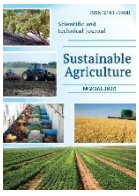
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Improving Methods for Developing Students' Creative Ability

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a r t i c l e i n f o

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Innovation, creative, ability, methodology, competency-based approach, attractor, pedagogical and psychological aspects, Hearting methodology, competence

a b s t r a c t

This article was prepared within the framework of the priority direction of the development of science and technology of the Republic of Uzbekistan "Formation of a system of innovative ideas and ways of their implementation in the social, legal, economic, cultural, spiritual and educational development of an information society and a democratic state." As a result of research conducted around the world on improving the methodology for developing students' creative abilities in the educational process, a number of scientific results are presented.

1. INTRODUCTION

The level of scientific development of the problem

As a result of world research on improving the methodology for developing students' creative abilities in the educational process, a number of scientific results have been obtained, including the following: organizational and strategic mechanisms for implementing international cooperation on the development of technologies for developing students' creative abilities have been improved (Association for Educational Sommunisations and Teshnology - AEST); Competency-based approaches and pedagogical educational consistency in organizing effective activities to develop the creative abilities of students of a higher educational institution, a Russian scientist on educational technologies conducted a scientific study on problem case solutions and their application in education, at the same time, the American scientist J. Guilford scientifically substantiated a number of individual abilities that characterize creativity

Scientific and theoretical research on the training of future professional education students in a higher education environment, in particular, on the development of their creative abilities, was conducted in leading centers and educational institutions of the world, in particular, Oxford University (England), Monterey Institute (USA), Yale University (USA), Massachusetts Institute of Technology (USA), Sogang University (South Korea), The Mainz Johannes Gutenberg University (Germany), The University Of Eastern Finland (Finland), Moscow State Pedagogical University (Russian Federation).

The level of study of the problem.

In the system of continuous education of our country, along with competency-based approaches, research on the introduction of approaches to improving the methodology for developing creative abilities, students' creative abilities, and the development of methodologies for developing creative abilities in learners has been conducted by N.Muslimov, B.Mirzakhmedov, M.Djorayev, A.Abduqodirov, U.Begimkulov, K.Nasriddinov, N.Azizkhodjayeva, Sh.Otajonov, M.Kurbonov, A.Khusanov, M.Matnazarova. Considerations on professional and practical competencies, educational technologies aimed at developing students' creativity, and monitoring their development are reflected in the works of J. Tolipova, U. Inoyatov, B. Khodjayev, J. Usarov, N. Egamberdiyeva, D. Khimmataliyev, M. Q. Rakhmanova, M. Vahobov, O. Koysinov, Y. Asadov, N. Turdiyev, and D. M. Mamatkulov.

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The purpose of the research: To improve the methodology for developing students' creative abilities.

The objectives of the research:

To study the general laws of creative abilities using the methodology for developing creative abilities in the study of didactic and methodological problems of modern pedagogy.

To clarify the pedagogical and psychological aspects and conditions for developing creative abilities in students based on the approach to improving the methodology for developing students' creative abilities;

To analyze the principles, components and pedagogical mechanisms for developing creative abilities in students based on improving the methodology for developing students' creative abilities;

To improve the integrative model of developing creative abilities based on the "Hearting" methodology of self-organization;

To improve the didactic support for improving the methodology for developing students' creative abilities.

The object of the study was the process of improving the pedagogical system for developing creative abilities in students based on the “Hearting” methodology, and pilot testing was carried out at the National Research University of Tashkent State Pedagogical University, Tashkent State Pedagogical University, Jizzakh Polytechnic Institute, and Karshi State University.

The subject of the study is the content, form, methods and technologies of pedagogical mechanisms for developing creative abilities based on improving the methodology for developing students' creative abilities.

2. RESEARCH METHODS.

The study used scientific and methodological literature, study of regulatory and legal documents, pedagogical observation, questionnaires, tests, modeling, pedagogical experiments, and mathematical and statistical analysis methods.

The scientific novelty of the research is as follows:

The psychological (ability, interest, need), intellectual-creative activity (motivational approach to problem solving, free thinking methods, structural content of the independent educational process, intellectual-creative perception) and pedagogical (aspiration to develop intelligence, self-organization, willpower, diligence, morality and other qualities) factors of the development of creative abilities of higher education students have been clarified;

The development of creative abilities of students is based on the use of analytical, constructive, organizational, adequate (attitude to oneself), reflective projects in the educational environment in the dynamics of effective influence on such components as pedagogical skills and activity;

The pedagogical mechanisms of the development of creative abilities of students have been improved based on the use of (creative productivity, adaptability, accuracy, correctness, effective and ineffective use of creativity) in the educational process;

The integrative model of developing students' creative abilities was developed on the basis of elements of a synergistic approach to the optimization of the stability of professional competence qualities in the trajectory of students' creative activity;

The didactic support for the development of creative abilities was improved on the basis of independent learning, the proportionality of experience and analysis in pedagogical projects, and personal-level adaptability of the informative, active and monitoring stages of diagnosing professional and individual characteristics of students.

