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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

PSYCHOLOGICAL EFFECT OF COMPUTER TECHNOLOGY ON THE EDUCATIONAL ACTIVITIES OF YOUNG SCHOOLCHILDREN

Speciality: 6104.01 – Pedagogical psychology

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Applicant: **Shalala Iltizam Seyidova**

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Dissertation work was performed at the Department of Pedagogical Psychology of Azerbailan State Pedagogical University

Scientific supervisor: Doctor of philosophy in psychology, associate professor
Nurangiz Tofig Rzayeva

Official opponents: Doctor of psychological sciences, associate professor
Sakhavat Nasreddin Aliyeva
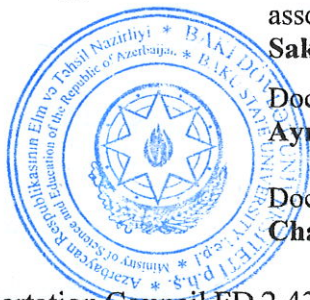
Doctor of philosophy in psychology
Ayna Abush Humbatova

Doctor of philosophy in psychology
Chapay Gadir Guliyev

Dissertation Council FD 2.43 of Supreme Attestation Comission under the President of the Republic of Azerbaijan operating at Baku State University

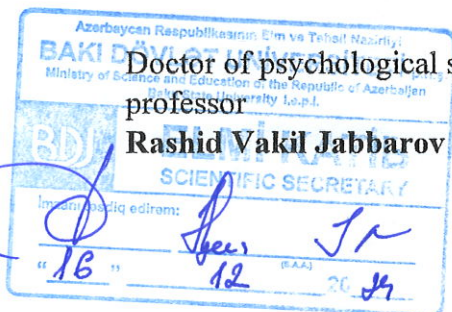Chairman of the
Dissertation Council

Doctor of psychological sciences, professor
Kamila Ramiz Aliyeva

Scientific secretary
of the Dissertation Council

Doctor of philosophy in psychology, associate professor
Mushvig Huseyn Mustafayev

Chairman of the
Scientific seminar

Doctor of psychological sciences, professor
Rashid Vakil Jabbarov

GENERAL CONTENT OF THE WORK

Relevance of the topic and degree of elaboration In modern times, technical progress in all fields of economy, culture, including education has made the use of information technologies by individuals a necessity. International and national experience also shows that as a result of this, the innovations applied to the education system cannot be implemented without qualitative changes in the professional activity of teachers. For this reason, it has become an urgent issue to investigate the impact of computer technologies on the educational activities of young schoolchildren and deliver psychological knowledge and facts to pedagogical workers in this field.

If we take into account what has been mentioned, we should approach the modern lesson completely differently. Curriculum reforms brought a completely new content, new principles and new methods to the modern lesson. Carrying out those methods with computer technologies makes the work of the teacher easier on the one hand, and creative on the other hand. Because the lesson itself is a form of teaching organization. In each lesson, the specialist who organizes it aims to form the student both intellectually and morally.

It is clear that the main task of the education system is to provide the young generation with knowledge related to various sciences, to form life skills, outlook and civic morality. In order to carry out these tasks, a different pedagogical environment is created in the field of new information technologies in modern schools. The use of computers becomes one of the main tools in the acquisition of knowledge by students in various subjects. Computer systems become a teacher's assistant for the development of students in the educational process, as well as in extracurricular activities. At present, there are enough teachers in primary classes who use computers and organize lessons with active learning methods. Most of these teachers are responsible for achieving the set goal in organizing and holding lessons from a modern point of view.

The experience of recent years shows that the teaching of primary school teachers becomes much easier as a result of the application of computer technology, the quality of learning improves and increases. With the help of a computer in the teaching of subjects in the primary class, the study of various subjects becomes easier, it becomes possible to conduct experiments, visualization and quality, deeper mastery of the appropriate subject. Teachers try to look for more efficient, new options of such lessons, learn advanced practice, and creatively apply it to their work. As a result, students' knowledge becomes complete and meets modern requirements.

From what has been said, it is clear that the use of computers, especially in young schoolchildren, strengthens interest in the subject and topic, and allows the teacher to save time. However, in connection with the computerization of the training process, questions arise about its impact on the quality of training. In this process, the plan of the studied subject prepared from the beginning, new scientific concepts, schemes, questions, diagrams are written, their description is shown on the displays of the monitors. They are technical issues. But what do young schoolchildren achieve by using a computer in the course of training, what advantages do they get, or are there any harmful aspects of it? In order to answer such questions, the study of the impact of computer technologies on young schoolchildren attracts attention as an important issue. It is necessary to determine the influence of such modern tools of the pedagogical environment on children. Taking these into account, the topic of the study was defined as "Psychological effect of computer technology on the educational activities of young schoolchildren".

The object and subject of the research. The object of the study is the educational activity of young schoolchildren using computer technologies. The subject of the study is the characteristics of the psychological effects of the use of computer technologies on the educational activity of young schoolchildren.

The purpose and objectives of the research. The purpose of the study is to clarify the psychological characteristics of the impact of these technologies on the educational activities of young schoolchildren accompanied by the application of computer technologies and to generalize

the results and show their effective aspects. A number of tasks arising from this goal are expected to be fulfilled:

- to study the theoretical issues of using computer technologies in the educational activities of young schoolchildren;

- to explain the characteristics of the psychological effects of the use of computer technologies on young schoolchildren;

- to clarify the relationship between the positive changes caused by the use of computer technologies in the emotional state of two-year-old schoolchildren and learning activity;

- to investigate the reasons for motivating the activities of young schoolchildren under the influence of computer technologies;

- to achieve the formation of cognitive skills in young schoolchildren with the help of computer technologies.

