

## ISSUES OF EDUCATION AND DEVELOPMENT OF RESEARCH SKILLS IN FUTURE TEACHERS

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**Abstract.** *In the world, the integration of education systems is recognized as the main driving force of development and an activity leading to the goals of sustainable development. The modern education system requires the further improvement of the mechanisms for educating future specialists in research skills based on creative approaches and the innovative system of their implementation. From this point of view, education of the research ability of specialists based on a creative approach in the field of education is of particular importance in creating innovations, creating intellectual resources of socio-economic development and expanding competitive training opportunities by educating cognitive and divergent thinking skills based on modern pedagogical processes that create new knowledge.*

**Key words:** *creative approach, research ability, education of research ability in a student, research activities of future teachers, development of research skills of students based on a creative approach, development of creativity and research skills of students by means of interactive educational methods and technologies.*

### ВОПРОСЫ ВОСПИТАНИЯ И РАЗВИТИЯ ИССЛЕДОВАТЕЛЬСКИХ УМЕНИЙ У БУДУЩИХ УЧИТЕЛЕЙ

**Аннотация.** *В мире интеграция систем образования признана главной движущей силой развития и деятельностью, ведущей к целям устойчивого развития. Современная система образования требует дальнейшего совершенствования механизмов воспитания будущих специалистов научно-исследовательского мастерства на основе творческих подходов и инновационной системы их реализации. С этой точки зрения особое значение приобретает развитие исследовательской компетенции специалистов на основе творческого подхода в сфере образования, создание инноваций в сфере образования, создание интеллектуальных ресурсов социально-экономического развития, расширить возможности подготовки конкурентоспособных кадров за счет воспитания когнитивного и дивергентного мышления. навыки, основанные на современных педагогических процессах, которые создают новые знания.*

**Ключевые слова:** *творческий подход, исследовательская способность, воспитание исследовательской способности студентов, исследовательская деятельность будущих учителей, развитие исследовательских умений студентов на основе творческого подхода, интерактивная оценка творческих и исследовательских способностей студентов, методы и технологии.*

### INTRODUCTION

The priority directions for improving the pedagogical and psychological factors of education of the research ability in the specialists-personnel being trained on a global scale have been determined. In this regard, scientific research on the development of the content and scientific-methodical base of training of competitive pedagogic personnel, assimilation of non-

standard pedagogical solutions on the basis of self-activation in the educational process, and increasing the motivation to master educational materials takes an important place. From this point of view, education of research ability of future teachers in higher education institutions on the basis of a creative approach is of great scientific and practical importance.

In the conditions of wide implementation of the information environment in our republic, based on a creative approach, opportunities were created to develop a stable interest of future teachers in research activities based on advanced foreign experiences, and creativity and innovative thinking were recognized as an important indicator. The material and technical base, the base of regulatory and legal documents, which ensures the training of research ability in future teachers based on a creative approach and the formation of research qualities, has been completely updated. In the Strategy of Actions for the further development of the Republic of Uzbekistan, "stimulation of research and innovation activities, creation of effective mechanisms for the implementation of scientific and innovation achievements, organization of specialized scientific and experimental laboratories, high technology centers and technological parks at higher educational institutions and research institutes" were defined as priority tasks. Tasks in this regard serve to scientificize the content of educational processes, to form cognitive and divergent thinking of students, and to develop creative research activities.

Review of foreign scientific research on research. Scientific research dedicated to training the research ability of future teachers based on a creative approach is carried out by the world's leading scientific centers and higher education institutions, including the Massachusetts Institute of Technology (USA), Eastern European Scientific Journal (Germany), China's National Institute of Pedagogical Research. (NIES, Guangzhou, China) Chunang University (South Korea), Miyagi University (Japan), St. Petersburg, Krasnoyarsk State Universities (Russia), Astana State University (Kazakhstan) are being implemented.

The following scientific results were obtained in the scientific research conducted in the world on education of research ability and development of creativity among future teachers in the higher education system: the model of education of the student's research ability was improved on the basis of factors of increasing the competence of self-development (Massachusetts Institute of Technology, USA); the process of training the future teacher's research ability is improved on the basis of pedagogical design methods affecting intellectual development (Eastern European Scientific Journal, Germany); psychological tests for determining the level of formation of research ability were developed (Russia), the technology of forming the creativity of future teachers in the continuing education system was improved based on the clarification of the creators of creative potential (Kazakhstan).

