



Formation Of Information Competence of Teachers As One Of The Main Tasks Of Modern Education

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ABSTRACT

Currently, information technologies are a necessary complement to the traditional educational process in General education schools. The school's educational process often uses electronic textbooks, task books, textbooks, teaching materials, simulators, testing systems, electronic libraries, catalogs, Internet information resources, etc. The formation of information competence of a teacher is the key to improving the level of professional competence as a factor in improving the quality of education. This article discusses the formation of professional competence of teachers in the conditions of information of society. This article discusses the formation of professional competence of teachers in the conditions of information of society. At the same time, the concepts of information competence are analyzed, and the stages of formation of professional information competence of teachers are given.

Keywords:

the highest educations, information competence, information culture, professional competences, information competence, major factors of information competence, Technologies of training, efficiency of use of modern technology of training for formation of Information competence of the teachers.

Introduction. In the context of the transition to a modern information society, the requirements for professional training of teachers, especially the level of their professional competence are increasing. One of the most important professional competencies of a modern teacher is information competence

Speaking about the possibilities of information technology for the educational process, many scientists cite the following aspects (L. L. Bosova, V. A. Krasilnikova, E. I. Mashbitz,

I. V. Robert, A. A. Abdukadirova, F. M. Zakirova, N. Tayloкова, etc.)

- creation of a unified informational and educational learning environment not only in one region, but in the country and the world community as a whole;
- independence of the educational process from the place and time of instruction;
- unlimited opportunities for collecting, storing, transmitting, transforming, analyzing

- and applying information that is diverse in nature;
- development of personality-centered learning, additional and advanced education;
- increased accessibility of education, with the expansion of forms of education;
- Significant expansion and improvement of organizational support of the educational process (virtual schools, laboratories, universities, etc.);
- Increasing the activity of actors in the organization of the educational process;
- Significant improvement in the methodological and software support of the educational process;
- Providing a possibility to choose an individual educational trajectory;
- development of independent exploratory activity of a student;
- Increasing the motivational side of learning, etc.

The basic purposes of development of information of modern school are defined by strategy of development of school and are directed on maintenance of educational and organizational processes with new kinds of information resources on the basis of use of computer networks and their information filling, and also new information and communication technologies.

It is already becoming evident that one of the most important components of the professional competence of a teacher is his or her readiness to use modern information technologies in their professional activities.

Problems of using information technology in the education system are reflected in the scientific and methodological works of G. A. Kruchinina, Y. K. Babansky, S. A. Zhdanov, V. P. Bepalko, V. S. Gershunsky, S. D. Karakozov, V. G. Kinelev, O. A. Kozlov, A. A. Kuznetsov, M. P. Lapchik, E. I. Mashbitz, V. M. Monakhov, E. S. Polat, I. V. Robert, N. F. Talyzina, A. Uvarov, A. A. Abdukadirov, F. M. Zakirova, N. Taylokov and others.

Currently, many teaching staff is noted lagging behind in the use of information technology capabilities in the learning process. One of the main reasons is the unpreparedness of most teachers to implement information and

communication technology in the educational process of secondary school. Rapidly developing field of information and communication technology determines the peculiarities of the process of formation of professional competence of teachers in the field of information and communication technology in the educational process.

Information competence of a subject teacher at the present stage is understood as his or her readiness and ability to independently use modern information and communication technologies in pedagogical activity for solving a wide range of educational problems and to project ways of professional development in this area.

Possessing information competence, the teacher not only aspires to use information and communication technologies in the work, but also models and designs information and communication technologies.

Main part. The use of information and pedagogical technologies significantly increases the professional capabilities of the teacher, expands the boundaries of his pedagogical culture, and thus serves to improve the effectiveness of his professional activities.

Information technologies are based on the following main electronic and didactic functions:

- clarity, which provides consciousness and comprehension of perceived educational information, formation of ideas and concepts;
- In formativeness, because the means of education are the direct sources of knowledge, i.e. carriers of certain information;
- Compensatory, facilitating the learning process, contributing to achieving the goal with the least time and effort.
- Adaptively, aimed at maintaining favorable conditions for the learning process, organization of demonstrations, independent works, continuity of knowledge;
- Integrative, allowing you to consider the object or phenomenon as a part and as a whole.

