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FORMATION OF READINESS OF FUTURE TEACHERS FOR THE DEVELOPMENT OF
INFORMATION AND COMPUTER CULTURE OF JUNIOR SCHOOLCHILDREN

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GENERAL DESCRIPTION OF WORK

The relevance of research. Today, the birth of a new type of information and computer society with the "informational", "electronic", "technotronic", "eco-technical" identifications assigned to it is being observed.

In this regard, one of the main priorities of general education is the formation of information and computer culture of students. This is due not only to educational necessity, but also to the fact that the very role of information activity is constantly growing, changing the whole character of life, where an information-active and enterprising individual is required, that capable of carrying out the boldest decisions using technological means.

As the analysis of domestic and foreign experience shows, today the age at which children get acquainted with new information technologies begins to decrease steadily: already at preschool age they get access to personal computers and the Internet. From this we can conclude that the process of the formation and development of information and computer culture must begin at an early age. The effectiveness of this process will be achieved when the school will create a single information space in which each child will have a competent teacher in the field of new information technologies. And this invariably leads to the formulation of the problem of the quality of the training of future teachers in the conditions of information support and computerization of society.

Indeed, a modern teacher, as never before, needs system knowledge in the field of innovative technologies in order to productively introduce and use them in the educational process. An analysis of the state of this problem shows that today there is a lack of readiness of future primary school teachers to develop the information and computer culture of students, which gives rise to a clear contradiction between theory and the objective needs of practice. It is on the solution of this problem that the scientific researches of domestic researchers are directed. The following aspects of information support of education and development of the information and computer culture of the individual were reflected in the research: the problem of information-analytical culture of the individual (N.A. Slyadneva); informational character of the educational environment of the school (Yu.G. Korotnikov); information competence of modern teachers (A.A. Kuznetsov); introduction of information technologies in education (I.V. Robert, S.V. Panyukova); use of computers in education and training (V.P. Bespalko); personification of information technologies in the university (Sh.M. Kalanova); organizational aspects of students' information training (S.K. Golubeva); computerization of the educational process in educational institutions (Yu.S. Branovsky); information competence of specialists (A.V. Khutorskaya, S.V. Trishina); the use of informatics in the substantive training of future specialists (I.Yu. Morozov);

formation of readiness of the future teacher for the development of the information culture of junior schoolchildren (I.A Donina).

At the same time, the principles and pedagogical conditions for forming future teachers' readiness for the development of the information and computer culture of junior schoolchildren were not fully revealed in the scientific literature. Meanwhile, the school is called to form today a deep knowledge and general culture of students in the field of information technology, starting this process even at the younger school age. The most important role in this process belongs to the teacher as the main assistant and mentor, who, in turn, must be competent in this field. This requirement determines the need for developing new ways of organizing the educational process and pedagogical technologies.

All of the above made it possible to identify the following contradictions between:

- high level of development of theories of development of professional competencies of primary school teachers, which include an information and computer culture in their structure, and insufficient training and methodological support necessary for the practical implementation of these provisions in full effect;

- the need to introduce into the educational process pedagogical educational institutions of disciplines that focus on the development of technologies for the development of information and computer culture of junior schoolchildren, and the lack of the necessary educational resources.

The need to find a theoretical and practical solution to these contradictions has made it possible to determine the problem of the dissertation research: what is the scientific and methodological support for the formation of the willingness of future teachers to develop the information and computer culture of younger schoolchildren?

Theme of the dissertation research: "Formation of readiness of future teachers for the development of information and computer culture of junior schoolchildren".

Object of the study: the process of forming the professional competencies of the future primary school teacher.

The subject of the research: scientific and methodological support for the formation of the readiness of future teachers to develop the information and computer culture of junior schoolchildren.

In this connection, **the aim of the research** was to develop, scientifically substantiate and experimentally test the pedagogical model and the conditions for forming future teachers' readiness for the development of the information and computer culture of younger schoolchildren.

Hypothesis of research. The process of forming the readiness of future teachers to develop the information and computer culture of junior schoolchildren will be quite effective if

- to consider this readiness as a component of the professional competence of an elementary school teacher;

- in the educational process to rely on the following principles for the development of the information and computer culture of junior schoolchildren in the activity of the primary school teacher: taking into account the age features of younger schoolchildren; moral and emotional pedagogical support of younger schoolchildren; motivational training of junior schoolchildren; orientation on the personal growth of each child; activity and independence of junior schoolchildren in their integrity, the unity of their connections and relationships;

- to realize the appropriate pedagogical conditions for the preparation of future teachers for the development of the information and computer culture of junior schoolchildren;

- this process will be based on the structural and functional model of the future teachers' readiness to develop the information and computer culture of junior schoolchildren.

In accordance with the purpose and hypothesis of the study, the following **tasks** were identified:

1. To disclose the content of the concept of "the readiness of the future teacher to develop the information and computer culture of junior schoolchildren" in the structure of the professional competence of the future primary school teacher.

2. To substantiate the basic principles of the development of information and computer culture of junior schoolchildren in the activity of the primary school teacher.

