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## DIAGNOSIS OF THE DEVELOPMENT OF COGNITIVE SKILLS IN ENGLISH LANGUAGE TEACHING FOR STUDENTS IN GRADES 10-11

### Abstract

The article provides a diagnosis of the development of cognitive skills in teaching English to students in grades 10-11. First, a theoretical analysis of cognitive skills is proposed from a philosophical, psychological and pedagogical point of view. Cognition in philosophy, it is given that cognitive skill is a load on the mind, measured by irrational ideas with an increased need. And, according to psychological analysis, the highest level of cognition is characterized by the creative work of abstractions and the conscious study of one's own nature. It is noted that the pedagogical attributes of cognitivism are the intellectual development of students, knowledge about the world around them, activity, and the pursuit of knowledge. In the empirical section, diagnostics of the development of cognitive skills of students in grades 10-11 in English language teaching in the 2023-2024 academic year was organized in order to study the initial level of cognitive abilities of students in grades 10-11, 114 students participated in the diagnostic work and completed practical training. The article specifies the purpose and objectives of diagnostic work. Rudolf Amthauer's "Interests and Needs Test" was conducted to determine the level of cognitive skills of students in grades 10-11. The organization of the test based on the results of diagnostic work, the results of the respondents were processed with a special key, and the test results obtained as a result of experimental psychological research were placed in statistical processing. Since the test consists of 6 chapters, the total number of points was set in 6 columns.

**Keywords:** cognition, cognitive skills, English language teaching, diagnostics, cognitive abilities.

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## 10-11 СЫНЫП ОҚУШЫЛАРЫНЫҢ АҒЫЛШЫН ТІЛІН ОҚЫТУДА КОГНИТИВТІ ДАҒДЫЛАРЫН ДАМУДЫҢ ДИАГНОСТИКАСЫ

*Аңдатпа*

Мақалада 10-11 сынып оқушыларының ағылшын тілін оқытуда когнитивті дағдыларын дамытудың диагностикасы беріледі. Алдымен когнитивтік дағдылар туралы теориялық талдаулар философиялық, психологиялық және педагогикалық тұрғыдан ұсынылады. Когнитивтілік философияда когнитивті дағды – бұл ақыл-ойға жүктеме, күшейтілген қажеттілігі бар иррационалды идеялармен өлшенеді деп беріледі. Ал психологиялық талдаулар бойынша когнитивтіліктің ең жоғары деңгейі, ол абстракциялардың шығармашылық жұмысымен және өз табиғатын саналы зерттеумен сипатталады. Когнитивтіліктің педагогикалық атрибуттары оқушылардың интеллектуалды дамуы, айналасындағы элем туралы білімі, белсенділігі, білімге деген құштарлығын құрайтындығы баяндалып отыр.

Эмпирикалық бөлімде 10-11 сынып оқушыларының ағылшын тілін оқытуда когнитивті дағдыларын дамытудың диагностикасы 2023-2024 оқу жылында 10-11 сынып оқушыларының когнитивтік қабілеттерінің бастапқы деңгейін зерттеу мақсатында ұйымдастырылып, диагностикалау жұмыстарына 114 оқушы қатысып, тәжірибеден өтті. Мақалада диагностикалық жұмыстардың мақсаты, міндеттері көрсетіледі. 10-11 сынып оқушыларының когнитивтік дағдыларының деңгейін анықтауға Рудольф Амтхауердің «Қызығушылықтар мен қажеттіліктер тесті» жүргізілді. Диагностикалық жұмыстардың нәтижелері бойынша тест ұйымдастыру респонденттердің нәтижелері арнайы кілтпен өңделді және тесттің эксперименталды-психологиялық зерттеу жұмысынан алынған нәтижелері статистикалық өңдеуге салынды. Тест 6 тараудан тұратындықтан, 6 баған бойынша ұпайлардың жалпы саны шығарылды.

**Түйін сөздер:** когнитивтілік, когнитивті дағды, ағылшын тілін оқыту, диагностика, когнитивтік қабілеттілік.

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## ДИАГНОСТИКА РАЗВИТИЯ КОГНИТИВНЫХ НАВЫКОВ В ОБУЧЕНИИ АНГЛИЙСКОМУ ЯЗЫКУ УЧАЩИХСЯ 10-11 КЛАССОВ

*Аннотация*

В статье дается диагностика развития когнитивных навыков в обучении английскому языку учащихся 10-11 классов. Сначала предлагается теоретический анализ когнитивных навыков с философской, психологической и педагогической точек зрения. Когнитивность в философии дается, что когнитивный навык – это нагрузка на разум, измеряемая иррациональными идеями с усиленной потребностью. И, согласно психологическому анализу, наивысший уровень когнитивности характеризуется творческой работой абстракций и сознательным изучением собственной природы. Отмечается, что педагогические атрибуты когнитивизма составляют интеллектуальное развитие учащихся, знания об окружающем мире, активность, стремление к знаниям. В эмпирическом разделе была организована диагностика развития когнитивных навыков учащихся 10-11 классов в обучении английскому языку в 2023-2024 учебном году с целью изучения начального уровня когнитивных способностей учащихся 10-11 классов, в диагностической работе приняли участие и прошли практику 114 учащихся. В статье указываются цель, задачи диагностических работ. Для определения уровня когнитивных навыков учащихся 10-11 классов был проведен «Тест интересов и потребностей» Рудольфа Амтхауэра. Организация теста по результатам диагностических работ результаты респондентов были обработаны специальным ключом, а результаты теста, полученные в результате экспериментально-психологического исследования, были помещены в статистическую обработку. Поскольку тест состоит из 6 глав, общее количество баллов было выставлено в 6 столбцах.

**Ключевые слова:** когнитивность, когнитивные навыки, обучение английскому языку, диагностика, когнитивные способности.

**Introduction.** The level of socio-economic development of the society, including the formation of the Republic of Kazakhstan as a state, strengthening its sovereignty, restoring our national consciousness and education, and taking a place in the ranks of civilized countries is one of the main conditions for the formation of an educated generation. Nowadays, rapid changes in society create a new way of life every year.

Informational education is a component of education and culture, an inseparable part of it, a unique way to improve the worldview and consciousness of humanity. By developing the student's cognitive ability, it enables the formation of conscious attitudes, personal values, systematic actions, and correct decision-making.

Currently, especially in the development of general education, although positive changes and rational aspects of teaching and education are being revealed, the student's ability is not deeply explored. Therefore, the basis of our research is the problem of developing students' cognitive abilities through digital education.

If students understand the meaning and importance of orientation in the learning process, master its features and laws, components, knowledge bases necessary for mastering, then the effectiveness of cognitive activity increases. This helps students to use their opportunities, to consciously understand and understand the benefits and importance of education. If the student considers education as a temporary need, then the importance of education decreases. And if learning activity is connected with other activities (creative, cognitive, ability), then motives such as "if I know", "I need", "I need" are followed by motives such as "I want to know", "I want to learn".