In the higher education system of the world, research is being carried out on the development of research skills of future teachers, including in the following priority areas: mastering of technologies of organizing students' research activities by future teachers in the higher education system; increasing the role of innovative educational technologies in training students' research ability; integration of pedagogical opportunities of classroom and non-auditory activities in the process of preparing students for research activities.

#### **LITERATURE ANALYSIS**

The issue of mental development of a person has been the focus of attention of thinkers and philosophers, historians, psychologists and pedagogues at all stages of the development of

human society. This can be seen, first of all, in the scientific and ethical works created by the scholars of the East. The views of encyclopedic scholars: Abu Nasr Farabi, Abu Rayhan Beruni, Abu Ali ibn Sina, Kaikovus, Mahmud Koshgari, Yusuf Khos Hajib, Alisher Navoi, Abdulla Avloni and others about the role of science in the mental education of a well-rounded person are still relevant today.

Sh.Abdullaeva, D.N.Arzikulov, E.G'oziev, M.G.Davletshin, R.Kh.Dzho'raev, B.Rakhimov and other scientists conducted scientific research on the continuous development of the creative abilities of young people.

The issue of preparing a future teacher for scientific activity is the scientific work of pedagogues K. Angelovsky, S. I. Arkhangelsky, V. I. Andreev, D. Dewey, A. S. Kososgova, A. V. Khutorskoi, V. V. Kraevskiy and others. - studied in research.

A. V. Brushlinsky, B. Z. Wolfov, S. D. Smirnov and other scientists studied the psychological issues of creativity.

Yu.G. Kruglov, V.A. Krutetsky, S.L. Rubinstein, E.G. Skibitsky, I.Yu. Skibitskaya, Zoldasbekova, Friedman L.M., Kulagina I.Yu. and other scientists researched the issues of formation of creative ability.

R. Rowe, E. De Bono, DJ. Guilford, E. Torrance, K. Rodgers, A. Maslow, F. Barron, S. Sternberg, T. Lubard, C. Landry, K. A. Heller, etc. creative ability studied formation issues.

#### **TASKS OF THE RESEARCH**

clarification of the content of the concepts of "creativity" and "research", pedagogical-psychological features and factors of the development of creative abilities of a person;

improvement of the criteria and mechanisms for determining the development of research skills in students based on a creative approach;

improving the integrated methodical system of developing students' creativity and research abilities by means of interactive teaching methods and technologies;

improvement of mechanisms for diagnosing and monitoring the level of training of research ability in future teachers based on a creative approach;

development of scientifically based proposals and recommendations on the development of creativity and research abilities of students by means of interactive educational methods and technologies.

#### **THE MAIN PART**

In the process of scientific research, emotional perception, abstract thinking, practical testing find their expression. The research process has a holistic system and is mainly formed and implemented in the process of continuous education. Higher education is one of the main links in carrying out scientific and research work, practical researchers will have specific directions of research activity in HEIs.

D. Guilford (USA) distinguishes two types of thinking: convergent (logical) and divergent, that is, thinking that does not correspond to a logical structure. The ability to creatively apply knowledge through convergent thinking or logical thinking is determined with the help of intelligence tests. And divergent thinking is determined with the help of creativity tests. Therefore, the effectiveness of students' organization of scientific and research work depends on the level of student thinking, and thinking should be scientifically based, independent, and logical. The development of a student's personality has its own characteristics. This is

characterized, first of all, by their increased desire for self-improvement and increased interest in learning. One of the most important features of the student period is the development of the desire to think independently. Awareness of existence arises through thought forms. Every student should take into account the essence, diversity, multifaceted features of thinking in their practical activities and consciously follow them. Realizing the reality is teaching the relevance of education to life. In order for the student's thinking to be broad and comprehensive, the teacher must make students understand the aspect of education related to life. Only if the learner understands this, he can devote his energy to studying knowledge with interest. Pedagogical and methodological literature shows that the comprehensive study of pedagogical problems provides opportunities for comprehensive development of the student's personality, increasing the effectiveness of educational work, optimizing the pedagogical process, organizing and managing education on a scientific basis. The fact that the organization of research work of future teachers depends on the level of their thinking has been scientifically and theoretically substantiated by psychologists. In particular, in the researches of the psychologist A. V. Brushlinsky, it was specially emphasized that thinking is the characteristics of searching for and discovering important news, anticipating hypotheses and theories.

Psychologist S. L. Rubinstein developed the idea of thinking and called it the emergence of subject activity. E. Goziev defined that "Thinking is a mental process that reflects the reality in the environment directly and in a general way with the help of speech, mental activity aimed at understanding social causal connections, discovering new things and forecasting." , if it is not given shape and direction, it will remain as a possibility or a stereotyped system of thoughts even when the child grows up. "Such lazy and lazy thinking cannot be active, active, therefore, inquisitive and creative."