3. To reveal the pedagogical conditions for the preparation of future teachers for the development of the information and computer culture of junior schoolchildren and to verify them in the process of experimental and experimental work.

4. To develop and test the content and structure of the model of forming the readiness of future teachers to develop the information and computer culture of junior schoolchildren.

The methodological basis of the research are the axiological (value) approach, which recognizes man as the highest value in society and the end in itself of social development; a systematic approach that makes it possible to investigate pedagogical processes from the standpoint of their holistic characteristics; a personal approach that allows you to orient yourself in the educational process on the personal characteristics of schoolchildren, their needs and abilities; the activity approach, which involves the activation of the learning activity of trainees; competence approach, aimed at shaping the future teacher to act in the specific conditions of the educational process in school.

The theoretical basis of the study were the fundamental psychological and pedagogical theories and concepts: the competence approach in education (IA Zimnya, GI Ibragimov, DA Ivanov, KG Mitrofanov, J. Raven, OV Sokolova , ID Frumin, AV Khutorskaya, and others); developing educational and upbringing (VV Davydov, AV Petrovsky, VV Serikov, EN Shiyarov, DB El'konin and others); humanization of education (Sh.A. Amonashvili, RA Valeeva, LA Volovich, ZG Nigmatov, VA Sukhomlinsky, etc.), stimulating independent activity and creative initiative of children (E. Kay, M Montessori, J.-P. Sartre, LN Tolstoy, R. Steiner); structure and principles of a pedagogically comfortable educational environment (AV Kachalov, TF Loshakova, AN Lutoshkin, VI Slobodchikov); personalized approach (OA Abdullina, DA Belukhin, SG Vershlovsky, VI Zagvyazinsky, EF Sezer, AV Korzhuev, NN Nikitina, VA Popkov , VA Sitarov, GV Sorokov); subject-oriented pedagogy (NM Borytko, OA Matskailova, OA Milinis, NA Pronina); professional pedagogical education (NV Kuzmina, AK Markov, LM Mitin, VA Slastenin, and others).

To solve the tasks and in accordance within the logic of the research the following methods were used:

- theoretical (analysis of psychological, pedagogical and methodological literature, generalization, classification, comparison, modeling study and synthesis of advanced pedagogical experience, observation);
- empirical (observation, interview, questioning, testing, ranking, expert assessments, pedagogical experiment).
- Methods of mathematical statistics.

Stages and experimental base. The study was conducted stepwise from 2004 to 2017 on the base of the Institute of Psychology and Education of the FGAOU VO "Kazan (Privolzhsky) Federal University". At the first (search-theoretical) stage (2004-2007), the analysis of the state of the problem in the pedagogical literature on the research topic was carried out; the object, the subject, the scientific apparatus and the base of the research were determined; the material was synthesized, a model and pedagogical conditions for the formation of the readiness of future teachers to develop the information and computer culture of younger schoolchildren were developed, the methods of experimental research were determined, the promising ideas for the development of future teachers of professional competencies were brought into a system.

At the second (pilot-experimental) stage (2008-2014), the hypothesis of the study was checked; of the developed model and the conditions for the formation of the readiness of future teachers for the development of the information and computer culture of junior schoolchildren were implemented.

At the third (generalizing) stage (2015-2017), systematization and processing of the results of the study were carried out, theoretical and experimental conclusions were refined, and the dissertation was carried out.

The scientific novelty of the study is as follows:

1. The basic concept of research "the readiness of the future teacher for the development of the information and computer culture of junior schoolchildren" is theoretically substantiated, substantively disclosed and defined as the integrative personal quality of the teacher, which is the result of his special training that includes the nature-oriented introduction of information technologies into the teaching process educational subjects in order to enhance the learning process and motivated and meaningful development of school computer curriculum; its structural components are specified;

2. In the thesis it is proved that the process of forming the readiness of future teachers for the development of information and computer culture of junior schoolchildren is based on the recognition of personal motives and values and semantic aspects of professional activity, and therefore the key principles of the development of information and computer culture of junior schoolchildren in the activity of primary school teachers are principles of taking into account age features of junior schoolchildren; moral and emotional pedagogical support of younger schoolchildren; motivational training of junior schoolchildren; orientation on the personal growth of each child; activity and independence of junior schoolchildren in their integrity, the unity of their connections and relationships.

3. The set of pedagogical conditions for the preparation of future teachers for the development of the information and computer culture of junior schoolchildren is substantiated and experimentally tested: the system of mastering students information technology of instruction that ensures the development of information and computer culture of younger schoolchildren; development of motivation for students to create an atmosphere of dialogical interaction between subjects of the learning process in the classroom by using the information-communicative method of instruction; the formation of students' ability to create success situations in the learning process on the basis of taking into account the individual abilities of each schoolchild and determining the prospects for forming the information competence of each of them; mastering the algorithm of pedagogical activity on the development of information and computer culture of junior schoolchildren (stimulating the motivational and demanding sphere of junior schoolchildren within the framework of their computer literacy development, providing independent work of junior schoolchildren with various sources of information, teaching junior schoolchildren to rational ways of mental work, developing productive thinking of junior

schoolchildren with the skills of its practical use; producing and creative cognitive activity for primary school students).