In this regard, in the Law of the Republic of Kazakhstan «On Education»: the educational system (Article 11) creation of necessary conditions for obtaining quality education aimed at the formation, development and professional training of an individual based on national and universal human values, scientific and practical achievements; to develop the creative, spiritual and energetic capabilities of an individual, to enrich his thinking by creating conditions for the development of individuality"- suggests finding mechanisms for solving tasks [1]. The result of solving the tasks in the above-mentioned regulatory documents is intended to develop the cognitive abilities of students according to the requirements of today's times. In other words, it paves the way for the provision of basic tools in digital education in explaining the content of knowledge. Especially if it is deeply embedded in the content of education, starting from school, then the student's cognitive abilities in various subject knowledge are activated, develop, and understand the main nature of the product.

*Basic rules.*

- cognition is a special type of human activity aimed at recognizing the surrounding world and oneself in it. A person carries out two main types of cognitive activity: - recognizes the surrounding world through the results of the cognitive activity of other generations (reads books, acquires knowledge, meets all kinds of material and spiritual culture); – knows the surrounding world directly (himself or a discovery opens the hope of humanity).

- level of cognitive skills - this is a load on the mind, irrational ideas with an increased need.

- «cognitive skills - a structure based on the intellectual and cognitive abilities of the child in sensory cognition and interest in the world».

**Materials and methods.** One of the most important factors in the educational process is the fruit of the continuous educational process in the life of a general education school, looking at each child as an individual and guiding him to the fact that he has his own mind and the environment in which he can act independently.

First of all, we would like to analyze the concepts of «cognition» and "cognitive skill» from a philosophical point of view.

In ancient antiquity, philosophy was born, dialectical power emerged with philosophy, and the motivational thought of «negation of negation» came into circulation. At that time, Pythagoras' philosophical thought about the human race, «The world is ruled by numbers», is now «The world

is ruled by symbols», and Galileo's thesis that «Everything must be measured» is now «Everything must be marked», became a thesis. From a philosophical point of view, it means the continuation and contrast of the old and the new, but in turn, it clearly shows the peak of human knowledge [2].

The level of cognitive skill is a load on the mind, irrational ideas with an increased need. In this context, medieval patristics associated with the name of the philosopher Aurelius Augustine played an important role. Associated with the creation of philosophy («philosophy of knowledge in belief») and the decline of the values of Greek philosophy. The principle of his philosophy is: «I believe in recognition».

Arthur Schopenhauer is a German philosopher, a panvoluntarist, who believed that his main task was to make philosophy useful for human life. The main conclusion of the philosopher: «... criticizing the idea of the rationality of human life and the groundlessness of claims to find eternal truths, he sets the limits of rationalism, declares that a person cannot understand the essence of complex deep phenomena through logic. Schopenhauer associates the essence of man with the will, not with the mind. According to him, knowledge is a quality of will [2, 279 p].

Friedrich Nietzsche is the «Donjouan of Knowledge» because he was concerned with the process of seeking, pursuing, and mastering the truth, not the possession of it. In philosophy, Nietzsche called for the knowledge of the will, not the love of truth. Studying the will as the instinctive side of human life that determines human action, he sees in instinct the inspiring genius of philosophy. As we have seen, according to Nietzsche, the task of philosophy is self-knowledge: the philosopher must always be engaged in self-knowledge, he must periodically lose himself and then find himself again. Nietzsche's philosophy is a hymn to a strong man who in his creative process sought an ideal in the past (Zarathustra), then in the present (sage), then in the future [2, 375 p].

In philosophy, the study of cognition provides us with several important categories. They are: discourse, mind, intuition, thinking, etc. Let's analyze the relation of these categories to cognition.

*Discourse* - a rational movement in steps from the known to the unknown. And in the period of transition from the known to the unknown, the emergence and realization of knowledge is conditional.

*Reason (dialectical thinking)* - the highest level of cognition, which is characterized by the creative work of abstractions and the conscious study of one's own nature (self-expression). The main task of the mind is to combine diversity, synthesize contradictions and determine the main causes and driving forces of the studied phenomena. Dialectic is the logic of the mind, the doctrine of the formation and development of knowledge, and knowledge develops in the unity of their content and form.

*Intuition* - this is the desire for new knowledge without discursive production. The role of cognition is important for the correct acceptance of new knowledge in a child.

*Thinking* - ways of representing reality through interconnected abstractions, including primary concepts, judgments and conclusions. Based on them, more complex forms of knowledge - assumptions, theories, practical skills are created.

Cognitive activity of schoolchildren becomes free and expands the scope of knowledge. By studying, he learns the practical activities of his predecessors, the systems of science and education, and thus prepares himself for practical activities. Only by mastering the education system can a person better understand the mechanisms of mental and physical labor. He will have the opportunity to know them in detail. Systematic, clear, precise formation of the learning process increases the development of cognitive activity. The learning process is performed in the unity of human activity and cognitive processes. By mastering the methods of cognitive processes, the child distinguishes the connections and relationships of things in reality. He learns to be able to prove one thing with another, to see their differences and similarities. If the main features of the teaching process are one of the main forms of cognitive processes, then we can divide the thorough implementation of the social meaning of school education into different needs.

Scientists like V.V.Davydov, A.N.Leontiyev, A.M.Matyushkin, S.L.Rubinstein, L.I.Bojovich, S.I.Slavina who studied the problem demonstrated of the development of cognitive activity in the education of students in the process of age specificity and pedagogical psychology. The basis of teaching with experimental research. First, adults ask the child: «How do you study?» - he asks. The «child-teacher» system gradually becomes the main environment of the child's life, all positive aspects of the life situation depend on it. In the course of such communication, the actual situation is discussed by the participants of the activity. This was done by S.M.Zhakupov in his «Cognitive action work» indicated that it is an analysis of real situations [3].

Teaching is reflected in the joint activities of the teacher and the student, which are two-way in nature. Therefore, the teacher helps the student to accept new knowledge, to connect it with the existing knowledge, to make a correct conclusion. To show the diversity and further adaptability of the relationship between the teacher and the student in the educational process.

Recently, there has been a significant increase in interest in the problem of communication among scientists studying various fields of psychological science. First of all, it is related to the actual problems of joint action and work, which determine the linguistic character of speech communication, and the practice of researching the social-psychological aspects of general psychological and interpersonal communication. On the other hand, until now, there has not been a realized model that defines the place of communication in the organization of cognitive processes and directs to specific research, that fully covers this issue. In the analysis of the learning process, no pedagogical theories have shown that the components of learning are united and that it is a system of its own.

