INTERACTIVE COGNITIVE TECHNOLOGIES AS A FACTOR IN THE ACTIVATION OF COGNITIVE ACTIVITY OF STUDENTS

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Abstract: The article discusses the problems of enhancing the cognitive activity of students. The analysis of the correlation of the concepts of "cognitive activity", "independence" and "activity" is presented. The authors emphasize that the main factor in enhancing the cognitive activity of schoolchildren is subject-practical activity. The practical examples show the role of interactive methods in the development of students' independence and creativity. Didactic, educational and developmental goals of using interactive methods in enhancing the cognitive activity of students are highlighted. The authors conclude that interactive technologies activate the cognitive activity of students, while the student is more likely to become a subject of educational activity, is actively involved in the cognitive process, performing problematic, search and creative tasks.

Keywords: interactive methods, cognitive activity, activation of cognitive activity, cognitive interest.

1 Introduction

In the modern education system, information technologies are increasingly used. The attitude of teachers towards new phenomena of educational reality is ambiguous, but most teachers believe that the systematic conduct of multimedia lessons, including lessons using interactive technologies, is quite effective.

In the present period of development of society, the technical equipment of the educational process comes to the fore. Schools are actively equipped with computers and interactive whiteboards; even remote and small schools are connected to the Internet.

The most accessible type of training automation is the use of computer potential in the learning process, including at the stages of processing and systematizing the results of tests, tests, frontal and individual interviews with students. Creating visual teaching aids seems more convenient when working with a computer, peripheral devices, as well as with a package of graphic editors and programs. In the conditions of the new information society and the informatization of education, independent continuous replenishment of knowledge and its application becomes a human need throughout his life.

2 Materials and Methods

The formation of personality in the school years occurs mainly in educational activities, where cognition takes an important place. As the researchers emphasize, not only the productivity of his knowledge but also the intensity of development of his personality depends on what place a student occupies in it. The formation and development of a person's personality are inseparable from the activity of the form of his existence in which he creates himself. (1)

Based on the research of leading psychologists and educators, we believe that using a computer in the lesson allows the teacher to create an information environment that stimulates the interest and activity of students.

The desire for an effective result determines the choice of certain teaching methods. The application by students of the knowledge gained in practice, the ability to operate it, deepen and develop it testifies to the degree of learning productivity, which, in turn, largely depends on the level of cognitive activity of the student in the learning process.

The stronger the stimulus the student receives in the classroom, the more actively the thought-based and practical educational-cognitive process proceeds, and, consequently, the more stable its results. That is why the activation of the educational and cognitive activities of students in the learning process is so important.

An analysis of the literature showed that there are various approaches to the definition of the concept of cognitive activity: cognitive activity is the conscious, purposeful performance of mental or physical work necessary to master knowledge, skills, and abilities (B.P. Osipov); cognitive activity is an initiative, effective attitude of students to the acquisition of knowledge, as well as a manifestation of interest, independence, volitional efforts in learning.

As the researchers V.D. Shadrikov, D.I. Feldstein, in the activity, not only manifests itself, but also forms the psyche, and it is an activity that acts as a constant substrate for the development of personality. The following components of the functional system of activity are distinguished such as motives, goals, program, information basis, decision making, subsystem of activity-important qualities. (2)

It is emphasized that this division is conditional since all of these blocks are interconnected and interpenetrating.

G.P. Shchedrovitsky, based on a generalization of many studies, identifies five components of activity: tasks; objects to which the activity is directed; process; facilities; activity products. (3)

As the analysis of the literature shows, the activity in which the mastery of the content of academic subjects and the necessary ways or abilities, skills with which the student gets an education is mastered is a cognitive activity.

The process of the formation of cognitive activity is impossible without the development of such a personality quality as a cognitive activity. In the dictionaries, the concept of "activity" is considered as an active, energetic activity. Along with cognitive activity and cognitive activity, the concept of "cognitive independence" is in one row.

Independence is the ability for independent actions, judgments, possession of initiative, determination. Providing the student with cognitive independence leads to cognitive activity automatically. It should be noted that in this case the activity is carried out based on achievement motivation, and therefore it is always accompanied by a positive emotional background.