In accordance with the object and subject of the work objectives are:

- To study the equipping of the school with modern technical means in the field of

computer technology, ensuring their effective use in the educational process.

- to analyze the formation and improvement of information competence of teachers;

To identify the main problems and methods of development of the formation of information competence of teachers.

To solve the tasks and achieve the goal the following methods were used:

- constructive-critical analysis of the literature on the problem of research;
- observation as a linguistic and methodological technique;
- training experiment

The paramount role and importance in the system of organization of continuous training of the teacher information technologies it is necessary to assign the necessary pedagogical conditions promoting improvement of pedagogical skill of the teacher, his inclusion in active activity on the basis of use of information and communication technologies in educational process.

Under information technologies of education experts understand "technologies based on the use of computers and other information technology, as well as special software, information and methodological support" [8].

According to the author E.V. Ivanova, we understand the information competence of teachers to be a system of knowledge and skills in the use of information technology that provides effective solutions to professional teaching tasks. The strategic guidelines for the formation of information culture and information competence of a teacher in modern conditions of modernization of education become:

- improvement of professional competence;
- the ability to work in an information and educational environment;
- tolerance, communicativeness, ability to cooperate;
- the ability to work in network interaction;
- readiness to self-education throughout life;
- Ability to apply the acquired knowledge in practical activities.

During the initial stage of developing the teacher's informational competence it is reasonable to focus on cognitive (independent learning of material with the interaction with

computer means) and developing technologies (problem-based and programmed learning), as well as their supporting tools (electronic textbooks and teaching aids). It does not mean that we should not use other technologies at this stage, but it will be cognitive and developing technologies that are effective and bring the biggest benefit due to the personal qualities of the students.

The next stage is basic, the stage of formation of professional self-consciousness. Active (business games, situational training) and developing (analysis of professional tasks, professionally oriented research activity, group problem solving, analysis and systematization of scattered professional information, preparation of reports on discussion topics) technologies should be considered as effective technologies of this stage. Computer tools capable of supporting technologies of this stage are simulators, expert training systems, network resources.

And, finally, the final stage of learning - the stage of becoming a specialist's competence. Effective technologies of this stage should be considered as personality-oriented (independent and educational-research work, advanced self-study, project-based learning, training according to an individual plan) and developing (role-playing games, reflection of professional activity, problem solving in interaction, search and generation of new professional knowledge) technologies.

The necessary organizational and pedagogical conditions for the formation of teachers' readiness to use information technology in pedagogical activity are:

- development of a unified information and educational space of the school on the basis of systemic integration of information technology in all parts of the educational and pedagogical process;
- Modernization of the system of methodological work at school as the basis for organizing the educational process of school teachers to use information technology in professional activities;
- a system of continuous learning as the main condition for the formation of school teachers' readiness to use information technol-

ogy in professional activity, which involves not only mastering the methods of using information technology in the professional activity of a teacher, but also the development of skills of self-education in the field of IT.

For the formation of teachers' information competence, the implementation of the capabilities of telecommunication technology in the education system deserves special attention.

The Internet provides great opportunities for teachers in mastering the information space, it is:

- the use of e-mail, providing the exchange of information between network users both inside and outside the region;
- Creation of own Web-sites for presenting information;
- Exchange of thematically organized knowledge;
- participation in forums;
- Participating in conferences to discuss interesting issues in real time;
- Subscribing to a mailing list, after which you will be informed systematically by e-mail about new products in the field;
- mailing list and downloading of centrally prepared materials;
- free access to educational software and documentation from file archives containing thousands of megabytes of information;
- access to the catalogs of hundreds of the world's best libraries;
- online testing;
- Participation in joint network projects of educators from different countries.

Currently, almost all educational institutions are equipped with modern personal computers, have local and corporate networks, and have posted their sites on the Internet. Creation of information environment in a secondary school was in many ways promoted by the state programs aimed at development of information of education in the country. Therefore, today it is not enough for a teacher to have only subject-methodological and psychopedagogical training. The rapid spread of computer systems, their active implementation in the educational process forces teachers to master information technology.