Z.I.Kalmykova notes: «On the basis of training, we determine the complexity of the movement of the individual's own intellectual system, the qualitative structure of the mind, and the productivity of the training process in this regard» [4]. The learning process is carried out through the unity of human activity and real cognitive processes. Therefore, each type of cognitive processes has its own characteristics, importance and place. Cognitive activity is formed in specially organized school education, being a complex psychological education, develops along with the educational process itself.

The most important thing for a child's future is not education, but first of all, his thinking should be developed to a large extent, so that he can understand and master the contents of the book on his own. The learning process is a pedagogically complex phenomenon, during this period the cognitive activities of 10-11th graders are also developed and formed. Thus, one of the goals of education is to expand the student's thinking.

Abai explains the nature of human cognitive qualities in his poetry from a materialistic point of view. Combining the problems of sensation and intuition in this direction shows that perception is connected with other cognitive phenomena of perception, more precisely, with intuitions such as thinking, imagining, concepts. Be careful:

«It is not enough to know the outside, but not to see the secret,

After growing up, I never saw such a word before.

I'm surprised, regardless of what I said before,

And people say keep saying it without stopping», [5] - the concept of intuition as the essence of a psychological phenomenon is drawn attention to. I.P. said that intuitive perception depends on a person's accumulated experience. Pavlovsha concludes.

A person improves his mind and consciousness in the process of developing his psychology. It is true that all personal qualities are developed and formed through education, life and social conditions. In this regard, revitalizing the intricacies of a person's soul, improving the qualities and characteristics of his personality, the ability of teachers and educators to understand cognitive processes and psychological laws will facilitate the work of educating and educating students. The

meaning of this form, like pedagogical joint communication, is very high, and the whole pedagogical process trend is considered in it.

In the learning process, the educational community imagines its healing style in the following four different ways: 1) teacher-student (students), 2) student - two students and three students (combined), 3) student with the whole group, the whole learning team, for example, in the language group, in the whole class, 4) the teacher - the team of teachers. G.A. In addition to these, Zuckerman adds another important genetic product. The association of the teacher is «with himself – himself» (and he seems to be fair to this teacher as well). In order to form a learning association, children should be taught to observe their own attitude and change [6].

If one of the mental processes (emotion, perception, illusion, etc.) is manifested by directly recognizing and knowing the objects and phenomena of the external world, then others (thinking, imagination, etc.) are deeply aware of the complex connections, interrelationships, and changes between them. takes a special place. In the continuous active connection of a person with the external world (objective reality), his feeling and will processes play a decisive role.

Therefore, cognitive processes are an important tool for learning about life in raising the young generation to become all-round capable citizens.

The thinking process dominates and determines other functions, intellectual development primarily depends on the development of cognitive processes and mastering the program based on a generalized theory.

In the Encyclopedia of Philosophy, the word «cognition» is defined as «the term is used synonymously with thought». M.M. Mukanov said: «This definition does not satisfy us» [7], Soviet psychologist B.G. Ananiev's works written in recent years support the opinion that he considered intelligence to be something characteristic of the ability to think. Guided by this argument, we argue that the mind or «intelligence» is a product of the thought process. Human thought is the subject of research in a number of sciences - philosophy, psychology, physiology of higher nervous activity, mathematics, logic, and cybernetics [8].

Thinking means the process of thinking about solving a problem. Thinking is a developmental phenomenon and it is constantly in operation in the human head. The continuous thinking that takes place in the brain and its fruit, concepts and sentences, are not the same thing. The solution of the problem is arranged in the head of the person. Therefore, research on thinking is focused not on the state of the process, but on what conditions are necessary for thinking to be realized and regulated.

In work M.M.Mukanov emphasized that the main cognitive processes of schoolchildren (perception, attention, memory, imagination, thinking) undergo certain changes after entering school [7, 103 p]. According to L.S. Vygotsky's theory, 6-7 years old is a crisis period in the life of other psychologists, he said. The content of planning the development of cognitive activity of a child of this age in the status of pedagogical psychology can be divided into 4 stages:

1. Area of cognitive activity, level of development of thinking - creating an internal plan in mental activity through teaching activity; level of language development - motor development of schoolchildren;

2. The peculiarity of communication on the student's cognitive activity: by socializing with peers, he learns collective action, resolving disagreements in a friendly way; relationship with the teacher, respect for the teacher; preservation of social and ethnic dimensions;

3. Area of personal characteristics of schoolchildren; individual characteristics of learning motivation, the effect of maintaining a stable emotional state at school;

4. The effect of the school's principle of consistency on the student's actions; influencing the formation of the right feeling about the school, about the importance of teaching about the teacher [9].

L.S.Vygotsky described the peculiarities of school-age thinking: «Children of this age cannot fully master their thinking operations because they do not understand them enough. He still lacks

the ability to self-control and introspection. Only in the case of conflict and resistance, the child tries to finish his thoughts in front of others, starts to control his thinking, that is, with the help of introspection, he starts to look for and distinguish the motives that lead him and the direction he is following. He tries to prove his opinion in front of others, and he proves it for himself» - saying, «The child's conscious understanding of the meaning and content of his actions - being able to tell about his actions independently, he can fully explain why he does them». After all, it is known that when a person explains something to someone, he begins to understand it better. Therefore, at the first stage of learning any activity (mathematics, grammar, etc.), it is necessary to demand from the child not only to perform this activity independently and correctly, but also to open and explain all the operations performed in words [9, 28 p].

Al-Farabi supports this opinion in his works: «No matter what kind of science it is, the mind is instilled in the mind by understanding its unique style. It is enough for us to understand some of these characteristics, and it is useful to experience most of the others. Only after our senses accept these situations and our understanding is accumulated, our mind begins to play its own role. When studying the development of teaching, the methods that have revealed and carried out the content of the entire teaching should be organized. This is D.B. Elkonin, L.S. Vygotsky, V.V. Davydov, Z.I. It appears in the works of Kalmykova.

Well A.V. Brushlinsky emphasized that «The researcher studies thinking as a process, and for the researcher it is used as an action». The conditions for the realization of the thinking process include the previous experience and orientation of a person and the motives that prompt him to think [10].

Personality development of the student - the mind and psyche of the child changes, develops and matures due to the influence of the environment and education. Since the child's innate qualities are often developed and changed in daily life and activities under the influence of external influence and education, the child's brain and nervous system are incredibly plastic, that is, they change according to the result of external influence. There are many changes in the physical and mental characteristics of schoolchildren. That is why it is important to pay special attention to all stages of the child's development. Only then will recognition activities be formed correctly. The development of the adaptation factor degree of cognitive processes (thinking, intuition, perception, memory, speech, imagination, attention) is as follows.

Determining the level of development of a school student is a complex perspective work, for which it is necessary to evaluate and monitor the developmental aspect of education. The level of determining the development of the student's thinking is a type of this control. In Soviet psychology, the methodology of thinking and action is mainly formed during school education.

