

Improving the Methodology for Preparing Future Primary School Teachers for Innovative Professional Activities

PhD in pedagogical sciences
Elmuratova Dilrabo Mukhammatovna
Department of Primary Education of GulSU
Department of Primary Education
Senior teachers of the GulSU
Misirova Nodira Tovboevna,
Abdurasulova Shoira Kushakovna
Umarov Khusniddin Egambaevich
Yuldashev Shukhrat Shakirovich
Samatova Dilrabo Yusufovna

ABSTRACT: In the world, research is considered relevant in the field of improving the methodological plan of training future primary school teachers for innovative professional activities, training multidisciplinary specialists, developing creativity, professional competence, and the natural science worldview of students. From these positions, the need to prepare future primary school teachers for the design of innovative processes based on the methodology of teaching natural science, the introduction of scientific laws, didactic principles, methods for improving the effectiveness of their activities, and the introduction of international best practices in primary education is explained.

INTRODUCTION: Today, on a global scale, there is an increasing need to adapt the professional training of teachers to the dynamics of intensive updating of the modern educational system, to improve it on the basis of effective innovative technologies, large-scale transformations to improve their natural science literacy within the framework of international assessment programs. In the United Nations Agreement "On the Import of educational, Scientific and Cultural Materials", the creation of broad opportunities for students to receive quality education around the world, scientific research on the introduction of innovative technologies in the educational process, is particularly important. Environmental education is a set of knowledge, skills and abilities of a person in the understanding of natural values, cultural and biophysical relations between man and nature and the environment.¹

Currently, research is being carried out in our republic in the field improving the educational process based on innovative technologies, strengthening its national basis, raising the training of socially active, qualified, competitive personnel to the world level. The priority tasks are defined as "education of physically healthy, spiritually and intellectually developed, independent-minded, devoted to the Motherland youth with strong life views, increasing their social activity in the process of deepening democratic reforms and the development of civil society". Today is of particular importance for the improvement of training of future primary school teachers for innovative professional work for teaching the subject "environmental studies", ensuring a successful transition of younger students to the next stage of education, promotion,

¹. N Mirzaeva, [THEORY AND PRACTICE OF ECOLOGICAL COMPETENCE IN STUDENTS](#), 2019, Central Asian Journal of Education.

enforcement in accordance with international standards of quality and effectiveness of training, improve the level of science literacy, improving educational system.

MATERIAL AND METHODS: Scientific and technological progress and the reforms carried out in society, large-scale transformations in the modern educational system of the country, make peculiar requirements for the preparation of future primary education teachers for innovative activities, in particular for the teaching of natural science. Updated requirements for the preparation of future teachers of primary education to innovate on methods of teaching science, their essence is related I creating the necessary conditions for the preparation of innovation, a rapidly changing labor content, continuously updated knowledge. Innovative pedagogical processes have been the subject of special study in Western countries since the late 50s of the twentieth century, in our country-in recent decades. The great interest of the world pedagogical community in them is reflected in the creation of innovative services, publications, magazines, and information publications. In particular, the Center for Pedagogical Innovations for the Development of Education in Asia operates under UNESCO, which summarizes pedagogical innovations in the countries of the world and, in cooperation with the International Bureau for Education, introduces them to the pedagogical community through the pages of special publications.

The scientific and theoretical analysis of the literature allowed us to identify the following factors that contribute to the intensification of innovation processes: a) innovative capabilities of heads of educational institutions; b) developed complex projects; c) consultations within the framework of the project and the process itself; d) socio-economic environment; e) shared situations of participants in the innovation process. From what follows, the innovation process always has a certain direction. One of them is the focus on pedagogical activity. Education is a component of society, teachers are participants in its structure, and the nature of their activities is directly related to innovations. Thus, it is possible to distinguish the following types of innovations in the educational environment: in the content; in the methodology of the organization of the educational process; technologies of the educational process; organizational forms; methods and means; management of an educational institution; in the scale: state, territorial, national-territorial; educational institutions of a new type; by pedagogical significance: independent (private, local, individual, etc.); not interconnected; modular (private, a complex of interrelated innovations); system; by origin: modified, i.e. improved; combined (combining a new component to a previously known one); fundamentally new.

Innovative activity in the methodology of teaching natural science can be interpreted as a personal category, a process and a result of creation. In system-oriented research works, innovative activity is revealed in the analysis of personal, managerial-communicative and resultant subsystems of the creative paradigm.

