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## SECTION 1. EDUCATION, EQUALITY AND DEVELOPMENT

UDC 740

### Zak A. Formation of metacognitive actions in elementary school

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**Abstract.** *The article presents a study devoted to the study of the possibilities of third-graders in achieving a greater formation of metacognitive actions associated with understanding the ways of solving problems. The experimental group of schoolchildren (88 people) was offered to master non-educational tasks of the author's program "Metacognition" in 20 lessons (one lesson per week). The final diagnostics showed that the children of the experimental group were significantly ahead of the children of the control group (84 people) in performing diagnostic tasks aimed at determining the formation of metacognitive actions associated with understanding the ways of solving problems.*

**Keywords:** *third-graders, metacognitive actions for problem solving methods, "Metacognition" program.*

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#### 1. Introduction

In the last years of the last century and at the beginning of the present, the problem of the development of metacognitive actions in elementary school related to the control and evaluation of problem solving has been studied in many studies. The focus is on such issues as general and specific characteristics of metacognitive actions, the composition of these actions, the conditions for their formation in learning.

Schraw G., Crippen K.J., Hartley K., (2000) and Schneider W. (2008) considered various connections between metacognitive actions and learning activities. The first study explored the possibilities of using metacognitive actions as indicators of the success of learning activities. It was found that metacognitive actions can be included as a component in the predictive diagnosis of learning outcomes.

In the second study, metacognitive actions were defined as conditions for improving regulation processes in the process of learning activity. The author argued that due to the formation of developed educational activities in the lessons of various specific academic disciplines, students master metacognitive actions related to the analysis of educational tasks, planning their actions to achieve results and monitoring the implementation of the proposed tasks.

Veenman M.V.J., Prins F.J., Elshout J.J., (2002) analyzed the role of metacognitive skills and cognitive skills in learning with the help of computer programs. It was shown that a number of students actively use metacognitive skills in solving all problems: the analysis of their conditions and



requirements preceded the actions to solve problems. In this regard, the authors stated that metacognition can be characterized as a general ability and personal property.

White B. A. (2005) studied the problem of the relationship of metacognitive actions and cognitive skills with the specific content of tasks. The subjects were given tasks of different content. It turned out that metacognitive actions are not related to the content of the tasks being solved, and the nature of the implementation of cognitive skills directly related to the search for a solution depended on the characteristics of the tasks.

Kramarski B. and Mevarech Z.R. (2003) explored the role of metacognitive activities in teaching mathematical reasoning in active collaborative learning settings. The results of the study were characterized by the fact that learning organized on the basis of a dialogical approach, with the use of collective discussions, contributes to the formation of metacognitive actions, creating favorable conditions for children to master the methods of analyzing and evaluating the content and form of reasoning.

Kelemen W.L., Frost P.J. and Weaver III C.A. (2000) studied the problem of individual differences in relation to metacognitive actions and cognitive skills. The study made it possible to establish that the cognitive skills of different children differ to a greater extent than the metacognitive actions associated, in particular, with the analysis of the conditions of the tasks and the evaluation of the results obtained.

The content of the reviewed studies allows us to note that the authors use the material of the curricula for experiments. We believe that non-educational material can act as a condition for the development of metacognitive actions as actions related to the organization of mental activity. Such material creates favorable conditions for the formation of metacognitive actions for students, since the solution of problems of non-educational content is not associated with the experience of failures in lessons in school disciplines. Such experience can negatively affect the level of their self-esteem and thus make it difficult to master metacognitive actions to organize mental activity.

For the formation of metacognitive actions in younger schoolchildren, the "Metacognition" program was developed, which includes search tasks of non-educational content.

Our study was aimed at determining the conditions for the development of metacognitive actions in elementary school, in particular in children of 8 years old. We assumed that the "Metacognition" program creates the conditions for the development of these actions.

The study included three stages. At the first stage, two groups of children (control - 84 students, experimental - 88 students) solved search tasks to determine the level of formation of metacognitive actions associated with the reflection of the method of solving problems.

At the second stage, the children of the experimental group solved the problems of the "Metacognition" program in 20 lessons, held once a week. At the third stage, it was again proposed to solve the same search tasks (as at the first stage) for the children of both groups.

## **2. Materials and methods**

With the help of the "Metacognition" program, as noted, 20 lessons were conducted on the material of 20 types of search tasks of non-educational content: 10 types of plot-logical tasks and 10 types of spatial-combinatorial tasks.

### ***2.1. Plot-logical tasks***

Types of plot-logical tasks were characterized as follows.

The first view, for example: "Alla, Anya and Vera were running along the road. Alla ran faster than Anya. Anya ran faster than Vera. Which of the girls ran slower than the other two?"

The second type, for example: "The words DJVE, DROP, CREEK are of different colors. The green and blue words have the same first letter, and the green and red words have the same second letter. What is the color of the words CREEK?"

The third type, for example: "Masha and Vika were of different ages. In many years, Vika will be a little older than Masha is now. Which of the girls is younger?"

The fourth type, for example: "Galya, Sveta and Katya corresponded with friends from different cities. Two of them sent letters to Novgorod, and one to Kaluga. Galya and Sveta, Sveta and Katya sent letters to different cities. With a friend from which city did Sveta correspond?"

