

DEVELOPMENT OF INFORMATIONAL AND PEDAGOGICAL COMPETENCIES OF FUTURE PRIMARY SCHOOL TEACHERS IN PRACTICAL CLASSES ON THE METHODOLOGY OF TEACHING MATHEMATICS

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ABSTRACT

The article is devoted to one of the urgent problems of the system of higher professional education - the problem of the development of professional competence of future teachers. The article reveals the theoretical foundations of the competency-based approach, examines various approaches to the definition of the concepts of "competency", "competence", "key competencies". A group of informational and pedagogical competencies is considered in more detail as the basis of the pedagogical activity of future primary school teachers. Practical exercises in teaching mathematics contribute to the development of information and pedagogical competencies. Various methods, techniques and technologies for the development of competencies during practical exercises on the methodology of teaching mathematics are considered. The results of a study of the level of formation of information and pedagogical competencies of future primary school teachers are presented.

Keywords: Competence, competency, information and pedagogical competencies, indicators of the formation of information and pedagogical competencies, practical exercises, methods, techniques and technologies for the development of competencies.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

The modernization of the system of higher professional education, the introduction of third-generation standards for higher education entails a change in the requirements for the training of future specialists. Modern higher two-level education is focused on the development of professional competence of a specialist, the quality of his training.

Currently, there are a sufficient number of theoretical and methodological works in which the essence of the competency-based approach is analyzed, the concepts of "competency" and "competence" are determined, and ways of forming competencies of various types are considered.

The problem of the competency-based approach in education was studied by many scientists I. A. Zimnyaya, V. A. Adolf, E. F. Zeer, L. M. Mitina, A. V. Khutorskoi, S. E. Shipov, V. A. Kalnei, E. A. Kogan, J. Raven, N. V. Kuzmina, A. K. Markov, V. A. Slastenin, V. A. Bolotov, O. E. Lebedev, A. A. Pinsky, I. D. Fru-min, V.V. Serikov and others.

In our study, we considered the concepts of "competence" and "competency" in accordance with the definitions of A. V. Khutorsky, V. A. Bolotov, V. V. Serikov.

As noted by V. A. Bolotov, V. V. Serikov, the nature of competence is such that, as a product of training, it does not directly follow from it, but is a consequence of the individual's self-development, self-organization and generalization of activity and personal experience [1].

To really solve the problem of orienting education towards the formation of a new quality of training for a future specialist, it is necessary to introduce key competencies, which are the "key", the basis for other competencies. Key competencies are the most universal in terms of applicability, are formed within each subject, and are subject-oriented, interdisciplinary.

Key competencies are those that are necessary for a person's life and are associated with his success in professional activities in a rapidly changing society (the effective solution of various tasks and the fulfillment of social and professional roles and functions based on the unity of generalized knowledge and skills, universal abilities) [2].

Based on the works of V. A. Bolotov, I. A. Zimnyaya, V. A. Calnei, E. A. Kogan, J. Raven, V. V. Serikov, N. F. Talyzina, A. V. Khutorsky, S E. Shishova, L. V. Shkerina, and others, as well as a list of key competencies, the following groups of competencies can be distinguished: educational, informational and pedagogical, communicative, organizational, socially significant.

Let us dwell in more detail on the development of information and pedagogical competencies in the process of teaching a mathematics technique.

The technique of teaching mathematics is one of the disciplines that solve the problems of developing key professional competencies of future primary school teachers. The aim of the course "Methods of teaching mathematics" is the preparation of such a teacher who can competently and qualifiedly teach children math in elementary school, develop their mathematical thinking. The student needs to master the methodology of studying the basic concepts of the initial course of mathematics, taking into account the work on variable programs in accordance with the features of work on the new state educational standards for elementary school.

When organizing and conducting practical classes, we pay great attention to the development of information and pedagogical competencies, which include:

- the ability to work with ready-made information, to search for, transform and transmit information related to issues of private and general methods;
- in the use of information for decision-making (solving methodological problems, test tasks, etc.);
- in determining the degree of accuracy and importance of information on methodological issues (explanation of algorithms, computational techniques, introduction of mathematical concepts, methods of working on rules, etc.);
- the ability to extract and analyze information from various sources, have a critical attitude to information, manage information flows;
- in creating multimedia presentations when familiarizing yourself with the basic mathematical concepts of an elementary course in mathematics;
- in mastering electronic and Internet technologies in the process of mastering the issues of general and private methods;
- in the ability to apply methods of pedagogical research;
- in possession of the technology for studying and generalizing pedagogical experience.