Research methods. The methodological basis of the research is the psychopedagogical paradigms of the psychological impact of the use of computer technologies on the learning process and scientific provisions and principles related to learning technologies. The research work is based on scientific-theoretical and experimental directions in the context of determining the application of computer technologies to the educational process and the impact on the psyche of young schoolchildren (O. Episheva, M.V. Plaskina, N.I. Zaprudsky, V.V. Fesenko, G.B. Pronchev, V.V. Quzeyev, V.P. Bespalko, E.S. Bukharina, A.E. Petrov, G.K. Selevko, S.A. Smirnov, I.B. Shiyanov, E.M. Bershadsky, M.V. Klarin).

Observation, interview, questionnaire, testing and experiment methods were used in the research. At the initial stage of the research, a questionnaire survey was conducted with 308 students in Baku, Sumgayit and Shamakhi schools and comparisons were made. The research was conducted among the students of I-IV grades in primary schools No. 1, 2, 6 and European Lyceum in Shamakhi. At the main stage of the experiment, B.Phillips' "School excitement test", "Methodology for determining the level of mental development in 7-10-year-old children", "Intellectual lability test" were conducted with 86 students from the III-IV grades of the experimental school and 82 students of the control school. A number of programs are used at the

same time. SPSS computer program was used for processing empirical research materials.

The use of methods, quantitative and qualitative analysis of the results obtained in accordance with the goals and objectives of the study ensure the accuracy and reliability of the results obtained during transmission and statistical processing of data.

Hypothesis of the research. İf information is selected and presented in accordance with the age characteristics, comprehension and assimilation capabilities of young schoolchildren during the use of computer technologies in their educational activities, taking into account the initial technical skills, those skills will be improved every time, if it is systematically developed in a student, then computer technologies will have a positive effect on young schoolchildren, will develop thinking, emotional-volitional field, motivation and self-esteem, and will increase their academic success.

The main provisions of the defense:
1. The creation of a favorable environment for the educational activities of young schoolchildren using computer technologies is possible thanks to the technological skills of teachers. At the same time, the creative and effective use of computer technologies in the teaching process is an important factor for better mastering of educational materials by young schoolchildren.
2. The positive impact of computer technologies on young schoolchildren requires teachers to take their age characteristics into account, and to use technological tools in individual stages of the lesson, taking into account individual capabilities. Because under such circumstances, the cognitive activity of young schoolchildren intensifies. Due to the faster and better establishment of inter-process relations, it becomes easier to remember, assimilate and come to a conclusion of the material worked on.
3. The use of computer technologies in educational activities is important in terms of the didactic requirements placed on the educational conditions of young schoolchildren, at the same time, it accelerates the process by creating opportunities for a different approach to learning and

mastering. It becomes easier to master the studied material, as a result, the student gets the opportunity to make decisions based on real life events. These stimulate the formation of a positive emotional attitude to learning new knowledge and acquiring new skills in young schoolchildren.

4. The application of computer technologies increases the opportunities for independent activity of young schoolchildren, strengthens motivation, and strengthens the regulation of activity from an emotional point of view. In the course of the process, conditions for exploration, discovery, and self-activation are created for young schoolchildren.

Scientific novelty of the research. The scientific novelty of the research is explained by the fact that the positive impact of computer technologies on learning materials of young schoolchildren was revealed in the research conducted in this research, and the application of these technologies was justified by the technological competence of teachers.

The role of psychological knowledge in the delivery of teaching materials by means of computer technologies was clarified, and the increase in the efficiency of the results due to the compatibility of the use of computer technologies with the visual-figurative nature of their thinking in lessons with young schoolchildren was confirmed. The use of computer technologies in the educational activities of young schoolchildren showed its results at the academic level of training, and was accompanied by a significant increase in the activity of students.

Theoretical and practical significance of the dissertation. Our results allow us to clarify how the computer technologies used in the educational activities of young schoolchildren affect them, and to distinguish their positive and negative aspects. Also, these results can serve to increase the efficiency of the educational process in primary grades.

The practical importance of the research can be considered from its results in the school practice, in the use of computer technologies by teachers.

Name of the organization where the dissertation work was carried out. Department of Pedagogical Psychology of Azerbailan State Pedagogical University.

Approbation and application of the research. The results of the research, the main innovations of the author were reflected in the theses and articles published by the author in the journals recommended by the Supreme Attestation Commission under the President of the Republic of Azerbaijan and abroad in the republican and international scientific-practical conferences.

The total volume of the dissertation with a sign indicating the volume of the structural sections of the dissertation separately. The dissertation consists of an introduction, 3 chapters with 9 sub-chapters, a conclusion, a list of references and appendices. Introduction – 5 pages, 9772 characters, Chapter I – 40 pages, 66982 characters, Chapter II – 28 pages, 50152 characters, Chapter III – 47 pages, 71004 characters, conclusion – 5 pages, 10478 characters, used literature the list consists of 13 pages, the appendices consist of 18 pages.