In this regard, V.V. Davydov said, «Due to the historical period in the development of society, each individual has a way of thinking about education and training and his own actions. takes the form of action» - he writes [11].

G.P. Orlov connects the comprehensive development of personality with the problem of free time. A person should have the opportunity to develop their abilities. At the same time, the scientist says that the more free time a person has, the more opportunities he has to make comprehensive progress. «The importance of free time is closely related to how it is used for spiritual and physical development. That is, the type of activity and a person's attitude towards it» [12].

It is natural that comprehensive development and free time are related. The very fact that this problem is raised means that a person does not have the opportunity to develop his existing abilities during his working hours. Therefore, during free time, a person has the opportunity to develop potential abilities that cannot be developed while working in a certain field.

E.A. Artemyeva emphasizes that comprehensive human development depends on social conditions. «In the comprehensive development of personality, it is important not only to have free time that allows development, but also to have a real situation that allows each person to realize their potential» [13].

Creating a comfortable environment for the development of the personality is one of the first priorities for the society. However, it is necessary to determine in detail which areas have a greater influence on the development of the personality, but this level is not being paid attention to. If we focus on the development of a child's cognitive activity in general, at the age of 6-7, a child can solve a problem situation using three methods: visual-active, visual-imagery and logical thinking.

S.L.Rubinstein, N.N.Poddyakov, D.B.Elkonin considers the upper kindergarten age as the period when logical thinking begins to form to its maximum, and says that it is necessary to determine the immediate future of the development of thought and action through it. At this stage, perception is characterized by a relatively high level, consisting of the summarized norms of thought, meaningful memory;

A certain amount of knowledge and skills are formed in the child, the voluntary form of mind and thinking develops as much as possible.

His behavior is characterized by the sphere of motives and interests, an internal plan of action, the ability to adequately assess his actions and capabilities;

The implementation of cognitive activities during the education of 10-11 grade students consists of the following features, i.e., psychological features characteristic of a school student:

- to be able to consciously match children's actions to the rules that define general ways of doing things;

- being able to listen carefully to the speech of another person and accurately perform the verbally presented tasks;

- ability to perform the required task according to visual perception.

- mastering learning activities using methods and skills at their own level.

Organizing the dialogue of various pedagogical systems and technologies, creating favorable conditions for the maximum development of the abilities and skills of lower grade students is one of the areas of the teaching process.

Successfully solving the tasks of developing a child's personality, improving learning efficiency, and forming a positive professional formation is determined in most cases by taking into account the level of readiness of children for school. That is why readiness to study at school is considered as a complex characteristic of a child, which is an important prerequisite for entering a new environment and forming learning activities, in which the psychological level of development can be seen.

Memory and thinking always work together in the learning process. A child's thinking ability develops especially during the learning process, and thinking ability and thinking activity are formed in the entire educational process at school.

Psychologists (P.Ya. Halperin, N.F. Talyzina, etc.) express their own opinion about controlling the mental activity of students during the teaching process. According to this theory, the student's acquisition of new knowledge (concept) depends on the formation of thinking and action, which consists of five stages.

In the first stage, students are given information about the purpose of the activity and what to do.

The second stage is called the material stage. At this time, students work directly with real material objects, that is, tools such as models and diagrams. The student moves to the third stage only after mastering the activities of these two stages.

The third stage is called the stage of external speech. At this stage (in the absence of material objects and tools), the student implements his actions by speaking or writing. The activity of the student gradually becomes shortened and digested.

The fourth stage is called the stage of self-talk. At this stage, the student's actions are realized through his speech. Here, his actions are further reduced and generalized.

The fifth stage is called the thinking stage. At this time, the student's actions are realized through internal speech rather than going outside. The action is reduced and automated to the extent possible.



The thinking process is actively visible during the lesson content and familiarization, and during the lesson, the field gradually develops through comprehensive analysis, grouping, comparison, drawing conclusions, using several methods. By thinking, a person connects complex causes between invisible objects and phenomena, understands laws. Mental operation plays a key role in systematic and meaningful understanding of educational material, especially for children of primary school age.

It is known from experience that many problems of students are related to the function of attention and the organization of their activities. Attention is always organically connected with all other mental processes and qualities. A very important feature of attention: although it does not have its own content, it always occurs as a result of the implementation of other mental processes, such as perception, consciousness, thinking. Attention differs from the mentioned mental processes in that there is no result of its own action. At the same time, no activity can be performed effectively without attention. According to K.D. Ushinsky, «everything from the outside world enters our consciousness through the only door of our spirit – attention» [14].

In psychological studies, it is defined that attention is directed and concentrated on a specific object. A student's attention or lack of attention in a certain period of time can be seen from some behavior and behavior. For example, some qualities of attention are manifested in different degrees in each person. Attention is characterized by the following features: volume, distribution, concentration, stability, transition [14, p. 128].

The qualities of attention are closely related to each other and depend on their mutual compatibility during action. An interesting theoretical statement about attention was made by P.Ya. Halperin suggested.

In the pedagogical aspects of knowledge, knowledge is a goal-directed active representation process, aiming at truth in the mind of a person and the ability of reality to change it further. In the course of cognition, various facets of existence are revealed, the external aspects and meaning of objects and phenomena in the surrounding world are revealed, and the subject of cognitive activity - man, therefore, studies himself.

Cognition is a special type of human activity aimed at recognizing the surrounding world and oneself in it. A person carries out two main types of cognitive activity:

- recognizes the surrounding world through the results of the cognitive activity of other generations (reads books, acquires knowledge, meets all kinds of material and spiritual culture);
- knows the surrounding world directly (himself or a discovery opens the hope of humanity).

Cognition is the interaction of the object of knowledge and the subject, in which the process of learning and development is constantly deepened and expanded, as a result of which new knowledge is obtained. Taking into account that the education provided at school is the first step of the continuous education system, we do not forget that, along with acquiring a certain amount of educational skills, the formation of knowledge about nature and society, the comprehensive development of his personality traits, and the education of high moral principles are the main requirements of today. appropriate. This is because the processes of democratization and humanization of the changes taking place in modern society require active creativity with free development of the child [15].

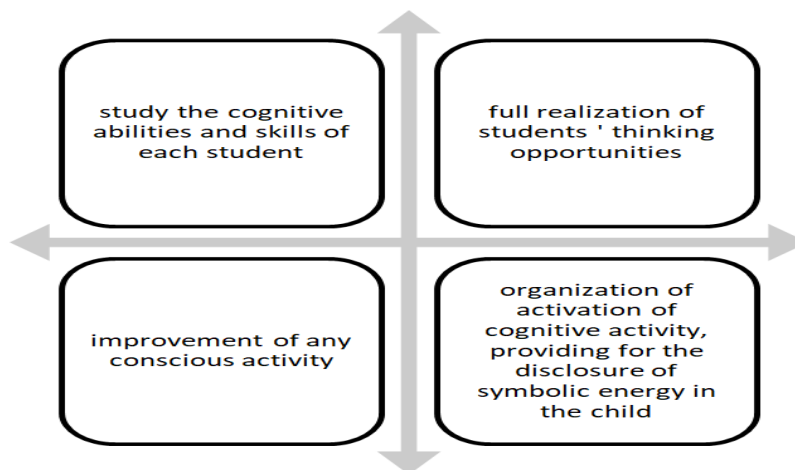


Figure 1. Ways to develop cognitive skills

It is necessary to pay attention to the development of the child's cognitive activities from a young age and look for ways to properly form them, because he is the future of tomorrow.

