FORMATION AND DEVELOPMENT OF KNOWLEDGE AND GAME COMPETENCIES IN ELEMENTARY SCHOOL STUDENTS WITH THE USE OF EDUCATIONAL SOFTWARE TOOLS

Khalikova Umida Mirovna

Bukhara State University

Abstract: The article analyzes the possibilities, methods and techniques of preparing primary schoolchildren for life, for school education on the basis of a competence-based approach, elaborates on the formation and development of cognitive competence .Futhermore,it discusses the outcomes on the created software program and its benefits.

Key words: future, primary education, preschool, software, game, competence, method, method, multimedia, child.

In the global trend of the XXI century, the education system, especially preschool, functions on the basis of a strictly defined competency-based approach. At the end of the last century, UNESCO defined a set of competencies within its mandate that will bring the expected results in the education system of the third millennium.

The competence-based approach to education is aimed at creating a modernized educational model that prepares the child for life, expands the possibilities of independent thinking and acquires basic knowledge and skills.

The competent learning model is not an entirely new phenomenon of educational content, but a set of new interactive teaching methods and techniques. Educators and psychologists of the world community V.V. Davydov, V. Kraevsky, I. Lerner, M. Skatkin, G. Shedrovitsky's views - on the ways of developing cognitive skills.

The conceptual model of education was developed by A.L. Andreev, A. Belkin, E.F. Zeyero, I. Zimney, D. Ivanov, K. Mitrofanov, J. Voron, V. Serikov, O. developed by Sokolov [1].

The competence-based model of education "... means the paradigm of gradual orientation of teachers and students to dominant knowledge, mainly to the transfer and development of knowledge, the creation of conditions for acquiring a set of competencies, skills and abilities of the individual. Contributing to the formation of multifactorial socio-political, market-economic conditions, a place rich in information and communications "[2].

Analysis of the pedagogical and psychological literature showed that the competence-based model of education is not a set of learned data about learning and results, but a person's ability to act in various problem situations.

For a long time, the concepts of "competence" and "competence" have existed in the literature. In foreign language dictionaries, "competence" is defined as the authority, rights and obligations, as well as the knowledge and experience of any organization or official. In the same dictionary, "competence" is a concept derived from the word "competent", which means worthy, capable.

According to the authors of psychological and pedagogical literature, competence is a combination of capabilities and skills. In his opinion, Raven defines competence as a motivating ability.

The study of the problems of the competence-based approach in general education was introduced by A.V.Khutorskiy , who introduced the concept of educational competence. Khutorsky argued that "semantic orientations are based on knowledge, skills and real life experience of a student within a certain object" [2]. According to the author, educational competence is based solely on the study of the student's personality-activity approach, since the student acts on the knowledge and skills acquired in the process of performing complex tasks.

Currently, the preparation of primary schoolchildren in our country is based on a competent approach. The state curriculum for preschool education "First Step", approved in 2018, was created with the technical assistance of the United Nations Children's Fund (UNICEF) in Uzbekistan. The program provides that preschool education should be based on a competency-based approach. The program includes a competent approach to the upbringing of preschoolers, preparing the personality of a growing child for life, acquiring moral values and values necessary for solving vital issues, communicating with other people, preparing the for the formation of methods associated with the construction of a self- image.

As emphasized in the program, the main important competences require the holistic development of the child as a subject of activity and morality. Competence is the totality of a child's knowledge, skills, abilities and values. Primary competencies, regardless of the area of development, are the basis for the development of the child's personality.

Article 3.1 of the program lists the most important general competencies of a preschooler (6-7 years old): communicative competence - the ability to use means of communication in various situations;

play competence is the creative use of experience, knowledge and skills in the play process of a child and his organization. This is the foundation of the educational process;

social competence - the ability to behave in accordance with the rules and norms of ethics when communicating with adults and peers in life situations;

Cognitive competence is a conscious perception of the surrounding world and the use of acquired knowledge, skills, competencies and values for learning and practical tasks [3].

The article is devoted to the formation and development of play and cognitive competencies of children using software.

One of the priorities of modern society is to inform education. Efforts are being made to equip schools with computers, improve ICT teacher qualifications and more. But the preschool education system lags far behind. If you look at the world community, the use of computers in preschool education opened the first complex of computer games in kindergarten. In the early 1990s, the first computer programs for children were developed, and a network of preschool institutions equipped with special computer play complexes began to develop. However, in general, the process of informatization in preschool institutions is developing slowly [4].