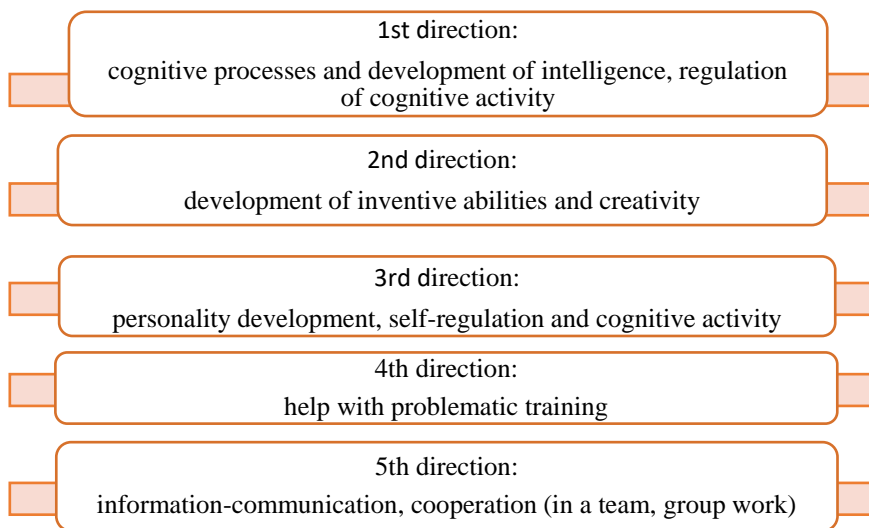The total volume of the research work is 158 pages, 208388 characters.

THE MAIN CONTENT OF THE DISSERTATION

The "Introduction" part of the dissertation substantiates the relevance of the research is justified, its object and subject, purpose, tasks and methodological basis are disclosed, as well as concise information is given about the used research methods, scientific innovation, theoretical and practical importance of the research, the provisions defended, and the results.

The Chapter I of the dissertation called "Theoretical foundations of using computer technologies in the educational activity of young schoolchildren". The first sub-chapter of this chapter clarifies "Characteristics of computer technologies applied in primary education".
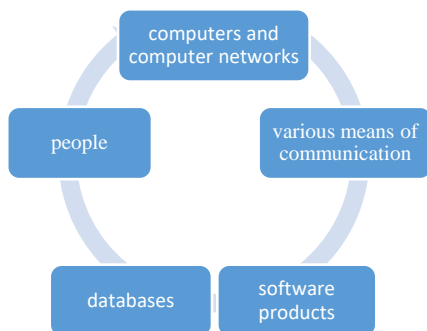
It is shown that currently applied information technologies in schools have a number of technical characteristics. With the help of information technologies, the information processed in an automated way is usually sent to the users by means of computer output devices, such as text, tables, graphics, etc. delivered in the form of to better explain the essence of the problem, it is appropriate to pay attention to the structure of the concept of "computer technologies" that was brought from computer science to pedagogical sciences, which has become a topical subject of researches conducted in pedagogical psychology, and on which we are researching (Figure 1).

> **1st direction:**
> cognitive processes and development of intelligence, regulation of cognitive activity

> **2nd direction:**
> development of inventive abilities and creativity

> **3rd direction:**
> personality development, self-regulation and cognitive activity

> **4th direction:**
> help with problematic training

> **5th direction:**
> information-communication, cooperation (in a team, group work)

Figure 1. Information technologies applied in primary classes

The first sub-chapter clarifies the main directions of using computer technologies in the educational process: information technologies have a strong impact on the activities of students at all levels of education, children in developed societies use information technologies in all fields of education starting from the age of 5-6; as a result of the use of computer

technologies, beautiful and colorful images, interesting graphics and sounds are created, which increases the desire of students to learn, they enjoy the learning process; computer technologies save students from memorization, they can choose, think, imagine, etc. creates wide opportunities for thinking operations; In technology-based education, the main issue is the effective use of computer, SD, diskette, internet site, e-mail, etc., which are educational tools of students and teachers in class, which increases the scientific level of students, increases the effectiveness of educational activities, teachers' conditions are improving.

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                    computers and
                  computer networks

         people                    various means of
                                     communication



              databases          software
                                  products
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Figure 2. Content of computer technologies

In addition, it is clear that a number of factors should be taken into account in order to ensure efficiency in the training of young schoolchildren: a) age level of students; b) individual-psychological (understanding-mnemic) characteristics of students; c) the connection of the selected material with the topic, goals and objectives of the lesson; d) the connection of the presentation of the material with the learning situation, etc.

The sub-chapter shows the conclusion that the quality of new computer technologies is determined not only by their content, but also by their structure, especially the forms and methods, resources, interactive methods, areas of integration, as well as the ways of their implementation, the teacher's facilitating function - is related to their abilities. In addition to these, no matter how important computer technologies are for the mental development of young schoolchildren, the issue of setting certain restrictions on their use should be kept in mind, and teachers and parents should strictly follow safety

rules in this area. In particular, parents should be informed about these safety rules by teachers.

The second sub-chapter of Chapter I is related to " The psychological impact of computer technologies in educational activities on primary schoolchildren is included in the literature". In this sub-chapter, a number of provisions of the science of psychology are considered in order to determine the impact of computer technologies used in the educational activities of young schoolchildren. The setting of the problem is clarified in scientific works of B.F. Lomov, P.Y. Galperin, I.V. Dubrovina, E.E. Danilova, A.M. Prikhojan, R.S. Nemov and others.

Age characteristics of educational activities of young schoolchildren J. Piaje, D.B. Elkonin, N.F. Talizina, N.S. Leytes, A.S. Bayramov, A.A. Alizade, M.A. Hamzayev, A.A. Rean, R.I. Aliyev, E.M. Guliyev, L.S.Amrahlı, N.T.Rzayeva, M.H.Mustafayev, R.V.Jabbarov, V.R.Aliyeva, A.M.Mammadaliyeva and others. is analyzed based on research.