The fifth type, for example: "Three words were written on the fence with different colors: BED, CHAIR, CHEST. The blue word was to the left of the red, and the green word was to the right of the red. What word was red?"

The sixth view, for example: "Seryozha and Natasha arranged cubes with letters. First, Serezha composed the word MOL. Then he rearranged the cubes with letters and got the word LOM. Natasha first composed the word RAD. And then she rearranged the cubes with the letters in the same way as Seryozha. What word did Natasha get?"

The seventh view, for example: "Three puppies lived in the house - gray, white and black: one in a large room, one in a small room, one in the kitchen. In the morning they fed either a black puppy or a puppy in the kitchen, in the evening either a puppy in the kitchen or a white puppy. Where did the gray puppy live?"

The eighth view, for example: "Inna, Galya and Alla were presented with a doll each. One doll was wearing a long-sleeved blue dress, another was wearing a short-sleeved blue dress, and the third was wearing a long-sleeved yellow dress. The dresses of Inna and Gali dolls were of the same color, while Gali and Alla's dolls had dresses with the same sleeves. Who had the doll in the long-sleeved blue dress?"

The ninth type, for example: "Kolya and Vasya went to a sports store. Both bought one pair of skis and one pair of skates. Some of the boys liked alpine skiing, some - cross-country skiing, some - roller skates, some - hockey skates. Kolya left the store without skis. The boy who chose skiing did not buy hockey skates. Who bought roller skates?"

The tenth type, for example: "Vova and Dima are tourists. They went on a campaign at the same time: Vova from Novgorod to Ufa, Dima - from Ufa to Novgorod. Three days later it turned out that Vova was closer to Novgorod than Dima was to Ufa. Which boy walked faster?"

At each lesson, the children solved five variants of tasks of the same type. The first variant of a problem of any kind assumed the search for an answer based on a given condition and a problem known to the questions. The second option involved searching for a suitable question based on a given condition of the problem. The third option was to search for the missing part of the condition based on this part of the condition and a known question. The fourth option involved checking and evaluating the proposed solutions and choosing the right one. The fifth option involved checking and evaluating the proposed solutions and choosing the wrong option.

The meaning of the implementation of the second and third options for constructing a problem is to study by students the interrelationships of the components of the structure of the problem: parts of the condition and the question. The purpose of the fourth and fifth options is associated with the development by children of a metacognitive (reflexive) position in relation to the task: in this case, the child does not just solve problems (the position of the performer), but checks the finished solution of the problem (the position of the controller).

On the basis of problems of the first type, these five options are as follows.

Option 1, for example: "Alik, Borya and Vova were running along the road. Alik ran faster than Borya. Borya ran faster than Vova. Which of the guys ran slower than the other two?"

Option 2, for example: "Alik, Borya and Vova were shooting from a bow. Someone shot with a new model bow, someone with an old model bow. Alik shot more accurately than Borya. Borya shot more accurately than Vova. Which question fits the condition of this problem: a) Who shot more accurately than Alik?; b) Who fired the new model bow?; c) Who shot less accurately than Borya?"

Option 3, for example: "Alik, Borya and Vova swam a hundred meters. Alik swam faster than Borya. [...]. Who swam the fastest? What you need to know to answer the question of the problem: a) Vova swam as fast as Alik; b) Vova swam more slowly than Borya; c) Borya swam more slowly than Alik.

Option 4, for example: "Alik, Borya and Vova solved the problem: "Anya, Varya and Natasha drew animals. Anya has drawn more animals than Varya. Natasha drew fewer animals than Varya. Who drew the most animals? Answers: (a) Varya, (b) Natasha, (c) Anya. Alik chose the answer (a) Borya chose the answer (b) Vova chose the answer (c). Who chose the correct answer?"

Option 5, for example: "Alik, Borya and Vova solved the problem: "Galya, Marina and Sveta jumped high. Galya jumped higher than Marina. Sveta jumped lower than Marina. Which girl jumped the lowest? Answers: (a) Marina, (b) Sveta, (c) Galya. Alik chose the answer (b) Borya chose the answer (c) Vova chose the answer (a). Who chose the wrong answer?"

## *2.2. Spatial-combinatorial problems*

10 types of spatial-combinatorial problems are characterized by the following features.

The first type includes, for example, such a task: "How is the arrangement of letters | M | | T | change in two steps to get the location | T | M | | ?"

Rule: one action is the mental movement of any letter to an empty space.

Solution: 1) | M | | T | --- | | M | T | ; 2) | | M | T | --- | T | M | | or | M | | T | --- | | M | T | --- | T | M | | : the first action moves the letter M to an empty space, the second action moves the letter T to an empty space.

The second type includes, for example, such a task: "How the arrangement of letters | R | R | L | | change in two steps so that the letters are arranged in the same way as the numbers | 7 | 7 | | 4 | ?"

Rule: 1) one action is the mental movement of any letter to a free space; 2) the same letters as a result of two actions should be located in the same way as the same numbers.

Solution: | R | R | L | | --- | | R | L | R | --- | L | R | | R | .

The third type includes, for example, such a task: "How the arrangement of letters | H | | V | | C | change in two steps to get the location | | H | V | C | | ?"

