THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF TRAINING THE FUTURE PRIMARY SCHOOL TEACHERS FOR RESEARCH AND INNOVATION ACTIVITY

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Abstract: The article examines the theoretical and methodological foundations of preparing the future primary school teachers to innovate pedagogical activity in the context of a modern school. The country's modern education system is going through a difficult period of renewal. The content of education is being updated; new programs, curricula, textbooks, new teaching technologies are being developed; more and more schools of a new type are being created, the process of "authorization" of pedagogical experience is developing. In the outlined contours of the future society, education and intelligence are increasingly referred to the category of national wealth, and the spiritual health of a person, the versatility of his development, the breadth and flexibility of professional training, the desire for creativity, and the ability to solve non-standard tasks are turning into the most important factor in the progress of the Fatherland. This study presents the results that substantiate the need for the practical application of the model to form future primary school teachers in the course of their training.

Keywords: Education system, Innovative pedagogical activity, Research and innovation activities, Theoretical and methodological foundations, Training of future primary school teachers.

1 Introduction

Numerous data indicate that the majority of primary school teachers have a great desire, a desire for innovation [2, 10, 15, 23]. However, this desire is not fully realized because they are not professionally prepared for it.

In our opinion, insufficient attention is paid to the problem of preparing future primary school teachers for innovative activities in the pedagogical education system. The nature of the professional development of a young teacher, the development of his potential largely determines the future of our school, its contribution to the development of society [37]. As a result, entering a young specialist into professional activity, preparing him for innovative activities is considered a prerequisite for self-actualization, self-development of the teacher's personal and professional potential.

A new area of scientific knowledge is currently developing - pedagogical innovation, some aspects of which are reflected in numerous scientific works [1]. In the center of scientific research in the field of theory and practice of an educational school, an individual educational approach turned out to be mastering which a teacher accumulates professional potential, consciously regulates his own educational paradigm, and gains experience of creative self-realization.

The search for ways to improve the teaching and educational process of higher education has caused the need to consider the problem of preparing a future primary school teacher for innovative activities. Today we are talking about innovative activities, the technological readiness of a teacher who is actively working to improve the educational process for the development of the student's personality. Activating a teacher and equipping him with modern teaching technologies is a direct path to personal growth to creative activity. It is a high level of development of a number of professional skills that give mastery [14].

A modern teacher cannot but be an uncreative person and not study innovative developments in organizing the educational activities of schoolchildren [16]. All this explains the increased interest of psychologists, philosophers, sociologists, and teachers in studying the problems associated with the formation of the innovative orientation of the teacher's personality. The development of the teacher's innovative activity is one of the strategic directions in education [31]. The solution to this problem is important since any form of innovation in the field of education can be implemented if it is internally accepted and supported by practicing teachers.

2 Materials and Methods

New trends in school education have necessitated the development of methodological foundations of pedagogical innovation [13]; substantiation of the conceptual foundations of the theory of innovative processes in the field of education and management of the development of educational institutions; mastering innovations; academic development, expertise, and design innovation; determination of criteria for evaluating pedagogical innovations and innovation processes; connection of innovation processes with pedagogical creativity; enhancing the role of experimental work in innovation.

The basis of the concept of humanistic personality-oriented upbringing is the rethinking of the main guidelines of upbringing, the main values of which are: a person as an environment that grows and educates a person; creativity as a way of developing a person of culture in culture. Humanistic personality-oriented education is viewed as a pedagogically guided process of cultural identification, social adaptation, and creative self-realization [15]. Mastering the humanistic meaning of education by teachers, changing their pedagogical positions on its basis requires serious preparation for innovative activities at school, which provides for the formation of theoretical, methodological, and technological readiness of teachers to work in the system of humanistic relations; analysis of the pedagogical goals of educational institutions, their humanization, reorientation to improve interpersonal relations and personal qualities [28]; the formation of a motivational orientation of innovative activity; rejection of stereotypes of professional activity associated with the technocratic style of thinking and interaction;

Of great importance for our research are works related to the problem of the professional development of a teacher, the growth of his pedagogical skills, which directly affect the improvement of the quality of education.

