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Methodical System of Advanced Training for Elementary School Teachers in the Application of Information Technology

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ABSTRACT
In a situation of dynamic development of the educational system, digitalization of education, the path to developing innovation, introducing innovations into the educational process only through the activities of scientists is not productive. In a modern elementary school, teachers are the initiators and direct participants in the process of creating innovative models of pedagogical and educational systems, developers of proprietary methods and technologies, including the use of information and communication technologies. But in order for these developments to be effective, they must be carefully designed. Lack of consistency and integrity of implemented pedagogical projects aimed at the digital transformation of education; the lack of regulatory and scientific and methodological support for project activities for the implementation of information technologies, which would contribute to the expansion of opportunities for creative search, stimulated the activities of teachers in this direction; lack of monitoring the quality and effectiveness of the implementation of information technology, these are the problems that modern teachers face. The competent construction of projects in the system of primary general education aimed at the introduction of modern information technologies involves the creation of a flexible, effective system of advanced training for teachers in their application. The purpose of this article is to present approaches to the development of a system of methodological support for the project activities of an elementary school teacher in the field of information technology, to show the possibilities of a model of such a system in improving the project competence of a teacher. The scientific organization of project activities in the field of application of information technologies means the construction in an educational organization of a work system with clearly defined characteristics, a logical structure, the components of which are the subject, object, matter, forms, means, methods of this type of activity, its result, principles, conditions, norms of implementation.
A conscious attitude of the teacher to the organization of project activities in the field of information technology can be supported through activity-based forms of professional development in an educational organization. In this regard, it is obvious that for the effective implementation of information technologies in the education system, it is necessary to ensure a high level of project competence of teachers.
Keywords: *information technology, elementary school, project activities, methodological support, competence, teacher*

1. INTRODUCTION

The modern system of primary general education in the digitalization era of education is faced with the tasks of modernizing its content, implemented methods and technologies, which determines the overall quality of the educational environment (Borovskaya, 2018; Kulyutkin & Tarasov 2018). That is why one of the most important problems remains the creation of conditions for advanced training of teachers, including the field of application of information and communication technologies in order to create the most optimal conditions for the effective solution of all assigned professional tasks.Within the framework of the federal project "Teacher of the Future", it is planned to introduce a national system of teacher growth and create conditions for teachers to master modern information technologies. Including at least 70% of teachers under the age of 35 will be involved in various forms of support and support in the first three years of work (National project, 2018). The event within the project provides for the involvement in the support system of practitioners, as well as representatives of the

university staff, which will help to increase the level of professional skill and quality of teaching. The success of professional activity requires that the teacher is aware of the practical importance of various innovations in the education system, including the aspect of the application of information technology, not only at the professional, but also at the personal level (Lazarev, 2006). However, the inclusion of a teacher in the innovation process often occurs spontaneously, without taking into account his professional and personal readiness to design his own professional activities using innovative, as well as information technologies (Safronov & Sidorova, 2016). Therefore, it is necessary to improve the qualifications of teachers in the direction of pedagogical design. It is important to emphasize that pedagogical design, built into the life practice of an educational institution, changes its educational environment, making it more mobile and attractive in modern conditions (Jegatheva, 2018; Korthagen, 2004). Pedagogical design is an activity carried out in the conditions of the educational process and aimed at ensuring its effective functioning and development.

2. STATEMENT OF THE PROBLEM

The effectiveness of information technologies in a modern elementary school does not raise doubt the pedagogical validity of their use by a teacher, but their spontaneous use as a “tribute to fashion" can have a negative effect on the formation of the personality of a primary student. Teachers who use information technology to solve professional problems often face problems associated with low project competence. The project competence of a teacher is understood as a system of motives, knowledge, abilities, skills, personal qualities of a teacher, which ensures the effectiveness of using information technology in working with children of primary school age. Therefore, in the framework of advanced training of teachers in an educational organization, it is necessary to provide conditions for the development of all necessary components of the project competence of a teacher in the application of information technologies. The objective of the study is to consider the model of methodological support for continuing education of teachers who contribute to the development of their project competence in the application of information technologies.