Rule: one action is the mental movement of any letter to an empty space. Solution: 1. | H | | V | | C | --- | | H | V | | C | ; 2. | | H | V | | C | --- | | H | V | C | | or | H | | V | | C | --- | | H | V | | C | --- | | H | V | C | | : the first action moves the letter H to an empty space, the second action moves the letter C to an empty space.

The fourth type includes, for example, such a task: "How the arrangement of letters | K | | K | | F | change in two steps so that the letters are arranged in the same way as the numbers | | 8 | 8 | 4 | | ?"

Rule: 1) one action is the mental movement of any letter to a free space; 2) the same letters as a result of two actions should be located in the same way as the same numbers.

Solution: | K | | K | | F | --- | | K | K | | F | --- | | K | K | F | | .

The fifth type includes, for example, such a task: "How is the arrangement of letters and numbers | R | G | | 7 | change in two steps to get the location | | G | 7 | R | ?"

Solution: | R | G | | 7 | --- | R | G | 7 | | --- | | G | 7 | R | | .

The sixth type includes, for example, such a task: "How is the arrangement of letters and numbers | 7 | H | | H | change in two steps to get the location of the shapes | | | | ?"

Solution:  | 7 | H | | H | --- | | H | 7 | H | --- | H | H | 7 | | .

The seventh type includes, for example, the following task: "How can the arrangement of the letters K P C be changed in two actions so that the arrangement C K P is obtained?"

Rule: one action is the exchange of any two letters in places.

Solution: 1) KRS --- S R K; 2) C R K --- C K R or K R C --- C R K --- C K R: the first action swaps the letters K and C, the second action swaps the letters P and K.



The eighth type includes, for example, the following task: "How can the arrangement of the letters M P V V be changed in two actions so that the arrangement of the numbers 4 4 8 3 is obtained?"

Rule: one action is the exchange of any two letters in places.

Solution: 1) M P V V --- V P V M; 2) V P V M --- V V P M or M P V V --- V P V M --- V V P M.

The ninth type includes, for example, such a task: "How is the location letters and numbers B C 4 7 to change in two steps so that the arrangement is 7 4 C B?"

Solution: B C 4 7 --- 7 C 4 B --- 7 4 C B.

The tenth type includes, for example, such a task: "How is the location letters and numbers K M 9 9 change in two steps so that the arrangement of the figures is obtained?"

Solution: K M 9 9 --- 9 M 9 K --- 9 9 M K.

### *2.3. Characteristics of developing activities*

"Metacognition" classes include three parts. In the first part (about 15 minutes), the teacher, together with the students, analyzes the solution of a typical problem. This is necessary so that children understand what to look for in tasks of this type and how this can be done. Children are given the tools to analyze problems and ways to manage the search for a solution and control their actions.

In the second part (about 30 minutes), children independently solve 12-15 problems, applying the knowledge gained in the first part. In the third part (about 15 minutes), the teacher and students check the solved problems and analyze the wrong solutions, again showing the methods of problem analysis and ways to control mental activity.

The activity of the teacher in the first and third parts of the lesson is intended to create conditions for the formation of metacognitive actions in children related to understanding the way of solving problems.

### *2.4. Diagnosis of metacognitive actions*

Before and after 20 lessons, group diagnostics was carried out on the basis of search tasks of non-educational content. In these tasks, letters should be replaced by single-digit numbers so that a correct arithmetic example is obtained, for example:  $NG + GN = TT$  can be replaced by numbers like this:  $36 + 63 = 99$ .

To determine the formation of metacognitive actions related to the comprehension of ways to solve problems, a group diagnostic session was conducted. In its first part, it was proposed to solve three problems, of which the first and third were constructed in the same way, and the second in a different way.

$$1. AU + I = AA; \quad 2. LS + C = LL; \quad 3. ZX + W = ZZ$$

In the second part, it was proposed to choose one opinion out of five that characterize these tasks:

1. Three tasks are similar.

2. Three tasks are different.
3. Tasks 1 and 2 are similar, but task 3 is different from them.
4. Tasks 1 and 3 are similar, but task 2 is different from them.
5. Tasks 2 and 3 are similar, but task 1 is different from them.

The teacher said, "There are five different opinions about these three problems. Lots of kids have done this. Some children said that these three tasks are similar, others said that these three tasks are different; the children of the third group said that the first and second tasks are similar, but the third is different from them; the children of the fourth group said that the first and third tasks are similar, and the second is different from them, and the children of the fifth group said that the second and third tasks are similar, but the first is different from them.

Each of you should choose only one opinion about the tasks, which he considers the most correct, and briefly justify it: write down how the tasks are similar".

Problem solving and choice of opinion in class were not assessed.

Processing the results of children's actions in choosing an opinion about tasks showed that the choice of the first opinion was usually justified as follows: "... in all problems, letters and numbers ...". The choice of the second opinion was usually justified as follows: "... in all problems the letters are different ...". The choice of the third opinion was usually justified as follows: "... all the letters in the third problem are hissing, but not so in other problems ...". The choice of the fifth opinion was usually justified as follows: "... in the first task, vowels, in other tasks, consonants ...".