The approaches of researchers such as M.G.Sorokina, A.M.Nazarov, Z.A.Abasov, S.N.Batrakova, Y.A.Varenova, L.Y.Subbotina, G.F.Tretyakova, S.M.Selebeyeva, G.B.Pronchev, E.V.Ogorodnikov study the psychological and pedagogical issues of applying computer technologies to the educational activities of young schoolchildren. Research shows that it allows to determine the advantages of computer technologies used in the educational activities of male schoolchildren, its positive and negative impact on children. In order to determine the impact of computer technologies used in the educational activities of young schoolchildren, the main propositions put forward in the science of psychology are reflected in the theory, concepts and approaches of activity psychology. In research, computer technologies are highlighted as the main component, tool, and one of the optimizing ways of the training process. It becomes clear that the impact of computer technologies applied in primary education on young schoolchildren is related to didactic, epistemological, cybernetic, sociological and organizational components. In general, computer technologies included in the tools of the learning process are evaluated in terms of an effective didactic way of mastering, and are evaluated as a favorable influencing factor of the students' cognitive activity in the learning process.

The analyzes carried out in sub-chapter III entitled "Psychological requirements for the use of computer technologies in the educational activities of young schoolchildren" showed that the majority of young schoolchildren have a computer at home and use it at different levels. They can either work independently with it, or use the help of the elderly. The vast majority of young schoolchildren (82%) play games on the computer. Some of them (45%) get information for lessons or read age-appropriate books. In general, the supervision and assistance of elders is not satisfactory for getting young schoolchildren used to using computer technologies in the family. During the conversations, some parents attributed this to their lack of computer skills, and some to work and lack of time. Twenty five percent of parents admitted that they were not very interested in taking care of their child and blamed the school. Taking into account this reality, in the next stages of the research, we focused on increasing the skills of using computer technologies of young schoolchildren in the learning process and expecting psychological requirements in that process. For parents, we prepared educational and recommending materials and distributed them.

According to the results of sub-chapter II, the following apply to these requirements:

1) general acquaintance with knowledge, their assimilation allows students to get acquainted with part and whole knowledge, as a result, it allows them to move from the general to the abstract, they get to know the world as a whole; 2) the information given on specific subjects, acquaintance with their parts gives students the opportunity to analyze, there is a need to acquire knowledge that creates the topics or its main parts, students direct their activities in this direction; 3) when determining the sources of this or other knowledge given in the textbook on topics, students are first of all interested in finding relations that define the object of this knowledge in the teaching material, and provide an initial, necessary, universal explanation for its content and structure; 4) students observe this relationship in special topics, graphs or models, which allows them to learn their characteristics in a pure form, can specify the original origin of the studied object, its place in the general system of knowledge, outside of mental actions (exteriorization) and vice versa (interiorization).

The second chapter of the dissertation is related to "The role of computer technologies in the mental development of young schoolchildren". In first sub-chapter, this issue is examined from the point of view of "The influence of computer technologies on the thinking of young schoolchildren". In the researches, the age characteristics of young schoolchildren, the nature of their learning activities, in classical psychological theory, concepts and approaches (J. Bruner, J. Piaget, L.S. Vygotsky, P.Y. Galperin, V.V. Davydov, L.V. Zankov, etc.), from eyewitness accounts in psychological concepts related to use, and modern researchers in this field use computer technologies (E.N. Ilyasova, V.P.Bespalko, V.V.Guzeyev, O.N.Nikolskaya, I.M. Pavlova, etc.) to influence the psyche of young schoolchildren. advantages are justified.

Researchers determine that it is possible to speed up the process of formation and determination of theoretical thinking by achieving the effective development of visual-figurative thinking in 6-10-year-old children. The formation of visual-practical and visual-figurative types of thinking on a functional basis creates favorable conditions for the development of theoretical, abstract and logical thinking. Sufficient facts are shown to justify the role of computer technologies used in the educational activities of young schoolchildren in the development of their thinking:

1) starting from elementary grades, with its help, ideas about the world and its realities are enriched in young schoolchildren; 2) acquire independent analysis skills; 3) thanks to the experience of imagination and analysis, young schoolchildren are able to conduct research on the basis of educational materials on any topic; 4) on this basis, analytical thinking is formed in young schoolchildren.

By examining the impact of computer technologies on the thinking of young schoolchildren, we came to the conclusion that it is appropriate to give preference to visuals in mastering the materials presented to children. There is also an important requirement that should be expected, that the principle of discovering regularities in terms of content in the given assignment sample should be based on the acquired knowledge. Another issue is that this visibility increases the students' learning motivation and increases their activity. If the image and events affecting him create a

change in the student's emotional field, these will also happen. Therefore, one of the advantages of computer technologies is measured by the impact on the emotional field.

In second sub-chapter of the second chapter, "Computer technologies as a convenient visual tool for the emotional development of young schoolchildren" is considered as a problem.