In the methodology of teaching natural science, the innovative activity of the individual is associated with the creative ability to develop new ideas and ideas in the field of natural science and, most importantly, to design and model them in applied forms; the openness of the individual to the new, different (different) from yourself, which is based on tolerance, adaptability of the individual's thinking; cultural and aesthetic development and education; readiness to improve their activities; internal means and methods that ensure this readiness; developed innovative thinking (the importance of innovative activity in comparison with traditional, innovative needs,

motivation for innovative behavior), which forms the basis of innovative opportunities.

In the methodology of teaching natural science, the principles of the development of innovative activity of the teacher are the principles of recognition by the teacher of the value of his personality; innovative understanding of "self"; compensation; individualization; inconsistency; moral dependence; creative inspiration; reflection. To train future teachers of innovative professional activity, they must be well aware of the structure of innovative activity of the teacher (see Figure 1).

Adaptive	It is characterized by an unstable attitude of the student to innovation. Innovation is assimilated only under the influence of the social environment.
Reproductive	The student has a somewhat stable attitude to innovations, is able to apply ready-made methodological developments with minor changes. The student is aware of the need for self-improvement.
Heuristic	It is characterized by determination, stability, conscious assimilation of ways and methods of introducing innovations into practice. The student is always interested in creating innovations, finding and implementing pedagogical solutions.
Creative	It is characterized by high efficiency of innovative activity, high sensitivity to problems, and creative activity.

As, innovation activity is associated not only with the ability to solve problems of a certain range, but also with the willingness to find and solve external problems. The problems of motivational readiness and sensitivity to pedagogical innovations occupy a central place in teacher training, since only the motivation that corresponds to the goals of innovative activity, the organic implementation of this activity, ensures the manifestation of the teacher's personality.

The innovative activity of the teacher is built in a strict sequence with an explicit priority of one of the listed motives: external incentives associated with material incentives for the introduction of specific elements of innovation; the motives of self-affirmation of the teacher (self-affirmation based on external positive assessments of others); professional motives; motives of personal self-realization.

An important characteristic of the innovative activity of the teacher is creativity. In national psychology, creativity is considered as creativity associated with the manifestation of socially significant creative activity, the creative capabilities of a person, certain features (persistent feature) of an individual person. The technological component of innovation activity has a reflexive character, and reflects the thoughts and actions of the team of students, their awareness of their activities, self-analysis, self-assessment, and interpretation. In the functional model of the teacher developed by N. V. Kuzmina, the teacher's reflection is attributed to gnostic components.

The teacher purposefully searches for new information, creates an author's school, and shares his experience with others with great desire. Feelings, innovative imagination, and

improvisation play an important role in the activities of such teachers. The dynamics of sensitivity to changes in the lessons of natural science also determines the peculiarity of the perception of innovations by students. It is clear that not all teachers have the same attitude to innovations and at the same time perceive them.

The formation of innovative activity of students according to the methodology of teaching natural science is evaluated on four level.

The problem of independent, creative, practical training of future teachers for innovative activities in the methodology of teaching natural science has always been in the focus of attention of researchers, teachers and psychologists. Qualitative changes in the field of education and high efficiency depend on their compliance with international standards and the level of implementation of the acquired competencies by teachers in their work.

A future primary school teacher must have general cultural, universal, professional, subject-specific, special subject-specific, specialized scientific competencies in order to successfully teach natural science (see Figure 2).

