DEVELOPMENT OF CREATIVE ABILITIES AND LOGIC THINKING

Gulnara Ibragimova Khavazmatovna[1] & Shoirahon Akhmedova Bilalhanovna[2]
[1]Doctor of pedagogical sciences, professor, Tashkent State University of Economics, **UZBEKISTAN**
[2]Senior teacher, Regional center of retraining and improving professional skills of workers of national education, Andijan State University, **UZBEKISTAN**
E-mail address: shoira.ahmedova.66@mail.ru

ABSTRACT

Our time is time of changes. In the modern world the people, capable to make non-standard decisions, able creative thoughts are necessary. Unfortunately, the modern mass school still keeps not creative approach to mastering of knowledge. Monotonous, sample repetition of the same actions kills interest to training. Children are deprived by pleasures of opening and can gradually lose ability to creativity.

Keywords: Creative abilities, modern formation, state standard, modern conditions, educational abilities, skills of the self-education, intellectual development, informative interests, techniques, informative activity.

INTRODUCTION

One of the basic problems of modern formation – is the low creative initiative. The overwhelming majority of students show full inability to the decision of the problems which do not have standard algorithms of the decision. The federal component of state standard of education is directed on realization of qualitatively new personally-focused developing model of mass school and urged to provide performance of main objectives among which, development of the person of the students, its creative abilities, interest to the doctrine is called, the desire and ability to study is formed. Therefore, a school overall objective as social institutes modern conditions versatile development of children is, their informative interests, creative abilities, educational abilities, skills of the self-education, capable persons to self-realization.

One of ways of development of creativity of students is using of modern information technologies. Modern information technologies have generated the new purposes of training which consists not only in direct transfers of knowledge and abilities, and open for the teacher new possibilities for maintenance and a direction of development of the person of the pupil. Today the computer more and more enters into our life. Unfortunately, children see in it only means for entertainment. They play; listen to music, films look. But computer use should be directed on development of creative abilities of the person, on activization of informative activity. Before the teacher to be put the primary goal - to inform students in the accessible form, that the computer is means with which help training can become more interesting, fast and simple. The methodical literature in the present time actively offers approaches and practical recommendations about development of creative abilities of pupils. But in all variety of the presented techniques, unfortunately, till now there is no uniform proved technology of development of creative abilities of pupils at lessons to computer science. Therefore, the given research is actually in the light of the changed purposes of modern formation.

The decision of social, economic and cultural problems, characteristic for the today's validity, is defined by readiness of the person to live and work in new social and economic conditions,

ability to realization of continuous formation. Realization of the given requirements essentially changes the order addressed to modern school. Spent changes in system of the higher and secondary education allow saying that the school really is guided today by variety of educational requirements, on the person of the trainee. The modern pupil needs to transfer not so much information, as meeting of ready answers, how many a method of their reception, the analysis and forecasting of intellectual development of the person.

In the conditions of a modern education system the problem of development of logic thinking of pupils gets a special urgency. Logic thinking and creativity as personal quality of trainees is most brightly shown in detection and overcoming of the contradictions, arising difficulties.

Any school discipline uses the same receptions of acquisition and ordering of knowledge: supervision, the analysis, comparison, classification, conclusions and others. But any of them does not explain, that actually means to analyze, what rules of classification how to check up the validity of conclusion. Elder sister of computer science - mathematics can be an exception. However, the computer science - that discipline which should promote formation of the general, subject skills of work with the information since younger school age and also opens computer possibilities as conductor in the sea of the information and the powerful tool for its processing.

The computer science together with other school subjects makes a basis of modern formation since it plays considerable role in formation of complete outlook, educational and communicative skills, and also promote an all-around development of the person of the pupil. The computer science course in initial and high school brings the considerable contribution to formation of information competence, general education skills that are one of formation priorities in the state.

Among all disciplines studied at school, the computer science takes a special place. It is connected not only with fast rates of development technical and software, but also with features of a subject which are caused by objective laws of scientific and technical progress. Each two years there is a modernization of equipment rooms and computer facilities software. The history of a science and techniques yet did not know such development of one branch. Actually we can say that last years there was the computer revolution which has mentioned all spheres of social, cultural, scientific and industrial activity of people. Business goes to that all in 5-7 years in the world does not remain people who not to concern the changes caused by existence of this uniform information field however they are far were from computer facilities and personal computers.

