

Methoden zur Entwicklung der Informationskompetenz von Grundschullehrern auf der Grundlage innovativer Ansätze

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Abstrakt. Problem und Zweck. Der Artikel widmet sich dem Problem der Ausbildung von IKT-Kompetenz bei künftigen Grundschullehrern. In der globalen Massenkommunikation ist heute die wertvollste Ressource die Fähigkeit, Informationen zu analysieren, zu systematisieren und zu interpretieren. Die globale Informatisierung wirkt sich in gewisser Weise natürlich auf den Bildungsprozess aus, und die Hauptaufgabe des Bildungssystems ist die Identifizierung moderner Trends in der Entwicklung der Gesellschaft und die Implementierung pädagogischer Technologien in den Bildungsprozess, die eine positive Erfahrung bilden und den modernen sozialen Wandel widerspiegeln den Bildungsprozess in ein geordnetes, kontrolliertes System. Ziel der Studie ist es, effektive Möglichkeiten zur Darstellung von Informationsaktivitäten zu finden und ein Modell aufzubauen, das zur Entwicklung von IKT-Kompetenz für zukünftige Grundschullehrer durch Fächer des mathematischen Zyklus beiträgt.

Schlüsselwörter: IKT-Kompetenz, Modell, pädagogische Modellierung, Kompetenz, Kompetenz, Professionalität, Strategie, fachliche und pädagogische Kompetenz, Leitlinien.

METHODS OF DEVELOPING INFORMATION COMPETENCE OF PRIMARY SCHOOL TEACHERS ON THE BASIS OF INNOVATIVE APPROACHES

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Abstract. Problem and purpose. The article is devoted to the problem of the formation of ICT competence in future primary school teachers. In a global mass communication, the most valuable resource today is the ability to analyze, systematize and interpret information. global informatization natural affects the education process in a way, and the main task of the education system is identification of modern trends in the development of society and implementation in the educational process pedagogical technologies that form a positive experience and reflect modern social change, bringing the educational process into an orderly, controlled system. The aim of the study is to find effective ways of displaying information activities, building a model that contributes to the development of ICT competence for future primary school teachers by means of disciplines of the mathematical cycle.

Keywords: ICT competence, model, pedagogical modeling, competence, competency, professionalism, strategy, professional and pedagogical competence, guidelines.

INTRODUCTION

Modern society is highly qualified, aspiring, by cultivating competitive, enterprising, spiritually and physically healthy individuals demands The Republic of Uzbekistan in 2017-2021 in the strategy of action for development "highly educated and intellectual upbringing of the developed generation, competent scientific in higher education institutions creation of a reserve of pedagogical staff "[1]. Competent pedagogue – who Questions arise as to how it is formed. That's the point the essence of the content of the concepts of "competence" and "competence" in terms it is important that we identify. Any teacher knows what "competence" means does not know what is different from "competence." "Competence" concept includes the educator's knowledge, skills, abilities, and experience, takes In other words, it's the ability to do a certain type of work.

In fact, the two terms are similar. Generality of competence knowledge and their

if it means that it is present in people, competence is the use of that knowledge in the work process level.

Methodology. In the course of the study, an analysis of approaches to the creation of educational models was carried out, ways of developing the ICT competence of future primary school teachers by means of disciplines of the mathematical cycle were identified. Main conceptual the idea of a model that contributes to the solution of didactic problems (epistemological, axiological, praxeological, professional-personal, communicative) is reflection of mathematics in the information field as a tool for the humanization of the modern information society and personality. The basic aspect of the fragmentary-subject modeling of pedagogical reality is the use of a comprehensive approach in the conceptual, criterion and quantitative justification of the model.

Results. A model for the development of ICT competence of future primary school teachers has been developed. The technological component of the model is disclosed, the criterion component of which is represented by the matrix of conjugation of levels (elementary, sufficient, advanced) and components of ICT competence (epistemological, axiological, praxeological, professional-personal, communicative). Everyone the component is revealed through the prism of knowledge, skills and experience.

Conclusion. The developed model for the development of ICT competence of future primary school teachers by means of disciplines of the mathematical cycle justifies itself in practice and needs further research and quantitative analysis.

Formulation of the problem. The Concept for the Development of Russian Mathematical Education of 2013 reflects the importance of mathematical training. Modern innovative technologies and approaches are based on

mathematics. The Concept states that mathematics "is a necessary component of the economy built on knowledge. The creation of modern information and communication technologies (ICT) is, first of all, mathematical activity" [1]. The formation of mathematical competence today is given great importance. The ability to use mathematical knowledge to describe and explain the surrounding objects and phenomena is one of the requirements of the Federal State Educational Standard

(FSES) starting from primary general education (PEO). The teacher, therefore, must form in schoolchildren skills that meet the requirements of modern educational standards. Questions of improving mathematical education are raised more and more frequently in the periodical press. One of the important directions is, in our opinion, the formation of ICT competence by means of disciplines math cycle.

In a number of pedagogical studies (S.A. Beshenkov, E.A. Rakitina, M.I. Shutikov) it is noted that computer science has extensive interdisciplinary connections, especially with the disciplines of the natural science cycle. Today, the excitement around IR technologies is becoming less and less, since technical means do not fully form the ability to analyze and systematize information, implement mathematical models that underlie any information processes [2]. Most researchers are working on the formation of ICT competence by means of disciplines of specialized courses "Informatics", "Application of information technologies in education", etc. In a similar way, researchers solve the problem of the formation of ICT competence in future primary school teachers (S.A. Zaitseva, N.A. Ershova, S.A. Bykov, I.V. Abramova, L.D. Sitnikova, O.P. Osipova), however, according to the results of studies obtained at the Laboratory of Didactics of Informatics of the ISMO RAE, "information models form the basis ... for the transition of a general education course in informatics to the rank of a "meta-subject" [3. S. 45].

