



FORMATION OF COGNITIVE ACTIVITY OF PRIMARY SCHOOL STUDENTS BASED ON MODERN PEDAGOGICAL TECHNOLOGIES

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Abstract

This article examines the formation of cognitive activity of primary school students on the basis of modern pedagogical technologies. In contemporary education, cognitive activity is regarded as one of the key conditions for ensuring the effectiveness of the learning process, since it promotes independent thinking, sustained interest in knowledge, problem-solving ability, and conscious mastery of educational content. The study focuses on the pedagogical significance of developing cognitive activity at the primary education stage, where the foundations of intellectual development, learning motivation, and active participation in classroom tasks are established. Special attention is paid to the use of interactive methods, problem-based learning, game technologies, collaborative tasks, digital resources, and student-centered approaches that stimulate learners' curiosity and mental engagement. The article argues that modern pedagogical technologies not only increase the efficiency of knowledge acquisition but also create favorable conditions for analysis, comparison, observation, reasoning, and creative application of learned material. It is emphasized that the formation of cognitive activity depends on the teacher's professional competence, the appropriate selection of teaching methods, and the creation of a supportive educational environment that encourages inquiry and reflection. The findings suggest that the systematic integration of modern pedagogical technologies into primary education contributes to the development



of cognitively active, motivated, and independent learners who are better prepared for further educational stages.

Keywords: Cognitive activity, primary school students, modern pedagogical technologies, interactive methods, problem-based learning, learning motivation, student-centered approach, intellectual development, active learning, educational process.

Introduction

ZAMONAVIY PEDAGOGIK TEXNOLOGIYALAR ASOSIDA BOSHLANG‘ICH SINIF O‘QUVCHILARINING BILISH FAOLLIGINI SHAKLLANTIRISH

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Annotatsiya:

Mazkur maqolada boshlang‘ich sinf o‘quvchilarining bilish faolligini zamonaviy pedagogik texnologiyalar asosida shakllantirish masalasi yoritiladi. Zamonaviy ta‘lim tizimida bilish faolligi o‘quv jarayonining samaradorligini ta‘minlovchi muhim omillardan biri sifatida qaraladi, chunki u mustaqil fikrlashni, bilim olishga bo‘lgan qiziqishni, muammolarni hal qilish ko‘nikmasini va o‘quv materialini ongli o‘zlashtirishni rivojlantiradi. Tadqiqotda boshlang‘ich ta‘lim bosqichida bilish faolligini rivojlantirishning pedagogik ahamiyati tahlil qilinadi, chunki aynan shu davrda o‘quvchilarning intellektual taraqqiyoti, ta‘lim motivatsiyasi va dars jarayonidagi faol ishtiroki uchun zarur asoslar shakllanadi. Maqolada interfaol metodlar, muammoli ta‘lim, o‘yin texnologiyalari, hamkorlikdagi topshiriqlar, raqamli resurslar va o‘quvchiga yo‘naltirilgan yondashuvlarning o‘quvchilarda qiziqish va aqliy

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faollikni kuchaytirishdagi o'zni alohida yoritiladi. Zamonaviy pedagogik texnologiyalar nafaqat bilimlarni samarali o'zlashtirishga, balki tahlil qilish, taqqoslash, kuzatish, fikr yuritish va o'rganilgan materialni ijodiy qo'llash uchun qulay sharoit yaratishi asoslab beriladi. Shuningdek, bilish faolligini shakllantirish o'qituvchining kasbiy mahorati, metodlarni to'g'ri tanlashi hamda o'quvchilarni izlanish va mushohadaga undovchi ta'lim muhitini tashkil eta olishiga bog'liqligi ta'kidlanadi. Tadqiqot natijalari zamonaviy pedagogik texnologiyalarni boshlang'ich ta'limga tizimli joriy etish bilishga faol, motivatsiyalangan va mustaqil o'quvchilarni shakllantirishga xizmat qilishini ko'rsatadi.

Kalit so'zlar: bilish faolligi, boshlang'ich sinf o'quvchilari, zamonaviy pedagogik texnologiyalar, interfaol metodlar, muammoli ta'lim, ta'lim motivatsiyasi, o'quvchiga yo'naltirilgan yondashuv, intellektual rivojlanish, faol ta'lim, o'quv jarayoni.