The justifications for the choice of these four opinions noted above indicate that when solving diagnostic problems, the children did not carry out metacognitive actions related to their understanding of the method of solving problems. All the signs noted in the justification of different opinions are illustrative in nature, they can be noticed without solving the problem.

The choice of the fourth opinion was usually justified as follows: "... in the second problem, the first two letters are supplemented with a letter that already existed, but in other problems there is no such thing ...". This justification means that the children characterized the essential commonality of the first and third construction tasks and, thus, their commonality in terms of the method of solution: a third, new letter must be added to the first two letters. Such a difference between the second task and the first and third is impossible without a real solution of all three tasks. The choice of the fourth opinion thus testifies to the implementation of metacognitive actions in solving diagnostic problems related to the children's understanding of the method of solving problems.

### **3. Results and discussion**

#### ***3.1. Characteristics of the development of metacognitive actions***

Table

The number of children who chose the fourth opinion about tasks in the control and experimental groups, before and after the developmental classes.

Groups	Diagnosis period	
	Before class	After class
Control	34.52%	45.24%**
Experimental	32.95%	70.45%**

*Note:* \*\*  $p < 0.01$ .

The data placed in the table indicate that the level of development of metacognitive actions during the training period (five months) increased in children in both groups: by 10.72% in the control group and by 37.5% in the experimental group. Before classes, the difference in the level of development of metacognitive actions in the children of the control and experimental groups was insignificant - 1.57%.

After training, this difference was 25.21% and, as shown by mathematical processing, became statistically significant ( $p < 0.01$ ).

Thus, as a result of group developmental activities, as evidenced by the data in the table and their processing, the initial hypothesis of our study was confirmed: indeed, in children involved in the "Metacognition" program, a more intensive development of metacognitive actions was recorded than in children not participating in developmental activities classes.

### 3.2. Discussion

The result obtained is connected, on the one hand, with the features of the "Metacognition" program, which included tasks of non-educational content, search character, different types in each of the two genera (nine types of plot-logical tasks and eleven types of spatial-combinatorial tasks), five options in every form. On the other hand, the result obtained was the result of 20 sessions: one session per week for five months.

The study made it possible to obtain new knowledge about the possibilities of developing metacognitive actions in elementary school. Such knowledge expands the ideas of developmental psychology about the characteristics of the development of metacognition in primary school age.

In addition, the developmental activities tested in the work contribute to the intellectual enrichment of education in elementary school.

Teachers' observations testify to the influence of classes on children's behavior. They noted that the students, as the lessons progressed, became less worried about mistakes during the discussions and actively suggested possible solutions to the problems discussed in the first part of the lesson.

Those students who showed the formation of metacognitive actions before classes, highlighting the internal commonality of the first and third diagnostic tasks, were active not only in solving problems, but also in compiling them. In this case, the teacher explained to them the

conditions and rules for producing new problems by analogy with the solved ones. As noted in our studies [7, pp.354 - 381], the formulation of tasks contributes to the development of metacognitive actions.

In the future, we plan to conduct a study on the material of the "Metacognition" program with 10-year-old children in order to more fully assess the developmental nature of this program in relation to metacognitive actions in younger students.

In addition, the creation of a set of programs for the development of thinking in general and metacognitive actions in particular in younger students is of serious research interest. In this complex, the program can act as an initial basis. Its development can become the foundation for the successful conduct of classes based on other more complex developmental programs.

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UDC 37

**Zhamansariyeva A.D., Baidaliyeva L.B., Dossymova N.O. Digital school of the future in pandemic conditions**

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*Abstract.* This article is devoted to the digital school of the future in pandemic conditions.

*Keywords:* the COVID-19 pandemic, education, information technology, distance education.

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The pandemic COVID-19 caused global changes in the social and economic life of not only individual countries, but also humanity as a whole. Long-term quarantine events have necessitated a fundamental revision of the established principles for the functioning of individual social industries, in particular those based on direct (contact) and long-term communications of a large number of subjects.

In the conditions of self-isolation, the educational industry underwent special transformations, which was forced to completely switch to distance learning. If higher education has turned out to be more prepared for this form of organization of the educational process (for example, in many higher education institutions there are special units with appropriate personnel and material and technical support for the implementation of distance education), then for institutions of general secondary education this has become a real challenge that they, in general, coped with.

The closure of educational organizations due to the spread of the pandemic COVID-19 led to the fact that students were forced to study at a distance. On the one hand, this situation was quite justified, as it allowed to protect people from the risk of getting sick with COVID-19. On the other hand, quarantine has posed new challenges for educational institutions as well as education authorities at the local and national levels.

Among the significant social and economic losses of society associated with the closure of general secondary education organizations due to the pandemic, experts from the United Nations Educational, Scientific and Cultural Organization (UNESCO) identify: increasing pressure on secondary general education institutions that remained open; problems of ensuring the objectivity of intermediate and final control of students' knowledge; the inability of most parents to support forms of distance and home schooling; the high economic loss in productivity associated with the combination of childcare and distance work; stressful manifestations among students, teachers and



parents; problems of care and upbringing of children from disadvantaged families; increased risk of psychotropic drug use and adolescent social behaviour; increasing the rate of outflows of children and young people from schools; increased exploitation of child labour.