3. RESEARCH QUESTIONS

For the effective operation of an elementary school, restructuring of the organization of its resource (including scientific and methodological) support is required. One can distinguish various ways of creating the named resource: providing a system of professional development developed and implemented in a specific organization of primary general education with didactic and methodological developments that meet modern requirements of pedagogical science and practice; joint productive activity of the methodological service of the elementary school and its network partners; testing and putting into practice more effective models, techniques, technologies, including information technologies, the organization of the educational process, as well as the advanced training subsystem for primary school teachers.

4. PURPOSE OF THE STUDY

In a modern elementary school, various forms of methodological support and support for continuing education of teachers are implemented, but often they are in the nature of individual events of a one-time nature. However, holistic management of the modernization of the educational process involves solving the identified issue on the basis of a system-activity approach. One of the ways to comprehensively solve the problem under consideration may be to specify the approaches to the development of a model for the methodological support of the project activities of teachers on the use of information technologies.

5. RESEARCH METHODS

Theoretical analysis of psychological and pedagogical literature on the research problem, analysis of the primary school teachers experience, a survey of teachers.

Experimental base of research

The main research methods were tested on the basis of MBEE PS "Perspective", elementary school teachers took part in the study. The period of the diagnostic examination is 2018-2019.

6. RESEARCH RESULTS

In the modern educational system, the problem of teacher's self-realization and advanced training is given great attention (Abramovskih & Kazayeva & Grigoryan & Taktueva, 2019; Afanasenkova & Vasyagina, 2019; Bazaeva, 2011; Druzhilov, 2005). For the introduction of information technology in the educational process of primary schools, the willingness of teachers to implement them is important, which is determined by the presence of a teacher positive motivation for the holistic design of their own professional activities using information technology, theoretical knowledge and skills for their practical application in its organization with younger students, high level of reflexivity, as well as a creative approach to solving professional problems. This determines the level of formation of the project competence of an elementary school teacher in the application of information technologies. The use of information technology is the basis for updating and improving the quality of the educational process, an indicator of the professional skill of the teacher. In order

to study the nature of the difficulties that primary school teachers face when designing their professional activities using information technology, a survey of primary school teachers (25 people) was conducted. The survey revealed the knowledge of teachers both on general issues of designing their own professional activities, and knowledge of the capabilities of information technology to solve the problems of building the educational process in elementary school.

Based on the questionnaire, it was found that teachers experience the following professional difficulties in designing professional activities:

• in determining the essence of the concepts "project", "design", "plan", "model", "modeling" - 44%;
• in the choice of the object of pedagogical design - 48%;
• in determining the stages and forms of design - 52%;
• in identifying and formulating problems and contradictions in the design of professional activities - 64%.

The following problems were identified in the use of information technology by teachers:

• in building a hierarchy of goals for the application of information technology as part of their professional activities - 60%;
• determination of information technology resources - 56%;
• in the ability to plan practical activities for the implementation of information technology - 68%;
• presentation of the results of using information technology - 58%;
• assessment of the results of the application of information technologies based on the initial goals - 68%.

Most teachers implement information technology: regularly - 24%, sometimes - 72%, rarely - 4%. In general, it should be noted that the use of information technology from case to case prevails. The question of the holistic design of their own professional activities using information technologies caused difficulties for teachers, in most cases it remained unanswered. This suggests that, most likely, these teachers are very rarely engaged in system design and cannot generalize their experience in terms of the forms used, especially in terms of identifying the most successful and productive ones.

Effective training of teachers in the aspect of the application of information technology can be achieved by providing a set of pedagogical conditions, including the development of the pedagogical environment in the direction of strengthening collective, mutually binding and mutually supportive relations; the formation of appropriate value orientations and positive motivation for the conscious use of information technology; development of a management system and methodological support for project activities of teachers.

In a modern elementary school, various forms of methodological support and advanced training of teachers are implemented, but at the same time they are often individual events of a one-time nature. However, holistic management of the modernization of the educational process involves solving the identified issue on the basis of a system-activity approach. One of the ways to comprehensively solve the problem under consideration may be the introduction of software and methodological support for the teacher training system for designing professional activities using information technologies. The model of methodological support for continuing education of teachers includes the following blocks:

• diagnostic and analytical;
• the methodological unit, which in turn consists of 3 modules: information-methodological, organizational-methodological and practical (experimental-introduction).