Analysis of the theory and practice of the professional activity of primary school teachers allowed us to establish that there are contradictions between:

- The need of society for a primary school teacher who knows modern pedagogical innovative technologies and knows how to apply them in their activities, and the lack of special research aimed at identifying the pedagogical conditions for improving the training of specialists for their use in future work [3];
- The readiness of higher school workers to prepare future primary school teachers for innovative activities and the lack of scientifically grounded technology for its organization [36].

The need to resolve these contradictions led to the choice of the studying topic. Research problem: what are the pedagogical conditions that ensure the improvement of the training of future primary school teachers for innovative activities in the higher education system? The solution to this problem is the goal of our research.

The object of research is a system of professional training of future primary school teachers in the conditions of institutions of higher professional education.

The subject of research: the process and conditions for preparing future primary school teachers for innovative activities.

The research hypothesis is based on the assumption that the process of preparation for innovative activities of a teacher in general, and a teacher of primary grades in particular, will be

determined by the dialectical unity of objective and subjective factors in the development of the personality of the teacher himself. This process can be ensured if:

- A specially developed system for preparing students for innovative activities with a diagnosed target setting [4];
- A clearly defined scientifically grounded program of theoretical and practical preparation for innovative activities [18];
- A complex of scientific and methodological support of the educational process [21];
- At the university, specialists who are ready to use modern innovative pedagogical technologies in their activities [33];
- A scientifically grounded system of accounting and stimulating the innovative activity of the future teacher [23];
- An appropriate material and technical base equipped with modern information systems [19].

In accordance with the specified goal, object, subject, and hypothesis of the study, the following tasks were set:

1. To reveal the essence and content of the concept of "innovative activity of a teacher".
2. To determine the features of the innovative activity of the primary school teacher.
3. To develop the main indicators of the professional readiness of the future primary school teacher for innovative activities.
4. To reveal, theoretically and experimentally substantiate a set of pedagogical conditions that ensure the improvement of the training of future primary school teachers for innovative activities in the system of higher professional education.

3 Results and Discussion

The concept of innovation is closely related to the concept of innovation [6]. Innovation activity is a complex activity for the implementation of a purposeful innovation process aimed at increasing the efficiency of technical, social, economic, pedagogical, and other systems in specific conditions. Generally, the innovation system can be represented as follows (Figure 1):

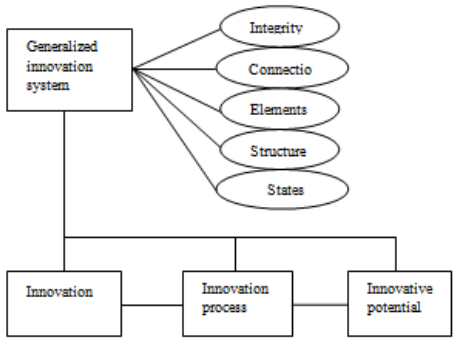

Figure 1 – Generalized innovation system and its characteristics

Consideration of innovation as a system allows us to talk about its properties such as the presence of integrity, a specific structure, elements, connections, and the state at a specific point in time, which is associated with the life cycle of the innovation.

In pedagogical science, the use of modeling in training specialists has three aspects:

- Modeling serves as the content that future specialists should assimilate as a result of studying at the university, the method of cognition that they should master [8];
- Modeling is an educational activity and a means without which a full-fledged training of a future specialist is impossible [25];
- The models, compiled on the basis of sign-symbolic means, clearly represent to us the entire pedagogical system of training specialists, obtained as a result and on the basis of the creation of mental (abstract) images.

On the other hand, building a model for training future teachers makes it possible to:

- Systematize at the level of categories all the concepts included in the system of training future teachers in a specific specialty [17];
- Generalize the observed pedagogical phenomena, see clearly their structure and structural interconnection and mutual influence [22];
- Carry out a mental experiment at the level of abstraction, thereby avoiding shortcomings and mistakes in conducting the ascertaining pedagogical experiment;
- Compare the new model with other models in order to identify the general and special, original and outdated, mature and what is still in the development stage;
- Establish continuity in the training of specialists, tradition, and much more [5].