In conclusion, we recommend the following for the proper formation of cognitive activities in the learning process:

- identifying and studying the cognitive abilities and flexible skills found in each student;
- full implementation of students' thinking abilities;
- improvement of any conscious activity.

- organization of revitalization of cognitive activity, etc., aiming at the discovery of symbolic powers in the child. Therefore, the most important thing in the teaching system is the ability of the teacher to skillfully manage this process and to develop the cognitive abilities of the students. That is to say: the driving force of the teaching process is a set of joint cognitive activities of the teacher and the student. as usual, the genesis of the concept of «cognition» is expressed by several attributes in philosophical researches, psychological researches and in the field of pedagogy since the beginning of the human race.

Abilities are personal and psychological qualities of a person, their practical, scientific and artistic activities that ensure the success of their implementation.

Analyzing the psychological aspects of the concept of «cognitive skill», we realized the versatility of this concept.

Cognitive skill is the main function of children, it is of great importance for the intellectual development of the child to clarify his knowledge about the world around him. Cognitive activity ensures the activity of the child, his desire for education.

True and joyful learning cannot be received by a person without his well-developed cognitive abilities (attention, perception, memory, thinking, imagination), which form the basis of the culture of mental work - this is primarily the mental process, which consists of the processes of receiving, assimilating, processing and transmitting knowledge. system of rational ways of thinking.

Imagery in cognitive ability is a basic category of psychology. Image category is the final point and result of any cognitive acts. In a broad sense, «image» is considered a subjective form of representation of some (abstract-logical) educational material. And in a narrow sense, the word «image» is used to denote a sensory form of representation, graphics, sensory (image of understanding, perception, systematic image, etc.) or quasi-sensory nature (image, imagination, hallucination, etc.). As an integral constructor of the sphere of cognitive processes of a person, the whole image of the world is «a multi-level system of a person's understanding of the world, his relationship to others and to his actions» [16].

As a result of any cognitive process, a completely modified image of the world with new elements is created. Concepts of «picture of the world», «image of the world», «model of the universe» have long been widely used in psychology. But here, a set of individual objects and phenomena related to the picture of the world is taken. The image of the world in such an interpretation appears in our understanding and undergoes evolutionary change as a completely integral area of the cognitive process of a person.

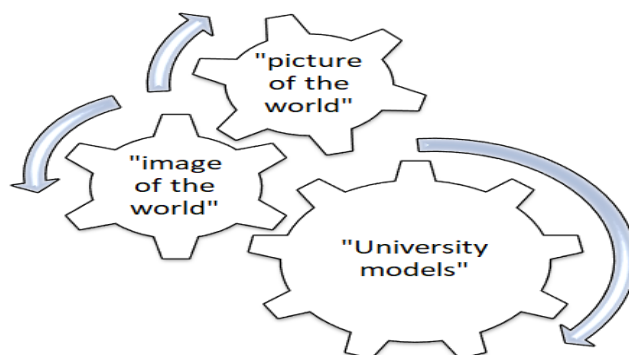


Figure 2. Elements of the cognitive process

Until now, the stimulus paradigm of the functional structure of the cognitive process is adopted in the description of the process of creating the image of the object adopted in many studies of the psychology of cognition. Here, the surrounding actual image of a person is not active, but reactive (reflex) and consists of the following moments:

- selection and formation of stimulation affecting the thinking of a person according to different modalities of emotional impact;
- accumulated due to the arrival of the whole image of the object to the intuition: the connection of the same object to the intuition with the actual effect on the sense organs;
- the use of sensory images (generalization, categorization, abstraction, etc.) undergoes various meaningful processing.

The general position of a number of authors means unity.

For example, in research T.K. Ulkina considered cognitive abilities as follows: «...the built-in basic abilities of a child the following components: intellectual development level (mind, mnemonic, perceptual component); general education of the child level; a child's unique searching ability and aptitude level to successfully solve creative tasks; activity as systematic behavior—manifestation of cognitive abilities, this manifestation is the child's interest» [17]. Commonly characterized cognitive abilities are mental activity, tendency to mental stress, a clear degree of expressiveness, ability to easily work with logical operations - systematization, classification, generalization, creative manifestations in the performance of various tasks, aspirations occupy a large place.

Human cognitive ability is the well-developed properties of cognitive processes, as well as intelligence that occurs and develops in the process of successfully solving problems and tasks. In this regard In her works Sh.T. Taubaeva considers knowledge together with intellectuality, and comes to the conclusion that this is the level of intellectual development of a person, creative ability, resources of the country, complex features in the fields. We consider the author's researches in two aspects, i.e., a set of knowledge oriented to the cognitive and re-creative activity of a person who acquires knowledge; It is considered as the material and technical form and symbolic system of the system, cultural knowledge, social, technical, scientific set through the means of achieving the goals of the society [18].

Thus, in the framework of pedagogy and psychology: «cognitive skills are a structure based on intellectual and cognitive abilities of the child, with sensory cognition and interest in the world». In

the cognitive structure, first of all, the student acquires the ability, for example, the properties that show the ability to construct images and their general structure, the signs and conditions of parts or basic objects, etc.

The researches of many scientists have confirmed the need for special time in educational programs for students to master effective methods of mental and cognitive activity. The main areas of development of the student's cognitive abilities are the development (formation) of logical thinking, the improvement of creative thinking that contributes to the conscious perception of knowledge and the mastery of products.

It is necessary to express the idea of the need to develop the desire of students of 10-11 grades to develop their personal interest, to turn it into a purposeful research activity, which in turn leads to the formation of a permanent research position of an individual. The child should be helped to form a research position in which a cognitive strategy is developed, and cognitive activity in various activities (for example, play, research, communication) will be voluntary and consciously controlled.

**Results.** Research shows that the independent development of knowledge among students of 10-11th grade begins with the correct implementation of educational work at school.

In the course of conducting research work, a diagnostic platform was created to study the level of cognitive abilities of 10-11th grade students in 2023-2024.

In diagnostics, we conducted an experiment targeting 10-11 grade students of general education schools. 114 students participated in the practical work and passed the experience of them, 62 students were in the experimental group, and 51 students were in the control group.

In the clarifying period, we used the diagnostic materials collected during the research.