At the beginning of 2020, all educational institutions became participants in the intensification of distance learning. The forced mass transition to electronic education during the period of self-isolation has become a kind of global challenge for the entire educational environment, in particular for secondary school.

In the modern conditions of informatization, there is a need to educate a developed younger generation, which will own modern technologies and be able to navigate the information space.

During quarantine, distance learning was introduced in most countries of the world and in Kazakhstan. This is a training in which students and teachers interact with each other indirectly, using different communication technologies, while being in different locations - at a distance. Modern digital technologies and network communication are used to organize distance learning. At the same time, all components of the educational process are preserved: goals, content, teaching methods, outcome assessment, etc., including the educational process management system.

For full distance learning, in addition to high-quality access to the Internet, the appropriate technical and software equipment of all participants in the educational process is needed.

Teachers were not provided with the necessary assistance from the institutes of postgraduate pedagogical education in developing their own skills in organizing distance learning in educational organizations, methodological materials, advice, support, recommendations on the use of electronic resources and software tools for working in a distance format.

Distance learning based on electronic formats can be carried out in two formats: synchronous and asynchronous. In practice, the correlation between the application of these regimes depends on the objective technical conditions for providing the school and the participants in the educational process - on the one hand, and on the age of the students who study, and the corresponding educational subjects - on the other hand. But, regardless of the proportion of their application, to organize the educational process, it is necessary to use an educational platform (or an educational site, cloud services, etc.), which will provide personalized access to all participants in the educational process to fulfill educational roles for fulfilling professional tasks. For example, teachers - for posting educational and didactic materials in electronic format, students - for obtaining educational materials and posting their own tasks, administration - for monitoring the process and results of educational activities. Such an educational platform (or software application), also called LMS (Learning Management System), designed to integrate digital learning tools, as well as the administration, management and distribution of training programs, and generate analytics of reporting of the training process. The purpose of the educational platform is to organize such interaction between participants in the educational process with educational content and among themselves, which will achieve educational goals.

It should be noted that teachers except author's educational and methodical and didactic materials during the work with educational platforms can use the ready materials from various sources created especially for distance learning, for example, mass open online courses, materials of e-books, materials of repositories, video lectures on scientific and educational channels YouTube.

As the analysis of practice shows, in the world the most popular educational platforms are: Moodle, Google Classroom, WebTutor, iSpring, Collaborator, SAP LSO, Edmodo, MoClassDojo, etc.

Thus, in the process of implementing distance learning forms during the period of the coronavirus pandemic, several important points were revealed.

1. The most important requirements for the implementation of e-learning are: teachers and students have high-quality access to the Internet; teachers and students have the necessary technical support (computers, laptops, tablets, smartphones, etc.), as well as relevant software; a sufficient level of digital competence for teachers and pupils to meet educational challenges; access to educational content on the Internet, etc.

2. Theoretical material should be issued in small portions and in different forms (audio, video, text) so that students have more opportunities to absorb it.

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## SECTION 2. INFORMATION SYSTEMS AND SOFTWARE

UDC 04

**Kurbaliev F.S., Sayeda M.I. Hashing by the SHA algorithm for cryptocurrencies**

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**Abstract.** The article is devoted to an overview of SHA hashing algorithms in cryptocurrencies, which are currently very relevant. This article gives the basic concepts of hashing algorithms in cryptocurrencies and the principles of their operation, discusses hash functions used in modern digital currencies, and explains the relevance of SHA and its types, as well as the development of the SHA family of algorithms in cryptography, the goals and reasons for using this algorithm in cryptocurrencies. The purpose of this article is to identify the main digital currencies that use SHA hashing algorithms, the advantage of using it, and how relevant and secure its transactions in currencies are. There has been also done an indication of the effectiveness of using the SHA algorithm in currencies. Based on the analyzed data, the conclusion is made of the features of the use of this algorithm in cryptography and in cryptocurrencies, vulnerabilities that can be observed. The article also examines possible attacks on blockchain and crypto wallets, systematizes and identifies the main ways to combat them, as well as ways to protect.

**Keywords:** information technology, cryptography, cryptocurrency, hashing algorithm, SHA, SHA-2, SHA-3, hashing, attack.

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### Introduction

Algorithms are at the heart of 21st century life, invisibly controlling many of the systems we use and take for granted in everyday life. Their distribution determines the entertainment we consume, the information we read, and the conversations we hear. The same is true in cryptography, where complex and constantly evolving algorithms imperceptibly control the main processes. With the development of information systems, one of the innovations was the appearance of a special type of volutes, which were called "cryptocurrency", the basis of which is blockchain technology. With its development, another new technology is also developing - cryptographic hashing, which is developing along with a new type of currency in modern times.

Cryptocurrencies are systems that allow you to make secure online payments, which are expressed in virtual "tokens", and are represented by registry entries internal to the system. Entries in the registry are encrypted data strings denoting a monetary unit. They are controlled and organized by a peer-to-peer network called blockchain, which also serves as a secure transaction registry. Unlike physical money, it is decentralized (not issued by governments or other financial institutions), and refers to various encryption algorithms and cryptographic methods that protect these records,

such as hashing functions. The validity of the coins of each cryptocurrency is provided by the blockchain. A blockchain is an ever-growing list of records called blocks that are linked and secured using cryptography.