One of the priority directions of the process of informatization of modern society is the informatization of education - the development of modern new software tools aimed at achieving the psychological and pedagogical goals of education and their optimal use in the field of education. ... This process begins with:

Hipatia Press

Improving the management of the education system based on the use of automated databases of scientific and pedagogical data, information and methodological materials, as well as communication networks;

Improving the methodology and strategy of teaching, the choice of content, methods and organizational forms of education in accordance with the tasks of personal development in the context of modern informatization of society;

creation of methodological training systems aimed at the development of the intellectual potential of the individual, the formation of skills for the independent acquisition of knowledge, information processing, experimental and various types of independent processing of research activities;

creation and widespread use of software tools for use in the learning process, diagnostics, methods of monitoring and assessing the level of knowledge of the child. President of the Republic Shavkat Mirziyoyev pays special attention to educating a harmoniously developed generation, realizing the intellectual potential of young people, educating them as a comprehensively developed personality.

Adoption of the Decree of the President of the Republic of Uzbekistan No. PF-5198 "On the radical improvement of the management of the preschool education system" on September 30, 2017 and the creation of the Ministry of preschool education on December 16, 2019. The Law of the Republic of Uzbekistan "On preschool education and upbringing" and the Decree of the President of the Republic of Uzbekistan dated November 6, 2020 "Measures for the development of education and science in a new period of development of Uzbekistan" measures to further improve the education system ", adopted on November 6, 2020.

Modern digital technologies provide new tools for the development of all educational institutions around the world. Digitization creates opportunities for people to learn more and make better decisions in their daily lives, creating opportunities to share lessons and knowledge. In the near future, great changes will take place in the digital environment of the educational environment.

The e-learning system creates new opportunities and new challenges. Key opportunities include solving educational problems, expanding the choice of forms of education and increasing the means of transferring knowledge. The need to understand the place and role of digital technologies in modern education should be reflected in modern research in the field of methodology and didactics of preschool and primary education. The problems of using digital technologies in the integration of preschool and primary education today will lead to research on the choice of future strategies and directions of development.

In order to move to a competitive model of education and research in the future, it is necessary to develop a digital transformation program.

E-learning problems can be divided into two classes: current (transient) and immanent.

Today, the rapid penetration of digital technologies into the education system provides the basis for serious analysis and pedagogical substantiation of many problems presented in the information space.

The purpose of this article is to determine the priorities of the digital development of the educational process, based on their advantages and threats, and to analyze the need for scientifically based implementation of digital technologies in preschool and primary education.

Digitization of the educational environment can take many forms:

- Translation of existing teaching materials, including lectures, presentations, textbooks, assignments for independent work and electronic knowledge management tools;

Hipatia Press

- creation of an interactive electronic environment for interaction between a teacher and a child, including the creation of electronic classes for teachers, webinars, discussion forums, etc.;

- Development of new types of teaching aids: electronic textbooks, electronic problem books, video lectures, a database of electronic tasks, computer games;

- Creation of fundamentally new forms of education using the capabilities of the electronic environment - expanding the range of imaginary information transfer, modeling various situations in the process of role-playing games, imitation of competitive games, etc.;

- The introduction of artificial intelligence into the educational process.

Today, in most educational institutions, digitalization of education is taking the first form.

This will make it easier for learners to access learning materials, reduce the teaching load that is not related to society, and simplify control over the academic discipline and content of the educational process. In addition, this process allows for significant expansion of remote control. However, following this trend, sooner or later someone may lose their place in the education system (educational services market). It is impossible to disagree with Johan Wissem's thesis that "e-learning is a destructive innovation that inevitably weeds out ineffective educational institutions, after which a relatively small number of winning educational institutions will benefit from this new technology" [7].

This is a new type of e-learning. At the moment, it is much lower than the offline learning features that are important to consumers. However, educational institutions and software developers who can take their place in the online education market and offer the market more and better quality related services have the opportunity to remain in the educational space in the future.

Benefits of e-learning:

1) Solve the problem of access to education: eliminate regional barriers to access to education, remove time restrictions - access at a convenient time for the user, create fractional access through dividing classes into blocks and use the knowledge of highly qualified teachers.

2) expanding choice: the ability to choose a teacher and the way of presenting material - focus on logic, images (associations) or practice (situations, tasks);

 Possibility of choosing the method of assimilating the material:

 through auditory, visual, motor skills, or interactive participation;

the ability to choose the depth of assimilation of the material - a wide range of courses;

the ability to choose a convenient way to manage knowledge: tests, assignments, free essays, projects, interactive conversations with artificial intelligence, etc.