But do not forget that "information modeling" begins outside the specialized courses "Informatics", etc., namely, in disciplines from various fields of knowledge, both natural sciences and the humanities. In our opinion, the remark of Yu.V. Viktorova: "The formation of ICT competence should be carried out in the study of each subject, including mathematics" [4]. Her study proved that information-cognitive tasks contribute to the formation of individual coding styles, which has a positive impact on the formation of ICT competence. The author demonstrates a positive experience in the formation of ICT competence in the process of teaching mathematics. Note that today we have a small amount of research in this area.

Research methods. In order to form ICT competence for future primary school teachers, we have developed an educational and methodological complex of discipline "Theoretical Foundations of Elementary Mathematics". We assume that the emphasis on sign-symbolic and algorithmic activity in solving mathematical problems contributes to the formation the ability to analyze, synthesize and visualize information, which has a positive impact on the formation of ICT competence.

The process of forming the ICT competence of a future primary school teacher is multicomponent and represents a multilevel model. Based on the works of G.V. Sukhodolsky, A.N. Dakhina, V.M. Mikheev [5–11], devoted to the modeling method in pedagogical science, having studied the experience of existing educational models, such as modern educational technologies - "System of educational information", "System of creative tasks", "Modeling", "Educational research", "Scientific research", "Design of the environment", "Construction" (V.A. Bukhvalov), S. Papert's system "Use of computers in the educational process", the technology of complete assimilation (B. Bloom, J. Carroll), methodical system of intensive learning (V.F. Shatalov) [11–13], we can state that one of the basic principles of pedagogical

modeling is consistency, the essence of which is to introduce additional submodels into the system. Today, the question of the effectiveness of pedagogical models. As A.N. Dahin: "For deductive models that accurately describe the behavior of a system of any nature, there is no complete and final information about this system" [7. S. 13]. That is why the justification of pedagogical validity is an important part of pedagogical modeling.

As a result of pedagogical design, we have developed a dynamic model¹, designed to study a multidimensional, bearing stochastic character, the object of pedagogical reality (see figure). Applying the principle of fragmentary-subject modeling, we relied on the following aspects of pedagogical reality: the creation of a target model, the application of an integrated approach to modeling, the conceptual, criterial, and quantitative justification of the model [14].

The purpose of the discipline "Theoretical Foundations of Elementary Mathematics" has a conceptual framework that implies the formation of readiness students to perform labor functions. Pragmatic goal defined unified philosophical origins of scientific knowledge, in particular mathematics and informatics. According to Yu.V. Viktorova, mathematical problems contribute to the development of certain coding styles (verbal-speech, visual, sensory-emotional, subject-practical) [4], which imply the ability to process, visualize information, implement information models, transmit information of associative sense, which is a sufficient basis for the formation of the components of the ICT competence of the future primary school teacher identified by us. classes [15]. The presented model solves the following didactic tasks:

- epistemological, consisting in the process of cognition, the formation of a stable conceptual and semantic apparatus, a cognitive component based on mathematical facts, relationships, concepts, form the State level of the educational services sector

1. Studying the requirements of the professional standard.
 2. Studying the requirements of the Federal State Educational Standard of HE.
- The social level of the sphere of educational services
1. Studying the requirements of employers in the region.
 2. Studying the results of measuring the level of mathematical preparation training of future primary school teachers.
 3. Studying the pedagogical experience of leading primary school teachers.

The goal is to develop the ICT competence of future primary school teachers.

the object of cognitive activity (the future primary school teacher) and positively influencing the deepening of ideas about the symbolic language, methods of information modeling, sign-symbolic ways of presenting information;

- axiological, aimed at understanding the connection between mathematics and informatics with a system of value priorities of the information society, deepening ideas about the role of symbolic language, information modeling in the knowledge of the world, intellectual and social and cultural development;

– praxeological, aimed at the formation of a system of educational and methodological skills, skills for solving various methodological and pedagogical problems that meet the requirements of society for mathematical and informational training at school;

- professional and personal, focused on the ability to form a comfort zone in the course of professional activities, use, develop and correct such psychological components as professional memory, attention, thinking, working capacity, emotionality, a set of moral qualities;

- communicative, focused on the ability to use mathematical language as a means of scientific, technical, professional and pedagogical communication, the necessary socio-cultural characteristics. Traditionally, the content of a mathematics course for future teacher's elementary general education includes a system of actually necessary discipline knowledge. This is definitely the foundation of high level qualifications. Results and discussions. The implementation of the project is reflected in the technological block and is based on the creation of an educational environment based on the principles of humanization in education. Working on the theoretical and methodological as the basis of the model, we relied on cultural, competency-based, systemic and activity approaches in education. Creation of pedagogical concept is a creative and abstract process, since in the pedagogical science does not have clear rules for working on a fundamental idea. As is known, the author's conceptual idea cannot be repeated in practice.

When implementing the course "Theoretical Foundations of Elementary Mathematics", we draw parallels between mathematics and informatics. For example, when studying number systems, we encode information (we encrypt letters using a binary code); when studying relations in mathematics, we must we build a graph, familiarity with this concept helps in decoding information.

Having studied the fundamental works in the field of pedagogical technologies studies (V.P. Bespalko, A.M. Novikov, etc.) and the principles of the qualimetric approach in pedagogy, we have defined and filled levels of formation of ICT competence of future primary school teachers: elementary, sufficient, advanced (see table). Beshenkov S.A., Matveeva V.A. Bulletin of RUDN University. Series: Informatization of education. 2020. Vol. 1

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