4. The model of forming the readiness of future teachers for the development of the information and computer culture of junior schoolchildren is developed and implemented. It consists of the following interrelated and interdependent components: the target as a predictable result, which determines the organization of the process of forming the structure of the professional competence of the primary school teacher: forming the student's personal orientation for the future professional activity; methodological, including system-forming principles of development of information and computer culture of junior schoolchildren in the activity of primary school teachers; substantial, ensuring the consistent mastering by students of professionally oriented knowledge and skills of the competent use of modern information technologies in their pedagogical activity during the study of a complex of educational disciplines; activity, acting as a regulating element of the process of development of information and computer culture of students and gradual promotion of students in the framework of providing pedagogical conditions; diagnostic, representing a diagnostic tool for checking the effectiveness of the formation of the readiness of future teachers to develop the information and computer culture of junior schoolchildren; effective, characterizing the formation among students of the basic components of readiness for pedagogical activity in the information educational space of the primary school.

Theoretical significance of the study. The theoretical bases of formation of readiness of future teachers for the development of information and computer culture of junior schoolchildren considered in the study represent a contribution to the development of the theory of the competence approach to the professional development of teachers, technological and methodological support of the process of formation of the information and computer culture of the individual. The study enriches the pedagogy of higher education, contributes to the solution of urgent problems of increasing the level of readiness of future primary school teachers to perform their professional duties. The results of the research contribute to the development of a holistic concept of the development of pedagogical competence in the conditions of studying at the university.

Practical significance of the study. The practical implementation of pedagogical conditions and the introduction of a pedagogical model for the formation of the readiness of future teachers to develop the information and computer culture of junior schoolchildren will help improve the training of teachers, taking into account the achievements of modern scientific and pedagogical thought in this field. Research materials can be used as a basis for the development of educational and methodological support for the process of professional and

pedagogical preparation of future primary school teachers. The results of the research will contribute to strengthening the humanization of the educational process of the primary school.

Conclusions and materials of the dissertation research can be used in the design and organization of the educational process in primary school, in secondary and higher vocational schools; in the system of professional development of pedagogical workers; for further studies of the problem of professional and personal self-development of future specialists in primary education.

The main provisions to be defended.

1. Readiness of the future teacher for the development of the information and computer culture of junior schoolchildren is the integrative personal quality of the teacher, which is the result of his special training and includes the natural-oriented introduction of information technologies into the teaching of subjects in order to enhance the learning process and motivated and meaningful development by schoolchildren educational computer programs. This readiness as the quality of an elementary school teacher includes the following components: the cognitive component (the system of knowledge of the information and computer culture, the possibilities of using information and computer technologies with primary school students), the activity component (the set of skills of information and computer culture), the motivational - the value component that includes cognitive and social motivation, interest in information and computer culture, the need for using information technologies in the process of preparation for studies, a communicative component (the readiness of future teachers to cooperate in the process of telecommunications in the framework of interaction in the information space), the personal component (the desire for self-education, self-development).

2. The following **principles** are the system-forming methodological grounds for the development of the information and computer culture of junior schoolchildren in the activity of primary school teachers: taking into account the age features of junior schoolchildren (assumes the account and use of the patterns of the formation and development of the child's personality, which is associated with the socio-psychological characteristics of this age group students); moral and emotional pedagogical support of junior schoolchildren (the creation in the classroom of maximum opportunities for the development of the motivational sphere of junior schoolchildren, which would contribute to their development as actors of life activity in all its fields, including information field); motivational training of junior schoolchildren (aimed at the overall development of schoolchildren, taking into account the inclusion of the student in activities corresponding to the zone of his nearest development, taking into account the formation of not one but several motives for the student, taking into account the creation of positive emotions in the learning process, as well as trust relationships with the teacher);

orientation to the personal growth of each child (creating the maximum conditions conducive to the accumulation of the child's individual experience, the disclosure of his abilities, inherent in nature, the provision of opportunities for his self-discovery, self-determination and self-realization); activity and independence of junior schoolchildren (stimulation of the active aspiration of the child for independent actions, as well as psychological readiness for them).

3. Scientific and methodological support for the formation of the readiness of future teachers to develop the information and computer culture of junior schoolchildren assumes the need to take into account the following pedagogical conditions:

- Systemic mastering by students information technologies of education, that provide development of information and computer culture of junior schoolchildren (information culture is taught to students in parallel with studying the theoretical orientation of information aspects with practical mastering of computer information technologies);

- development of motivation for students to create an atmosphere of dialogical interaction between the subjects of the learning process in the classroom by using the information and communication method of training (the need to condition the educational process with a personal meaning for each student in order to stimulate the reflexive components of his upcoming pedagogical activity, in particular, using the information and communication method of training);

- formation of students' ability to create success situations in the learning process on the basis of taking into account the individual abilities of each schoolchild and determining the prospects for forming the information competence of each schoolchild (teaching students to direct the educational and cognitive activity of younger schoolchildren to the result, for which it is necessary to develop their natural desire to the knowledge of the surrounding world, to provide an individual trajectory for the development of each child, taking into account his abilities; but by the formation of his intellectual abilities, etc.);

- mastering the algorithm of pedagogical activity for the development of information and computer culture of junior schoolchildren (stimulation of the motivational and demanding sphere of junior schoolchildren within the framework of their computer literacy development, providing independent work of junior schoolchildren with various sources of information, training of younger students in rational ways of mental development of productive thinking of junior schoolchildren with the skills of its practical use; ensuring a rational relationship between creative and cognitive activity for primary school pupils).