3) Expansion of forms and tools for the transfer of knowledge: traditional lectures, speeches and seminars, as well as the use of project work, group discussions, role-playing and competitive games, including with virtual participants, and much more.

4) Socio-economic benefits:

the possibility of forming social intelligent networks of interests;

relative cheapness (high investment and low operating costs).

Michael Polanyi divided knowledge into two categories: explicit (verbal) knowledge, which can be transferred from one person to another using a system of codes, and hidden knowledge, which is inseparable from a person, but can be transferred to another [8]. As David Bromwich points out, learning is not only

the art of conveying facts, but also the art of intellectual search, which requires personal communication with the reader [9].

Today, the introduction of information technologies into the education system of any level is one of the most stable trends in the development of education in the world. The strongest and most developed connection between all news channels is through software.

Multimedia software tools make learning more effective as they are emotional analyzers that help a child to perceive information through multimedia. In today's developing information society, the need for an objective study of computers in older children increases at an early age. Today in preschool organizations there is a great need for a wider and more successful use of multimedia technologies.

The software tools provide new information that allows the child to develop cognitive abilities, sustainable interests and ensure the most complete and successful development. They can be extremely effective motivators as children learn to overcome all obstacles to learning through the media and use computer technology effectively. This creates challenges and unprecedented learning opportunities. The interest of children in learning activities will significantly increase, their level of assimilation and cognitive abilities will develop more effectively.

The use of new, varied and unusual ways of explaining and reinforcing, as well as the way topics are organized and explained in a more playful way, increase children's involuntary attention during the learning process. Information technology provides personal orientation and increases the number of dating materials. The widespread use of multimedia in preschool education helps children to successfully acquire all knowledge and important areas, such as mathematics and computer science in primary school, as well as develop an information culture.

There are many types of multimedia software available today for use in early childhood education. They are created in programs such as Macromedia Flash, Action Script, Power Point, Scrach animator, Crazy Talk Animator. A modern teacher can prepare didactic games and presentations using the simplest Power Point program for each lesson. Sophisticated animation programs created by experts have a very user-friendly interface that even our children can use on their own.

But the problem is that today in our country there are very few such multimedia products created in our national language, Uzbek, and they do not fully cover the curriculum.

To solve these problems, much attention is paid to the development of preschool education in our country. In particular, in accordance with the Decree of the President of the Republic of Uzbekistan dated November 6, 2020 No. PP-4884 "On measures to further improve the education system", the Ministry of Information Technologies and Communications, Education, together with the State Inspectorate. The task of Quality Control and other relevant ministries and departments is to introduce modern forms of education, new pedagogical and information technologies into the preschool education system by January 1, 2022 [11].

Article 53 of the Law of the Republic of Uzbekistan dated December 16, 2019 "On preschool education and upbringing" No. URQ-595, the introduction of advanced pedagogical and information technologies in the educational process, Tasks for the development of educational materials and didactic materials. The materials for preschool educational organizations conducting research in the field of preschool education and upbringing have been identified [12].

Foreign and local researchers studied S.L. Novoselova, I. Pashility, G. Petko, B. Hunter, M.I. According to Dzhumaev, studies of the use of computers in education not only suggest the possibility of using computer technologies, but also play a special role in the development of the intellect and personality of a child, and today the use of multimedia software in preschool education convincingly proves this. many methodological innovations [13].

Supporting their point of view, it should be noted that multimedia software enhances the child's interest in education, increases the volume of his thinking and intellectual potential and allows them to acquire independent knowledge.

As a result of scientific research in the field of preschool education, there is a great need for the development of Uzbek-language software in accordance with state requirements, electronic manuals for use in the educational process of MTT.

The software was developed on the basis of the State Curriculum "First Stage" of a preschool educational institution, "State requirements for the development of children of younger and preschool age of the Republic of Uzbekistan" and the Minister of Preschool Education of the Republic of Uzbekistan dated March 27. 2020. Appendix 1 to Order No. 54 was formed in accordance with the requirements of the variable program "The Way of Science" and electronic platforms have been created.

Solving pressing issues related to preparing a child for life, learning at school, assimilating national and spiritual values and norms, forming mathematical concepts based on a competency-based approach in preschool education. Electronic platforms for elementary mathematics lessons were created with the aim of improving working methods.

