students. When applying innovative pedagogical technologies to the educational process, only the teacher can be the main guarantor of achieving the intended goal. Modern pedagogical technologies, in turn, are a system of development and improvement of educational processes, content, methods and tools of education based on objective laws and diagnostic goals of education, that is, scientific and technical innovations. an educational process that embodies [1]. Educational technology is the general content of the process of achieving the educational goal, that is, the step-by-step implementation of the previously designed educational process based on an integrated system, the development of a specific system of methods, methods and tools to achieve a specific goal. effective, productive use of them and high-level management of the educational process [2]. Therefore, a creative approach to organizing the professional activity of a pedagogue with creative qualities, activeness in creating new, advanced ideas that serve to develop the educational activities and creative qualities of students, effective use of innovative pedagogical technologies and independent study of foreign experiences, as well as focuses on having the experience of continuous, consistent exchange of ideas with colleagues about pedagogical progress. It is possible to successfully form creative thinking skills in future teachers by making creativity a habit. In this process, the pedagogical technologies and tools used by them in the assessment of their

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thorough understanding of the content and creative thinking skills are of great importance [3].

## 2 Literature review

According to American scientist Patti Drapeau, creative thinking is, first of all, comprehensive thinking about a specific issue. Multidisciplinary thinking requires students to draw on multiple ideas when completing assignments, problems, and tasks [4].

According to M.Ochilov, the component of the pedagogical technology method includes the development of general goals of education, the transfer of educational goals to control tasks, and methods of achieving goals [5].

According to U.Q.Tolipov, M.H.Usmonbayeva, knowing the main principles of modern pedagogical technologies and their essence allows us to have a clear idea about this process [6]. Classes using innovative pedagogical technologies are aimed at helping students find the knowledge they are acquiring, independently study and analyze it, and even draw their conclusions. In this process, the teacher creates conditions for the development, formation, learning and education of the individual and the team, and at the same time, he performs the task of management and direction, says H.Saidahmedov [7]. According to V.M.Klarin, the specific methods of setting goals by teachers are as follows: based on the plan of the educational material, setting the goal, determining the goal through the activity of the teacher, through the internal processes and laws of intellectual, emotional, personal development of students setting a learning goal [8].

According to V.Slastenin, an innovative pedagogical approach means having the following: creative activity, technological and methodological preparation for innovation (change) in activity, innovative thinking, and a high culture of behaviour [9].

In the study by A.Rashidov and T.Rasulov [10], the focus is on enhancing Higher Education in Uzbekistan by exploring and adopting foreign practices. They delve into the organization of lectures, practical sessions, and independent study in developed countries' Higher Education Institutions, highlighting their role in effective education. The paper suggests recommendations for improving education quality based on international experiences.

In T.Rasulov and G.Kurbonov's research [11], a statistical analysis evaluates the effectiveness of students' independent learning with digital technologies. They developed mobile applications for subjects like "Linear Algebra and Analytic Geometry" and "Numerical Methods" and integrated them into the experimental group's learning process. The study, analyzed using K.Pearson's $\chi^2$ criterion, reveals a mastery level 13% higher in the experimental group.

T.Rasulov and U.Umarova [12] discuss the utilization of information and communication technologies (ICTs) in distance learning at higher education institutions. They explore adapting methods like "Impulse-poster" and "Express-tests" for distance learning in topics such as "Discrete mathematics and mathematical logic", and analyze the effectiveness of these innovations statistically.