4. Structural and functional model of forming the readiness of future teachers to develop the information and computer culture of junior schoolchildren is a system of professional training of specialists in the field of primary education that includes the following components:

goal, principles, content, pedagogical conditions, the system of determinants of readiness for development of information-computer culture of children, mechanisms and the expected result of the formation of the foundations of this readiness for the implementation of a specific type of pedagogical activities.

The reliability and validity of the research results is ensured by the conceptual validity of the research methodology, its conformity to the posed problem; the argumentation of a conceptual design based on a set of scientific approaches that correspond to and reflect the specifics of the object, the object, the purpose and objectives of the research using experimental and diagnostic methods that combine quantitative and qualitative analysis; a broad survey of scientific sources on this issue, the author's personal participation in experimental work, the use of statistical methods of processing results.

Approbation and implementation of research results were carried out at scientific and practical conferences of various levels: international ("Theory and practice of continuous psychological and pedagogical education: problems, searches, prospects", Kazan, 2009; "Actual problems of natural and humanities", Zelenodolsk, 2013; "Elementary school today: problems of continuity", Kazan, 2015); All-Russian ("Actual problems of theory and methodology of higher and secondary vocational education", Orenburg, 2010); regional and republican (Kazan, 2009-2016); (Kazan, 2009-2016), and also were discussed at the meetings of the Department of Preschool and Primary Education of the Institute of Psychology and Education of the Kazan (Privolzhsky) Federal University, scientific and methodological seminars. Based on the research materials, 20 scientific publications have been published, including: 3 publications in journals recommended by the Higher Attestation Commission of the Russian Federation, 4 papers in publications indexed in the Scopus database and the Web of Science.

The structure of the dissertation. The structure of the dissertation reflects the logic of the solution of the tasks. It includes an introduction, two chapters, a conclusion, a list of literature and applications. The list of literature consists of 242 sources. The thesis with 22 applications includes 303 pages.

MAIN CONTENT OF DISSERTATION

In the introduction, the validity of the study is justified; revealed contradictions, associated with the scientific and methodological support for the formation of the preparedness of future teachers for the development of information and computer culture of younger schoolchildren; the problem, the goal, the object, the subject, the hypothesis and objectives of the research are formulated; Methodological bases, theoretical base and methods of research are offered; scientific novelty, theoretical and practical significance are revealed, the main stages of the research are characterized, the main provisions put forward for defense are formulated.

In the first Chapter of the study "Theoretical aspects of the formation of the readiness of future teachers to the development of information and computer culture of younger students" was identified the role of information activities, which currently imposes on the teaching activities of teachers such requirements as the creation of a favorable information situation of personal development (L. S. Vygotsky, A. N. Leontiev); providing students with the opportunity to determine their place in the information space (L. S. Rubinstein, L. I. Bozhovich); encouraging students development of information and computer culture (B. M. Teplov, V. A. Petrovsky); coordination of the teachers include activities with individual characteristics of students (K. Leongard A. E. Lichko); implementation of the remedial work associated with the cognitive and behavioural components of students (V. P. Zinchenko, A. G. Kovalev, A. V. Mudrik); orientation of pedagogical activity in the formation of the qualitative characteristics of the individual with the development of her leading types of activity (D. B. Elkonin, D. I. Feldshtein).

In § 1.1 "Informatization of education as a basis for the development of information - but-computer culture of the individual" the historical and cultural analysis of trends in Informatization of society, naturally leading to the Informatization of education; the use of various information technologies; the use of methods and means of Informatics for the productivity of the educational process; the expansion of opportunities to improve the quality of training of the younger generation to the future rational organization of life. In this regard, it was concluded that the formation of the information society leads the educational system to the need for dynamic changes in it, which is currently reflected in the development of new information technologies, the organization of information education, and hence the improvement of information culture of the individual. The study of the main components of Informatization of education as the basis of the development of information and computer culture led to the conclusion that it is a complex multi-level process aimed at improving the efficiency of all types of educational activities in the use of information and telecommunication technologies in order to improve the content, functions, forms and methods of formation of information culture of teachers to work at all levels of the educational process by improving the quality of training with a new type of thinking, the corresponding requirements of the information society.

In §1.2 "Information and computer culture in the structure of professional competence of the future primary school teacher" the problem of formation of professional competence of the future teacher was studied, in particular, the study of its essential characteristics and structure, which, as the study showed, should be complete and correspond to modern trends to competent specialists, where the readiness of the teacher to teaching in the conditions of Informatization of education occupies an important place.