First of all, it is determined that the influence of computer technologies in the educational activities of young schoolchildren is important to ensure the development of their emotions (Figure 3).
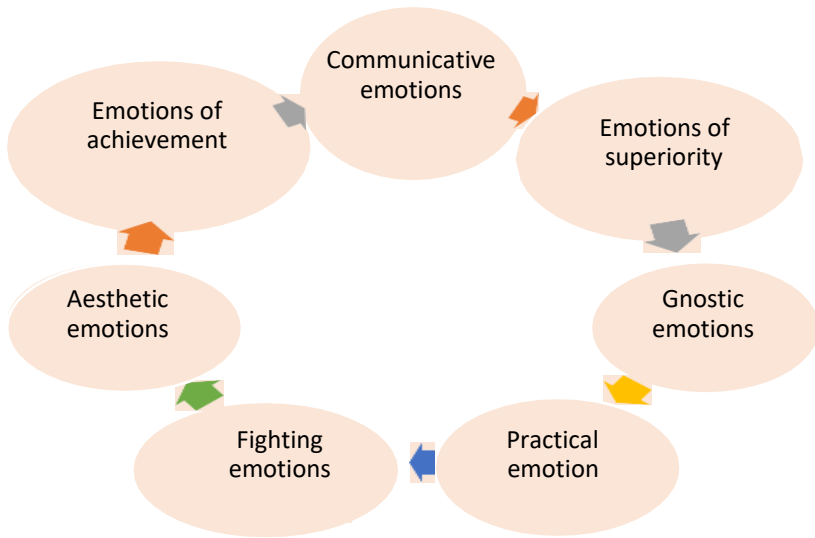
Figure 3. Emotions that develop more in young schoolchildren during the use of computer technologies.

The classification distinguishes those that are more important to develop when young schoolchildren use computer technologies in the educational process. At the same time, computer technologies develop the visual and figurative thinking of young schoolchildren, enrich their knowledge and imagination, and finally shape their logical thinking. Therefore, the application of computer technology, which is an important visual tool for ensuring the emotional activity of students in elementary grades, is gradually becoming an emotional provider of cognitive activity of young schoolchildren.

Also, for the development of logical thinking, it is regulated only by the concepts that the student sees and knows directly, comes into contact with, and assimilates and understands with the help of analysis-synthesis processes of thinking. Therefore, the use of computer technologies should be considered as an important tool in the regulation of the whole cognition with emotional-volitional processes in order to turn the educational activity into a leading activity of young schoolchildren, who still partially preserve the characteristics of the preschool age.

The third sub-chapter describes the **" Research methodology of the problem "**. First, the schools where we will conduct research are determined. Primary schools No. 1, 2, 6 and European Lyceum in Shamakhi are identified as research institutions. First of all, we established a methodology to clarify the communicative and technological competences of primary school teachers working in these schools. At this stage, it is carried out by modifying the methods developed by a number of researchers (A.M. Ahmadova, G.R. Yunusova, V.A. Demin, G.M. Kocaspirova, O.S. Kislisyna, etc.).

When conducting an analysis based on the results of the diagnosis of the technological competence of teachers, teachers who differ in the level of their computer skills and the importance of computer technologies in the continuous development of pedagogical skills are distinguished at different levels. They are differentiated into 4 groups. Dozens of things are being done to use these technologies in the educational process. For the continuous development of teachers' technological competence and individual training, we are working to create a new system of best practices related to research. By uniting the teachers of 4 groups to conduct seminars, they are given practical tasks and their implementation is monitored. In order to help teachers, a creative group is created that prepares lessons using digital educational resources and methodical recommendations on the use of information and computer technologies in classrooms. The following competitions are held for the development of information technologies: computer posters; "My class" computer presentations; electronic educational materials and presentations for lessons; prepare information forms for parents; electronic group newspapers.

In the second chapter of the research, starting from the beginning of the 2019-2020 academic year, psychodiagnostic work was conducted on the emotional state, knowledge of mother tongue and mathematics, level of mental development and intellectual lability in experimental groups in students of III-IV grades based on the following methodology. "School excitement test" of B. Phillips, method of determining mental development in 7-10-year-old children, etc. was applied. In the end, we re-diagnosed the research participants. We summarized and compared the changes. Taking into account the age characteristics of young schoolchildren and the learning results of our chosen subjects in the methodology gave teachers the right direction to approach their work in more concrete and clear ways, helped them in their individual work with students, and in the creation of groups.

Chapter III is related to "The role of using computer technologies in increasing the learning activity of young schoolchildren." The first subchapter defines "Competencies required of teachers for the application of computer technologies in the educational activity of young schoolchildren." According to the results of our research, we differentiated the teachers into 4 groups of primary schools No. 1, 2, 6 and European Lyceum in Shamakhi. We worked with them to use these technologies in the educational process.

The results of the work were that the project we implemented to eliminate difficulties in the pedagogical process helped to raise the teacher's professional level to a new level. It played an important role in raising their theoretical level and increasing their ability to work on information. Encouraged by the results, the teachers tried to develop their computer technology skills and competencies during the research period, and to achieve their application. In addition, we created an opportunity for them to constantly interact with advanced teachers in the field of computer technologies.

In the course of the research, a technology was developed for multimedia support of the teaching process, advice in the field of increasing teachers' information ability, organizing methodical support, organization of more than 30 multimedia presentations in methodical work. A visual

public library, electronic materials presented to classes were developed, and more than 50 examples of lessons using information technology were developed. Computer training programs on the use of information technologies, didactic and methodical materials have been created: electronic data bank, virtual groups for students, teachers, parents, e-addresses. Thus, the implementation of the informatization program in primary classes is possible thanks to one of the efficient technical means of the computer. Finally, after these works, we once again diagnosed the possibilities of using computer technology among teachers. We conducted a correlation of the results.

Comparative analysis of initial and final assessments of teachers' technological competence
Table 1

Groups	preliminary results		final results	
	person	Percent	person	percent
Group I – weak	12	21%	8	14 %
Group II - partly good	28	50 %	24	43 %
Group III – good	10	18 %	14	25 %
Group IV – high	6	11 %	10	18 %

Significant progress was recorded in the results of the "Technological and communicative development of teachers" project that we carried out in the study. The results of teachers with poor communication and technological skills dropped from 21 percent to 14 percent. The percentage of those with partially good skills dropped from 50 to 43. The percentage of good-level teachers increased from 18 to 25, and the percentage of high-level teachers increased from 11 to 18.