We drew up the structure of the training model for future teachers based on the requirements for a modern school teacher: purpose, objectives, content, principles, organizational forms, methods, means, result, training conditions. Modeling the structure and content of the system of training future primary school teachers for innovative activities, we took into account the basic principles of modeling that determine its functions in pedagogical research. Since only if these principles are followed, modeling as a method of scientific research allows us to combine empirical and theoretical in pedagogical research, i.e., combine direct observation, facts, experiment with the construction of logical structures and scientific abstractions in the course of studying a pedagogical object.

The main conditions for organizing the research experiment are defined as follows:

- Organization of the process of preparing future primary school teachers for innovative activities on the basis of the developed stages of training in the conditions of the innovative educational environment of the university [7];
- Selection of the content of training in accordance with the structure and content of innovative activities of future primary school teachers [35];
- Use of the developed author's program and a set of methodological support for the course "Innovative activities of future primary school teachers"[20].

When organizing an experimental test of the effectiveness of the developed model of training future primary school teachers and the innovative educational environment of the university, it was important to trace the process of forming from a student into a future primary school teacher to innovative activity to innovative activity, for which it was necessary to identify:

- The effectiveness of the process of forming the readiness of innovative activity on the basis of the selected structural components of the innovative activity of future primary school teachers, implemented according to the proposed stages [24];
- The influence of the innovative educational environment on the formation of students' readiness for innovative activities in the professional-pedagogical, production, and technological components [30].

Future teachers understand the meaning and role of the innovative activity of teachers of vocational training in modern conditions, are interested in the possibilities of this type of activity, imagine what properties it should have, but at the same time, they are not fully aware of all aspects and forms of manifestation of the innovative activity of primary school teachers, identifying it only with the results of scientific and technical developments. This indicates the need for special training of future primary school teachers for innovative activities [26].

In addition, as a result of the study, an expert method was used to assess the properties of innovative professional and pedagogical activities, where the students, based on the results of the questionnaire, assessed such properties of innovative professional and pedagogical activities as demand, controllability, efficiency, dynamism, purposefulness, and the complexity of innovative professional and pedagogical activities. The average assessment results are presented in Table 1.

Table 1: Assessment of the properties of innovative activities of future primary school teachers

Indicators	Characteristic	Average score in points
Purposefulness	Predictability of the result of innovative activity and the conditions for its achievement	3.6
Demand	High degree of replication of innovative programs	4.2
Efficiency	Improving the quality of vocational training	4.7
Dynamism	The ability to quickly respond to external and internal changes	3.7
Controllability	Ensuring impacts on the innovation lifecycle	3.5
Complexity	Comprehensive innovation	4.4

The proposed model of training future primary school teachers for innovative activities made it possible to outline general ideas about all possible pedagogical conditions and determine the technology necessary for our experiment to prepare future primary school teachers for innovative activities.

The practical significance of the study is determined by the fact that:

- The theoretical provisions and conclusions contained in it, as well as the scientifically grounded methodology of training future primary school teachers for innovative activities, contribute to the improvement of the practice of training teachers [10];
- The developed and tested program of the special course "Preparing future primary school teachers for innovative activities", as well as the methodology for its implementation, can be successfully used in the system of advanced training of pedagogical personnel, recommended to teachers for individual work to improve their pedagogical skills [21].

From the entire diverse spectrum of teaching principles available in the arsenal of a secondary general education school, we have identified those that allow us to reflect the relationship that exists between the objective laws of the educational process of the university and the goals of preparing future primary school teachers for innovative activities. The main ones, in our opinion, are the following principles: axiological; scientific character; cultural conformity; universality and specificity; visibility; the optimal combination of theory and practice; consistency; consistency and continuity; individualization and humanization; activity and independence; professional and creative orientation of training; personality orientation of learning; orientation of training on the formation of the experience of self-educational activities of the future specialist.