Cognitive independence can be manifested in the choice of elements of cognizable content or their sequence, the selection of methods of cognition, the determination of the pace of one's progress, cooperation with other subjects of cognitive activity. (4-5)

A variety of types and forms of hardware and software, as well as methods of using interactive tools in the lessons, allow us to select the content, tools, and methods of using interactive resources in teaching. Regardless of what resources we select for lessons, it's important to follow general didactic principles. (5, p87)

Let us dwell in more detail on the most important principle of learning - visibility. It is based on this teaching principle that interactive teaching aids function.

Visual teaching methods include technical and illustrative methods, the use of which in the classroom improves the quality

of learning material. By definition, L.M. Zelmanova, (2, p22) visual aids - these are teaching aids that allow you to rely on visual, auditory and visual-auditory perception. In the lessons, it is important to use visual methods not separately, but in close connection with practical and verbal teaching methods. Visual materials can be presented in the form of a symbolic image using a variety of spectra, reproductions, drawings, graphs, charts, diagrams, etc. In a modern school, screen technology is actively used for this purpose: multimedia projector, screen, interactive whiteboard.

In training, various types of visual aids are used. We outline the main groups used in the lessons at school:

- natural material models (real objects, photographs, etc.);
- conditional graphic images (drawings, sketches, diagrams, graphs, plans, diagrams, etc.);
- dynamic visual models (film and television films, transparencies, cartoons, etc.). (3, p82)

Using the full range of visual aids that the teaching methodology at school currently has allows us to provide a more complete picture of the image or concept, which leads to more solid assimilation of the material. With the help of visual aids, students develop an emotional and evaluative attitude to acquired knowledge, to their native language, and cognitive activity in the learning process is activated.

When developing and using visual aids in the learning process, it is necessary to rely on some general principles. We indicate the main ones:

- used visual aids must be appropriate for the age of the students;
- visual aids should be used in moderation, applied in stages and consistent with the specific content of each stage of the lesson;
- it is necessary to create such conditions for demonstrating the object so that none of the students is uncomfortable observing the demonstrated object;
- using visual aids, it is necessary to correctly place accents, to designate the main elements when showing illustrations;
- the demonstration of visual aids should be accompanied by their clear, concise, relevant explanations and comments;
- students should not act as a passive audience, but take part in a joint search for the necessary information in a visual aid.

The process of enhancing the cognitive activity of students in the lessons using interactive technologies will be more effective if it is based on the basic principles of enhancing the cognitive activity of students in the process of systemic learning using interactive technologies. (4, p53) We name the main of them.

1. The principle of problematicity. The basis of the activation of the cognitive activity of students is the principle of problematicity. Consider its main provisions. Students are assigned a series of tasks or questions that are gradually and gradually becoming more complex. The teacher needs to create a problem situation in the student's thinking, to get out of which he will need to acquire new knowledge, therefore, he will have to actively form new knowledge on his own with the help of the teacher and with the participation of other students, rely on his own or someone else's experience, logic. Thus, the student receives knowledge, not in the finished form, but the course and result of his active cognitive activity. Based on this principle, training should be aimed at solving the corresponding didactic tasks: the destruction of speech patterns and stamps, the formation of progressive representations.

The implementation of the principle of visualization in the process of teaching requires special forms of conducting classes, pedagogical techniques and methods. (5, p114) The main content of the problematic material must consider the interests of students; therefore, it should be selected considering these features.

The formation and improvement of knowledge, skills are one of the primary tasks of training, it includes the ability to apply new knowledge in practice.

2. The principle of ensuring the adequacy of educational and cognitive activities to the nature of the practical task. By this principle, educational and cognitive activity should be as adequate as possible to the nature of the practical task that students face. The essence of this principle is that the organization of educational and cognitive activity of students in its structure and properties is as close as possible to reality and activity. All this will help ensure a transition from a theoretical level of understanding new knowledge to its practical application. In this case, it is necessary to rely on the principle of problem education.

3. The principle of mutual learning. One of the important principles of the organization of educational and cognitive activity of students is the principle of mutual learning. Practice shows that not only the teacher but also other students can act as a knowledge translator. Indeed, in the learning process, students can contribute to each other's learning, share and exchange knowledge. In addition to theoretical training, effective self-education also requires the ability to analyze, compare and generalize the phenomena, facts, and information studied; the ability to creatively interpret and use the knowledge gained, analyze one's and others' mistakes, the ability to activate, develop one's knowledge, skills.