The conclusion is that serious attention should be paid to the formation of communicative and technological skills in teacher training in pedagogically oriented specialized schools, and at the same time, self-

education of teachers currently working in schools should be set as a serious requirement.

In the second sub-chapter of chapter III entitled "Activation of young schoolchildren by means of computer technologies", we clarified the role of computer technologies in improving the quality of learning of young schoolchildren in more concrete ways. For this purpose, we conducted observations to determine how the learning materials were mastered by the students in the control and experimental classes in the schools where we conducted the research. We set up experiments in full primary school No. 1 in Shamakhi city. We took Shamakhi European Lyceum as a control school. In the primary classes of schools, we took control of the classes that are close to each other in terms of computerization.

We made observations in each class. We listened to the lessons. We recorded the computer skills of students and teachers. We have determined a more suitable environment for the experimental conditions that we will use in the research. For the analysis of comparisons, we took into account the perspectives of groups with the same content. Since there was no evaluation in the 1st grade, we summarized the academic performance of the students based on the conditional evaluations of the teacher. The academic level of the II and III classes was almost the same. 41-50% of students showed an excellent level, 28-37% showed a good level. 17% of those who showed sufficient and low results. The state of application of technologies in these classes was at a similar level. The teachers had passed the relevant courses and were active in the preparatory work conducted by us.

The academic index of fourth grade was higher. Excellent readers included 59%, good readers 9%, poor and poor readers 28%. This level, of course, could be measured by the level of the region and the school. In fact, if we approach the students more objectively in terms of subject standards and learning outcomes, their development through computer technologies, their worldview, motivation, opportunities to work on information, make searches, and approach issues creatively do not match the academic values given to them. was not adequate. Our observations made us feel this way. All this set important tasks for our experiment. We

had to create favorable conditions for the fulfillment of these tasks. Based on the results of our observations on the experience of using computer technologies in the teaching process in those schools, we determined the next step.

We prepared an experimental program to determine the impact of computer technologies on the educational activity of young schoolchildren. Using the internal facilities of the experimental school, 86 students in 4 classrooms (3 classrooms, 1 computer room) covering students from 9 to 11 years old (grades III-IV) and 6 teachers applying the program (4 primary school teachers, 1 we had to work with an informatics teacher, 1 technology teacher), 1 head of educational department, 1 deputy director for educational affairs) and 1 psychologist. In the program, we prepared natural experimental conditions to build the learning process with special topics in order to increase the learning opportunities of young schoolchildren.

In the I phase of the research, we worked with teachers on this topic. First, we conducted a survey to determine their technological competencies. We implemented the program "Role of computer technologies in modern education".

In the second stage, we set up experiments in secondary school No. 1 in Shamakhi. We chose subjects in primary education. We conducted the research on 4 subjects: 1st grade - Mathematics, 2nd grade - Azerbaijani language, 3rd grade - Life science, 4th grade - Technology. In such lessons, we gave ample space to presentations. Because presentations are an important and extremely useful part of training. The teacher can not only present informative material on the studied topic, but also can form a certain logic of thinking. All presentations to young schoolchildren are based on the same logical scheme:

We developed and implemented several programs for the formation of technological skills in young schoolchildren.

Program 1. We can refer to our observational notes for a concrete example of computer use in primary school classes.

Program 2. Topic: Extracurricular activity - "The computer is not a toy"

Program 3. Topic: "Acquiring computer skills".

Although the students in the first grade perform simple tasks, they do not have the opportunity to use the computer purposefully. In the lesson, this work is performed by the teacher. Students are taught simple knowledge and skills in information classes.

It was determined that the increase in the importance of the computer for students in grade II (except for empathy) has a developmental effect on all parameters of mental development. As the importance of the computer for the student increases, empathy weakens, and the correlation between mental development and emotional development, although not very large, goes away.

In grade III, the parameters of mental and emotional development are more dependent on the computer, and the growth of one leads to the growth of the other.

In grade IV, the dynamics of development in both the mental and emotional spheres are approaching each other, the differences in the correlation schemes are approaching each other.

Motivating educational activities and topics - diagnosis of the level of absorption shows interest, which is mostly used in classes where computers are used. Using the computer at various stages of training allows 15-20% to 75-80% of the learning time, useful for mastering. Not about the environment and control works show the dynamics of general awareness in the assimilation of knowledge. In the classroom where we conducted research on this subject, the learning material mastery varied between 65-85%. It was at the level of 4-5. At the end of the study, this indicator rose to 75-93%.

As a result of the methodology and tests conducted with 86 students of the III-IV grades of the experimental school, the results of the initial and final diagnostics showed positive mental changes in the students. (academic score – AS, excitement score – ES, mental score – MS, lability score)