As part of the diagnostic and analytical unit, it is planned to organize monitoring of the level of professional competencies and personal qualities of elementary school teachers implementing information technologies in professional activities. The task is to study and analyze the professional problems of teachers in the field of using information technologies, determining the initial state and level of development of project competencies among teachers, and examining their projects using information technologies. Moreover, the monitoring of the project competence of teachers can be carried out according to the following indicators:

- the level of development of the managerial component of project competence - the effectiveness of managing one's activities and behavior, the ability to plan one's life and actions to achieve goals, overcome difficulties, organize one's time, the degree of development of conscious self-regulation;
- the level of development of the emotional-personal component - the ability of the person to comprehend, study, analyze the effectiveness of professional activities using information technology;
- the level of formation of the professional and creative component of the project competence of the teacher - the ability to develop the content of projects, based on scientifically based requirements for its structure and content.

In the framework of the implementation of the methodological unit, special attention should be paid to improving the regulatory framework for the organization of project activities of teachers, including the development of the Regulation on the Project Council or Project Activities, the Regulation on Temporary Creative Groups and other local provisions and acts of the elementary school, which will clearly define the rights and obligations of teachers in the framework of the organization of project activities, the functionality and methods of supporting the project activities of all subjects of the educational process.

Organizational, methodological and practical (experimental-introduction) blocks within the framework of the proposed model of methodological support for the project activities of teachers on the application of information technologies include:

- development of a program to increase the level of project competence of primary school teachers, the main purpose of which is to educate teachers on the theoretical and technological foundations of design and develop an indicative basis for design skills (the ability to justify the relevance of the use of information technology to solve professional tasks, the stages of the organization of project

activities for the application of information technologies, criteria for evaluating its effectiveness).
- development of an individual teacher's route to organize their own professional activities using information technology, the main purpose of which is to involve an elementary school teacher into independent active work to implement specific information technologies in the framework of solving urgent professional problems.
To assess the quality of the methodological support for advanced training of elementary school teachers in the application of information technologies, a comprehensive diagnostic study was conducted on the level of development of design competence of primary school teachers. In general, an analysis of all the performed diagnostics showed that 68% of teachers showed interest and desire for a holistic design of their own professional activities using information technologies to solve professional problems. 88% of teachers have a developed need for planning all stages of project activities with a clear indication of the methods and techniques for their implementation (this is also confirmed by an analysis of the teachers' plans), there is an adequate assessment of significant internal and external conditions, the ability and (or) desire to think through the sequence of their actions. They are critical of their own actions, are able to quickly and adequately respond to the situation, are able to independently determine the resources of information technology to solve specific problems.However, there were teachers who identified significant problems in the application of information technology (16%). They are able to create a project on the application of information technology that meets the requirements, but their project product does not fully meet the stated goal and the selected methods of work are insufficient, an attempt is made to justify the relevance of the use of information technology to solve individual problems. An analysis of the individual route of these educators showed that their participation in project groups is minimized, because they do not consider it necessary to carry out design and do not seek to increase the level of design skills through self-education and proposed activities, or this interest is associated with material incentives or with a fear of control by the administration and subsequent punishment.

7. CONCLUSION

Thus, the systematic management of the project activities of teachers on the application of information technologies in their own professional activities through the proposed model helps teachers in the formation of an individual pedagogical work style, in the development of independence, self-education, in the design of the educational process based on the achievement of modern science and advanced pedagogical experience. The implementation of methodological support for teachers' advanced training on the use of information technologies uses flexibility and the ability to choose the level of methodological support, consulting support, the advantage of activity-based forms of advanced training. However, along with this, in this model, the principle of building a system for the exchange of resources among the participants of the educational space, as well as design and research forms of organizing professional activities in elementary school are used. Another important setting in the implementation of the model is the formation of ideas about different approaches and technologies for building professional activities, providing the teacher with the right to act with the help of the tools that he prefers. It should be noted that the development of competencies in the project activities of teachers is successfully carried out subject to the requirements of targeting, the implementation of differentiated methodological support.

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