Introduction

The modernization of the educational process in the contemporary world has made the issue of developing learners' cognitive activity especially relevant. In primary education, this issue occupies a central place because the initial years of schooling shape the foundations of children's intellectual growth, learning motivation, emotional engagement, and attitudes toward knowledge. At this stage, the child not only acquires basic literacy, numeracy, and communication skills, but also learns how to think, compare, observe, question, and draw elementary conclusions. Therefore, the formation of cognitive activity in primary school students should be regarded as one of the most important aims of the pedagogical process.

Cognitive activity can be understood as a learner's conscious, purposeful, and motivated engagement in the process of acquiring, analyzing, understanding, and applying knowledge. It is expressed through curiosity, interest in learning tasks, willingness to ask questions, ability to search for answers, and readiness to participate actively in educational interactions. In the context of primary

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education, cognitive activity is closely linked to the natural developmental characteristics of children, since younger learners are highly responsive to emotionally rich, visually supported, and practically oriented teaching methods. If the educational process is organized in a way that supports these characteristics, children become active participants in learning rather than passive recipients of ready-made information.

In recent decades, modern pedagogical technologies have become increasingly important in ensuring the effectiveness of teaching and learning. These technologies include interactive teaching methods, problem-based learning, game-based instruction, collaborative tasks, digital educational tools, differentiated instruction, and learner-centered approaches. Their significance lies in the fact that they transform the traditional teacher-dominated lesson into a more dynamic and participatory environment where students are encouraged to think, explore, discuss, and create. Such an educational environment is essential for the development of cognitive activity, especially in the primary school classroom where children need constant stimulation of interest and attention.

Traditional instructional models often rely heavily on explanation, memorization, and reproduction of ready information. While such approaches may help students acquire certain factual knowledge, they do not always create sufficient conditions for independent inquiry, reasoning, and sustained intellectual engagement. Modern pedagogical technologies, by contrast, emphasize active learning and the meaningful involvement of learners in the educational process. Through interactive questioning, exploratory tasks, games, problem-solving situations, and visual-digital supports, students are given opportunities to construct knowledge through their own efforts. This contributes not only to stronger understanding of subject content but also to the formation of personal responsibility for learning.

The relevance of the topic is also connected with the broader social and educational transformations taking place in contemporary society. Today's learners are growing up in an information-rich environment that requires them to navigate diverse sources of knowledge, respond flexibly to new situations,

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and develop habits of lifelong learning. In such conditions, schools must do more than transmit established knowledge; they must foster intellectual initiative, adaptability, and reflective thinking. The development of cognitive activity in the early years of schooling becomes a strategic pedagogical task because it prepares children for future academic success and for constructive participation in a rapidly changing world.

Primary school teachers play a decisive role in this process. Their methodological competence, creativity, sensitivity to children’s needs, and ability to select appropriate technologies directly influence the level of students’ cognitive engagement. A teacher who organizes learning through dialogue, discovery, cooperation, and reflection is more likely to stimulate learners’ interest and mental effort than one who relies exclusively on direct instruction. At the same time, the effectiveness of pedagogical technologies depends on how well they are adapted to the age characteristics, learning pace, and psychological readiness of children. Thus, the formation of cognitive activity requires not only the use of innovative methods, but also a thoughtful pedagogical design of the lesson as a whole.

The study of this topic is particularly significant for pedagogical universities that prepare future primary school teachers. Understanding the theoretical foundations and practical mechanisms of cognitive activity formation enables prospective teachers to design lessons that are intellectually stimulating, emotionally supportive, and developmentally appropriate. It also helps them move beyond a narrow focus on academic performance toward a broader understanding of education as a process of nurturing active, independent, and inquisitive personalities. For this reason, the analysis of modern pedagogical technologies as a means of forming cognitive activity in primary school students remains an urgent and meaningful area of educational research and pedagogical practice.

Methods

The study of the formation of cognitive activity of primary school students on the basis of modern pedagogical technologies was carried out through a combination of theoretical and practice-oriented research methods. The

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methodological framework of the article was built on the principles of learner-centered education, activity-based learning, developmental pedagogy, and competence-oriented instruction. These approaches made it possible to examine cognitive activity not as an isolated psychological phenomenon, but as an educational outcome that emerges through purposeful pedagogical influence, meaningful interaction, and the creation of favorable classroom conditions.

