CHARACTERISTICS OF COGNITIVE DEVELOPMENT OF PRIMARY CLASS STUDENTS

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Abstract. *The article discusses the processes of cognitive development of primary school students, their psychological and pedagogical characteristics and the importance of taking these characteristics into account in the educational process, modern pedagogical approaches and innovative technologies aimed at developing students' cognitive activity, the fact that the comprehensive development of the individual, increasing his intellectual potential and forming the ability to think independently are one of the priority tasks in the education system, the fact that the primary education stage is of decisive importance in the cognitive development of students, during this period the child's cognitive processes, such as perception, attention, memory, thinking and speech, are formed, the cognitive development of primary school children is characterized by specific psychological and physiological characteristics.*

Key words: *cognitive, primary, thinking, education, attention, memory, perception, competence, approach, development, intensity, research, knowledge, skills, result.*

In the modern education system, one of the priorities is the comprehensive development of the individual, the development of his intellectual potential and the formation of the ability to think independently. In particular, the primary education stage is of decisive importance in the cognitive development of students, during which the child's cognitive processes - perception, attention, memory, thinking and speech - are rapidly formed and developed. Therefore, at this stage, the organization of the educational process on a scientifically based basis and in-depth study of the cognitive characteristics of children are an urgent issue.

The cognitive development of children in primary school is characterized by specific psychological and physiological characteristics. At this age, children strive to actively study the environment, quickly assimilate new knowledge, but their attention is not stable, and their thinking is more specific and figurative. From this point of view, the educational process requires the combination of theoretical knowledge with practical activities, the effective use of visual aids and interactive methods.

Cognitive development is not limited to biological factors, but is closely related to the social environment, educational content, and pedagogical influences. The influence of the family, school, and wider community plays a significant role in the formation of a child's personality. At the same time, the teacher's professional skills, pedagogical approach, and level of use of educational technologies also directly affect the cognitive development of students.

Today, within the framework of reforms in the field of education, special attention is paid to the introduction of a competency-based approach, the use of innovative pedagogical technologies, and the formation of individual educational trajectories. This, in turn, requires a more in-depth study of the characteristics of the cognitive development of primary school students. After all, it is impossible to organize effective education without taking into account

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the individual level of development, learning styles, and abilities of each student.

In this way, in-depth study of cognitive development issues at the stage of primary education not only improves the quality and efficiency of education, but also serves as an important factor in raising a competitive, intellectually capable generation in the future.

The primary education stage is one of the most important periods of personal development, during which the child's cognitive processes are rapidly formed. Cognitive development refers to the development of human cognitive processes - perception, memory, attention, thinking and speech. These processes are crucial for the student's assimilation, analysis and practical application of knowledge [9].

In the modern education system, the priority task is not only to provide students with information, but also to develop their independent thinking, problem-solving and creative abilities. Therefore, it is urgent to study in depth the features of the cognitive development of primary school students and develop appropriate teaching methods.

Issues of cognitive development have been widely studied in psychology and pedagogy. In particular, I.A. Zimnyaya [4] emphasizes the gradual development of children's thinking processes. In her opinion, primary school children are at the "stage of concrete operations", and their thinking is more specific and practical.

L.S. Vygotsky [2] justified the decisive role of social environment and education in cognitive development. He puts forward the concept of "zone of proximal development" and emphasizes that a child can acquire high-level knowledge with the help of adults.

In modern studies, the importance of interactive methods, digital technologies and individual approach in the development of cognitive

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development is particularly noted. Cognitive development is influenced by the following factors [7, 8]:

- family environment - forms the child's first social experience;
- educational content - systematic and logical transfer of knowledge;
- teacher skills — pedagogical approach and methodology;
- information technology — accelerates the assimilation of knowledge;
- individual characteristics — abilities and interests of each student.

The following methods are effective [3, 5]:

- problematic educational technologies;
- interactive methods (cluster, brainstorming, role-playing games);
- teaching based on the project;
- use of digital educational resources;
- individual and differentiated approach.