At present intensive work is carried out on creation of electronic educational editions which allow students to master new material independently and also to carry out self-control and self-assessment [6].

The information competence of a teacher is formed at the stages of learning a computer, application of information technologies as a teaching tool in the process of professional activity, and is considered one of the facets of professional maturity. The analysis of pedagogical activity of the teacher allows us to distinguish the following levels of formation of information competence:

- the level of information consumer;
- computer user level;
- the level of logical functioning and knowledge of the characteristics of equipment;
- The level of subject-specific tasks on the basis of a creative, interdisciplinary approach.

The main pedagogical conditions, in the author's opinion, influencing the formation of the teacher's IR are:

- a) creation of professionally oriented tasks, pedagogical situations in the lesson, creating motivation to master information technologies;
- b) teaching with the help of visual models, multimedia, Internet resources, stimulating the process of formation of ICT;
- c) Performance of creative projects taking into account teachers' educational specialization using information technologies.

The main elements of the process of IR formation are:

- the ability to use information technology to demonstrate printed and graphic documents;
- ability to use ICT to demonstrate audio and video materials in the classroom;
- ability to create presentations;
- ability to systematize and process data with the help of tables and flow charts;
- ability to make comparative tables and identify regularities with the help of a computer;

- ability to use information technologies for modeling processes and objects, making drawings and sketches;
- ability to use computer-based testing;
- Ability to use the Internet to solve pedagogical issues, gathers information, participate in teleconferences, access scientific, pedagogical and methodological data.

Information competence of the teacher assumes extensive use of computer technology, electronic versions of teaching materials, training programs, pedagogical technologies of a creative nature. The teacher should have the necessary training for the correct differentiation of opportunities for students in the study group, depending on individual characteristics, motivation, age and psychological characteristics.

Our experience of working with teachers allows us to highlight some of the features that must be taken into account in the development and implementation of training programs of universities, the system of professional development of teachers related to the formation of information competence. These features are:

- predominance of practical and laboratory classes in the teaching load with the use of a computer and organization of teachers' independent work;
- Prior study of the methods of teaching pedagogical and methodological disciplines by the students at the university. The academic disciplines associated with the use of information technologies in the educational process should be studied in the senior courses;
- Reflection of the peculiarities of teachers' specialization (Russian language, physics, technology) in the content of academic disciplines related to the formation of ICT;
- Assimilation by teachers of methods of use of information technologies at various stages of a lesson (organizational-preparatory, theoretical, practical, summarizing of a lesson).

IQ is one of the basic competencies of a modern teacher which has objective and subjective sides. The objective side is expressed by the requirements that society imposes on the professional activity of the teacher. Subjective aspect of ICT is determined by the individuality

of the teacher, his professional activity, and the features of motivation in the improvement and development of pedagogical maturity.

The tasks associated with the problem of formation of information competence of the teacher, can be divided into three groups:

- expressing the interests of society;
- reflecting the functions and content of the professional and pedagogical activity of a teacher;
- expressing individual professional needs and interests of a teacher.

Formation of IQ of the teacher assumes:

- mastering their knowledge and skills from the field of informatics and information and communication technologies;

- Development of communicative abilities of the teacher;

- The ability to navigate in the information space, to analyze information, to reflect on their activities and their results.

Four components may be singled out as part of a teacher's IQ:

- motivational - presence of motivation to achieve the goal, readiness and interest to work, setting and realizing the goals of information activity;
- Cognitive, i.e. presence of knowledge, skills and ability to use them in professional activity, analyze, classify and systematize software tools;
- Operational-activistic - demonstrates the effectiveness and productivity of information activity, the use of information technology in practice;
- Reflexive - provides readiness to search for solutions of arising problems, their creative transformation on the basis of the analysis of the professional activity.

Formation of ICT is an important part of teachers' professionalism. A systemic, holistic view of information competence, selection of its structure, justification of criteria, functions and levels of its formation, allows purposefully and effectively organize the educational process within the framework of educational activity, improve the level of subject-specific knowledge, make effective decisions in educational work, purposefully and systematically develop a student.