At the theoretical level, the research relied on the analysis of pedagogical, psychological, and methodological literature devoted to primary education, children’s cognitive development, educational motivation, and innovative teaching technologies. The comparative study of scientific sources allowed the identification of the main interpretations of cognitive activity and its structural components, including curiosity, independent mental engagement, problem-solving initiative, reflective participation, and the ability to apply acquired knowledge in new learning situations. Theoretical analysis also helped determine the pedagogical conditions under which cognitive activity develops most effectively in the early stages of schooling. These conditions include the use of active teaching methods, emotionally supportive communication, age-appropriate tasks, a positive learning environment, and systematic encouragement of learners’ initiative.

In addition to literature analysis, the method of conceptual synthesis was applied in order to connect general pedagogical theories with the practical realities of primary school instruction. This made it possible to define modern pedagogical technologies not simply as technical innovations, but as structured methods of organizing educational interaction in such a way that students become active participants in cognition. Within this framework, technologies such as interactive learning, problem-based teaching, didactic games, cooperative work, project elements, digital support tools, and differentiated instruction were considered as pedagogical instruments capable of stimulating attention, interest, and intellectual effort.

The research also employed observation as an important pedagogical method. Observation was used as a way of understanding how cognitive activity manifests itself in the behavior of primary school students during learning tasks.

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In this context, attention was paid to such indicators as students' willingness to answer and ask questions, their ability to maintain attention, their participation in discussion, their readiness to complete independent or group tasks, and their effort to explain, compare, and justify their responses. Observation of learning situations made it possible to identify that students demonstrate higher levels of cognitive involvement when lesson content is presented through visually rich, interactive, and problem-oriented forms rather than through monotonous explanation alone.

A descriptive-analytical method was also used to examine the pedagogical potential of different educational technologies applied in primary education. Through this method, the article systematized the instructional features of several commonly used technologies. Interactive methods were analyzed in terms of their capacity to involve every learner in classroom communication and thought processes. Problem-based learning was examined for its role in creating intellectual challenge and encouraging independent reasoning. Game technologies were considered as especially effective for younger learners because they correspond to children's age-specific need for emotionally colored and action-based learning. Digital tools and multimedia resources were analyzed as instruments that enhance perception, diversify presentation, and support attention and memory. Cooperative methods were described as a means of developing social interaction together with shared cognitive effort.

The method of pedagogical modeling was applied in order to describe how a lesson aimed at developing cognitive activity can be structured. In such a model, the lesson begins with motivational stimulation through an interesting question, visual cue, practical situation, or short problem task. This is followed by a stage of exploratory engagement in which students observe, discuss, compare, and make assumptions. The next stage includes guided learning activities where the teacher supports understanding without eliminating the students' need to think independently. After that, students are involved in tasks requiring application, analysis, and reflection. In the final stage, the lesson includes feedback and self-expression, allowing learners to summarize what they discovered, how they worked, and what new questions emerged. This model reflects the principle that


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cognitive activity develops most successfully when the learner moves from interest to inquiry, from inquiry to action, and from action to reflection.

Another important method used in the study was the analysis of age-related and psychological characteristics of primary school students. Since children of this age perceive the world through vivid images, emotional impressions, direct action, and concrete examples, the choice of pedagogical technologies must correspond to these developmental features. Therefore, the research considered the psychological appropriateness of learning methods as an essential methodological criterion. Technologies that overload children with abstract explanation or prolonged passive listening were evaluated as less effective for forming cognitive activity than those that combine visibility, movement, dialogue, short problem-solving episodes, and immediate feedback.

The study also included elements of comparative pedagogical analysis. Traditional teaching methods and modern pedagogical technologies were compared in terms of their influence on learner engagement and cognitive initiative. This comparison demonstrated that when students are placed in a passive position, their participation tends to remain formal and reproductive. In contrast, when they are given opportunities to explore, choose, discuss, predict, and cooperate, the learning process becomes more meaningful and intellectually activating. The comparative method therefore helped to justify the practical necessity of integrating modern pedagogical technologies into primary education.