4. The principle of scientific research of the studied problem. Educational and cognitive activities of students should be creative, heuristic in nature and, if possible, include fragments of analysis and generalization. The study of certain phenomena or problems should be researched, exploratory.

5. The principle of individualization. Individualization is understood as a form of work that considers the individual psychophysical characteristics and capabilities of the student.

We list the main ones: the composition of the class, adaptability to the educational process, the ability to interpret new information, etc.

It is required to apply such forms and teaching methods that could consider the individual psychophysical characteristics of each student.

6. The principle of self-education. The implementation of the principle of self-learning as the basis for the formation and functioning of the mechanisms of self-control and self-regulation seems to be an equally important principle of enhancing the cognitive activity of students. This principle helps to maximize the individualization of educational and cognitive activities of students, based on their personal, active desire to replenish and improve personal knowledge and skills by independently studying additional literature.

7. The principle of motivation. The stimulus is the main condition for both independent and collective activity, therefore, the active educational and cognitive activity of students is possible only with the involvement of effective incentives. That is why among the general principles of revitalization, not the least place belongs to motivation in educational and cognitive activity. The desire to comprehend the new, solve the problem, learn new facts and phenomena of reality should be higher than the forced activity.

In addition to the basic principles and methods that activate the cognitive activity of students, some factors arouse the activity of students, i.e. the teacher's motives or incentives that he uses to energize students.

After analyzing the basic principles of enhancing the cognitive activity of students, we consider the main factors that encourage students to be active.

As the main motive for enhancing the cognitive activity of students in the lesson, one can single out interest. In preparing

the teaching material, the teacher must take this factor into account. Students rarely show interest in a particular situation if it does not correlate with reality, and will not actively participate in the discussion of a problem that is not directly related to them. On the contrary, the interest of students can increase sharply if the material presented contains such problems that students have to face in everyday life. (4, p93) In this case, his cognitive activity will be based on an interest in researching a specific problem.

Perceiving educational and cognitive activity as a creative process, students stimulate themselves to cognition. The research nature of educational and cognitive activities helps to awaken students' creative interest, which leads them to active individual and collective acquisition of new knowledge. Among other factors of activation of the cognitive activity of students, we call competitiveness. It acts as one of the main and powerful incentives that activate students in the acquisition and application of new knowledge. The competitiveness factor is especially pronounced in classes conducted in a game, competitive form.

The playful nature of the classes includes both an interest factor and a competitive factor, but regardless of this, it is a process that allows students to motivate their mental activity. A properly organized game session should contribute to self-development. Any game prompts its participant to action.

Given these factors, the teacher can competently organize the cognitive activities of students.

Working on independent tasks, students can verify the reality of those processes and phenomena that they learn about in the classroom. This, in turn, allows the child to verify the truth of the information received, which will help lead to awareness and the strength of knowledge. Visual aids increase interest in knowledge, make it easier to assimilate, and support the child's attention.

For the successful implementation of the principles and factors considered, it is important to use interactive tools to enhance the cognitive activity of students. We list the main ones.

Multimedia presentations. The presentation can take various forms, the application of which depends on the form of the lesson. The most effective use of the presentation is when conducting a lecture, practical training, laboratory work, independent work, testing. The use of multimedia presentations is consistent with the principles of problematic, self-learning, mutual learning. The presentation can be made in Microsoft PowerPoint, as well as in the Macromidia Flash software environment. (5, p41)

Flipcharts. An interactive training complex for working on an interactive whiteboard can include interactive simulators, mobile circuits, and tables, sound, as well as video support for both the entire lesson and its parts. Training flipcharts can be created in Smart Notebook 10 software as well as in ActivInspire software environment.

The use of flipcharts in the lessons is related to the principles:

- Learning problems: students gain new knowledge, not in ready-made teacher formulations, but as a result of their own active practical cognitive activity;
- ensuring the maximum possible adequacy of educational and cognitive activities to the nature of practical tasks: when working with an interactive whiteboard, students have more opportunities to apply their knowledge to certain language phenomena in practice;
- self-education and mutual learning: assignments can be used by students in preparation for lessons as additional material;
- individualization: the proposed tasks have a differentiated level of complexity;
- motivation: the use of ICT technology allows you to maximize interest and motivate the student to independently accumulate and replenish knowledge.