Our time is time of changes. In the modern world the people, capable to make the non-standard decisions which are able creatively to think are necessary. Unfortunately, the modern mass school still keeps not creative approach to mastering of knowledge. Monotonous, sample repetition of the same actions kills interest to training. Children lose pleasure of opening and can gradually lose ability to creativity. One of the basic problems of modern formation is the low creative initiative of pupils. The overwhelming majority of schoolboys show full inability to the decision of the problems which do not have standard algorithms of the decision.

Development of children by means of work on computers as domestic and foreign experience testifies is one of the important directions of modern pedagogics. Actual there are questions on forms and methods of training of children. A problem of modern school: working out and application of the special techniques directed on development of thinking and creative abilities trained.

Creativity is the activity generating something qualitatively new and differing originality, originality and socio-historical uniqueness. At the heart of concept of creativity, the concept "activity" lays. Creativity - the higher form of active and independent activity of the person. Concepts "creativity" and «creative activity» are close. **Creative activity** names such activity of the person which creates something new, whether all the same there will be this created by creative activity by anything of an external world or known construction of mind or the feeling, living and found out only in the person. **Creative process** is always breaking in unknown, but it is preceded by long accumulation of experience, knowledge, skills, it is characterized by transition of quantity of every possible ideas and approaches in new original quality. **Abilities** are such psychological features of the person on which success of acquisition of knowledge depends, skills, but which to presence of this knowledge, skills are not reduced.

Signs and criteria of creative activity: efficiency, a non-standard, originality, ability to generation of new ideas, possibility «an exit for situation limits», activity above permitted standard. For revealing and development of abilities frequently the main role is played by work, possibility of acquisition of a great skill and considerable successes in creativity.

On the basis of it is possible to formulate **main objectives of development of creative abilities of pupils:**

   1. To attach pupils to creative work;
   2. To impart interest to creativity, search;
   3. To develop skills of creation, self-realization.
   1. To define structure of creative abilities;
   2. To define a complex of indicators of development of the creative abilities trained;
   3. To allocate the pedagogical conditions promoting development of creative abilities trained on lessons of computer science with application of new information technologies;
   4. To develop information competence trained - possession computer literacy, representations about an information picture of the world, skills to be guided in the information world;
   5. To create the system of training directed on disclosing of creative abilities, trained by means of new information technologies.
   6. To develop a complex of tasks, the most effective for development of creative abilities at computer science lessons;
   7. To develop criteria of an estimation of results of creative work of the pupil;

The decision of tasks in view allows to make training process grasping, interesting both for the child and for the teacher.

   1. To define structure of creative abilities;
   2. To define a complex of indicators of development of creative abilities trained;
   3. To allocate the pedagogical conditions promoting development of creative abilities trained on lessons of computer science with application of new information technologies;
   4. To develop information competence trained - possession computer literacy, representations about an information picture of the world, skills to be guided in the information world;
   5. To create the system of training directed on disclosing of creative abilities trained by means of new information technologies.
   6. To develop a complex of tasks, the most effective for development of creative abilities at computer science lessons;
   7. To develop criteria of an estimation of results of creative work of the pupil;

The decision of tasks in view allows making training process grasping, interesting both for the child and for the teacher.

Materials and methods

1. Theoretical: literature studying on a theme, modeling, comparison, generalization, classification, ordering, synthesis and analogy.
2. Practical: the analysis of the studied literature, supervision over a course of educational process, creation and working out of tasks and the lessons corresponding to research objectives.

The specified methods are chosen with the account of their necessity and sufficiency for the decision of tasks in view. It is the long-term flexible educational project with the practical application, using inter subject communications in one school.

The given project directed on formation at pupils of skills of logic and algorithmic thinking, creative abilities of pupils, consists of three stages.

Development of the given skills will be promoted by formation of logic, algorithmic thinking and creative abilities of pupils, and also creation of game and problem situations at a lesson and during after-hour time. The basic logic structures of thinking are formed at the age of 5-11 years. Overdue formation of these structures proceeds with the big difficulties and often remains not finished. Hence, to train children in this direction it is expedient from an elementary school, using following types of tasks:

- the "closed" problems, i.e. having exact decisions;
- problems with an incomplete condition;
- with superfluous conditions;
- the open problems supposing variants of a condition, different ways of the decision, a set of probable answers;
- creative tasks.