Finally, the methodological logic of the article was guided by the principle of pedagogical relevance to teacher training. Since the target audience of the study is students and specialists in pedagogical universities, the methods were selected not only to analyze cognitive activity theoretically, but also to reveal practical pathways for future teachers. For this reason, the study emphasized those methods that help connect theory with classroom application, including modeling, observation, descriptive analysis, and the interpretation of interactive technologies through the lens of primary school teaching practice. As a result, the methodological basis of the article provides a comprehensive foundation for understanding how cognitive activity can be purposefully formed through

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modern pedagogical technologies in the educational process of primary school learners.

Results

The analysis of the formation of cognitive activity of primary school students on the basis of modern pedagogical technologies shows that the learning process becomes substantially more effective when students are placed in an active, exploratory, and communicative educational environment. The findings indicate that cognitive activity in the primary classroom is not formed spontaneously, but develops through a purposeful combination of teaching methods, motivational strategies, classroom interaction, and age-appropriate instructional design. When modern pedagogical technologies are systematically integrated into lessons, students demonstrate greater interest in learning tasks, higher participation in classroom activities, and stronger readiness to think independently.

One of the most important results revealed by the study is that interactive methods significantly increase students' involvement in the educational process. In lessons where dialogue, question-and-answer work, pair interaction, small-group tasks, and collective problem-solving are used, children become more willing to express their opinions, respond to the ideas of others, and remain focused on the task for a longer period of time. Such participation reflects the growth of cognitive engagement because students do not merely listen to information, but actively process it through speaking, comparing, explaining, and evaluating. This result is especially meaningful for primary education, where sustained attention and learning motivation depend strongly on the emotional and communicative quality of the lesson.

Another important result is related to the use of problem-based learning elements. The study found that when children are presented with simple but thought-provoking pedagogical situations, they begin to demonstrate more initiative in searching for answers and proposing solutions. Problem situations stimulate curiosity and encourage learners to use prior knowledge in new contexts. In such learning episodes, students become more likely to ask



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clarifying questions, make predictions, test assumptions, and justify their responses. This indicates that problem-oriented instruction supports not only interest in the lesson but also the formation of elementary analytical thinking. For primary school students, even small problem tasks can become a strong stimulus for intellectual effort when they are understandable, visually supported, and connected with familiar life experiences.

The results also show that didactic games and game-based pedagogical technologies play a particularly effective role in the formation of cognitive activity. Younger learners are naturally inclined toward playful forms of interaction, and when educational content is incorporated into game situations, their attention, emotional engagement, and willingness to act increase considerably. In such contexts, students often demonstrate persistence, quick reaction, imaginative participation, and a stronger desire to complete tasks successfully. Educational games help transform abstract or routine content into meaningful activity, thereby creating conditions for deeper perception and active response. The findings suggest that game-based learning is not merely a motivational addition, but an important pedagogical mechanism for activating cognition in primary school classrooms.

The study further demonstrates that visual and digital educational tools positively influence cognitive activity by strengthening students' perception, comprehension, and retention of information. Multimedia presentations, animations, interactive whiteboard tasks, audio-visual materials, and digital exercises help make learning content more concrete, dynamic, and accessible. These technologies are especially effective when they are used not as passive demonstration tools, but as means of encouraging students to observe, compare, identify patterns, and draw conclusions. The integration of digital resources contributes to greater lesson diversity and supports different learning styles, which in turn helps sustain intellectual interest across the class.

An additional result concerns the teacher's role in organizing cognitively active learning. The findings make it clear that pedagogical technologies themselves do not automatically produce high cognitive engagement unless they are used thoughtfully and systematically. Students show the highest levels of activity

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when the teacher creates an atmosphere of trust, encourages questions, values student responses, and structures tasks in a way that gradually leads from curiosity to reflection. The teacher’s ability to guide discussion, pose stimulating questions, and support independent effort without replacing it is a decisive factor in the success of cognitive activity formation.

The study also reveals that modern pedagogical technologies contribute to several interconnected educational outcomes. Alongside increased classroom participation, students develop stronger learning motivation, better task awareness, greater confidence in expressing ideas, and improved ability to connect new material with prior knowledge. In many cases, cognitive activity is accompanied by greater emotional involvement, more responsible attitude toward tasks, and a higher level of cooperation with peers. This suggests that the formation of cognitive activity has both intellectual and personal-development significance.

Overall, the results confirm that the use of modern pedagogical technologies in primary education creates favorable conditions for the formation of active, interested, and intellectually engaged learners. The educational process becomes more meaningful when students are invited to discover, discuss, explore, and apply knowledge rather than simply reproduce it. These findings support the view that cognitive activity should be treated as a central indicator of teaching effectiveness in the primary school classroom.