Hashing is the transformation of input data by the hash function algorithm into an output bit string with a fixed length, and the same input data will be converted into the same output. A hash function is an algorithm of a mathematical process that, when applied to data, creates a hash. The main property of the function is their irreversibility, that is, it is impossible to restore the input data using a hash. Cryptographic hashing is used everywhere, from password storage to verification systems.

According to the website CoinMarketCap.com there are more than 6,700 different cryptocurrencies on the market. They continue to grow, raising money through initial coin offerings or ICOs. The total value as of September 2020 was more than \$ 370 billion, and the total value of the popular currency, bitcoin, was estimated at about \$ 210 billion.

This article sets the tasks:

- consider the development of a family of SHA hashing algorithms;
- analyze currencies that use SHA;
- reasons for using SHA family algorithms in cryptocurrencies;
- analyze the main attacks on cryptocurrencies;
- define security methods.

### **1. How the hashing algorithm works in cryptocurrencies.**

Cryptocurrencies use various algorithms called hashing algorithms.

A hashing algorithm is a mechanism that encrypts virtual or digital currency, and can be used in several cryptocurrencies, which is why there is an excess of the number of types of currencies than the existence of the algorithms themselves. Miners decrypt it (look for a hash). If the decryption was successful, a new block is created. This block stores the records of transactions conducted in the system, and the currency is expanded in the blockchain. As a result, miners ensure the operation of the blockchain and receive remuneration. The result of the computational operations that are performed is called a hash [1]. The hashing algorithm used for digital signatures and authentication.

There are different hashing algorithms used for different cryptocurrencies, such as:

SHA-2

SHA-3

Ethash

Scrypt

Equihash

Cryptonight

X11 and dt.

### *The SHA algorithm*

In this article we will talk about a family of hashing algorithms like SHA (Secure Hash Algorithm). SHA is a secure hashing algorithm developed by the National Institute of Standards and Technology together with the NSA, previously released as a federal information processing standard, later in 1995 it was named SHA, designed to modify MD4. SHA is a modified version of MD4, and represents a number of cryptographic functions designed to protect data. It works by converting data using a hash function: an algorithm consisting of bitwise operations, modular additions, and compression functions. The hash function then creates a fixed-size string that doesn't look like the original. [2]

A common use of SHA is password encryption, since only the hash value of a specific user needs to be tracked on the server side, not the actual password. If an attacker breaks into the database, they will only find the hashed functions, not the actual passwords, so if they enter the hashed value as a password, the hash function will convert it to another string and subsequently reject access. In addition, SHA exhibit an avalanche effect when changing a very small number of encrypted letters causes large changes in the output; or vice versa, completely different strings produce similar hash values. This effect results in not giving any information about the input string, such as its original length. In addition, SHA is also used to detect data falsification by attackers, where if the text file is slightly modified and barely noticeable, the hash value of the modified file will differ from the hash value of the original file, and the falsification will be quite noticeable. The versions of the SHA algorithms are SHA-1, SHA-2 and SHA-3, each of which has been consistently developed with enhanced encryption in response to hacker attacks. For example, SHA-0 is now obsolete due to well-known vulnerabilities- collisions.

### **SHA-1**

This is a 160-bit or 20-byte encryption mechanism based on hash functions, which is used to resemble the MD5 algorithm. A specific algorithm was developed by the NSA (National Security Agency) in 1993, and was supposed to be part of a critical component - the digital signature algorithm (DSA). It was used in security protocols such as TLS (transport layer security), SSL (secure sockets layer), etc. Weaknesses (collisions) related to encryption methods were discovered in SHA-1, and therefore the encryption standard was later dropped. As a result, Chome and Yandex abandoned SHA-1 in 2014. Mail has stopped using this algorithm since 2015.

### **SHA-2**

Due to the identified vulnerabilities of SHA-1, cryptographers changed the algorithm to a more advanced SHA-2. Formulated from 2 identical hash functions that consist of blocks of different sizes, which are known as SHA-512 and SHA-256, which differ mainly in word size. The former consists of a word value range of 32 words, whereas the latter consists of a 64-bit word value. There are



additional truncated versions of these hash functions, known as SHA-224, SHA-384, SHA-512/224 and SHA-512/256, which can be used for any part of the algorithm.

### SHA-3

This is an encryption method that uses the Keccak hash function. The supported length is the same as that of SHA-2, but the main difference is that this variant is structurally different, since it is based on a wide range of random function generation, which usually supports all random permutations and thus allows you to enter any amount of data presented. By doing all this, it acts as a pseudo-random function for all the input data provided, which therefore leads to more flexibility. Blocks SHA3-224, SHA3-256, SHA3-384, SHA3-512, SHAKE128 (XOF), SHAKE256 (XOF).