Also the main role at training in an elementary school is taken away to game. Game allows to organize stage-by-stage working off in the course of game interaction of new ways of orientation of the schoolboy in vital situations. This special quality thanks to which pupils - participants of game "practically" join in the most complicated relations, analyzing the various information, search optimum of possible, not always obvious decisions.

Game stimulates formation, along with partner relations, feelings of internal freedom, sensation of friendly support and possibility to help in case of need to the partner that promotes rapprochement of participants, deepens their mutual relations. Game allows to remove an authoritative position of the teacher, equalises in the rights of all participants. It is very important for reception of social experience, including mutual relations with adult people. To use it is possible following kinds of games:

on development of attention and terminology fastening;
games-trainings;
games-competitions (with division into commands);
subject games on fastening of material;
intellectual-informative games;
intellectual-creative games.

Using of the multimedia equipment carries out is illustrative-communicative and educational functions, allows developing collective and individual creative works, short-term projects; to trace results; operatively to assist and correct works of pupils.

Diagnostics of emotional and communicative components contained questioning, testing, studying and the analysis of results of work with computer technologies, supervision in the course of employment, conversations, responses of teachers in other subjects, class teachers.

So, the test for definition of level of creative potential of pupils, allows estimating ability to make non-standard decisions. Students possess those qualities which allow them to create, but they have also problems which brake creativity process. Anyway, their potential will allow them to prove creatively if they, of course, wish it.

Indicators of development of creative abilities are defined**:**

possession of great volume of the information;

independent carrying over acquired on a new material;

an establishment of relationships of cause and effect;

detection of the latent dependences and communications;

ability to do conclusions to integrate and synthesize the information;

under own initiative to choose for the decision challenges;

ability to generalize and organize available information, etc.

Development of creative abilities at computer science lessons is promoted by following **pedagogical conditions** (approved by me):

the permission and encouragement of set of questions;

creation and working out of receptions, strategy, tools, subjects for the subsequent activity;

responsibility and independence stimulation;

accent on independent workings out, supervision, feelings, generalizations, comparisons;

help encouragement "lagging behind" from the "advanced" pupils acting in a role of assistants and advisers

The decision of social, economic and cultural problems, characteristic for the today's validity, is defined by readiness of the person to live and work in new social and economic conditions, ability to realization of continuous formation. Realization of the given requirements essentially changes the order addressed to modern school. Spent changes in system of the higher and secondary education allow saying that the school really is guided today by variety of educational requirements, on the person of the trainee. Variant formation helps students to find other ways of understanding and experience of knowledge to the changing world. The modern pupil needs to transfer not so much information, as meeting of ready answers, how many a method of their reception, the analysis and forecasting of intellectual development of the person.

In the conditions of a modern education system the problem of development of logic thinking of pupils gets a special urgency. The logic thinking as personal quality of trainees - is most brightly shown in detection and overcoming of the contradictions, arising difficulties. In these conditions of activization of educational activity creates possibility to solve a problem of primacy of formation of abilities to creativity and secondary knowledge which are besides necessary for development of creative qualities of the person of the pupil.

Thinking -is the most generalized and mediated form of mental reflexion establishing communications and the relations between cognizable objects.

It is known, that the person who has grown in full isolation from human culture so never and cannot learn correct, from our point of view, to thinking.

Logic thinking – is the kind of thinking which is carried out by means of logic operations with concepts. The analytical thinking is developed in time, has accurately expressed stages, is substantially presented in consciousness of the most conceiving person. On S. L. Rubinshteyn, any thought process is the certificate directed on the permission of a certain problem which statement includes the purpose and conditions. The thinking begins with problem situation, requirement to understand. Thus the problem decision is natural end of thought process, and its termination at the unachieved purpose will be apprehended by the subject as failure or failure.