Formation of information competence of the teacher is the key to increasing the level of professional competence as a factor in improving the quality of education. The level of formation of information culture of the teacher is determined by:

- first, the knowledge of information, information processes, models and technologies;
- Secondly, the skills and abilities to use means and methods of processing and analysis of information in different types of activity;
- Thirdly, the ability to use modern information technologies in educational activities;
- Fourthly, the ability to see the world as an open informational system.

Designing a lesson with the use of new information technologies and Internet-resources requires a high degree of professional competence of the teacher, namely (and above all) informational, analytical, predictive and projective skills at the stage of its preparation, organizational and mobilization skills at the stage of pedagogical implementation.

It is assumed that competence integrates three aspects - cognitive (knowledge), operational (ways of activity and readiness to carry out activities) and axiological (availability of certain values). This can be explained by the fact that a competent specialist is an individual with the ability to realize and reflect his own values, to compare and evaluate himself/herself and others, and to project the future.

One of the main tasks of modern general education is the formation of information competence. In my opinion, the central place in the formation of information competence is occupied by the information environment of the general education school.

The informational educational environment of a school is a specially organized set of components providing systematic integration of new information technologies into the pedagogical system of a school with the aim of building a personality-centered pedagogical system. The information educational environment cannot arise spontaneously. Its formation is a purposeful managerial process.

In the conditions of the developing informational educational environment of the school an intensification of all levels of the educational process is carried out, the efficiency and quality of the learning process are increased due to the opportunities provided by the informational educational environment. The formation of information and educational environment of the school on the basis of the use of information and communication technologies is a key moment in creating optimal conditions for the development and self-development of teachers, improving their teaching and methodological activities, teaching creativity and informational competence.

Creating a unified information space at school requires the involvement of the whole teaching staff, students and, of course, parents.

A key figure in the information educational environment is the teacher. It is the teacher who decides how, to what extent and for what purposes IT tools can be used in the learning process.

Today it is obvious that the teacher acting within the limits of the usual "chalk technology" is inferior to his or her colleagues, who teach lessons using a multimedia projector, an electronic board, and a computer with Internet access.

To use the capabilities of the information educational environment effectively, the teacher must meet the following requirements:

- know the basics of working on a computer, as well as have access to and be able to use the information and educational space;
- work with multimedia programs;
- Know the basics of the Internet, become a guide for students in mastering the Internet and teach them how to effectively use information resources for their education.

Currently, the education system has developed the main directions of application of new information technologies in the educational process, including:

- use in the learning process of automated systems and complexes;
- use of expert systems and decision support systems;

- mastering information technologies with a focus on further application in professional activities;
- the use of information technology as a didactic tool and for modeling various objects and processes;
- Enhancing the creative component of educational and research activities.

The use of universal information programs and computer science tools in the learning process: text editors, spreadsheets, database management systems, multimedia technologies make the learning process more interesting and creative.

Information of the educational process at the present stage puts forward the task of moving to new pedagogical technologies and progressive methods of education. In this connection, the most important tasks for improving the educational process are both increasing the information culture of teachers, and as a consequence, raising the level of education and students, and the problems of adapting information technology in education, development of uniform standards for the creation of software products. It is natural to discuss these changes in the context of the transformation of educational courses, changes in their content, methods and organizational forms of learning in the conditions of school formation. The updated content of education together with the computing equipment that supports and provides this process is the basis of all new-generation curricula offered to today's schoolchildren. The main obstacle to the introduction of these programs is the methodological practice, the existing content of educational courses, closed educational architecture. New content and new information technologies should be offered together with new pedagogical technologies, new methods and organizational forms of educational work, and new school regulations. What is needed is a coherent educational policy, which allows each employee of the school to realize himself or herself as a participant in systematic, long-term changes in the educational process.

What is especially needed today are practical examples that demonstrate:

- The natural integration of new information technologies available in the school into the educational process;
- the transition of teachers to the conscious use of the wealth of potentially available methodological and informational tools;
- Improving the quality of educational work, using all the advantages of the existing educational system, solving the long-term social problems facing society.