In the development of the categorical apparatus of the study were considered meaningful characteristics of the basic concepts: "professional competence", "professional competence of the teacher", "professional competence of primary school teachers", "information and computer culture of the teacher." On the basis of the concepts considered in the study, the following definition of the concept "readiness of the future teacher for the development of information and computer culture of younger students" was proposed-an integrative personal quality of the teacher, which is the result of his special training and includes a natural-shaped introduction of information technologies in the process of teaching subjects in order to aktivizatsii learning process and motivated and meaningful development of schools of educational computer programs.

When concretizing the readiness of the primary school teacher to develop the information and computer culture of primary school students, the necessity of implementing such activities as: cognitive activity, design activities, constructive activities, strengthening the communicative beginning of pedagogical activities, expanding the range of organizational activities was revealed.

In §1.3 "Principles of development of information and computer culture of primary school students in the activities of primary school teachers" were identified the main ways of development of information and computer culture of primary school students in the activities of primary school teachers on the basis of certain system-forming principles of this activity. The organization of productive educational process for the purpose of effective training of practice-oriented specialist is studied. In the proposed context, we relied on V. I.'s position. Andreeva, who considers the pedagogical principle as a pedagogical category, characterizing the ways of solving various pedagogical problems and serving as a criterion for improving pedagogical practice in General (Andreev V. I., 2002).

As the study showed, for the effective development of information and computer culture of primary school students, the pedagogical activity of primary school teachers should be based on the following principles: the principle of taking into account the age characteristics of primary school students (predp-supposes such pedagogical effects on the primary school student, which could become factors of his development, i.e. the requirements of the teacher should be included in the structure of children's needs, and the younger schoolboy himself will especially strive to fulfill the requirements of the teacher to meet his inner position); the principle of moral and emotional pedagogical support for younger students (involves pedagogical participation in the formation of the younger schoolboy's personality, including assistance in the child's awareness of his / her abilities and abilities, his / her own interests and needs, as well as readiness to work in the information environment); the principle of motivational training of younger students (aimed

at creating conditions for students that would require them to be active, and the motives and goals would be developed taking into account the past experience of children in the direction of their internal strivings to cognitive activity; creating opportunities for the formation of younger students' ability to manage their activities, set goals and predict the result, develop their curiosity and initiative); the principle of orientation to the personal growth of each child (includes ensuring a mastery of such conditions as: the exercise of personality-semantic orientation of their activities; application of individual approach in teaching; the creation of the creative nature of the educational activities; ensuring the cultural and pedagogical learning content through the implementation of information exchange; the introduction of computerization in the learning process to prepare younger students for life in the information society; assistance to young students in their self-actualization); the principle of activity and self-activity of younger school students (involves identifying primary school levels of cognitive activity and independence, the most important indicators which can be considered the following: the presence of informative interest to everything new; a manifestation of care, observation and focus; a desire to carry out any task proposed by the teacher; the level of activity when working on the computer; desire to apply knowledge in any educational situations were covered; the desire for independence in performing tasks; willingness to overcome difficulties in the performance of educational tasks).

The paper concludes that the principles under consideration require the teacher to update the real help in the development of children's skills to work with this or that information environment. For competent management of these processes in the activities of the teacher should be present at the following aspects: theoretical aspect (knowledge of the laws and principles of age psychology), methodological aspect (knowledge of methods and techniques of working with younger students) and technological aspect (use in their work of innovative technologies).

In the second Chapter "Pedagogical support of formation of readiness of future teachers to development of information and computer culture of younger school students" the pedagogical model of formation of readiness of future teachers to development of information and computer culture of younger school students on the basis of the pedagogical conditions representing purposefully formed set of the interconnected significant components necessary for successful functioning of the presented.

Перевести в Google Bing In § 2.1 "Scientific and practical substantiation of pedagogical conditions of preparation of future teachers to the formation and development of information and computer culture of the younger schoolchildren" revealed a set of educational resources, forms, methods and techniques to improve the efficiency of the educational process and the information

environment to ensure a successful solution to the problem of formation of readiness of future teachers to the development of information and computer culture of the younger schoolchildren.

Identified certain positions associated with the pedagogical conditions, among which the main can be called the following: the conditions should be a component of the designed model and are associated with it in the framework of the educational process; competent selection of appropriate pedagogical conditions should ensure the effectiveness of the proposed pedagogical model; pedagogical conditions should reflect the full range of possibilities as an educational (productive interaction of subjects of education; modern content and innovative methods and techniques of training).; development of the student's culture as a measure of versatile creative activity) and material resources (information infrastructure, information technology of the educational institution) to ensure the Polo-cal functioning of the educational process; the structure of pedagogical conditions should include internal (providing the development of information and computer culture of students and their ability to navigate in the information space) and external (joint activities of teachers and younger students, as well as the preparation of the younger generation to life in an information-based society) elements of this pedagogical system..In § 2.1 "Scientific and practical substantiation of pedagogical conditions of preparation of future teachers to the formation and development of information and computer culture of the younger schoolchildren" revealed a set of educational resources, forms, methods and techniques to improve the efficiency of the educational process and the information environment to ensure a successful solution to the problem of formation of readiness of future teachers to the development of information and computer culture of the younger schoolchildren.