The ability to work with ready-made information, to find and transform it, as well as to transmit information is formed during practical exercises in the preparation of structural logical schemes in order to generalize the studied theoretical material, when working with methodical articles on problems of mathematical education in elementary school, and mathematics programs for primary classes.

We practiced the use of information for decision-making when solving methodological and competency-based tasks, test and control tasks using a mathematics technique. The introduction of mathematical concepts, the explanation of algorithms, computational techniques, the methodology of working on rules - all this contributed to the formation of skills to determine the degree of accuracy and importance of methodological information.

The ability to extract and analyze information from various sources, to critically relate to information, to manage information flows was developed in practical exercises when performing tasks such as developing fragments and abstracts of lessons, extracurricular classes in mathematics, differentiated tasks, compiling training and verification works, studying common mistakes students and ways to prevent them, the selection of developmental and entertaining exercises for oral counting, preparatory exercises ne Ed study of new topics, as well as in the analysis of articles from scientific journals on the problems of teaching mathematics in elementary grades and writing annotations to them.

Using computers and a video projector in the classroom, working with an interactive whiteboard contribute to the formation of students' readiness for working with electronic information. Making presentations to familiarize yourself with mathematical concepts, working with online resources aimed at building skills to carry out actions with electronic information.

One of the components of informational and pedagogical competencies - the ability to summarize the experience of primary school teachers - is also successfully formed when conducting practical classes in teaching mathematics. So, for example, students generalize the experience of creatively working teachers according to the following scheme: the relevance of the chosen problem, the purpose and objectives of the search activity, the theoretical justification of the experience, the essence of the experience and its technology, the degree of novelty of the pedagogical experience, the optimality and reproducibility of pedagogical innovations, the effectiveness of pedagogical activity, dissemination experience. The ability to work with information is the primary competency in summarizing the experience of primary school teachers.

The use of new educational technologies contributes to the formation of information and pedagogical competencies in the process of teaching a mathematics technique. So, for example, working with ready-made information and transforming it effectively takes place in practical exercises using technology for the development of critical thinking through reading and writing. The structural basis of the technology under consideration is the basic model of three stages: challenge, implementation (understanding), reflection (reflection) [3].

At the challenge stage, students were asked to list with what they associate the standards of the new generation and what changes occurred in elementary school in connection with their introduction. The question was discussed initially in groups, and then the statements of representatives from each group were heard, the answers were recorded on the board.

At the implementation stage (comprehension), students had to read a text compiled on the basis of an approximate educational program in mathematics, taking into account the requirements of the state educational standard for elementary school. The total text was four pages. When studying the text, it was required to identify known information, new information, and information that was in doubt. The reading was accompanied by marginal notes with signs ("V" - I knew it; "+" - new information; "-" - information contradicts my ideas; "?" -

information is incomprehensible or insufficient). It took 15 minutes to read the text. Then there was a discussion of the text in groups. As a result, the groups were given the task to present information briefly, combining close areas and establishing relationships between them, to build clusters (a model in the form of a diagram of interconnected objects).

The work of students in practical classes using this technology was also aimed at developing the ability to work with ready-made information, analyze it, convert and transmit information.

The development of the ability to apply methods of pedagogical research is facilitated by the implementation of educational research projects. While working on a project, students learn not only to carry out various actions with information, but also master research methods: they learn to analyze psychological, pedagogical, methodical and mathematical literature; to study and summarize the experience of primary school teachers; select diagnostic methods; conduct an experiment, analyze the products of activity, substantiate the results, formulate conclusions on a specific problem.

The content of practical exercises on the methodology of teaching mathematics with the inclusion of specially selected tasks, methodological and competency problems, the use of computer and other technologies contributed to the development of information and pedagogical competencies of future primary school teachers: the ability to work with various sources, literature, find and process information, including electronic; apply methods of pedagogical research, study and generalize the experience of primary school teachers - all this has increased the informational and methodological literacy of students, motivational orientation towards further education and self-education.

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