#### **Table 1. Using SHA algorithms.**

The hash function is used

SHA-1 Digital signature generation is prohibited (except as specified in the NIST Protocol Manual)

Digital Signature verification Obsolete use

A non-digital signature is acceptable

The SHA-2 family (SHA-224, SHA-256, SHA-384, SHA-512, SHA-512/224, SHA-512/256) is acceptable for all hash function applications

SHA-3 family (SHA3-224, SHA3-256, SHA3-384, SHA3-512) Acceptable for all hash function applications

## **2. In which currencies is SHA implemented.**

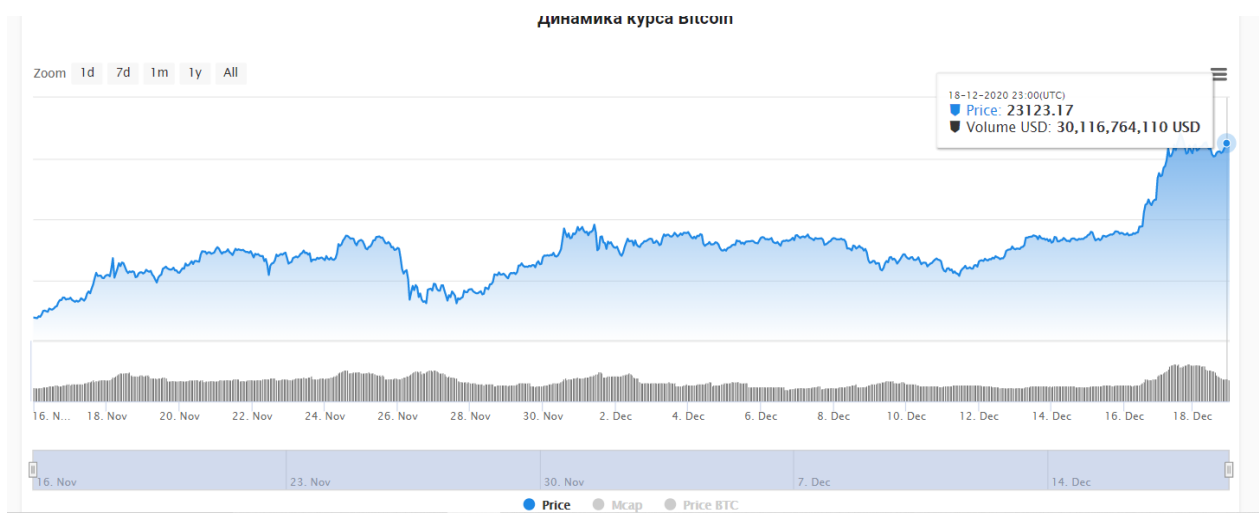
SHA-2 was the first hashing algorithm that was used to verify transactions in the blockchain network using the Proof of Work consensus mechanism (for more information, see the third paragraph). In general terms, SHA-2 supports a Proof of Work network in which computers compete to solve a complex mathematical problem. After one computer finds a solution, it transmits this solution to the other computers in the peer-to-peer network. This proves its work to other machines that have tried to solve the same problem, since every computer on the network checks the solution independently. If the solution turns out to be accurate, the miner who found it receives a reward. Then a new challenge appears and the competition starts again.

Cryptocurrencies that use the SHA-2 algorithm are shown in Figure 1 in a huge number.