The problem of development of thinking has received illumination in a heritage of antique philosophers - Aristotle, Democrat, Parmenida, Socrates, Epicure. Various aspects of a problem of development of logic thinking have found reflexion in I. Kant, G.Gegel, F.V.Schelling, A.V.Ivanov, A.N.Averyanov, Z.M.Abdildina, K.A.Abisheva, A.G.Spirkina's philosophical works. In their works the essence and specificity of thinking in dialectics of ordinary and scientific consciousness is investigated, its structure comes to light, thinking functions are described, its operational structure and character of course is analyzed. However, at all doubtless theoretical and practical importance of the given researches and their importance in the decision educational and social cultural problems, in practice of work of educational institution the material necessary for the analysis of essential characteristics of logic thinking of pupils, conditions and mechanisms of its development in the course of studying of a course of computer science and information technologies is not saved up. There is a contradiction between the ripened requirements available logic thinking of pupils, realization of training of the course of computer science and ИКТ and absence of researches on revealing and a theoretical substantiation of didactic conditions, means and mechanisms of an intensification of thought processes of pupils in the course of studying of the given subject. Therefore, development of logic thinking at computer science lessons, actually.

Despite interest to various aspects of a problem, the theory and practice analysis has shown, that development of logic thinking yet did not become object of wide theoretical-methodological comprehension and an adequate practical substantiation.

Result and discussion
The reason of it consists that the paradigm of logic thinking has not found own semantic niche in personal professional priorities of the majority of teachers and teachers. Its recognition should be under construction on the basis of studying of theoretical aspects of the given question, and also practical mastering by the theory of the decision of various problems the Analysis of a condition of a problem of development of logic thinking of pupils in the educational institution, the revealed contradictions and lacks confirm an urgency and are formulated at theoretical-methodological level in the form of the scientific problem consisting in the answer to a question: as studying by pupils of computer science influences development of their thinking. Proceeding from novelty and an urgency of development of logic thinking of pupils in modern formation and the special importance of studying of computer science and information technologies, the concept theme is formulated.

Stolyarenko L.D describes following logic operations:

The analysis is a mental decomposition whole on parts or mental allocation from whole its parties, actions, relations.

Synthesis - return to the analysis thought process, is association of parts, properties, actions, relations in a single whole. The analysis and synthesis – are two interconnected logic operations. Synthesis, as well as the analysis, can be both practical, and intellectual.

The analysis and synthesis were generated in practical activities of the person. In labor activity people constantly co-operate with subjects and the phenomena. Their practical development also has led to formation of cogitative operations of the analysis and synthesis.

Comparison is an establishment of similarity and distinction of subjects and the phenomena. Comparison is based on the analysis. Before to compare objects- it is necessary to allocate one or several their signs on which comparison will be made.

Abstraction is a process of mental derivation from some signs, sides' concrete for the purpose of best knowledge. The person mentally allocates any sign of a subject and considers it separately from all other signs, temporarily distracting from them. Thanks to abstraction the

person could come off from individual, concrete and rises on the highest step of knowledge - scientific theoretical thinking.

Concrete definition - process, return to abstraction and inseparably linked with it. The concrete definition is returning of thought from the general and abstract to concrete for the purpose of maintenance disclosing.

I am, as the teacher, even more often convinced of the huge importance of using of information technologies, computer techniques during employment of circles. It involves pupils, interests them and, the main thing, in my opinion, and helps with the further life. During work of a circle I try to develop at children creative abilities means of development of logic thinking. Subjects of circles "Programming", "Animation in vector editor Macromedia flash" Employment in a mug on "Programming" have helped to reveal and develop abilities non-standard to think of the following pupils, which steels winners of the regional Olympic Games. And now study and work in this direction.

It is possible to apply tests which are divided into three basic groups to formation of logic thinking: verbal, graphic and combined. Anagrammed concern the first group and verbal tests. As anagrams are called the word in which are changed by places all or some letters. The essence of exercise consists in restoration of the "destroyed" word, for example, **(RULER).** Are interesting to pupils and cases when in exercise the task is included: "to Exclude a superfluous word".

Development of logic thinking and creativity through text problems
Teachers repeatedly affirmed, that development in children of logic thinking is one of the important problems of training. Ability to think logically to carry out conclusions without an evident support, to compare judgment behind certain rules - the condition successful teaching material mastering is necessary. After all in any problem the big possibilities for development of logic thinking are put in pawn. Non-standard logic problems – are the excellent tool for such development. There is a considerable set of such problems. The decision of the given problems I model in Excel, that promotes mastering at once two themes: Logic and work in Excel.