In 2020, based on theoretical data, a software platform was created called "Practical program for teaching mathematics in preschool education" and the program was certified by the Intellectual Property Agency under the Ministry of Justice of the Republic of Uzbekistan No. DGU 08018. The electronic platform was developed in accordance with the requirements of the State curriculum "First stage "of a preschool educational institution contains videos in Uzbek, intended for children 5-7 years old to master" Elementary Mathematical Skills ". It also has developing computer games, didactic materials and electronic teaching aids for teachers.

Picture 1

Figure 1 shows the created program windows. Window 1 is a window of lecture texts, which includes an electronic version of all normative documents in the field of preschool education, lecture notes and additional literature. Window 2 contains a set of electronic exhibitions by topic. Window 3 contains educational videos in Uzbek, created in accordance with the topics of mathematics lessons. In fig. 4 developed and deployed educational computer games to enhance each theme. In computer games, tasks are posed in stages, and for each correct answer the child is given a virtual stimulus, and for each wrong answer the opportunity is given to think again. As a result, the child's self-confidence increases.

Figure 2.

The images in Figure 2 show themed video clips. The videos cover five basic concepts of elementary mathematics and are aimed at developing a child's basic knowledge of numbers, spatial orientation, geometric shapes, large and small, and time.

In order to test the software in practice and study the results, a training seminar "Improving the computer literacy of MTM teachers" was held with the participation of MTM teachers from the city of Kagan and the Kagan district of the Bukhara region. Search, download and use methods are explained. At the end of the training seminar, based on the conditions created in the MTC, the potential of educators, it was decided to conduct experimental mathematics lessons on the basis of this electronic program in large and preparatory groups of preschool institutions # 14 in the city of Kagan and #4 in the Kagan district.

Hipatia Press

Figure 3. Training workshops.

- The purpose of pedagogical experiments is to prove the validity of the hypothesis put forward in scientific research. This process is conventionally divided into several stages.

- The first stage of preparation is planned for 2019-2020, during which the following works were performed:

- the main directions of research have been determined;

- studied the theoretical and practical state of the problem;

- Conducted surveys of preschool educators;

- Analysis and study of educational and regulatory documents;

- selected basic preschool educational institutions that have a material and technical, scientific and methodological base and pedagogical conditions for conducting experiments;

- Prepared and provided materials necessary for experimental work;

- Seminars and trainings were organized to prepare basic preschool educational institutions and their educators for pilot work.

In 2019-2020, the first stage of this experimental work was carried out, and when the initial results were summed up, it was proved that the results of educational processes based on electronic software are far superior to traditional learning processes. Electronic software is also very effectively used today in distance learning and has been met with great interest from parents who say that their children are very interested in acquiring mathematical knowledge on a voluntary basis. At the end of the academic year, the results of the first stage of the experiment were summed up and qualitative efficiency was achieved.

In 2021, within the framework of the first program, formed on the basis of the State Curriculum of the Preschool Educational Institution "First Stage", "State Requirements for the Development of Junior and Preschool Institutions of the Republic of Uzbekistan", elementary mathematics will be started. Taught. The program "Merry Mathematics" was created. The program consists of a complete set of elementary mathematics lessons with separate sections dedicated to the age of the child. Each section consists of thematic animation videos in Uzbek and a set of interactive computer games to enhance the theme. The program includes over a hundred animated videos and computer games. The length of the video depends on the age of the child, and the game tasks include more than a dozen tasks to strengthen each topic. Computer games are designed to be interactive and allow the child to independently interact with the computer.

Main program window

Program windows

This software tool was also provided to the polygons and used in the educational process.