Discussion

The results of the study confirm that the formation of cognitive activity in primary school students should be understood as a complex pedagogical process that requires the systematic organization of teaching on the basis of modern educational technologies. Cognitive activity does not emerge automatically from the presence of educational content alone. It develops when learners are placed in situations that require them to think, compare, observe, ask questions, search for connections, and express their own conclusions. For this reason, the discussion of the findings should not be limited to the effectiveness of separate



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methods, but should address the broader pedagogical logic through which modern technologies transform the nature of learning in primary education.

One of the key issues raised by the findings is the shift from a reproductive model of teaching to an activity-based and learner-centered model. Traditional forms of instruction often position the child as a receiver of ready knowledge, while the teacher remains the primary source of explanation and control. Such a model may ensure discipline and short-term memorization, but it does not always stimulate mental independence or sustained cognitive interest. In contrast, modern pedagogical technologies encourage a classroom structure in which knowledge is not only transmitted but also discovered, discussed, tested, and interpreted through active student participation. This shift is especially important in primary school because younger learners build their attitude toward learning through emotionally and intellectually meaningful experiences. If school activity is associated with curiosity, participation, and discovery, students are more likely to develop a lasting positive orientation toward education.

The findings also suggest that cognitive activity is inseparable from learning motivation. When students participate in interactive tasks, problem situations, and educational games, they do not simply perform actions required by the teacher; they become personally engaged in the task. This indicates that modern pedagogical technologies work effectively because they unite cognitive effort with emotional involvement. In primary education, this relationship is especially significant. At a young age, intellectual engagement is strengthened by vivid impressions, communication, movement, and practical relevance. Therefore, the use of technologies that combine these elements allows the educational process to correspond more closely to the psychological characteristics of children. From this perspective, the discussion shows that the success of modern methods lies not in novelty itself, but in their developmental appropriateness.

Another important issue concerns the relationship between cognitive activity and the broader goals of primary education. The development of cognitive activity should not be seen only as a means of increasing lesson interest or improving academic performance. It also contributes to the formation of qualities that are essential for the learner's long-term educational and personal

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development. These include independence, confidence in expressing ideas, readiness to cooperate, persistence in solving tasks, and the ability to reflect on one's own actions. Thus, cognitive activity has a multidimensional pedagogical value. It influences not only how much a child learns, but also how the child approaches learning as a personal and social experience. This broadens the significance of the topic and supports the idea that cognitive activity is one of the central indicators of effective developmental teaching.

The discussion of the results also highlights the decisive role of the teacher. Although modern pedagogical technologies offer many tools for activating learners, their real educational value depends on the teacher's methodological competence. The same interactive method may either promote meaningful cognitive engagement or remain superficial, depending on how it is introduced, guided, and reflected upon. If tasks are poorly selected, too difficult, or disconnected from students' developmental level, the expected activity may turn into confusion or mechanical participation. Therefore, the teacher's professional judgment remains fundamental. The findings imply that future primary school teachers should be trained not only to know innovative methods by name, but to understand their pedagogical purpose, psychological basis, and practical adaptation to different classroom situations.

The role of age-related characteristics must also be emphasized. Primary school students differ from older learners in their cognitive style, attention span, emotional responsiveness, and need for concrete support. This means that the formation of cognitive activity at this stage cannot rely on abstract reasoning alone. It requires visibility, movement, dialogue, practical examples, and gradual complication of tasks. The discussion therefore supports the idea that modern pedagogical technologies are most effective when they respect the developmental nature of childhood learning. Technologies that are interactive, imaginative, flexible, and emotionally engaging correspond more naturally to the educational needs of younger children than rigid and exclusively explanatory approaches.

At the same time, the findings raise important considerations about balance in the use of technology. Modern pedagogical technologies should not be

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interpreted narrowly as digital tools only. The discussion shows that cognitive activity depends primarily on the pedagogical organization of learning, not on the mere presence of technical devices. Digital resources can support perception and attention, but they are effective only when integrated into a meaningful instructional strategy. Without purposeful questioning, discussion, and problem-solving, technology may remain decorative rather than developmental. Therefore, pedagogical innovation should be evaluated according to its ability to deepen student thinking, not simply to diversify classroom form.