The need to always consider that the meaning of directing future teachers to scientific and research works is to acquire certain emotional and spiritual needs along with the development of the state and society. issues of psychological cooperation are covered. The dissertation describes the following criteria that determine the level of education of future teachers' research skills:

- to educate the research ability of future teachers, to understand the content of national and universal human values, to reflect the content of national and universal human values in research activities, to realize that a person is the greatest value in research activities, to be creative, to have analytical thinking in research activities, to have synthetic thinking, to have scientific - drawing final conclusions based on the results of research work, effective implementation of research results in practice.

Based on the above analysis, the research activity in the dissertation always requires a creative approach, and based on the above analysis, training the research ability of future teachers based on a creative approach is one of the types of educational activities, which allows students to continuously discover new things for themselves. It is led by the idea of developing students' creativity and innovation ability. The ability to research is seen in the student's new scientific ideas and independent decision-making. The content of training the research ability of future teachers based on a creative approach is focused on self-realization of students, identification and manifestation of their inner potential, students work hard on

research like a creator, and this work attracts with its novelty, creative application, and unusualness. .

Based on the study of educational practice, special attention was paid to the professional training of the student from the moment he was admitted to the studentship, along with the in-depth study of the scientific-theoretical foundations of each subject. In any research work, the researched scientific phenomenon has been clearly described. The results of scientific research were presented coherently through logical reasoning and observation.

On this basis, the development of a program for the development of pedagogical research, teaching-methodical manuals, and the implementation of fundamental research work by conducting experimental work lead to the improvement of scientific activity.

Based on the above conclusions, a special course program aimed at acquiring knowledge, skills and qualifications of future teachers related to research work was developed and implemented in the educational process. Based on the special course, students' scientific worldview and scientific creative activity were formed.

The 21st century is the century of intellectual development, the advanced creative people living in it achieve their improvement as a result of their intellectual and creative activities. Today, every citizen of the society lives under the influence of scientific and technical achievements. This is also important because techniques and technologies are improving and developing day by day, and as a result, the need to train mature specialists is also increasing.

### **DISCUSSION**

Based on the approach, it consists of a set of organizational, economic, socio-pedagogical rules for training research skills. As a result of the provision of special forms, methods and tools of research activity, it serves the formation of research skills in students. Mental activity is directly related to scientific and creative activity, it is the activity of creating new material and spiritual benefits of a person. On the other hand, research and creative thinking require a modern specialist to be able to choose the optimal solution of prospective tasks by using the achievements of science, and to carry out experimental work in his practical work.

Therefore, in the development of society, the development of science and the desire to improve it, researches were considered one of the high indicators of the scientific and creative development and culture of every society.

A number of leading higher education institutions in our republic have perfectly formed scientific schools, where many scientific personnel are being trained. However, considering that such scientific schools do not exist in all higher education institutions and that some capable and talented students receive education in these higher education institutions, it is seen that there is a need to form a system of scientific personnel training that is unique to all higher education institutions.

In the step-by-step system of directing students to scientific-research in higher education institutions, proposals were made to organize the process of preparing them for scientific-research work and cultivating them as personnel with scientific potential in the following four stages.



**Stage 1.** Students will be under the supervision of experts during 1 course. At the end of the academic year, students who are talented, knowledgeable and capable of scientific research are selected by the professors and teachers of the department and recommended to conduct research. Students are selected to conduct research based on a special selection process.

**Stage 2.** The selected students are attached to the leading experts of the department and conduct scientific research work during the 2-4 courses on the basis of the specified topic. Abstracts, scientific lectures, articles are prepared based on the preliminary results of the research work and are submitted to the preliminary defense as a graduation-qualification work at the end of the bachelor's education. It is envisaged that 50% of the planned research works will be completed.

**Stage 3.** The topic of scientific research started during the undergraduate education period is continued during the master's education period, and the research work is deepened to a certain extent. Research results are discussed at scientific conferences, seminars, scientific debates and discussions. During this period, 80 percent of the total volume of dissertation scientific-research works should be completed. The results of dissertation research completed in this volume will be sufficient for defense as a master's thesis.

**Step 4.** Dissertation research works on the topic enter the final stage during the period of doctoral education (directed to obtaining the scientific degree of doctor of philosophy (PhD)). During this period, the remaining 20 percent of the research works will be completed, and the dissertation will be defended for the degree of Doctor of Philosophy.