As it is known, diagnostics are methods used to obtain data on the fruits and results of the pedagogical process.

The goal of diagnostics is to identify, assess and analyze educational activities in a timely manner, which are related to their performance results.

Tasks of diagnostics:

1. Analysis of the progress and results of student development (student's readiness for education, level of mental maturity, rate of progress in education and education);

2. Analysis of the pedagogical process and its results (volume and depth of literacy, ability to use what has been learned, level of thinking, ability to creative activity, etc.)

3. Analysis of the educational process and its achievements (educational level, depth and power of moral beliefs, level of formation of moral behavior, etc.)

4. In grades 10-11, students' cognitive abilities are to be defined in order to reveal them comprehensively.

We would like to briefly touch on the following type of effective methods for organizing experimental work. It was also conducted in connection with determining the cognitive level of schoolchildren. First of all, the child's perception of knowledge, concentration, etc. determination of the course of actions has been started.

One of the most widely used and most popular intellectual tests for structuring children's intelligence is Rudolf Amthauer's. «Interests and Needs Test». It was created in 1953 (the last edition was published in 1973). The test is designed to determine the level of intellectual development of people of any age in some areas.

The test has good methodological indicators: test coefficient reliability (interval 1 year); the coefficient of reliability of parallel forms - 0.95, the coefficient of reliability of test sections (according to the method of «decomposition») - 0.97; the validity determined by the relationship of progress is 0.46, the validity of the expert assessment of the level of intellectual development is 0.62. The test, firstly, was processed as a diagnostic test of the level of general abilities related to the issue of professional psychodiagnostics.

When creating the test, R. Amthauer applied the concept based on the will and emotional sphere, cognitive interests and needs, which are special structures. R. Amthauer introduced tasks for the diagnosis of several components to the test.

The test consists of several parts. Each of them is aimed at defining different functions of intelligence. Note: test tasks in all sections must be performed only under the guidance of the teacher. The test tasks given in the test sections serve to determine the appropriate levels for the formation of cognitive activity. But we focused on the relevant part of our research problem.

Table 1 - by Rudolf Amthauer «Test of interests and needs»

Name of the test section	Functions	Number of tasks	Execution time
«Logical Selection»	Leads the child to thinking, associative research. The researcher's task is to complete the sentence with one of the listed items.	20	6 minutes.
«Identifying common features»	Study of the ability to abstract verbal concepts.	5 words and 5 nouns are given, and 4 of them have a certain semantic connection, and 1 is redundant.	6 minutes
«Analogues»	Combinatorial capabilities analysis	It consists of 3 words.	7 minutes
«Classification»	The ability to think. The subject should mark 2 words with a general understanding.	16	8 minutes
«Series of Events»	Analysis of inductive reasoning, for identification.	It is necessary to find the sequence of sentences in 20 tasks and continue it	10 minutes
«Memorizing Words»	These are tasks for attention and memory.	It is necessary to find a series of words belonging to different groups of things, and then perform tasks that use the ability of working memory.	Memory time - 3 min. Performance time - 6 min.

The net time to complete all the tasks is 80 min. 1 point is given for each correctly completed task. Children's subtest sum is the primary subtest assessment. The primary rating for each subtest is converted to a scale rating. Thus, the structure of cognitive ability can be described by the profile of solving tasks of separate groups.

Organization of the test, the results of the respondents are processed with a special key, and the results of the experimental-psychological research of the test are subjected to statistical processing. Since the test consists of 6 chapters, the total number of points is calculated in 6 columns. After that, the arithmetic average is calculated by the following formula. Here,  $x$  is the total number of all children and  $N$  is the number of respondents. Formation of cognitive activity of 10-11th grade students and psychodiagnostics of adaptation to school studies and cognitive abilities are carried out in order to determine their level. The first meaning of the diagnosis is to determine the children's learning skills and their cognitive abilities. Thus, there is no consensus on the relationship between intellectual ability and creativity. But this issue is undoubtedly of interest in the theory and practice of working with gifted children. The duration of practical work using this methodology covered the period of September-December of the academic year 2023-2024.

**Discussion.** R. Amthauerin determining cognitive levels of 10-11th grade students by diagnostic works. We present the results of the «Interests and Needs Test» in Table 2 and Figure 3.

Table 2 – Diagnosis in control and experimental groups R. Amthauer «Interests and Needs Test» of Logical sampling (association research) department results

Scales	Logical sampling (association research)					
	High level		Average level		Low level	
	n	%	n	%	n	%
CG(51)	19	37.2	18	35.2	14	27.4
EG(62)	22	35.4	16	25.8	24	38.7

The survey made it possible to measure four indicators according to the scales. Diagnosing R. Amthauer «Interests and Needs Test» of Logical sampling (association research) department We consider it advisable to conduct analyzes based on the results. 51 subjects in CG, 62 subjects in EG had intercourse. If we say that «logical selection» leads the child to thinking and associative research, here in the IT there are 19 high level, 18 medium level, and 14 low level subjects, CG-27.4%. And now, if the subject of HL-22, AL-16, LL-24 is shown in the experimental group, his percentage is HL-35.4%, AL-25.8%, LL-38.7%.

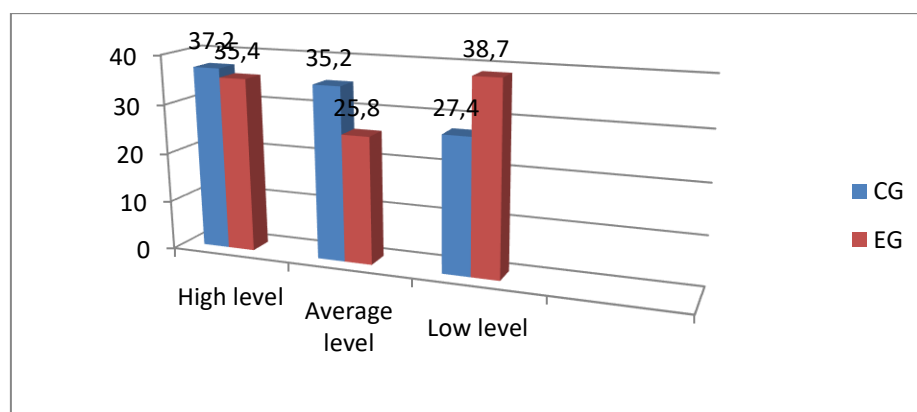


Figure 3. On control and experimental groups in diagnostics R. Amthauer «Interests and Needs Test» of Logical sampling (association research) section diagram of the results

Table 3 - By control and experimental groups in the diagnostic period R. Amthauer «Interests and Needs Test» of Determining general signs (abstraction of verbal concepts) of the department results

Scales	Identifying common signs (abstraction of verbal concepts)					
	High level		Average level		Low level	
	n	%	n	%	n	%
CG(51)	17	33.3	18	35.2	16	31.3
EG(62)	23	37.0	16	25.8	23	37.0

R. Amthauer «Interests and Needs Test» of identification of general signs (abstraction of verbal concepts) of the department analyzes were conducted based on the results. 51 subjects in CG, 62 subjects in ET had intercourse. «Identification of common signs» - study of the ability to abstract concepts in the formation of cognitive activity through recognition. Here, the high level - 17, the average level - 18, the low level - 16 subjects, in the percentage of HL-33.3%, AL-35.2%, LL-31.3%, in the experimental group HL-23, If AL-25.8, LL-23 shows the subject, his percentage is HL37.0%, AL-25.8%, LL-37.0%.