The content of theoretical training is the following blocks of knowledge:

- On the development of innovative processes in the history of pedagogy [11];
- About innovative processes in the theory of pedagogy [28];
- About new research, advanced and innovative teaching experience [2];
- About new educational and upbringing technologies [14];
- About the basics of scientific and experimental work in the field of the spiritual sphere and culture [9];
- In the field of technologies of developing education and upbringing;
- About the criteria of the teacher's preparedness for innovative pedagogical activity;
- Technological training is aimed at using [27]:
- Technologically clear optimization of the organization of the educational process in the classroom;
- The technological process of the stage-by-stage formation of mental actions [26];
- Basic technological methods of strengthening didactic units [19];
- Support sheets [30];
- Commented management of the educational process;
- Technologies of early and intensive literacy training [1];
- Technologies for improving general educational skills in elementary school;
- Technologies of developing education;
- Personality-oriented developmental education [6];
- Ways of distance educational communications using Internet technologies;
- Community programs for primary schools [7].

The content of the methodological training includes the following components:

- Ability to independently predict and plan educational work;
- Ability to work with various sources of information;
- Ability to observe, evaluate pedagogical phenomena;
- Ability to determine goals, objectives at each stage of their activities, to predict its results;
- Ability to clearly, reasonably explain;
- Predict the results;
- Conduct a dialogue, debate, argue, listen to the student, the interlocutor to the end;
- To organize work on the selection, storage of information, organization of a workplace at school;
- To evaluate their innovations in the educational process using reflection [33].

Practical training is associated with the formation of the following skills:

- Prepare and conduct a creative lesson with elements of innovation on a given topic;
- Independently evaluate the results of their activities;
- To develop skills in working with various sources;
- Plan and conduct various extracurricular activities, use active methods of teaching and upbringing; conduct scientific and methodological work, use experimental forms of pedagogical activity and the experience of teachers in organizing individual work with students and their parents, etc [37].

Summing up the results of the theoretical analysis of the essence of innovation, the following necessary and sufficient pedagogical conditions can be identified to ensure the success of the process of training primary school teachers:

- The presence of a specially developed system of preparation for innovative activities with a diagnosed target setting [29];
- The presence of a clearly defined scientifically grounded program of theoretical and practical preparation for innovative activities [32];
- The presence of a complex of scientific and methodological support of the educational process;
- Availability of university specialists who are ready to use modern innovative pedagogical technologies in their activities;
- Systems for involving students in the implementation of a variety of increasingly complex types of the pedagogical activity, taking into account the level of development of their endogenous indicators;
- The presence of a well-founded system of accounting and stimulation of innovative activities of the future teacher;
- An appropriate material and the technical base equipped with modern information systems [31].

4 Conclusion

The current socio-economic state of the country could not but affect the educational system in general and the innovation process in particular [3, 12]. Modern education is becoming more and more varied, the range of educational services is expanding, and an innovative movement is developing. In this regard, within the framework of the new educational paradigm, orienting the school towards finding ways of optimal development, pedagogical universities are faced with the task of not only forming the necessary knowledge, skills, and abilities for future teachers for professional activity but teaching them to comprehend a multitude of innovative pedagogical ideas, to look for ways using them in professional activities and thereby form their interest and inclination to innovative activities [20, 34].

It has been found that the majority of primary school teachers have a solid commitment to innovation. However, it is not fully realized just because they are not professionally prepared for it.
In the course of the research, we came to the conclusion that the concept of "innovative activity" has a wide semantic range. In pedagogy, it is viewed as a type of pedagogical activity, as a creative process for planning and implementing pedagogical innovations aimed at improving the quality of education, as a social and pedagogical phenomenon that reflects the teacher's creative potential.

The effectiveness of the teacher's innovative activity depends on exogenous and endogenous factors. Exogenous factors, including organizational, managerial, material and technical, and other resources of the educational institution, which are united by the concept of the innovative potential of the pedagogical system, are an essential condition for the development of the innovative orientation of the personality of the future primary school teacher and affect the success of its implementation. Endogenous factors represent the totality of personality characteristics of the future primary school teacher [34]. These primarily include the ability to generate new ideas and ideas with subsequent design and modeling in practical forms, willingness to improve their activities, internal means and methods to ensure this readiness, developed innovative consciousness.

The process of preparing a primary school teacher for innovative activities is determined by the dialectical unity of objective and subjective factors in the development of the personality of the future teacher.

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Primary Paper Section: A

Secondary Paper Section: AM