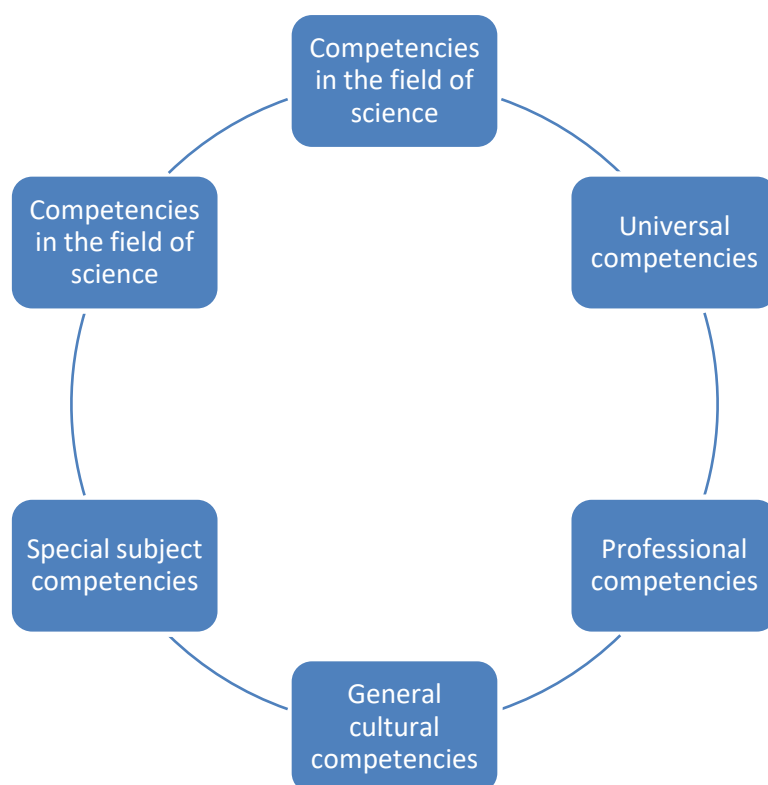


Fig. 2. The system of competencies in natural science that a primary school teacher should master

The main feature of the innovative activity of the future primary school teacher is its implementation at the initial stage of the formation of the younger student's personality, the formation of initial skills and abilities of scientific knowledge of the surrounding world and the inclusion of primary school students in various social relations. In the systematic organization of this holistic process, the primary school teacher occupies a central place – the carrier of the content of education and upbringing, the organizer of the student's cognitive activity, the

comprehensive development and formation of his personality.

In the process of innovation activities in the natural science lessons, the primary school teacher has to solve problems related to the individual and age characteristics of their students. This is reflected in the features and content of innovations used in the lessons of natural science. They are multi-faceted in content, form of expression, and are classified according to the following characteristics: according to the types of activity: pedagogical, managerial; according to the features of the introduced innovations: radical, combined, modified; by the scale of the introduced innovations: local, modular, system: by the scale of application: one-time, widespread; by the source: external and internal.

The main components of the operational component of the dismemberment and the classification of innovation, problem pedagogical situations, active search for innovative information, explore innovation, creating innovation: personal-motivational processing of existing educational projects, vocational and motivational analysis of the personal self-interpretation or assimilation of, a decision on the application of the new; the formation of goals and General conceptual approaches to the use of innovations; forecasting achieve the goal of innovation activities, changes and difficulties of funds; discussion of ways to introduce innovations with colleagues, administration, consultants; generation of ideas, development of the conceptual framework and stages of the experiment; implementation of innovative actions; introduction of innovations in the pedagogical process and monitoring its development and implementation; introduction of innovations and implementation of counter-control and correction of all innovative activities; evaluation of the implementation results, reflection of the teacher himself.

Proceeding from the above, peculiarities of innovative activity of the future teacher of elementary education teaching methodology of natural Sciences can be classified as follows.

In the methods of teaching of natural Sciences education is considered not only as a system "improvement" of man, but as a continuous updating of methods and strategies for improving the efficiency of all activities.

Subjects "the world around us" taught in the 1st and 2nd classes, "natural" taught in the 3rd and 4th classes belong to the pedagogical disciplines, introducing primary school pupils with the natural disciplines involved in their education that organizes the purpose, objectives and content of the subject, the processes of training and education development of knowledge in the field of natural science. Methods of teaching natural science – a pedagogical discipline that studies the process of teaching primary school students natural sciences, their education and development; developing the tasks, content, methods and organization of the educational process in accordance with the development of natural sciences. In pedagogical higher educational institutions (PVOS) Students of the 2nd-4th courses of the bachelor's degree direction 5111700-Primary education and sports and educational work study the discipline " Natural Science and methods of teaching it", which is included in the block of general professional disciplines of the curriculum. The total workload of the discipline is 174 hours, including 66 hours of lectures, 94 hours of practical training, 14 hours of seminars, and 136 hours of independent education.

Lectures, practical and seminars in the PVOU on the methodology of teaching natural science are conducted mainly with the use of verbal explanatory and visual methods. As a result

of pedagogical experiments, it was found that students assimilate disparate knowledge within narrow disciplines. However, this acquired knowledge is of little use in subsequent professional activities. The lack of integration of disciplines leads to problematic situations. The main element of training for innovative professional activities of future primary school teachers in the PVOU is that the design of educational activities is not organized at the proper level.

The main ideas methods of teaching science are: the emphasis on systemic in the study of the course content; understanding of the roles of the teacher in modern educational environment and to ensure the trainees receive theoretical knowledge; awareness of the modern principles of education; an understanding of the nature and essence of the laws of nature; change the anthropocentric approach biocentrism in the study of natural phenomena; awareness and lprealenie at the level of requirements contradictions in teaching methods of natural Sciences students; education of responsibility for the organization and effective development of the educational process; understanding the essence and implementation of environmental education in the system of holistic personal development; promotion of a healthy lifestyle and understanding of the environment.