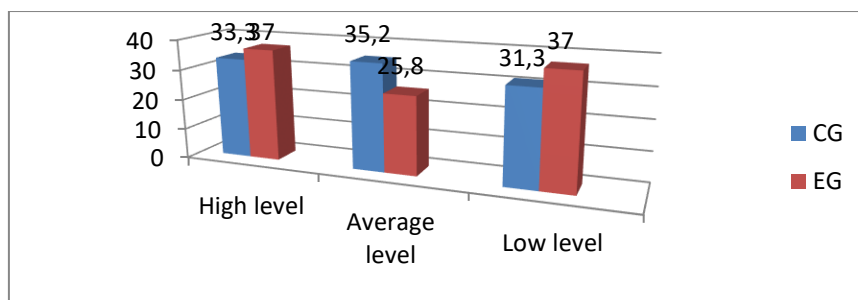


Figure 4. By control and experimental groups in diagnosis R. Amthauer «Interests and Needs Test» of Determining general signs (abstraction of verbal concepts) section diagram of the results

Table 4 – by control and experimental groups in diagnostics R. Amthauer «Interests and Needs Test» of Classification (thinking ability) section results

Scales	Classification (thinking ability)					
	High level		Average level		Low level	
	n	%	n	%	n	%
BT(51)	15	29.4	24	47.05	12	23.5
ET(62)	21	33.8	26	41.9	15	24.1

R. Amthauer «Interests and Needs Test» of Classification (thinking ability) section analyzes were conducted based on the results. 51 subjects in CG, 62 subjects in EG had intercourse. In the questionnaire classification - this shows the child's ability to express his thoughts. Here, the high level - 15, the average level - 24, the low level - 12 subjects, the percentages of HL-29.4%, AL-47.05%, LL-23.5%, in the experimental group HL-21, If AL-26, LL-15 shows the subject, his percentage is HL-33.8%, AL-41.9%, LL-24.1%.

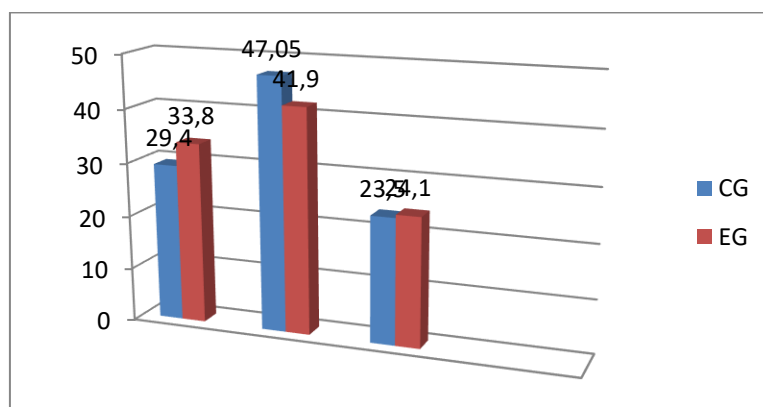


Figure 5. R. on control and experimental groups in diagnostics. Amthauer «Interests and Needs Test» of Classification (thinking ability) section diagram of the results

Table 5 – Control and experimental groups in diagnosis R. Amthauer «Interests and Needs Test» Analogues" (combinatorial ability) section results

Scales	Analogues (combinatorial ability)					
	High level		Average level		Low level	
	n	%	n	%	n	%
CG(51)	18	35.2	24	47.0	12	23.5
EG(62)	24	38.7	26	41.9	15	24.1

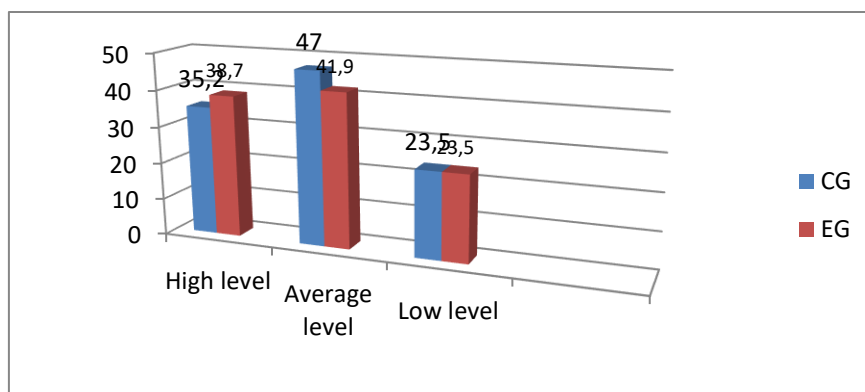


Figure 6. R. on control and experimental groups in diagnostics. Amthauer «Interests and Needs Test» Analogues" (combinatorial ability) section diagram of the results

According to the results of diagnostic work R. Amthauer «Interests and Needs Test» of in Analogues (Combinatorial Ability), children know the connection between the first and second passages analysis of the results showed the following results. 51 subjects in CG, 62 subjects in EG had intercourse. According to analogues (combinatorial ability), high level - 18, medium level - 24, low level - 12 subjects in CG, the percentage of HL-35.2%, AL-47.0%, LL-23.5%, experiment in the group HL-24, AL-26, LL-15 shows the subject, his percentage is HL-38.7%, AL-41.9%, LL-24.1%.

It is necessary to express the idea of the need to develop the child's desire to develop personal interest, to turn it into a purposeful research activity, which in turn leads to the formation of a permanent research position of an individual. The child should be helped to form a research position in which a cognitive strategy is developed, and cognitive activity in various activities (for example, play, research, communication) will be voluntary and consciously controlled.

We take Lerner's «Cognitive independence» as the basis of «students' desire and ability to learn in the process of purposeful creative search». Visual representations of 10-11th grade students in the classroom are a solution to the development of cognitive independence. At this point, it leads students to solve the problem of cognitive tasks, to make decisions on their own. Cognitive tasks are not only a manifestation of "cognitive independence", but also a pedagogical tool for its formation.

Formation of cognitive activity of 10-11th grade students to solve diagnostic tasks it can be said that he determined the future goals, objectives, content and directions of cognitive activity.