Analysis of initial and final results in experimental classes
Table 2

Grade	levels	First results AS Person	First AS Percent	First ES Person	First ES Percent	First MS Person	First MS Percent	First LS Person	First LS Percent	Final results AS Person	Final AS Percent	Final ES Person	Final ES Percent	Final MS Person	Final MS Percent	Final LS Person	Final LS Percent
3	high	22	50%	10	23%	18	40%	14	31%	28	63%	22	50%	26	59%	26	59%
	good	12	27%	14	31%	10	23%	8	19%	8	19%	12	27%	10	23%	12	27%
	enough	4	9%	10	23%	6	14%	12	27%	6	14%	10	23%	8	18%	6	14%
	weak	6	14%	10	23%	10	23%	10	23%	2	4%	0	0%	0	0%	0	0%
4	high	25	59%	13	31%	11	26%	7	17%	28	66%	28	66%	26	62%	24	57%
	good	4	10%	15	36%	15	36%	19	45%	6	14%	12	29%	10	24%	12	29%
	enough	4	10%	6	14%	4	10%	5	12%	4	10%	2	5%	6	14%	6	14%
	weak	9	21%	8	19%	12	28%	11	26%	4	10%	0	0%	0	0%	0	0%
total	high	47	55%	23	27%	29	34%	21	24%	56	65%	50	58%	52	61%	50	58%
	good	16	19%	29	34%	25	29%	27	31%	14	16%	24	28%	20	23%	24	28%
	enough	8	9%	16	19%	10	12%	17	20%	10	12%	12	14%	14	16%	12	14%
	weak	15	17%	18	20%	22	25%	21	24%	6	7%	0	0%	0	0%	0	0%

Analysis of initial and final results in control classes

Table 3

Grade	First results								Final results								levels
	AS		ES		MS		LS		AS		ES		MS		LS		
	Person	Percent	Person	Percent	Person	Percent	Person	Percent	Person	Percent	Person	Percent	Person	Percent	Person	Percent	
3	20	45%	11	25%	17	39%	13	30%	19	43%	12	27%	18	40%	11	25%	high
	11	25%	13	30%	11	25%	9	20%	12	27%	14	32%	10	23%	11	25%	good
	6	14%	8	18%	7	16%	10	23%	8	18%	7	16%	6	14%	7	16%	enough
	7	16%	12	27%	9	20%	12	27%	5	11%	11	25%	10	23%	15	34%	weak
4	24	63%	11	29%	10	26%	8	21%	23	60%	12	31%	8	21%	10	26%	high
	3	8%	14	37%	14	37%	15	40%	3	8%	13	34%	13	34%	13	34%	good
	3	8%	5	13%	4	11%	5	13%	4	11%	4	11%	5	13%	4	11%	enough
	8	21%	8	21%	10	26%	10	26%	8	21%	9	24%	12	31%	11	29%	weak
Total	44	54%	22	27%	27	33%	21	26%	42	51%	24	29%	26	32%	21	26%	high
	14	17%	27	33%	25	30%	24	29%	15	18%	27	33%	23	28%	24	29%	good
	9	11%	13	16%	11	13%	15	18%	12	15%	11	13%	11	13%	11	13%	enough
	15	18%	20	24%	19	23%	22	27%	13	16%	20	24%	22	27%	26	32%	weak

Based on the results of similar work conducted with 82 students of III-IV grades of the control school, the non-parametric Mann-Whitney U test was applied for further analysis. As a result, a statistical difference was determined between the experimental group and the control group ($p<0.05$).

Analysis of results by Mann-Whitney U test
Table 4

Groups	Control group			Experimental group		
Measurement criteria	Average		p(Importance value	Average		p(Importance value
	Primary test	Final test		Primary test	Final test	
Academic score	83,38	85,56	0,786	64,29	93,72	**0,000***
Arousal score	85,43	89,34	0,643	62,87	83,29	**0,000***
Mental development score	81,67	85,98	0,672	65,74	81,45	**0,000***
Lability score	80,32	84,47	0,683	58,31	71,45	**0,001***

Here, academic grades, as well as dependencies on other test results, are better correlated. The general development level of students makes it possible. Thus, we come to such a conclusion by studying the effect of the use of computer technologies in the educational activities of elementary school students on their psyche. During the research, the influence of computer technologies on various aspects of the formation of the student's personality both in primary school age and in other age categories was analyzed. Among both positive and negative aspects, the impact of information technologies on the child's attitude to the world was observed. Taking into account this effect in the educational and gaming activities of students, the physiological aspects of the interaction of elementary school students with the computer were determined. It became clear that it is not fair to claim that infor-

mation technology has a harmful effect on the child. When information is sought for its purpose and used correctly, this effect is significant and determines the future outlook of the student.

As a result of the research, it was determined that in this study, which is dedicated to the impact of computer technologies on the psyche of young schoolchildren, the psychological and pedagogical aspects of computerized training in grades I-IV were reviewed, and the external experience of using information technologies in the educational process was analyzed. Both in theoretical analysis and in our experiments, the main aspect that attracted our attention was the positive changes in the emotional field, mental development and intellectual stability of young schoolchildren.

The results of these changes were analyzed with the "IBM SPSS 22" statistical program, and the normality between independent variables during the statistical analysis was determined by the "Kolmogorov-Smirnov" and "Shapiro-Vilk" analysis tests.

Normality test
Table 5

	Kolmogorov-Smirnov			Shapiro-Vilk		
	Statistics	Degree of liberty	p value (Significance level)	Statistics	Degree of liberty	p value (Significance level)
Group	.347	168	.000	.636	168	.000

Thus, based on our theoretical analysis and experiments, we can come to the following conclusions.

1. It was determined that the computer technologies used in the educational activities of small school children, first of all, reduce the complexity of information acquisition, provide their reliability and efficiency by visually conveying the given information. In addition, the

computer is a set of methods, programs and technical devices that ensure the collection, storage, release and distribution of new information, connecting them in a technological chain and organizing their use at the right time and at the right moment. Computer technology is software that informs the learning process along with other technologies associated with it.

2. The study showed that as a result of the influence of computer technologies on young schoolchildren, their dynamics of educational motivation as a whole increase: students have developed interest in learning, motivation and purposefulness in educational activities are strengthened, opportunities for self-development and self-control are expanded. Connecting computer games with leading activities, as well as with various types of productive activities (fine art, design, labor, communication, etc.), the influence of the computer's communicative function has also created positive changes in the outlook of students at the young school age.