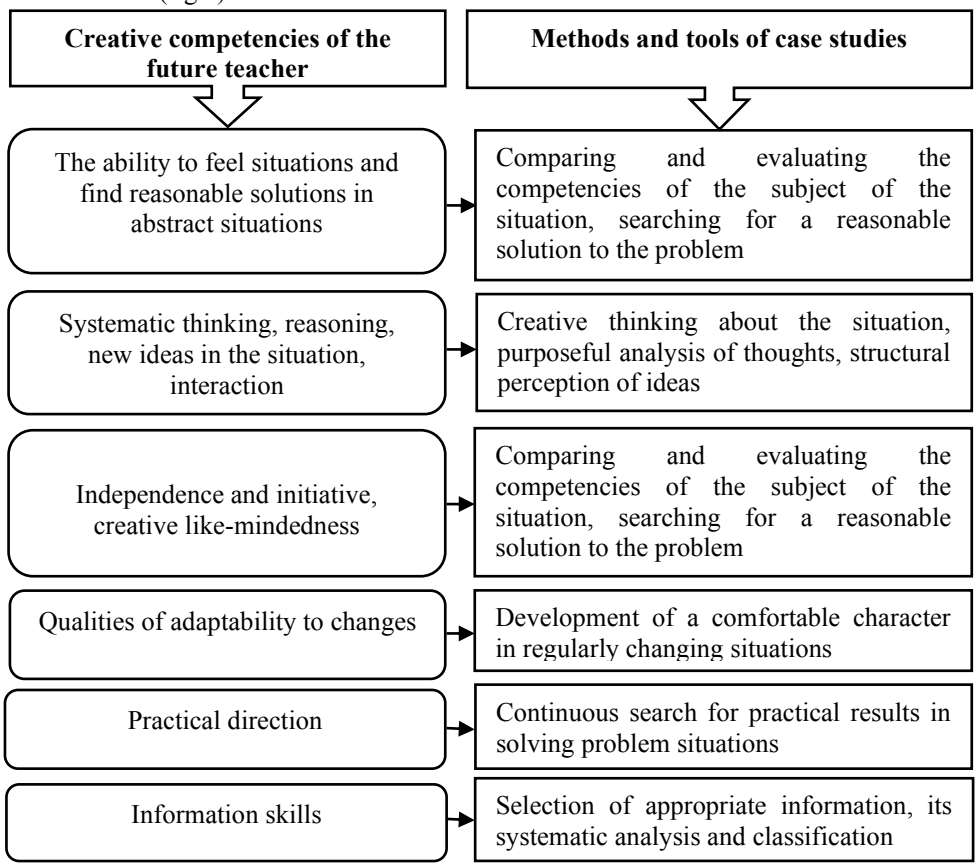
Z.Rasulova's paper [13] focuses on the theoretical underpinnings of organizing students' independent creative work in Technology Education. It presents data on the development level of students' independent work and their creative skills.

In another paper by Z.Rasulova [14], statistical analysis using Pearson's $\chi^2$ criterion compares the research hypotheses between control and experimental classes at different stages. The results indicate an 11% improvement in the experimental group compared to the control group.

## 3 Research methodology

The main task of modern pedagogical technologies is to lead future teachers to master the educational content perfectly, provide feedback, improve communication skills, and develop creative relationships related to studying science (subject). formation, development of logical and creative thinking, helps to form the ability to solve problems independently. “Case-study” technology is one of the innovative pedagogical technologies of education in terms of strengthening the knowledge, skills and abilities of future teachers, and creative thinking, and today it helps to solve various problems in education. “Case-study”. This technology in English **“Case-study”** technology is derived from the English words, **“case”** - box, sheath **“study”**, research, engage in science, means reading. Several factors determine the relevance of applying case study technology to educational processes. Students master of case development technologies, analysis of practical problem situations presented in the case, and development of skills to search for optimal solutions individually and as a team. This technology helps future teachers to be able to design their own organization and control technologies in professional activities, to form methods of building professional process logic, as well as methods of solving professional tasks independently and creatively.

In this case, a statement of various situations is given and it is required to observe their solutions or to evaluate the effectiveness of the actions of the participants, to propose ways to solve the problem. But in any case, working on a model of practical action is an effective means of forming professional creative competencies required by the labour market in future teachers (fig.1).