Research methods: theoretical study and analysis of special and scientific literature, document analysis, expert survey, questionnaires, statistical methods of interpretation and analysis of empirical data (descriptive statistics, correlation analysis).

The empirical basis of the study is regulatory and legal documents of the regional level, the results of author's research;

The theoretical and practical significance of the study is to consider the directions and conditions for improving the methodology for developing students' creative abilities, to formulate an author's definition of the concept of "social competence of students".

The development of creative abilities in students is analyzed as a pedagogical and priority issue, and such concepts as creative ability, intelligence, intellectual activity, creativity, intellectual creativity, intellectual-creative ability, creative imagination, intellectual-creative process, activity are scientifically and pedagogically interpreted. Let us describe some of them:

Intellectual-creative abilities are a set of basic creative qualities such as a person's impressionability, the strength and integrity of perception of a subject, having extensive information about it, flexibility and speed of thinking (fast, diverse, unique), logical and literate reasoning, systematic actions, synthesis-analysis-synthesis, the ability to creatively express, generalize and conclude, having one's own opinion, bringing a work to completion, diligence, and the ability to convey one's knowledge to others. They are not only a high creative development, but also an important factor in personal development in general, a guarantee of success in any activity, communication with people, and success in everyday activities.

Creativity involves intelligence and imagination, the ability to think and work with information, as well as the student's ability to go beyond familiar tools, situations, and events.

3. ANALYSIS AND RESULTS

Table 1.

Mechanisms for demonstrating students' creative abilities

Attractors focused on learning outcomes	
Targeted knowledge attractor	Students strive to master the targeted knowledge and skills that are set for them.
Value attractor	Students strive to get high grades, which affects their academic performance.
Attractor of success	Students strive to achieve success and demonstrate their potential
Attractors focused on the learning process	
Interaction attractor	Students strive to actively interact with their teachers and classmates.
Research Attractor	Students strive to discover new projects, learn, and conduct independent research.
Creative Attractor	Students strive to demonstrate their creative potential and develop new ideas
Attractors focused on the educational environment	
A comfortable environment attractor	Students strive to create a comfortable and safe learning environment for themselves
Collaboration attractor	Students strive to collaborate and solve problems together.
Motivation attractor	Students strive to motivate themselves to study and participate more actively in the learning process

Attractors in the pedagogical system help to increase the effectiveness of the learning process, increase students' interest in learning, and help teachers better manage the learning process.

Table 2

Pedagogical conditions for the development of students' creative abilities

What role do fluctuations play in self-organization?	
Uncertainty	Fluctuations increase uncertainty in a system, which allows new behaviors and structures to emerge. For example, interpersonal fluctuations in a group of students can create new ideas and ways of collaborating.
Dispersion	Fluctuations help connect different parts of the system. In student group interactions, interpersonal fluctuations connect individual students and encourage them to work together.
Self-organization	Fluctuations initiate the process of self-organization of a system. Small fluctuations, over time, change the structure and behavior of the system, which leads to self-organization.

How can fluctuations be managed in student self-organization?	
Creating uncertainty	Making the learning environment uncertain, offering students a variety of choices, and increasing their opportunities for self-organization.
Organizing Collaboration	Encouraging students to collaborate with each other, giving them the opportunity to share their thoughts and ideas with each other
Support for self-organization	Introduce learning activities that encourage self-organization, encouraging students to implement their own ideas and projects.

"Introduction" seminar training scenario. Option 1

Goal: To introduce students to each other, remove barriers to communication, quickly pass the "exit" stage and build a social structure of the group. It is recommended to conduct it in the first two weeks of the academic year.

Training course:

Prepare a place to start. Students remove the tables, arrange the chairs in a circle and sit there, the trainer joins them.

1. Introduction (about 10 minutes)

Instructions: The trainer introduces himself and tells about the goals of the training. Then he invites the participants to introduce themselves and tell a little about themselves (20-30 seconds each). "Tell me your name and something that will help the other participants remember you." For example: "I am Jamshid. "I'm from Samarkand, I like classical songs, and I can play the rubab."