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The educational process was organized taking into account the following pedagogical conditions:

- systematic mastery of students of information technologies of education, providing the development of information and computer culture of young students (organization of the process of self-study of students on the basis of such methodological and didactic approaches, as: organization of information and educational environment during classes; providing scientific and methodological tools to create advanced nature of educational technologies; formation of students' psychological readiness to work in the information environment; use of all possible didactic means to consolidate students' sustainable skills in the environment of basic information technology; organization of extracurricular activities of students to develop their skills and skills of working with a computer and various software applications, etc.);

- the development of students' motivation to create in the classroom atmosphere of the dialectical interaction of subjects of the educational process through the use of information and communicative method of teaching (ensuring the achievement of cognitive results for the younger student through dialogue, which involves not only the Association, but also a certain technology of knowledge, when for the younger student dialogue promotes interest, and for the teacher to expand opportunities for success in teaching);

- formation of students' ability to create in the learning process situations of success based on the individual abilities of each school and the definition of prospects for the formation of information competence of each of them (provision of psychological and pedagogical support for students to actualize their ideas about the possibilities of maximum use of their potential for professional growth; to achieve a situation of self-success, providing in the future and personal success of the student, in connection with which the student motivates himself to design and his future on the basis of his own self-actualization);

- formation of students' skills in the implementation of pedagogical conditions for the development of information and computer culture of younger students (stimulation of motivational needs of younger students in the development of their computer literacy; providing independent work of younger students with different sources of information; teaching younger students rational ways of mental work; development of productive thinking of younger students with the skills; the establishment of efficient ratio of the playback and creative позна-tional activity for primary school pupils).

For modern educational practice, the following guidelines for the teacher in the context of the formation of information and computer culture of younger students may be of undoubted importance: formation of operational style of thinking in children (the ability to structure the task, highlighting it in General and particular; the ability to design a solution to the educational

problem with the help of available in the Arsenal of the teacher of information and computer technologies.); the development of students 'logical and imaginative thinking (the ability to combine the use of graphic and sound tools when working on a computer for the purpose of educational tasks); teaching younger students the skills of working with modern software (the development of a computer as a tool for the organization of their activities for the purpose of practical work with information); expansion of younger students' knowledge about the possibilities of using a computer as a means of training (learning the ability to calculate, image, re-duct, search for the necessary information, etc.); formation of computer intuition (learning to use the computer in practice if it is effective, and to abandon it where you can do other means); formation of younger students readiness to work in an information environment (creating a positive emotional attitude to the computer, for example, in the conditions of turning the lesson into an interesting game).

In § 2.2 " Design of the model of formation of readiness of future teachers to development of information and computer culture of younger school students»

Having considered in the previous paragraphs the theoretical aspects of the formation of the readiness of future teachers to the development of information and computer culture of younger students, as well as the need for innovation in keeping with modern scientific knowledge, we came to the conclusion about the use of modeling method in this area. In this regard, we consider pedagogical modeling from the point of view of the development of software model of formation of readiness of future teachers to the development of information and computer culture of younger students. In the process of creating a model, the main criterion for us was the requirements for a modern primary school teacher, which determine the most important parameters of special training of teachers of this level to professional activities, especially in the conditions of Informatization and computerization of most spheres of social life. From here, in the context of our study, one of the ways of forming the readiness of future teachers to the development of information and computer culture of primary school students is the modeling of his professional competence and its most important components-information and communication competence, which is a characteristic of the content and procedural aspects of students ' training in the higher

Thus, in the design of the pedagogical model of formation of readiness of future teachers to the development of information and computer culture of primary school children, we put the content and process side of this process at the forefront. At the same time, the pedagogical model was based on the algorithm of the educational process, where the object of knowledge, the purpose of his knowledge and the subjects implementing cognitive activity are defined. Based on this, the model of the future primary school teacher as an object of design represents a kind of

pedagogical system in the form of the unity of all its components, factors, various activities of the teacher, as well as the possibilities of organization and management of the educational process, which, ultimately, contribute to the achievement of the goals.

Based on the scientific pedagogical experience of modeling and methodological forecasting of pedagogical systems, the thesis developed a structural and functional model of formation of readiness of future teachers to the development of information and computer culture of younger students. The given model can be considered as a certain system of professional training of specialists in the field of primary education. (See para. Annex).