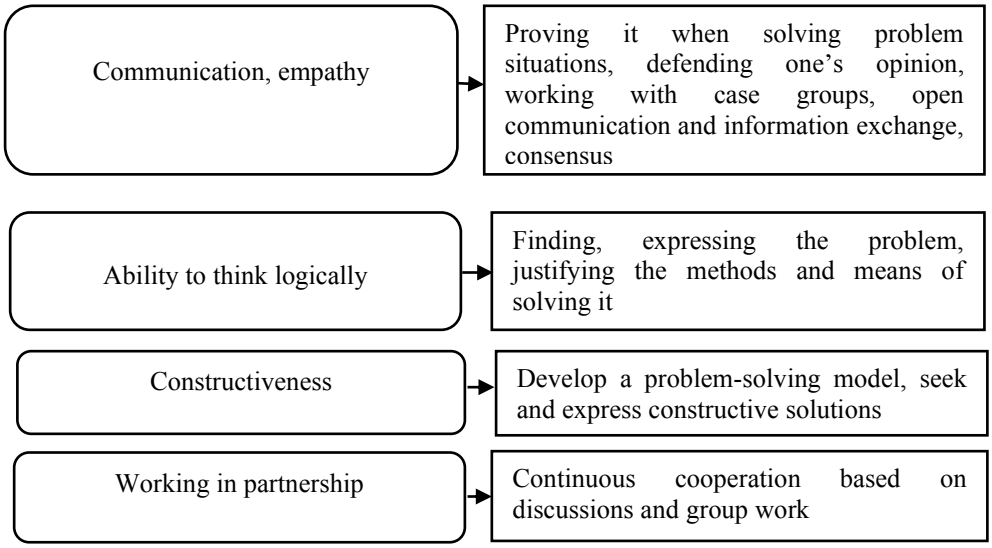



**Fig. 1 .** Schematic representation of the methods and tools of the "Case-study" technology in the development of creative competence of future teachers

When the innovative technology of the case study is used in the teaching process, the following creative competencies are formed in the students:

– teaches to be truthful and objective;
– creates a connection between theory and practice;
– helps to interpret problematic situations in a new way;
– develops the ability to share the opinion of others;
– gives rise to the responsibility of being able to make independent decisions.

## 4 Analysis and result

The use of case study technology in the teaching of educational activities includes the following (tables 1and 2).

1. Model of educational technology.
2. technological map of training.

**Table 1.** Model technological structure for training

| Stage, minute | **Educational process** | |
|---|---|---|
| | Teacher | Student |
| 1. Preparation and organisational stage | Prepares case materials in advance, and distributes materials to students for familiarization and implementation. | They get acquainted with the case materials, each student solves the case individually and independently using methodological instructions. |
| 2. The stage of entering the training session | 2.1. Introduces the topic, purpose, plans and results of the training.<br>2.2. The created case has a pedagogical influence in terms of the purpose and creative approach to the questions.<br>2.3. Introduces the working | they listen<br>they record<br>they ask clarifying questions |

| | | |
|---|---|---|
| | procedure, indicators, and evaluation criteria in the training session. | |
| 3. Main stage | 3.1. To strengthen knowledge, the questionnaire conducts questionnaires and takes tests. | They answer questions, debate, ask clarifying questions |
| | 3.2. Divide students into groups, and introduce the rules of group work.<br>3.3. Explains the rules of discussing the results of individual work with the case, and analyzing the situation as a team.<br>3.4. Evaluates creative knowledge of individual and collective solutions to problem situations.<br>3.5. Coordinates educational activities, and gives methodological instructions. | They begin to complete the task, prepare the presentation |
| | Conducts a discussion of presentations, and organises a mutual evaluation;<br>Explains the answers, and summarize the conclusions given in the process of analyzing and solving the situation.<br>Gives his opinion on the solution of the case. | Groups present a presentation on the assignment, participate in discussions, and answer questions |
| 3. The final stage | Announces the end of the training, summarizes the results of educational activities, notes his conclusions and recommendations, rationally evaluates the achieved results, and gives assignments for additional independent work. | They listen, write down, ask questions, self-evaluate |