There are three main factors in the content of the methodology of teaching natural science: educational, educational and developmental tasks of teaching natural science; the organizational process of teaching natural science; consideration of generalized specific issues of the methodology of teaching natural science. The integrative nature of the methods of teaching natural science is associated with the secular value of natural science knowledge. The methodology of teaching natural science contributes to interdisciplinary methodological training. The main attention in the curriculum of the methodology of teaching natural science should be focused on the territorial factor, while this territory should be predicted more accurately.

When implementing the pedagogical process, the following forms of training sessions are used: traditional: lectures, practical classes, essays and exams; non-traditional: problem lecture, visual lecture, pair lecture, lecture with pre-planned errors, lecture-press conference, etc.

The commonality of the forms listed above fulfilled the formative tasks set in the program of the experiment "Preparing future primary school teachers for innovative professional activities". it is the basis for the introduction of independent research. For example, the use of various types of lectures instead of informative lectures, in which ready-made knowledge for memorization is reported and explained, in our opinion, activates the cognitive activity of students, and is also the basis for the introduction of independent training sessions.

In the course of the formative experiment, lectures aimed at the formation of a scientific, educational worldview were not introduced into problematic ones, as indefinite, contributing to the "discovery" of new knowledge. Our task was to create a problem situation, encourage students to find a solution to the problem, step by step moving towards the goal. To do this, the new theoretical material was given in the form of a problem problem; its condition contained a contradiction that had to be established and solved. 1298 students took part in the experimental work.

Table 2**The number of experimental samples that participated in the experiment**

№	Educational institutions	2016-2017 academic year		2017-2018 academic year		2018-2019academic year	
		EG	KG	EG	KG	EG	KG
3 courses							
1	TSPU	58	60	54	52	52	50
2	BuxSU	30	29	26	26	25	25
3	GulSU	28	29	25	26	26	26
Total		116	118	105	104	103	101
4 courses							
1	TSPU	50	52	58	60	54	52
2	BuxSU	28	27	30	29	26	26
3	GulSU	26	25	28	29	25	26
Total		104	104	116	118	105	104
Total (3-4 courses together)							
1	TSPU	108	112	112	112	106	102
2	BuxSU	58	56	56	55	51	51
3	GulSU	54	54	53	55	51	52
Total		220	222	221	222	208	205

The effectiveness of the experimental work carried out in the 2017-2018 academic year was 11% in the 3rd year and 13% in the 4th year, the value of the T_{cuz} was greater than the critical value, which was the basis for the adoption of the H_1 hypothesis. All this testified to the effectiveness of the experimental work carried out.

As a result of studies thesis doctor of philosophy in pedagogical Sciences on the theme "improvement of a technique of preparation of future elementary teachers to an innovative professional activity (for example, the methods of teaching of natural history)" presents the following conclusions:

1. It is established that future primary education teachers have a great desire for innovation.

But it is not implemented only because their professional training is not sufficient for this.

2. The study shows that the concept of "innovation activity" has a broad meaning. In pedagogy, it is considered as a type of pedagogical activity, an innovative process of planning and implementing innovations aimed at improving the quality of education, a socio-pedagogical phenomenon that reflects the innovative capabilities of a teacher. The study shows that the innovative activity of the teacher is associated with exogenous and endogenous factors.

3. Combined by the concept of "innovative capabilities of the pedagogical system", exogenous factors, including organizational and managerial, material and technical and other resources of an educational institution, serve to develop the innovative orientation of the individual teacher of primary education.

4. Based on the results of the theoretical analysis of essence of innovation activity of a teacher, in particular experimental work on the preparation of teachers of elementary education in this activity improved technique of preparation of future teacher of primary education to innovative professional activity.

5. The process of preparing the future teacher of primary education for innovation activity confirmed the determination of the development of the teacher's personality by objective and subjective factors in dialectical unity.

6. The research work is complete, but it cannot cover all aspects of such a complex problem as the preparation of primary education teachers for innovation. In particular, such issues as the use of information technologies in primary classes, innovative activity of teachers in the system of role-playing games, etc. are waiting for their solution.

Based on these conclusions, the following recommendations are formulated to improve the effectiveness of the methodology for preparing future primary education teachers for innovation:

it is advisable to: develop recommendations and prepare methodological manuals for preparing future primary education teachers for innovation activities;

use the results of the study when giving lectures on advanced training courses, performing final qualification and course work on preparing future primary education teachers for innovative professional activities:

create electronic textbooks for preparing future primary education teachers for innovative professional activities.

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