3. It became clear that the use of the computer helps the training activity to be more successful. However, this process is not limited to developing students' ability to perform certain tasks and perform a number of operations. In the absence of intervention by the teacher as well as the parent, students find it difficult to independently use computer technologies in areas such as searching and reproducing (for example, searching, selecting, working on subject-related information, etc.) related to learning activities.

4. During the research period, the information received by the students with the computer, the screenshots presented to them, mastering the search rules of the information sources, led to the re-evaluation of the previous value system and skills formed in them against information technologies, even in some families, young schoolchildren were allowed to use the computer within a specific time frame. As a result, their ability to learn has increased, new possibilities have arisen in the emotional field and concentration of attention, and the computer has also become a source of knowledge for them.

5. The study found that individual and different approaches to training are necessary for this period, because there are significant differences in the readiness and development levels of children. It no longer makes sense to work with the same materials for the whole class that are aimed at the average student. The weakest students, who cannot actively participate in the educational process, and the more intellectual ones, who have a great interest in learning and mastering, who show a strong tendency to creativity and discovery, on the one hand, cause a loss of time, and on the other hand, it causes a violation of inter-student relations. It can create mutual distrust and denial in them. The application of computer technologies in the educational process ensures interactive dialogue, independent selection of educational material and computer visualization of learned objects according to taste, and as a result, helps to personalize and differentiate the educational process. A student's individual work on the computer creates comfortable conditions while performing the tasks provided for in the program. It works at a more optimal speed and quality.

6. The presence of program and methodical support aimed at supporting the teaching of subjects in primary classes, computer-related teaching and demonstration equipment ensures the organization of research works in the teaching process, independent creative activity using new information technologies. Thanks to this, the student learns through discovery, for example, geometric shapes, spatial concepts, life realities, alternative images related to topics, more comprehensively, in reality than what is shown in the elementary school curriculum. For example, by working on topics such as the reasons for bird migration, the migration trajectory of whales, rainfall, occurrence of earthquakes, disturbance of ecological balance, students understand the world as a whole. Or they discover that a circle is made of many triangles. They get acquainted with new tools related to the parts of the whole, obtaining the whole from the parts, inductive and deductive approaches to the processes.

7. Computer technology teaches the teacher easy ways to manage the teaching process. It allows him to qualitatively improve control over students' activities. Each student can think about the answer as much as necessary. The problem of subjective assessment of knowledge is eliminated. Since the computer determines the number of correctly completed tasks, the student himself freely determines the rating of his knowledge and skills in the class. Since the answer is ready in the computer, it immediately performs its analysis. This allows the student to confirm or deny his knowledge, correct an incorrectly entered answer, and ask the teacher for help when necessary. In addition, the student gets acquainted with the standard tasks given by computer programs to check the results of his activity, the level of preparation, solves them independently, learns the reasons for the mistakes he made, gradually achieves self-criticism, self-correction, and finally self-management and self-regulation in educational activities.

8. It is not the ideas that computer technologies significantly increase the efficiency of the educational process, but the student's personal experience in this field that increases his confidence in this tool. He gains experience by working together with teachers and parents. He tries to use subject-oriented program-methodical suggestions according to the content and logic of the topics he studies. He succeeds in the training activity as he achieves positive results. The computer becomes a powerful factor in increasing the efficiency of training in academic subjects for the student. Thanks to this, the didactic role of the computer is realized.

9. The use of computer programs should be connected with the didactic purpose of the lesson, organically enter into its structure and lead to the rational solution of tasks. According to the results of pedagogical research, it is possible to see the effectiveness of using computer technologies during the application of skills and control during the stage of working with it when introducing students to new educational material for learning outcomes.

10. When using a computer, it becomes easier to establish operational relationships between a young schoolchild and other subjects of education. It becomes possible to present the tasks and adjust the order of solving the problems. Therefore, if the teacher has enough technological skills and skills along with methodical knowledge for computer use, he can easily perform these operations in class. It uses not only one, but several technological equipment locally, and can create dynamic changes in the mental development of young schoolchildren.

11. One of the requirements set for junior schoolchildren in the curricula is to find alternative ways to solve the task. This requirement prompts the student to find an original solution to an interesting problem, to create an implementation model of this way. While working with the computer, patience, restraint, showing self-control for the sake of results and purposefulness, increasing voluntary work ability, and finally achieving judgment-based learning activities were also the outstanding aspects that we recorded in our experiments with young children. Thus, while working on the computer, the student finds a way to complete the solution of any educational task. Because he is given necessary help by teachers and peers, solutions are explained and determined using the most effective teaching systems. In the course of the work, the optimality of these ways is discussed and the most efficient solutions are investigated. By increasing the practical importance of the studied material, the computer encourages the student to make decisions based on life events. They stimulate the formation of an emotional attitude to learning in a young schoolchild.

The main scientific-theoretical provisions of the dissertation are reflected in the following articles and theses:

1. Seyidova Ş. Kiçikyaşlı məktəblilərin təlimi prosesində kompüterin rolu // Azərbaycan Dövlət İqtisadiyyat Universiteti, Bakı. Doktorantların və gənc tədqiqatçıların XIX Respublika elmi konfransının materialları. 7-8 aprel 2015, səh. 321-324
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Address: Academic Zahid Khalilov street, 33. II educational building, room. 203, Postal Code: AZ 1148. Baku city, AZ-1073/1

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