2. Scribble game: "Atoms and molecules" (about 3 minutes)

A small initial setup is required: ask the group to stand up and, closing their eyes, imagine that each person is a small atom, and atoms, as is known, are able to unite and form molecules that reflect a sufficiently stable union. Then the leader says: "Now you will open your eyes and begin to move randomly in space. At my signal (the way the signal is expressed is agreed upon), you will unite into molecules, I will also say the number of atoms - 2, 3, 4. When you are ready, open your eyes." The participants begin to move freely in space and, when they hear the leader's signal, they unite into molecules. After moving with purposeful union for some time, the molecules again separate into separate atoms. Then the leader gives another signal, the participants unite again, etc.

If the final number of atoms in a molecule is two, then the exercise is a good way to divide the group into pairs for later work.

Purpose: to get to know each other, to compare what they are similar to and what they are different from in order to find a partner in their interests.

Exercise procedure: Participants stand in two circles - an inner and an outer circle, facing each other. The number of participants in both groups is the same. The participants in the outer circle say a phrase to their partners standing opposite them, starting with the words "We are similar to you in ....." For example: ... We live on planet Earth, we study in the same group, etc. The participants in the inner circle answer: "We are different from you in ....." For example: our eye color, hair length are different, etc. Then, at the host's command, the participants in the inner circle move from place to place (clockwise). This process is repeated until each participant in the inner circle meets each participant in the outer circle.

4. CONCLUSIONS AND SUGGESTIONS

The results of the conducted experimental work are summarized and statistically analyzed, based on the results of the experimental work on the methodology for evaluating the components of the model for improving the methodology for developing students' creative abilities in the diagnostic process, increasing the efficiency of future specialists through the methodology for organizing lessons aimed at developing students' creative abilities. For the convenience of mathematical calculations, the indicators of 184 students of the experimental group and 180 students of the control group were taken as a basis and are reflected in Table 3.

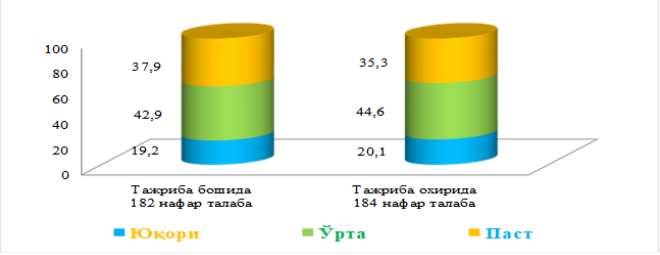
Table 3.

Indicators of respondents' readiness to develop their creative abilities based on the development of students' creative abilities

Levels	Control groups				Experiment groups			
	At the beginning of the experiment 182 respondents		At the end of the experiment 184 respondents		At the beginning of the experiment 176 respondents		At the end of the experiment 176 respondents	
	soni	9%	soni	%	soni	%	Soni	%
High	35	19,2	37	20,1	34	19,3	76	42
Medium	78	42,9	82	44,6	78	44,3	84	47
Low	69	37,9	65	35,3	64	36,4	20	11
Total:	**182**	**100**	**182**	**100**	**176**	**100**	**180**	**100**

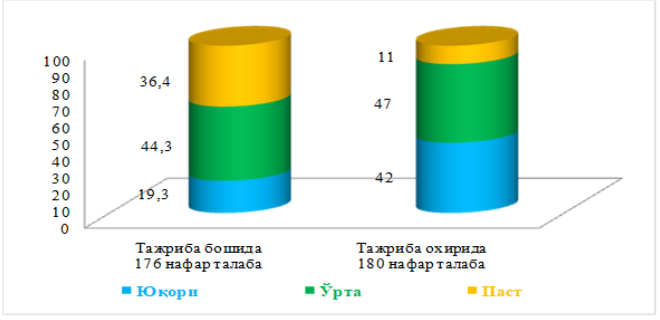
Table 3 and Figure 1 show that the level of development of students' creative abilities based on the synergistic approach has a low indicator at the beginning of the experiment and a high indicator at the end of the experiment.

Control groups



High Medium Low

Experiment groups



High Medium Low

Figure 2. Levels of development of students' creative abilities based on a synergistic approach

To determine the validity of the results obtained, we used the Pearson and Student criteria. The development of students' creative abilities was analyzed as a pedagogical and priority issue, and concepts such as creative ability, intelligence, intellectual activity, creativity, intellectual creativity, intellectual-creative ability, creative imagination, intellectual-creative process, activity were interpreted scientifically and pedagogically. Scientific work on improving the methodology for developing students' creative abilities is ongoing and we are getting positive results.

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