In the "school of the information society", the teacher is no longer a main source of information about the world around her, and the main accent today should be placed on mastering the ways of activity. The traditional understanding of the main functions of a school textbook is changing: a modern textbook includes, besides the text, references to Web-sources, multimedia applications and specialized tools for learning (computer environments, virtual laboratories, interactive teaching materials, simulators, etc.). In today's information society the task of developing skills and mastering new means of communication (exchange of results of information work) is very important. It is natural to expect that these changes should be reflected in the nature and content of schoolchildren's learning activities.

In order to use IT tools in their work, teachers must:

- be aware of the existence of publicly available sources of information and be able to use them;
- be able to understand and consciously use different forms and ways to represent data in verbal, graphic and numeric forms;
- Be able to have methods of analysis and synthesis, to be able to assess the reliability and practical usefulness of the available data from different points of view, to use them for solving specific practical problems.

Communication skills instruction cannot be overlooked. Internet chat rooms and forums, text editors with built-in dictionaries of synonyms and homonyms, spell-checkers, and style checkers are leading to an increase in students' written language skills. The importance of "graphic literacy" is growing rapidly; programs for the development of drawing and technical drawing skills have been created. The structure

and content of general education courses provide the necessary space for communication. In addition to the traditional classroom response, such courses provide for student conferences, using the possibility of group work with appropriate mandatory reporting of progress and results (within the group and in the classroom). A time-tested tool for such work is the regular production of school newspapers, almanacs, and other publications. It is important that these types of work are included in the curriculum as one of the mandatory components and are combined with other forms of learning activities. This communication space naturally implies the use of newly emerging IT tools. For example, a multimedia projector makes presentation graphics an indispensable tool in the preparation of student presentations; the school website becomes a place for student publications; the Internet makes it possible to take learning projects outside the walls of the individual school and make them telecommunications. New information technologies help find a natural way to make students active participants in the learning process. However, IT by itself does not solve this problem. The corresponding directions should be laid in the corresponding curricula. If this is not the case, we can hardly expect IT to be a really useful educational tool.

Results and discussions. To determine the degree of information competence of teachers in professional activities, the following pedagogical surveys were conducted, which are listed below the results.

I. Questionnaire to determine the extent of information and computer technology use

1.	Your	specialty
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2. Do you use information and communication technologies (underline as appropriate):

- in preparation for the lesson;
- On the lesson;
- For self-education;
- Other (specify).

3. What information and communication technologies do you use (underline as appropriate):

- text editor;
- electronic tables;
- electronic presentations;
- multimedia disks;
- Specialized programs;
- Internet;
- Electronic textbooks;
- Other (specify).

4. How often do you use information and communication technologies (underline as appropriate):

- Daily;
- Once a week;
- 1-2 times a month;
- 1-2 times a quarter;
- Other (specify).

5. Do you think that the use of information and communication technology makes it much easier to prepare for lessons and to diversify them?

6. Are the conditions created at school for the use of information and communication technologies?

7. Does the school administration encourage information and communication technologies?

9. What are your achievements in the use of information and computer technology?

10. What problems arise in the use of information and communication technologies?

11. What digital educational resources do you use most often?

II. Diagnostic map of the degree of knowledge of the teacher on the topics

Surname, name of teacher	I					II							III		IV		V
	1	2	3	4	5	1	2	3	4	5	6	7	1	2	1	2	

Basic knowledge on the topics

I. Microsoft Power Point as a presentation creation tool

1. Familiarity with PowerPoint.
2. Creating a slide with a diagram and a table.
3. Inserting pictures and animations into a slide when demonstrating.
4. Creating control buttons.
5. Saving and preparing a presentation for demonstration.

II. Microsoft Word .

1. Font, size.
2. Creating and editing a text document.
3. Typing and editing a text document.

4. Paragraph indents and spacing.
5. Creating and formatting tables.
6. Inserting a figure.
7. Page numbering. Printing the finished document.