A lesson project using the "Case Study" technology on the subject of **"Speech techniques and** ways of mastering" from the subject of pedagogical skills

**Table 2.** Technological map of training'

| **From of lesson:** Seminar training | **Topic:** "Speech technique and ways to acquire it" | |
|---|---|---|
| Stages and time of activity | **Activity** | |
| | **Teacher** | **Students** |
| Stage 1. Preparation and organisational stage (5 min) | Monitors the preparation of the classroom for the lesson, distributes case materials to students, and provides didactic tools. | They prepare educational materials and familiarize themselves with case materials. |
| Stage 2. Introduction to | Plan:<br>1.1. The role of speech in | They listen and record. |

| | | |
|---|---|---|
| training (10 min) | human life and the development of society.<br>1.2. The views of thinkers and pedagogues about the place and role of words and speech in social society.<br>1.3. Speech is the main connecting tool in the process of interaction between the teacher and the student.<br>1.4. Speech organs, speech apparatus.<br>The teacher reveals the main purpose and educational aspects of the subject.<br>Introduces the content of the plans and the results to be achieved. | |
| Stage 3. The main part (15 min) | Divide students into 4 small groups.<br>Names groups.<br>Group 1. Scholars.<br>Group 2. Creators.<br>Group 3. Successors of al-Bukhari.<br>Group 4. Stars.<br>The case, created within the topic, distributes options to groups. Case options will be in a variety of forms.<br>1. Cases characterizing the topic.<br>2. Analytical written cases with problem situations.<br>3. Verbal question and prediction cases. | Students sit in groups in sequence, around a round table, collect ideas, prepare educational materials, familiarize themselves with written case sheets and begin to make considerations in cooperation with the group. |
| Stage 4. Preparation for cases (35 min) | Task 1. Hearing the independent opinion of each group participant based on.<br>Task 2. Participants of each group describe in writing the optimal way out of the given problem situation.<br>Task 3. It imposes the condition of performing tests and answering questions in a team form. | According to the 1st task, each participant in the group prepares for oral reasoning individually.<br>According to task 2, each participant individually writes their opinion about the solution to the problem situation.<br>They work in team cooperation on task 3.<br>They express their opinions on the given case assignments based on the time limit, group participants share |

| | | |
|---|---|---|
| | | their opinions. |
| Stage 5. The final stage (15 min) | Groups explain their answers, evaluate based on evaluation criteria, announce the results, evaluate group activists individually, summarize the recorded conclusions, announce the winning group, and provide additional recommendations and tasks for independent completion. | They analyze the answers, they write down the shortcomings of the given opinion and synthesize the recommendations. |

***The technology of implementation of the educational process***

***The main purpose of the case:*** Theoretical and practical issues of teaching "Pedagogical skills" on the example of the subject "Speech technique and ways to acquire it", development of conclusions and recommendations on the development of creative competence of students and improvement of teaching.

***Expected results of educational activities:***

- to create students' creative knowledge about ways to change speech tone;
- Formation of skills to eliminate problems arising in voice timbre;
- Developing creative thinking skills by developing optimal ways out of problem situations.

*To successfully implement this case, students must have the following knowledge and skills in advance:*

***The student should know:***

To have theoretical knowledge about the concept of speech technique, its elements and its impact on the teacher's work, types of breathing, voice qualities, pronunciation, and rhythmicity.

***The student must:***

He studies the topic independently, clarifies the essence of the problem, puts forward creative ideas, collects information, examines information critically and learns to make independent decisions, has his point of view and makes logical conclusions, compares, analyzes, synthesizes and summarizes information.

***A student should have:***

Creative, cognitive knowledge, presentation skills, cooperation skills, and problem-solving skills.

The object of the case: Pedagogy and psychology direction 3rd level students. **Case implementation structure:**

*Sources of information:*

State educational standards, model curricula, electronic educational-methodical complex in science, educational didactic tools, didactic handouts, virtual stands, and electronic information resources.