Primary school age (approximately 6–10 years) is a period of transition to a qualitatively new stage in terms of cognitive development. During this period, the child's cognitive activity begins to transform from a random and intuitive nature into a systematic, goal-oriented activity [1].

Perception (perceptual processes) - at this stage, perception becomes not only a process of receiving information through the senses, but also a process of processing and interpreting it. In primary school students:

- syncretic perception (perception as a whole) prevails;
- attention to detail gradually increases;
- spatial and temporal concepts are formed.

At the same time, the development of perception is directly related to teaching methods. The principle of demonstrativeness (visual materials, models, schemes) reduces the cognitive load and serves for the effective assimilation of information. If education is given only verbally, there may be interruptions in the cognitive process.

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Attention (attentional processes) - in primary school students, attention is at the stage of transition to voluntary. That is: involuntary attention (to interesting, colorful, moving objects) predominates; voluntary attention is not yet sufficiently stable; the volume of attention is limited (usually 3-4 objects).

The stability of attention depends on the structure of educational activities. If the lesson is monotonous and monotonous, cognitive efficiency decreases sharply. Therefore: alternating types of activities; dividing into micro-tasks; using emotional stimuli are effective mechanisms for controlling attention.

Memory (mnemonic processes) - memory is one of the leading cognitive mechanisms in primary education. At this stage: mechanical (based on repetition) memory prevails; spiritual (logical) memory is in the development stage; voluntary memory is gradually formed.

Information transmitted through semantic encoding is stored more stably than mechanical memorization. Therefore: the use of associations; plot materials; visual supports increase the efficiency of memory.

Thinking (intellectual processes) - the main feature of thinking in primary school is concrete-figurative. This is characterized by: understanding concepts through practical examples; difficult perception of abstract categories; the formation of logical operations (comparison, generalization, classification).

At this stage, the following intellectual actions develop in students: analysis and synthesis; elements of induction and deduction; understanding of cause-and-effect relationships. Problem-based learning and research activities are the most effective means of developing thinking, as they involve the child in the active process of cognition.

Speech (linguistic-cognitive process) - speech is both a means and a result of cognitive development. In the primary grades: vocabulary is growing rapidly; grammatical structures are becoming more complex; inner speech (a means of thinking) begins to form.

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Speech development is directly related to thinking: the better a child's speech, the deeper he can think. Therefore: dialogical education; free expression of thought; reasoning exercises are of particular importance.

Cognitive processes do not operate in isolation, but as an interconnected system. For example: perception without attention is ineffective; thinking without memory is not fully realized; expression of knowledge without speech is limited. Therefore, the educational process requires an integrated approach. It is necessary not to develop only memory, but to develop all cognitive processes in a harmonious way.

Each student is cognitively unique: the speed of information reception; the way of thinking (analytical or figurative); types of memory; attention stability. From this point of view, the principle of “the same education for all” is considered ineffective. For effective education, it is necessary to introduce: differentiated tasks; individual learning trajectory; adaptive learning technologies [6].

Effective cognitive development depends on the following conditions:

1. An active learning environment - the student should be an active subject, not a passive one

2. Problem situations - stimulate thinking

3. Reflection - the ability to analyze one's own thoughts

4. A supportive environment - not afraid of mistakes

In particular, the constructivist approach (the student "builds" knowledge himself) is one of the most effective models for cognitive development.

In order to effectively organize cognitive development, the educational process must be adapted to the age and individual characteristics of the student. The use of interactive and innovative methods activates the cognitive activity of students, develops their independent thinking and creative abilities.

In conclusion, it should be noted that the cognitive development of primary school students is one of the main factors determining the effectiveness

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of the educational process. In order to effectively organize this process, it is necessary to:

- take into account the age and individual characteristics of students;
- introduce modern pedagogical technologies;
- improve the professional skills of teachers;
- use innovative approaches in the educational process.

Thus, scientifically based approaches aimed at cognitive development serve to increase the quality and effectiveness of education.

The cognitive development of primary school students is a multifaceted and dynamic process, which is formed under the influence of biological, psychological and social factors. To effectively manage this process, education must be: age-appropriate; scientifically based; interactive and individualized.

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