III. Microsoft Publisher

1. Preparing a postcard.
2. Booklet preparation and printing.

IV. Internet

1. Internet search.
2. Email.

V. Development of outlines of lessons using information technologies.

III. Diagnostic card of the extent of teacher's information and communication technology use in professional activity

Surname, name of teacher _____

Search and selection of additional information for the preparation of lessons using Internet resources	
Use of presentations, multimedia materials, etc. at the lessons with the children	
Creating a database of students and their parents of their class	
Development of lessons for children in different areas with the use of information technologies	
Use of the Internet for self-education	
Use of ready-made digital educational resources in the pedagogical process	
Own web-site (no; yes (give address))	
Experience in the use of ICT in the following areas	
Willingness to organize training for school teachers (specify topic)	

To solve the tasks of the research it was necessary to study the state of the problem of forming the information competence of a teacher in practice and experimentally verify the effectiveness of the use of theoretical and practical resources aimed at forming this quality in a teacher. The results of the diagnostic experiment to study the level of formation of the information competence of the teacher in education, have clearly demonstrated the pedagogical expediency of the search for ways and conditions of increasing the effectiveness of formation of this quality in the teacher. Purposeful work on the formation of the information com-

petence of the teacher in education was based on the generalization of the results of the diagnostic study, as a result of which the article developed and tested the conceptual model of formation of the information competence of the teacher when applying a set of pedagogical conditions.

Analysis of diagnostic data allowed to penetrate deeper into the essence of the studied pedagogical phenomenon and related processes, which allows you to develop and justify the pedagogical conclusions, and also made forecasts of further development of this quality. Namely, it allows us to state the effectiveness of

organizational actions for the formation of information competence of the teacher in the conditions of the regional system of additional professional education.

Statistical processing of the data carried out during the ascertaining and formative stages of the experiment showed that there is a reliable correlation between the pedagogical conditions of formation of informational competence of a teacher created in the educational process and the positive growth of indicators of development of this complex education of a teacher. So, in the experimental groups there are significant increases in indicators as average values, and values on components. Comparative analysis showed that the organization of pedagogical activities has a positive impact on the formation of this quality of the teacher.

Identification of a teacher with information activity is observed, in other words, personal competence of a teacher acquired in the process of information activity begins to manifest itself not only in professional activity, but also becomes a value guide in other spheres of his life activity.

The conditions for effective formation of information competence of a teacher in the educational system are:

- scientifically-based organization of the process of formation of information competence of the teacher;
- Actualization of the subjective position of the teacher in the process of working with information;
- Special organization of information educational professionally significant environment;
- Stimulation of students' motivation to receive personally significant educational product;
- Implementation of monitoring, the subject of which is the level of information competence of the teacher.

At the end of the experiment the teachers were offered to try themselves and held a master class on mastering these programs.

Conclusion. The new educational situation makes such competencies of a teacher that are currently underdeveloped at her: design and constructive, organizational and technolog-

ical, communicative and regulatory, technical and didactic, etc., demanded. In order to substantiate and organize a set of these competencies, it is expedient to develop a model of competence of a teacher on the basis of the analysis of professional activity and determination of its new functions.

Having analyzed the education system, we developed the following requirements for the information competence of a teacher:

- Knowledge of the principles of a personal computer and the ability to work with technical equipment;
- ability to interact with electronic information and present it in different forms (text, table, picture, etc.);
- ability to effectively search, select, and present information using Internet resources;
- skills of conducting lectures, seminars, discussions using telecommunication technologies;
- Skills of using information technologies to create their own learning materials.

According to the requirements of the system, a modern teacher needs the following skills for effective pedagogical activity:

- with text editors as a means of preparing and executing texts of varying complexity;
- with electronic tables as a means of processing numerical information and its presentation in the form of diagrams, charts, etc;
- with the help of presentation tools as a means of visual and collective presentation of educational material;
- with graphic media editors as a means of processing images and multimedia products;
- electronic mail, telecommunication and Internet technologies as a means of communication with students and colleagues around the world;
- With modern information retrieval systems as a means of searching for educational and scientific information.

As for the requirements of the general education system, schools set the following tasks:

- Wide equipping of educational institutions with technical means, access to the Internet;
- creation of a local electronic network in each school uniting the work of all school structures;
- creation of specialized computer-based training courses for teachers;
- Creation of local pages in school information and library centers containing teachers' electronic educational and methodical materials on their subjects with Internet links to educational sources;
- Web support for academic subjects;
- Development of electronic textbooks containing multimedia didactic materials.

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