Through diagnostics, we make the following conclusions:

- selection of cognitive knowledge that is interesting for the student and corresponds to the teacher's sphere of interest;
- the student knows the essence of the problem well, learns all the ways to solve it,
- organization of work on revealing the meaning of knowledge in the mutual response and mutual assistance of the teacher and the student;
- mutual integration of self-development (student and teacher) by joint search for unknowns in various (intellectual, communicative, creative) fields;
- solving the problem, first of all, brings something new to the student, develops cognitive ability.

During the implementation of the first stage of the above practical-experimental works, the cognition of the 10-11th grade student is mainly a material ideal reflexive activity. At this point, the child's interest plays a big role. And in developing interest, we noticed that it is possible to provide opportunities through digital educational content. Curiosity is characterized by the child's desire to explore a new, unknown thing, an unknown space, to learn the meaning of a new word. We are



guided by the fact that the novelty and variety of education can be the conditions for the child's cognitive and intellectual development.

**Conclusion.** In any case, student activity relies on independence of thought. It requires the student's logical thinking ability and independence. During the learning process of 10-11 grade students, depending on the degree of mental development, several types of activity are formed and developed: movement, speech, cognition, thinking, self-education, etc.

At the same time, the task of the teacher is to shape the thinking and behavior of students during the teaching process. In this regard, the student should learn to self-control by defining the goals and objectives of his educational activities in the teaching process, in each lesson, using specific ways and means of their implementation. It is necessary to know that the following manifestations of cognitive activity occur in ways of formation of thinking during the learning process:

- high desire to know, aspiration, inspiration;
- students' independence, passion for asking questions, desire to create a discussion;
- ability of students to tell the material at will, in their own words and high creative activity;
- learning without understanding: although students believe in the rules and memorize them, they are not able to apply them correctly in practice.

- inductive understanding: students try the rule in all the simplest individual situations: they see that it always gives the right result.

- comprehension: students understand the proof of the rule.

- understanding with soul: students have fully mastered the rule and are so confident in it that they do not doubt its correctness.

- the formation of the psychological composition of the cognitive activity of schoolchildren, the form of its activity requires adaptation to the requirements, types of activities and the new system of social conditions of the child in the learning process. Research shows that the role of the information environment in the development of the cognitive abilities of 10-11 graders is high. There is a full reason to say so. We make the following conclusions:

- acquiring new knowledge: trying to find answers to questions using the textbook, your life experience and information received from the teacher;

- areprocessing the received information: drawing conclusions as a result of the joint work of the whole class;

- in grades 10-11 aprocessing of received information: for example, in mathematics, comparing and grouping mathematical objects such as numbers, numerical expressions, equality, inequality, flat geometric figures;

- aconverting information from one form to another: creating stories and reports based on simple models (subject, drawings, diagrams, schemes);

- the development of cognitive ability is initiated through the actions of finding and formulating a solution to the problem with the help of simple models (subjects, pictures, diagrams, schemes).

The problem of developing cognitive abilities of 10-11 graders is a psychological-pedagogical problem.

The following recommendations can be made based on the conducted research:

- 10-11to develop cognitive abilities of students through digital educational resourcestheoretical foundations contribute to the systematic acquisition of theoretical knowledge by students. However, if «Cognitive Textbook» is systematically prepared and put into practice for the 10-11th grades;

If cognitive activity occurs in students during classes, they develop the following elements of mental abilities: intelligence, attentiveness, perceptiveness, independence of thinking and speech, etc.

Various self-made learning activities of students in the learning process form effective ways of thinking. By using the exercises, the student learns the content of the material freely and is able to change the order of narration of the material in his own way.

We would like to express our gratitude to the team of the Education Department of Turkestan for organizing the diagnosis of the development of cognitive skills of 10-11 grade students in teaching English.

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## МЕКТЕПТЕГІ ЕҢБЕК ТӘРБИЕСІ ҮРДІСІНДЕ ОҚУШЫЛАРДЫҢ ЭКОЛОГИЯЛЫҚ САНАСЫН ДАМУДЫҢ ПЕДАГОГИКАЛЫҚ ПРОБЛЕМАЛАРЫ

### Аңдатпа

Қазақстанда халықаралық дуалды оқыту технологиясы жетістіктерін мектептегі оқу-тәрбие жұмыстарына ендіру практикасында, білім мекемелерінде еңбек тәрбиесі үрдісінде органикалық қалдықтарды (биогаз, вермикомпост) өңдеу арқылы мектеп оқушыларының экологиялық санасын дамыту мәселелеріне терең назар аудару аталмыш еңбектің басты шарты саналады.

Жаңа Қазақстан жағдайында қалыптаса бастаған жасанды интеллект (Artificial intelligence), жасыл технология (Green technology), цифрлық трансформация (Digital transformation), БҰҰ жаһандық жылыну ілімі (UNESCO Climate Change Education) және басқа қоғамдағы құбылыстарды зерделеу мен болжауға бағытталған іргелі бетбұрыстар, жас ұрпақтың бойына еңбек тәрбиесі арқылы экологиялық санасын дамытуда органикалық қалдықтарды өңдеуді үйренуге, зерделеуге айырықша ықпал етіп отырғаны осы мақалада жүйелі баяндалады.

Тақырыпта көтерілген күрделі мәселелер тоғысында бірқатар ғылыми тұжырымдар мен жоғары оқу орындары мен жалпы орта білім беретін мектептер арасындағы педагогикалық ынтымақтастықты сақтай отыра, оқушылардың университет ұстаздары кеңесі арқылы еңбек тәрбиесі үрдісінде органикалық қалдықтарды өңдеуде қоғамға пайдалы кәсіп тәжірибелерін жас ұрпақтың экологиялық санасын дамытудың педагогикалық проблемаларымен ұштастырудың бірқатар түйіндерін шешу жолдары жан-жақты қарастырылады.

**Түйін сөздер:** қоғамдық пайдалы кәсіп, педагогикалық проблемалар, мектеп пен университет ынтымақтастығы, жаһандық жылыну ілімі, дуалды білім беру.

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## ПЕДАГОГИЧЕСКИЕ ПРОБЛЕМЫ РАЗВИТИЯ ЭКОЛОГИЧЕСКОГО СОЗНАНИЯ ШКОЛЬНИКОВ В ПРОЦЕССЕ ТРУДОВОГО ВОСПИТАНИЯ ШКОЛЬНИКОВ

### Аннотация

В условиях применения технологических достижений дуального образования в учебно-воспитательных работах и на практике средних общеобразовательных школ Казахстана в процессе обработки органических отходов (биогаз, вермикомпост) как средство трудового воспитания в развитии экологического сознания современных школьников, является одним из ключевых вопросов данного материала.

Активное внедрение и усиление инновационных технологий в области искусственного интеллекта (Artificial intelligence), зеленых технологии (Green technology), генерация цифровых трансформации (Digital transformation) на стыке экологических знания по изменению климата под эгидой ООН (UNESCO Climate