The program divides subjects into preschool groups of 1-2 characters by means of a set of thematic animation videos, logical and didactic games that stimulate logical thinking, mathematical fairy tales, a set of tasks for the age of mathematical concepts for preschoolers. find "one" and "many" in the environment, arrange objects in size, get acquainted with geometric shapes and distinguish them, compare sets, understand the concepts of short and long, "morning", understand the meaning of the words "evening", "day", " night ", know the concepts of" half "," half ", understand the relationship between arithmetic and arithmetic, mechanically adjust the requirements of age and counting, find objects with similar geometric shapes, establishing quantitative relationships, knowing the quantitative composition of a number," more "," less " , "Total", "so much" in mathematics to be able to use the concept of a vertical, to know the sequence of numbers in order, to compare the concepts of "more", "less", "equal", to determine their place in space, to understand the whole and its parts, length, width objects, compare their thickness, height, use mathematical terms in communication, perform mathematical operations, compare the number and quantity of objects, understand the importance of numbers and numbers in life, know the importance of conventional units of measurement and their application in life serves to form knowledge, skills and competencies related to.
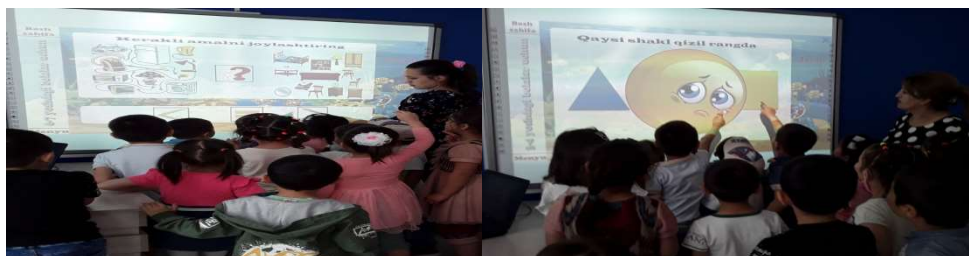

Figure 3
Kagan City 14-MTT Elementary Math Lesson Processes

Hipatia Press

In order to determine the effectiveness of using software in the educational process of preschool education and testing the developed software in 2019-2021, experimental work was carried out in preschool educational institutions, which, based on the results of the study, determined that digital technologies are an integral part of education, especially as a necessary tool in the organization of classes in the preschool education system.
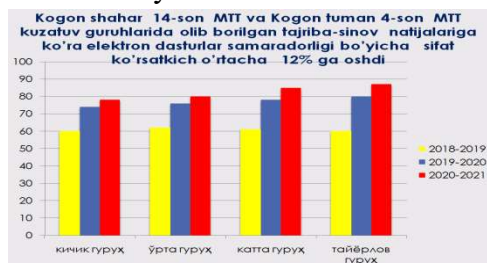

Figure 4

As a result of the experiment, it was noticed that in the experimental years 2019-2021 in MTT No. 4 of the Kagansky District, the quality of teaching children increased by an average of 11.8% compared to previous years, when elementary mathematics lessons were conducted. conducted on the basis of electronic training resources.

At MTT No. 14 in Kagan in the 2019-2021 experimental year, when the lessons of elementary mathematics were conducted on the basis of electronic learning resources, an increase in the quality of teaching children was observed by an average of 12.5%. compared to previous years.

These results show that research conducted in experimental groups is effective. Statistical methods proved that the average efficiency is 1.14 times higher than in the control group.

While there has been a lot of research on the development of multimedia software and its use in the educational process, it is not enough to focus on early childhood education.

The principle of comprehensibility of the educational material is based on the fact that the corresponding materials created by the computer are displayed on the monitor screen. When developing an electronic learning resource, the programmer should pay special attention to the principle of making the educational material understandable for the child in the learning process. It should be noted that the selected educational material should not be difficult, but implemented in stages, from simple to complex.

Considering that long-term use of a computer can negatively affect a child's body, it is important to monitor how a child uses a computer. In the eLearning resources that you create, the timing of each session is created in a set order, but the subsequent use of the next session is in the hands of the user. The use of modern computer animation software is a modern tool that allows the third child of the Renaissance to acquire knowledge in accordance with modern requirements, form independent thinking, increase the volume of thinking, become a computer literate, and increase mental abilities.

Modernization of the preschool education system in the Republic of Uzbekistan also requires the importance of creating opportunities for preschool education and the development of alternative and scarce models of preparing children for school. The early development of a child is critical to his or her future development as a person. The process of cognitive and creative development of children is important in education to increase interest in learning based on a competency-based approach, knowledge of numbers, arithmetic and their application in life, development of mathematical ideas about space, form and time.

Hipatia Press

A competency-based approach in preschool education is necessary to prepare a growing child's personality for life, including learning at school, to address vital issues related to the acquisition of spiritual values and norms in it, the ways in which activities will be carried out. Modernization changes in preschool education provide teachers with the freedom to choose methods and forms of teaching preschoolers. The main result of modern learning is the degree to which a child has learned something that can help him or her develop developmental skills in real life situations. The forms of education chosen by the teacher should contribute to the formation of intellectual processes, create conditions for creative problem solving, teach independence and responsibility, and also teach children to manage their behavior. Preschool education is the main link in lifelong learning. The process of cognition and creative development of children increases interest in learning based on a competence-based approach to learning, knowledge of numbers, arithmetic and their application in life, the formation of mathematical ideas about space, form and time contribute to the formation of a healthy and developed personality of the child. preparing for systematic learning and to stimulate the desire to learn in it.