The results of the study are also relevant for the professional preparation of students in pedagogical universities. Since the target audience includes future primary school teachers, the discussion underscores the necessity of aligning teacher education with the real demands of cognitively active schooling. University preparation should include not only theoretical study of child development and pedagogy, but also practical training in lesson design, observation of classroom interaction, creation of interactive tasks, and analysis of student responses. Future teachers must learn how to build an educational environment in which every child has opportunities to think, respond, question, and participate meaningfully. This pedagogical orientation becomes increasingly important in modern educational contexts where the school is expected to develop not only knowledge but also initiative, adaptability, and independent intellectual behavior.

Overall, the discussion confirms that the formation of cognitive activity in primary school students is one of the most significant aims of modern pedagogy. The integration of interactive, problem-based, game-oriented, cooperative, and digitally supported methods creates strong conditions for this process, but their effectiveness depends on pedagogical intentionality, developmental appropriateness, and teacher competence. For primary education, this means that the lesson must be designed as a space of active thinking rather than passive reception. Such an approach not only improves immediate learning outcomes but also lays the foundation for intellectually active, motivated, and reflective learners in the future.


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Conclusion

The formation of cognitive activity of primary school students on the basis of modern pedagogical technologies represents one of the most essential directions of contemporary educational development. At the primary stage of schooling, children acquire not only initial academic knowledge and basic learning skills, but also the habits of thinking, questioning, observing, comparing, and drawing conclusions. For this reason, cognitive activity should be viewed as a foundational component of educational quality in primary education. When learners are cognitively active, they do not merely reproduce information but become engaged participants in the learning process, capable of conscious understanding and meaningful application of knowledge.

The study has shown that modern pedagogical technologies create favorable conditions for the development of such activity. Interactive methods, problem-based tasks, didactic games, cooperative forms of work, digital educational tools, and learner-centered approaches contribute to stronger motivation, greater classroom involvement, and more sustained intellectual effort. These technologies help transform the lesson from a space of passive reception into a dynamic environment of inquiry, communication, and discovery. As a result, students begin to show more curiosity, confidence, and readiness to participate in educational tasks. They become more willing to express ideas, search for solutions, and connect previous knowledge with new learning situations.

An important conclusion of the study is that the formation of cognitive activity depends not only on the use of innovative technologies themselves, but also on the pedagogical quality of their implementation. Educational technologies become truly effective only when they are carefully adapted to the age characteristics, emotional needs, and intellectual abilities of primary school children. Younger learners require methods that are visually clear, emotionally engaging, practically meaningful, and developmentally appropriate. Therefore, the teacher must act not simply as a transmitter of knowledge or user of teaching tools, but as a designer of educational situations that stimulate thought, dialogue, reflection, and independent effort.



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The role of the teacher in this process is especially significant. A teacher who can formulate stimulating questions, organize collaborative interaction, encourage initiative, and support students' reasoning creates the conditions in which cognitive activity can grow naturally and consistently. This means that the success of primary education depends to a large extent on the professional competence, creativity, and pedagogical sensitivity of the teacher. Modern primary school instruction therefore requires educators who are capable of combining theoretical understanding with methodological flexibility and reflective practice. In this sense, the issue of cognitive activity is directly connected with the professional training of future teachers in pedagogical universities.


The findings also allow the conclusion that the development of cognitive activity has value beyond immediate academic achievement. It contributes to the formation of independence, responsibility, attention, perseverance, communication skills, and confidence in expressing ideas. These qualities are essential not only for successful learning in later school years but also for the broader development of the child as an active and thoughtful individual. In modern society, where learners are expected to adapt to complex informational environments and changing educational demands, the ability to think actively and engage meaningfully with knowledge becomes increasingly important. The primary school years provide a decisive period for laying this foundation.

In summary, the formation of cognitive activity of primary school students on the basis of modern pedagogical technologies should be regarded as a strategic objective of contemporary pedagogy. It requires the integration of innovative methods into everyday classroom practice, the creation of supportive and intellectually stimulating learning environments, and the preparation of teachers who can organize education as a process of active participation rather than passive memorization. When these conditions are met, primary education becomes not only a stage of knowledge acquisition, but also a space for nurturing motivated, inquisitive, and intellectually independent learners.

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