3 Results and Discussion

Analysis of research allows us to believe that cognitive activity reflects a certain interest of students in obtaining new knowledge, skills, internal determination and the constant need to use different methods of action to fill knowledge, expand knowledge.

G.I. Schukina (6) notes that cognitive activity is a personality trait that includes the person's desire for knowledge, expresses an intellectual response to the process of cognition. The quality of personality, the cognitive activity becomes a steady manifestation of the desire for knowledge. This is a structure of personal quality, where needs and interests indicate a meaningful characteristic, and the will represents the form. Among the motives of educational activity, the most effective is the cognitive interest that arose in the learning process.

This aims teachers to solve the problem of how to use innovative methods in educational activities with students. The most effective in the formation of cognitive interest were interactive methods and techniques, methods and forms. With active learning, different technologies are used such as gaming, training, design, etc. Interactive include such educational and personality-developing intensive technologies for achieving the goals of a specially organized group and intergroup activities, feedback between all its participants to achieve mutual understanding and correction of the educational and developing process, individual communication style, reflective analysis. (4) Interactive learning is based on the students' own experience, their direct interaction. In the classroom using games, pieces of training, solving situations, working in small groups, students are encouraged to engage in activities that require an independent search for information, making decisions. (7-8)

According to the researchers, any interactive technology "provokes" the physical, social and cognitive activity of students, and each of them is significant to achieve the planned results by the set educational and development goals. The didactic goal of using interactive methods is: broadening one's horizons; application of knowledge, skills in practical activities; the formation of cognitive motivation and interest in the studied subject. (9-10) Educational goals: fostering independence, will, the formation of approaches, attitudes, moral, aesthetic, worldviews, fostering cooperation, collectivism, sociability. Developing goals: development of thinking, memory, attention, speech, ability to compare, contrast, analyze; development of creative abilities, reflection, motivation for learning activities.

An analysis of practical experience showed that they use various ways of enhancing the cognitive activity of high school students. In social studies, the greatest effect in enhancing cognitive activity is the use of situation analysis technology. The specificity of this technology is that when conducting classes in the form of a situational exercise, you can achieve the predicted result. (11) It is work in a small group, according to a situation analysis, that allows students to acquire knowledge and acquire skills and abilities to practically solve difficult situations, develop analysis and critical thinking skills; communicative skills are worked out, learning to learn - to independently find the necessary knowledge to solve a situation, show activity, unmotivated involvement in activities and increased interest.

For example, solving a situation in a social science lesson (grade 11), while studying the topic: "Deviant behavior and social control". The task is related to the analysis of the situation of hooligan football fans after the team's failure, when they organize pogroms, fights, vandalism in the subway, etc. Question for students: What do you think are the reasons for these events? What needs to be done to prevent such phenomena? The work is carried out in small groups. At the end of the discussion, the representatives of the groups explain their answer: students offer behavior that would allow them to remain

fans of the football team, but would not violate the laws and rules adopted in society; students should understand that what is important is not the outward manifestation of their emotions, the successes, and failures of idols, but the understanding of the meaning of what they are doing; what are the consequences of their actions. (12-13)

When solving such situations, the interactive activity of schoolchildren in the lesson is activated, analytical and communication skills are developed; they develop the ability to clearly and accurately state their point of view, to defend their position reasonably; develop the ability to establish causal relationships. (14-15)

4 Conclusion

The integration of a modern school into the world education system requires new approaches to training and education, as well as the redistribution of benchmarks in the field of the computer information environment. (16-17) Over the past decades, the growth of information has become large-scale, with large information flows penetrating all spheres of human life, including education. In this regard, the issue of new forms and methods of training in modern information and educational space is becoming particularly relevant. (18-19)

Interactive technologies activate the cognitive activity of students, while the student is more likely to become a subject of educational activity, is actively involved in the cognitive process, performing problematic, search and creative tasks.

Using traditional visual aids in combination with interactive teaching aids allows you to implement the basic principles of enhancing students' cognitive activity. Based on the principles and factors of enhancing the cognitive activity of students, it is possible to create an effective teaching methodology using interactive visual aids.

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