The recommended stages allow to complete the dissertation research work in a high-quality manner. Because the period of conducting dissertation research work on a certain chosen topic covers a sufficiently long period, that is, 3 years during undergraduate education (2-4 years), 2-3 years during master's education and 3 years during doctoral studies, a total of 8-9 years continues. Successfully conducted work can be completed in the 2nd year of doctoral education.

There are a number of professional qualities that students and young people need to acquire, and if they are not reflected in the teaching activity of young people in the future, the lessons will remain ineffective in some aspects. Because every quality of the teacher's profession should ensure the achievement of effective results and influence the development of the student at one or another level. That is why the professional and pedagogical requirements for the teacher are expressed in such important professional qualities as "scientific creativity", "organization", "research", "connection between theory and practice". The higher education system requires the student to ensure the formation of all necessary professional qualities, such as organization, practicality, research, creativity. Orientation of students to scientific research in the field of pedagogy and psychology helps the student to master the laws of scientific research in depth. These disciplines expand the possibility of training students' research activities based on creative approaches.

A comprehensive study of scientific and research works created in our country during the years of independence, in particular, the analysis of questionnaires conducted among students of Gulistan, Samarkand State Universities, and Kokand State Pedagogical Institute (total of 350 students) shows that education of a well-rounded person was given priority in scientific research during this period.

If the research work is not based on a certain methodology, it will not give the expected result. That is why it is necessary to create an idea about existing methodological bases and approaches in students.

As the initial manifestations of the results of their scientific and research activities, students can present a thesis, an article, an independent work, an abstract, a course work, a graduation-qualification work, a master's thesis, a methodological or scientific instruction (in collaboration with a scientific supervisor), a teaching-methodical or scientific-methodical instruction (scientific in collaboration with the leader), lesson development (based on pedagogical technologies), scientific and methodical materials such as resume, annotation, scientific essay, scientific analysis (analysis, synthesis), scientific or methodical lecture, scientific project (including constructive devices), scientific or methodical presentation prepares

Many people think that acquiring a certain amount of knowledge and having a diploma is enough to become a teacher. It is necessary to develop special tests to determine the professional qualities of students graduating from higher education institutions, the level of development of scientific and research activities.

The results of the process of quantitative comparison of scientific research results, the level of orientation of future teachers to scientific research work in experimental and control groups was determined on the basis of specially prepared test questionnaires on the solution of the problem of research work.

The comparative analysis of the results of experimental work carried out in a number of higher education institutions on the orientation of future teachers to research work is reflected in the diagram below.

Through this questionnaire, in chapter 1 of our dissertation, the current state of orientation of future teachers to research work was determined.

A comparative analysis of the results of experimental work conducted in a number of higher education institutions on training the research ability of future teachers based on a creative approach was made. Mathematical-statistical analysis method was used in the analysis of the results of the pedagogical experiment based on the results of the experimental work conducted with the students regarding the orientation of the students to research activities.

### CONCLUSION

From the obtained results, it can be seen that the criterion for evaluating teaching effectiveness is greater than one and the criterion for evaluating the level of knowledge is greater than zero. It is known that the mastery in the experimental group is higher than the mastery in the control group. From this, it is possible to draw a conclusion about the effectiveness of the experiment-testing activities conducted in connection with the orientation of students-young people to scientific and research activities.

1. As an important factor in educating the research ability of future teachers based on a creative approach, scientific analysis of the values in society and social activity based on achieving social and personal advantage, being able to independently determine one's goals and determine the ways to achieve them serve as a source of confidence in one's place in society. .

2. It is necessary to take into account the integrity and unity of historical-philosophical, national, pedagogic-psychological factors, based on specific methodological approaches and theories, in training the research ability of future teachers based on a creative approach.

3. The results of the research are a holistic approach to education of research ability among students of pedagogical higher education institutions; to consider the learner as a person who needs pedagogical support and requires an individual approach; a differentiated approach in choosing the content, forms and methods of scientific and creative work; harmony with nature; harmony with culture; shows that it is necessary to be based on principles such as a humanistic approach to the organization of relations in the educational process, a value-meaningful approach.

4. The diagnostic system of training the research ability of future teachers based on a creative approach was improved based on the development of a set of pedagogical and psychological diagnostic methods by identifying information-cognitive, personal value-oriented, emotional-expressive and active-creative criteria and appropriate indicators. taking into account the level of creative activity, the model of elements that allows them to develop research skills; the system of socio-pedagogical tasks for solving critical situations was defined.

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