Development of logic thinking through programming
Algorithmization is as the section of computer science which studies processes of creation of algorithms, traditionally concerns theoretical computer science owing to the fundamental character. Thus supporters of the "user" approach at studying of school computer science speak about absence of the practical importance of this section for development of skills of the user of the modern software. Owing to development of new information technologies there is a possibility within section of "an algorithmization Basis" to give general scientific concepts of computer science and at the same time to form and develop the skills, necessary for the user at work with the modern software, i.e. there is a possibility to make section of "an algorithmization Basis" the bridge between theoretical and practical computer science.

Steps to this direction were done by authors of many school programs on computer science. It is necessary to recollect A.G.Kushnirenko, J.A.Pervina, A.L.Semenova's works on introduction "constructed" paradigms at studying of theoretical computer science. One of principles of this paradigm is independent getting by pupils of knowledge which are formed at work with real and virtual objects. Realisation of this principle is based on using creative activity environments, such as Logo World, the Idol, Robot land.

In practice it leads to that question of one of the basic sections of a course of computer science and ICT "algorithmization and programming" are replaced with studying of office technologies which are reduced in the majority to work with office applications. The major problem of formation of style of thinking and scientific outlook at schoolboys is substituted for preparation for practical activities.

Algorithmization and programming studying is directed on development of logic thinking of children, on ability to develop algorithms, to find ways and ways of the decision of a problem, and as a whole, an increase of the general mental potential.

Ability to organize activity under the decision of some problem is to divide a problem into smaller subtasks, to make necessary sequence of actions - all it means ability to develop algorithm of the decision. The logic thinking is universal, is applicable in any professional sphere, and its bases should be put in pawn at studying of a course of a comprehensive school.

The programming section in a training course of computer science and ICT is studied only at the profile and deepened levels at the senior school.

However, in exams on computer science and ICT questions on algorithmization and programming make 34 % from all questions. To develop logic thinking it is necessary from early age, the basis is pawned till 12 years, but also during all life there is a necessity for its development.

Thus, development of logic thinking in educational process and is final at computer science lessons actually and it is necessary for the modern pupil for development and perfection of the information competence which will allow becoming successful to the pupil of school in a modern society.

The computer science role in development of logic thinking is exclusively great. The reason of so exclusive role of computer science that is the most practical science from all studied in school. In it high level of abstraction and in it in the most natural way of a statement of knowledge is a way of an ascension from abstract to concrete. Besides, the decision of logic problems is capable to develop logic thinking of schoolboys in a school course.

How to train children in a finding of a way of the decision of a logic problem? This question – is central in a technique to training of the decision of problems. For the answer to it in the literature the practical receptions facilitating search of a way of the decision of a problem are offered many. However theoretical positions of a relative finding of a way of the decision of a problem remain a little developed.
Ability to solve a problem is one of the basic indicators of a level of development, depth of development of a teaching material.
It is possible to notice, that at problems of logic character there is a spirit of a non-standard. Such problems often meet among Olympic problems.
For this reason, formation and logic development is carried out in the course of the decision of logic problems. Thus it is possible to allocate next ways of training to the decision of logic problems at computer science lessons:
1) an establishment together with students of the fact: to one or to different types problems belong;
2) definition of similarity and distinction in ways of the decision of problems;
3) analysis of features of conditions of problems;

4) drawing up of the problems, belonging (not belonging) to one type.

CONCLUSION

It would be desirable to notice, that using of my experience demands from participants of teaching and educational process of certain time and intellectual expenses (constant studying of the new literature, studying of new environments and programming languages, definition of an individual trajectory of development of each pupil by means of pedagogical means, monitoring of level of achievements of pupils). However, the enclosed work, time of the teacher is compensated by the received result. Thus, experience of my work on development of creative abilities of pupils is accessible to use in those establishments of formation where there is a teacher who searches, creates, dares, burns.

REFERENCES

[1]. Bikeyeva A.S. Adult +child. Psychological practical work / Rostov na Donu: Phoenix, 2013, 219 p.
[2]. Zorin L. Ya. Ddidactic of a basis of formation of systems of knowledge of senior pupils. M, 2015.
[3]. Ivanov L.A. Activization of informative activity of pupils at physics studying. M: Education, 2014.
[4]. Platonov K.K., Golubev G. G. Psychology. M: Education, 2016.
[5]. Pospelov N.N., Pospelov I.N. Formation of cogitative operations. M: Education, 2015.