*Case requirements:*

– a clear description of the main idea and content;
– the author willingly expresses his opinion in logical consistency;
– writing the work in an understandable language;
– use of statistical data;
– the illumination of creative ideas.

***Stages of implementation of the case:***

*Stage 1. Stage of determining the problem situation (problem questions)*

A) Getting rid of speech in the same tone.

B) Problems with the teacher's speech blurring and ways to eliminate it.

C) Prevention of situations that negatively affect the effectiveness of speech.

*Stage 2. The stage of solving problematic questions by students:*
– they deeply understand the content of the questions;
– they are based on the principle of individual work;
– perceive;
– they use thinking;
– they imagine;
– collect information;
– analyze, synthesise;
– determine the causes of the problem;
– use cognitive knowledge;
– promote creative ideas;
– they predict;
– make a logical analysis;
– conclude.

*Stage 3. Control stage.*

The teacher gets acquainted with the case answers, analyzes them logically, analyzes the competencies of the causes, consequences and perfect optimal solutions of the problematic situations thought by the students, the teacher adjusts the content of the studied problem to the deeper motivations of the student. Explain the correct opinion of the students logically and direct them to correct their own mistakes.

*Stage 4. The final stage.*

Through additional questions and answers, he determines the level of knowledge and thinking ability of students in a general way, summarizes the conclusions and evaluates rationally and objectively.

Commenting on the above, it can be said that students will achieve the following results when using the innovative technology "Case Study" in the course of the lesson, including the skills of finding the most optimal options formed by analyzing a specific, real or artificially created problem situation. They learn to get to know and analyze any meaningful situation directly.

***The main elements of the "case-study" technology are as follows:***

- ✓ education, management;
- ✓ solving problems;
- ✓ collecting information and studying it;
- ✓ scientific analysis;

**Case-study technology has the following possibilities in educational processes:**

– increases students' interest in mastering the subject, develops practical skills, situation analysis, and creative approach skills to make the right decisions;

– creates all opportunities for them to actively acquire knowledge in various problem situations and their solution.

Case study technology is aimed at the development of interdisciplinary knowledge and skills, so it requires that how to solve a problem situation can be in the quarter of different disciplines. Application of knowledge in other sciences and scientific fields. Organization of interdisciplinary relations, analysis and development of solutions to problems that arise during the work of students [15].

The characteristics of the work of a teacher engaged in case-study technology are that he not only realizes his maximum level of abilities but also develops his creative skills.

## 5 Conclucion and recomendations

The effectiveness of innovative processes introduced into educational processes and the responsibility for fulfilling the strategic requirements of education depend on the conditions

for the development and implementation of pedagogical innovations, and the appropriate, rational and organic use of non-traditional and modern methods of education. The development of the activity of future teachers is characterized by the ability of a person to penetrate deeply into the essence of the things and events being played and to bring elements of innovation and creativity to the activity of knowledge. Innovative pedagogical technologies and advanced technological training that help to increase the effectiveness of education help to develop logical, mental, creative, critical, and independent thinking in future pedagogues, as well as develop their creative competence, become competitive mature specialists and help to educate positive professional qualities. The acquisition of creative competence of future teachers is ensured by striving to solve pedagogical problems, carrying out scientific research or scientific projects, and achieving mutual creative cooperation.

*Based on these, the following suggestions are appropriate:*

1. Wide use of problem-based processes and similar technologies and methods that direct students to creative research in educational activities.

2. Creating presentations using modern tools such as creative products (virtual stands, electronic boards, multimedia) in practical training.

3. Promotion of large-scale use of foreign experiences and educational innovations.

4. To develop the creative thinking of students, to apply them to the lesson processes, to improve the quality of education, to update the curriculum and programs, to develop pedagogical technologies that stimulate creative thinking specific to the content of education in the development of creative knowledge of future pedagogues; specifically recognition the need to develop comprehensive measures for exchange of experience with leading higher education institutions of developed foreign countries.

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