In conclusion, multimedia software not only increases the level of a child's skill, but also contributes to the development of processes such as attention, memory, thinking, imagination, speech, develops color, compositional feelings, participates in the intellectual, emotional and moral development of children.

The novelty of computers and interactive devices is reflected in the expansion and enrichment of knowledge, skills and abilities of the child, the intensification of the creation of an intellectual and motivational-emotional nature, a change in the dynamics of mental development.

REFERENCES:

1. Компетентностная модель дошкольного образования: Монография. Л.В.Трубайчук, Л.Н.Галкина, И.Е. Емелъянова, Н.П.Малътиникова, И.Н. Евтушенко, И.Г. Галянт, О.Н. Подивилова, М.Н. Терещенко, Л.К. Пикулева, Н.П. Мальтиникова – Челябинск: ИИУМЦ «Образование», 2009.- 229 с

2. Шибутани, Т. Социальная психология. Пер. с англ. В.Б.Ольшанского / Т. Шибутани. – Ростов н/Д., 2002

3. Мактабгача таълим муассасасининг "Илк қадам" Давлат ўқув дастури. 2018 йил.

4. https://paidagogos.com/opyit-primeneniya-kompyuternh-igr-v-raz.html

(Paidagogos.com - Педагогика нового уровня сайти)

5. Ғуломов С.С., Шермухаммедов А.Т., Бегалов Б.А. Иқтисодий информатика. - Т.: Ўзбекистон, 1999. - 527 б.

6. 2017-2021 йилларда Ўзбекистон Республикасини ривожлантиришнинг бешта устувор йўналиши бўйича ҳаракатлар стратегияси. Ўзбекистон Республикаси Президентининг 2017 йил 7 февралдаги ПФ-4947-сонли Фармони // http://www.lex.uz

7. Виссема Й. Университет третъего поколения. Управление университетом в переходный период / Й. Виссема. - М.: Олимп-Бизнес, 2016

8. Polanyi M. The Tacit Dimension. Garden City / M.Polanyi. - New York: Doubleday, 1966. References

9. Bromwich D. Trapped in the Virtual Classroom // The New York Review of Books. - 2015. - July 9

10. 2017-2021 йилларда Ўзбекистон Республикасини ривожлантиришнинг бешта устувор йўналиши бўйича Ҳаракатлар стратегияси. Ўзбекистон Республикаси Президентининг 2017 йил 7 февралдаги ПФ-4947-сонли Фармони // http://www.lex.uz

11. Ўзбекистон Республикаси Президентининг 2020 йил 6 ноябрдаги ПҚ-4884-сон "Таълим-тарбия тизимини янада такомиллаштиришга оид қўшимча чора-тадбирлар тўғрисида " ги қарори.

12. Ўзбекистон Республикасининг 2019 йил 16-декабрдаги "Мактабгача таълим ва тарбия тўғрисида"ги ЎРҚ-595 сонли қонуни

13. Юсупова П. Мактабгача тарбия педагогикаси. —Т.: Ўқитувчи, 2003. - 257 б.

14. Адилова С. Мулътимедиа ва уларни таълим жараёнида қўллаш // Педагогик таълим -Т.: ТДПУ. 2001. № 2. - Б. 20-21

15. Алимов Н. Мактабгача ёшдаги болаларни математик таълимга тайёрлаш // Мактабгача таълим. - Т., 2005. -№ 2.

16. Белошистая А.В. Математическое развитие ребёнка в системе дошколъного и начального образования. Автореф. дисс. ... докт. пед. наук. -М.: 2004.

17. Бикбаева Н.У., Умарова Т. Болаларнинг элементар математик тасаввурларннн рпвожлантирпш. - Тошкент: Уз.ПФИТИ. 1995.

18. Калмыкова З.И Продуктивное мышление как основа обучаемости. -М.: Педагогика. 1981.

19. Формирование математических представлений у дошкольников / Под. ред. АА.Столяра - Ж. 1988.

20. Бегматова Н.Х. Мактаб таълимига компьютер саводи билан... // Мактабгача таълим. Илмий - методик ойлик журнал. - Т.: 2009. - № 6.

21. Жумаев М.Э. Болаларда математик тушимчалами ривожлантириш назарияси ва методикаси. - Т.: Илм зиво. 2005.

.

Hipatia Press