The target component of this model involves the formation of readiness of future teachers to the development of the computer and information culture of primary school pupils and aims to increase motivation to acquire knowledge, abilities and skills in programming; enriching their knowledge about the communication systems as the communication channels and ways of information exchange; capacity-experience in the field of software; development of ability a professional approach to the search cognitive activity; improving their skills in the ability to interpret the semi-governmental information to be ready for its further consistent presentation for students as full participants of the communication process; expansion of experience in the competent use of information in the process of training and education of students, hence – the manifestation of the readiness of future teachers to develop information and computer culture of younger The content component involves the students ' mastering of theoretical knowledge, which are associated with constructive, analytical, reflective and prognostic functions of the teacher; mastery of the relevant practical skills (communication, organizational, developing, information, diagnostic). Active component is associated with the use of appropriate learning technologies, forms of organization of educational-cognitive activity of students, methods of organization and implementation of their cognitive activities, stimulation methods and motivation to mastering the teaching profession, methods of control and self-management by students of their activities and learning tools that facilitate blade-level students the practical skills of a primary school teacher and carried out in the following relationship: providing conditions for the inclusion of younger students in the educational process; organization and support of pedagogical dialogue; creation of conditions for the development of younger students 'cognitive processes; competent use of technical means, electronic computer technology in the educational process; finding ways and means of realization of the planned goals, etc.the Expected result of the implementation of the model is the formation of students' basic components of readiness for pedagogical activity in the information educational space of primary school (cognitive, activity, motivational, needs, communicative and personal).

Thus, we consider this pedagogical model as an opportunity to implement the process of preparing students as future primary school teachers to the development of information and computer culture of primary school students.

In § 2.3 "the Content, course and results of experimental work to test the effectiveness of the formation of the readiness of future teachers to the development of information and computer culture of younger students" described the course and results of experimental work. Prior to the beginning of the ascertainment of the experiment, a questionnaire survey of students Of the Institute of psychology and education of the Kazan Federal University was conducted. The purpose of the survey was to determine the completeness of understanding of the need to develop the motivational and value component of the readiness of students as future teachers to the development of information and computer culture of younger students.

The experimental study was conducted over six years (2008-2014). It was attended by 132 full-time students on the profile of bachelor "Primary education": 67 people made an experimental group, 65 students made a control group. Experimental work consisted of 3 stages:

1) ascertaining stage at which the experimental way in the subjects of the experimental (EG) and control group (KG) determined the initial values of the studied indicators of readiness of future teachers to the development of information and computer culture of primary school students (the level of development of communicative, cognitive, activity, motivational-need and personal components, the level of readiness of future teachers to the development of information and computer culture of primary school students). On the basis of the obtained results, a forming program aimed at the formation of the readiness of future teachers to the development of information and computer culture of younger students was drawn up.

2) the forming stage, during which the experimental work on the formation of the readiness of future teachers to the development of information and computer culture of primary school students, implemented the developed model and a set of pedagogical conditions for the formation of the readiness of future teachers to the development of information and computer culture of primary school students.

3) the control stage, the purpose of which is to re-diagnosis of the experimental and control group according to all methods used at the ascertaining stage. At this stage of experimental work was carried out control section, repeated diagnostic measurements of the level of development of communicative, cognitive, activity, motivational and personal components, the level of readiness of future teachers to the development of information and computer culture of younger students.

In the organization of experimental work, we have been used the following tested in psychology and pedagogy and reliable methods: test "Assessment of the ability to self-

development, self-education" (V. I. Andreev), designed to assess the ability to self-development and self-education; method " Diagnosis of communicative and organizational tendencies (CBS)", designed to assess the communicative and organizational inclinations; questionnaires A. A. Tolkacheva in the modification of the author : " evaluation of the motivational value component of the IKK", "the level of development of the activity component of information and computer culture", "the level of development of cognitive component of information and computer culture".

The level of readiness of future teachers to the development of information and computer culture of younger students was defined as an integrated indicator for all methods. First, we conducted testing and questioning by methods, then for each test subject the average score was calculated by the formula:

$$x_{cp} = \frac{\sum_{i=1}^N x_i}{N}$$

Next, we calculated the standard deviation by the formula:

$$\sigma_x = \sqrt{\frac{\sum_{i=1}^{15} (x_i - x_{cp})^2}{N - 1}}$$

The level of readiness of future teachers to the development of information and computer culture of younger students is determined as follows:

Low level: 1 to 5 points,

Middle level: 6 to 9 points,

High level: from 10 to 13 points.

The system of assessment of the level of readiness of future teachers to the development of information and computer culture of younger students was carried out in the following way. Each of the components of the readiness of future teachers to the development of information and computer culture of younger students (motivational and needs, cognitive, activity, communicative and personal) could take values-low, medium, high. The combination of these values, in the end, determined the level of readiness of future teachers to the development of information and computer culture of younger students.

Table 1.

Levels of readiness of future teachers to the development of information and computer culture of younger students at the ascertaining stage of research in EG and KG

<i>Levels</i>	EG	KG
High	20,9%	23%
Average	28,4%	30,8%
Low	50,7%	46,2%

Analysis of the table and the figure allows us to state that at the ascertaining stage of the experiment in the experimental and control group the low level of development of readiness of future teachers for the development of information and computer culture of younger students is dominant and amounts to 50.7% in the experimental group (34 people), in the control group-46.2% (30 people).

The average level of development of readiness of future teachers to the development of information and computer culture of younger students at the ascertaining stage of the experiment in the experimental group was revealed in 28.4% of students (19 people), in the control group-in 30.8% of students (20 people).

The high level of development of readiness of future teachers for the development of information and computer culture of younger students at the ascertaining stage in the experimental group was revealed in 20.9% of the subjects (14 people), in the control group this level is expressed in 23% of the subjects (15 people).

Thus, in the groups of subjects at the ascertaining stage of the expert, the low level of development of the readiness of future teachers for the development of the information and computer culture of primary school students dominates.

The results of the study of the levels of development of readiness of future teachers to develop information and computer culture of younger students in the experimental and control group at the control stage of the study are presented in table 2..The analysis of the table and the figure allows us to state that at the ascertaining stage of the experiment in the experimental and control group the low level of development of readiness of future teachers for the development of information and computer culture of younger students is dominant and amounts to 50.7% in the experimental group (34 people), in the control group-46.2% (30 people).

The average level of development of readiness of future teachers to the development of information and computer culture of younger students at the ascertaining stage of the experiment in the experimental group was revealed in 28.4% of students (19 people), in the control group-in 30.8% of students (20 people).

The high level of development of readiness of future teachers for the development of information and computer culture of younger students at the ascertaining stage in the experimental group was revealed in 20.9% of the subjects (14 people), in the control group this level is expressed in 23% of the subjects (15 people).

Thus, in the groups of subjects at the ascertaining stage of the expert, the low level of development of the readiness of future teachers for the development of the information and computer culture of primary school students dominates.

The results of the study of the levels of development of readiness of future teachers to develop information and computer culture of younger students in the experimental and control group at the control stage of the study are presented in table 2.

Levels of development of readiness of future teachers to the development of information and computer culture of younger students in EG and KG at the control stage of the study

<i>Levels</i>	EG	KG
High	38,8%	24,6%
Average	43,3%	32,3%
Low	17,9%	43,1%

Rice.2. The levels of development of readiness of future teachers to the development of the computer and information culture of primary school pupils in the EG and CG on the controlling stage of the study

The analysis of the table and the figure allows us to say that at the control stage of the experiment in the experimental group, the dominant is the average level of readiness of future teachers to the development of information and computer culture of younger students and is 43.3% of the subjects (29 people), the high level after the experiment is 38.8% of the subjects (26 people), the low level of readiness of future teachers to the development of information and computer culture of younger students at the control stage is 17.9% of the subjects (12 people).

Thus, the results obtained in the experimental group, after the formative experiment, allow to speak about sufficient efficiency of the work. The developed model and pedagogical conditions contribute to the increase of the level of readiness of future teachers to the development of information and computer culture of younger students.

The conducted research allowed to formulate the following conclusions:

1. The study proved that the readiness of future teachers to the development of information and computer culture of younger students as an integrative process is most successful in the modeling and methodological development of this system. In this regard, a structural and functional model of the formation of the readiness of future teachers to the development of information and computer culture of younger students was developed, which includes the target, methodological, content, activity, diagnostic and effective components.

2. The definition of the concept "readiness of the future teacher for the development of information and computer culture of younger students" is proposed.

3. Summing up the theory and practice of pedagogical support of formation of readiness of future teachers to the development of information and computer culture of the younger schoolchildren, was developed appropriate pedagogical conditions, the effectiveness of which was due to reliance on such strategic principles as the principle of accounting of age features of younger school students; the principle of moral and emotional pedagogical support of Junior

schoolchildren; the principle of motivational teaching younger pupils; the principle of orientation to the personal growth of each child; the principle of activity and self-sufficiency of younger students.

4. In the process of experimental testing, positive results were obtained, which confirmed the effectiveness of the pedagogical model and allowed to make a conclusion about the need for its implementation in a wide educational practice of training students in the process of studying at the University.

5. The experimental study undertaken by us in order to confirm our hypothetical assumptions on the organization of pedagogical support for the formation of the readiness of future teachers for the development of information and computer culture of younger students was carried out in accordance with the practical purpose of the study, and the conditions carrying a set of factors that initiate, stabilize and optimize this process are implemented in the ascertaining and developing part of our experiment.

The main content and results of the study are reflected
in the following publications of the author:

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1. Yunusova G. R. Features of professional training of future teachers for the formation of information and computer culture of primary schools // Education and self-development. - 2012. - №6 (34).- P. 102-107. (0.75 p. l.)

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13. Yunusova G. R. Informatization of education as a basis for the development of computer culture // Actual problems of pedagogy and psychology: Collection of scientific works of teachers, young scientists and students of Kazan Federal University, dedicated to the 200th anniversary of pedagogical education in the Volga region. Issue 15. - Kazan: publishing House "Fatherland", 2012. - P. 154-160. (0.7 p. l.))

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17. Yunusova G.R. .Structural-functional model of vocational school, high school and manufacture integration in the regional system of professional education / A.R.Shaidullina, A.R.Masalimova, V.V.Sadovaya, G.R.Yunusova, S.O.Glebov, I.V.Korshunova // Life Science Journal. - 2014. – №11(10s). - P. 595-600. (0.125 p. 1)

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Structural and functional model

formation of readiness of future teachers to the development of information and computer culture of younger students