#	Название	Капитализация	Курс	Объём(24ч)	запас	Алгоритм	Изменение(24ч)	Изменение(7д)
1	Bitcoin	\$355,109,429,234	\$19,134.16	\$20.4 B	18.6 M	SHA256	1.94%	0.29%
2	Bitcoin Cash	\$5,140,960,861	\$276.58	\$854.3 M	18.6 M	SHA256	3.18%	-2.46%
3	Bitcoin SV	\$3,138,754,879	\$168.88	\$310.7 M	18.6 M	SHA256	2.29%	-5.84%
4	Bitcoin Diamond	\$96,036,107	\$0.5149585	\$1.3 M	186.5 M	SHA256	2.00%	-6.34%
5	Unobtanium	\$11,757,111	\$57.89	\$2.2 K	203.1 K	SHA256	↓ -2.02%	-5.76%
6	Namecoin	\$7,596,619	\$0.5155004	\$4.8 K	14.7 M	SHA256	0.50%	-13.69%
7	BitcoinV	\$3,001,072	\$0.0020927	\$0	1.4 B	SHA256	1.66%	-65.72%
8	Nubits	\$2,750,026	\$0.2504197	\$1.7 K	11 M	SHA256	0.00%	68.51%
9	ILCoin	\$2,188,285	\$0.0089488	\$150.7 K	244.5 M	SHA256	↓ -0.47%	-8.67%
10	Litecoin Cash	\$1,778,544	\$0.0025377	\$708	700.9 M	SHA256	3.46%	1.41%
11	EmerCoin	\$1,739,816	\$0.0373398	\$1.8 K	46.6 M	SHA256	2.29%	-4.77%
12	TerraCoin	\$1,135,288	\$0.0393614	\$389	28.8 M	SHA256	3.11%	46.32%
13	Internet Of People	\$970,602	\$0.0721023	\$0	13.5 M	SHA256	1.66%	-0.29%
14	Amoveo	\$933,797	\$14.27	\$175	65.4 K	SHA256	1.66%	-15.73%
15	ADAMANT Messenger	\$886,754	\$0.0107845	\$2.1 K	82.2 M	SHA256	↓ -3.33%	-8.29%
16	Freicoin	\$773,833	\$0.0068488	\$0	113 M	SHA256	↓ -8.51%	12.18%
17	IXCoin	\$756,605	\$0.0357658	\$0	21.2 M	SHA256	1.66%	-0.29%
18	Bean Cash	\$573,553	\$0.0001465	\$263	3.9 B	SHA256	2.33%	-29.48%
19	Ultimate Secure Cash	\$432,896	\$0.0418536	\$672	10.3 M	SHA256	27.08%	5.1%
20	Sakura Bloom	\$317,999	\$0.0001231	\$7.9 K	2.6 B	SHA256	3.21%	-9.87%
21	PRIZM	\$240,886	\$0.0045880	\$17.1 K	52.5 M	SHA256	↓ -6.02%	-26.46%
22	IOCoin	\$207,738	\$0.0098927	\$0	21 M	SHA256	1.66%	-13.58%
23	Qbao	\$133,970	\$0.0020500	\$15.6 K	65.4 M	SHA256	1.49%	10.22%
24	Swing	\$130,605	\$0.0262536	\$6	5 M	SHA256	1.66%	-6.39%
25	ZetaCoin	\$129,926	\$0.0007515	\$7 K	172.9 M	SHA256	0.39%	5.03%
26	Neutron	\$100,058	\$0.0020737	\$1	48.3 M	SHA256	1.66%	-5.49%
27	ACoin	\$98,184	\$0.0804730	\$5	1.2 M	SHA256	1.66%	-2.36%
28	JouleCoin	\$92,876	\$0.0022883	\$0	40.6 M	SHA256	3.01%	-0.76%
29	TRBO	\$65,989	\$0.0000354	\$427	1.9 B	SHA256	15.75%	12.55%
30	BLAST	\$62,222	\$0.0013317	\$5	46.7 M	SHA256	1.66%	-0.29%
31	Sprouts	\$47,622	\$3.03E-9	\$11	15.7 T	SHA256	37.93%	58.75%
32	EDRcoin	\$44,054	\$0.0150292	\$4	2.9 M	SHA256	1.66%	6.45%
33	Universal Currency	\$42,479	\$0.0026634	\$0	15.9 M	SHA256	1.66%	-12.75%
34	BitTokens	\$42,149	\$0.0586418	\$4	718.8 K	SHA256	2.35%	-4.81%
35	Bitcoin 5000	\$38,080	\$0.0030000	\$4	12.7 M	SHA256	0.00%	-70.33%
36	Incakoin	\$28,413	\$0.0000016	\$0	17.5 B	SHA256	↓ -83.38%	-4.41%
37	PayCoin	\$22,820	\$0.0019024	\$0	12 M	SHA256	1.66%	-0.29%
38	GlobalToken	\$21,799	\$0.0001902	\$5	114.6 M	SHA256	1.66%	-50.1%

Figure 1. List of cryptocurrencies using SHA-2. [4]

The SHA-256 hash function is used for Bitcoin. To provide additional security, Bitcoin applies the SHA-256 function twice, a process known as double-SHA-256. The hashing algorithm accepts input blocks of 512 bits (i.e. 64 bytes), combines cryptographic data and generates 256-bit (32 bytes) output. The SHA-256 algorithm consists of a relatively simple loop repeated 64 times. The developers discussed the idea of switching to another hash function or switching to another blockchain consensus mechanism, for example. Despite these concerns, there have been no major changes regarding the network's use of the SHA-256 algorithm. This is probably due to the fact that most people prefer network security over ASIC resistance (application-specific integrated circuit - special purpose integrated circuit).



**Рис 2. График развития биткойна за все время.**

Unobtanium (UNO) is a digital currency launched in 2013 that allows instant payments to anyone and anywhere in the world. It uses peer-to-peer technology to work without centralized management: transaction management and money disbursement are performed by the network collectively. The maximum number of coins is 250,000. This cryptocurrency uses the SHA256 algorithm. Unobtanium combines with bitcoin, resulting in a secure blockchain of high complexity, which is 3 times faster than bitcoin.



**Fig. 3. The chart of the state for the year of the UNO currency. [3]**

SHA-3 (Secure Hash Algorithm Version 3), also known as Keccak, was created by Guido Bertoni, is considered faster and safer than SHA-256.

The SHA-3 family of hash procedures (Keccak) generates almost unique 224-bit, 256-bit, 384-bit or 512-bit (28- / 32- / 48- / 64- byte) signatures for text.

Cryptocurrencies where this algorithm is used:

Nexus(NXS)

Quark (QRK)

SmartCash (SMART)

Maxcoin (MAX)

CreativeChain (CREA)

The Nexus Coin (NXS) is the currency of the network. There is no limit on the number of minted NXS. Instead, the coin has a 10-year distribution period during which 78 million NXS will be distributed until September 23, 2024. The Nexus blockchain works the same way as other cryptocurrencies. Miners use processors to create and place each new block at the end of the current chain. Blocks in the chain are placed in 150 seconds, which makes transactions much faster than in bitcoin.

Another way in which the speed of transactions in currency increases is the presence of a multithreaded balanced messaging protocol. Nexus is the first coin that includes the new SHA3 standard, provides a high level of security by combining 571-bit private keys, 1024-bit Skein and Keccak quantum hashing algorithms and signature chains that provide cryptographic identity. Nexus block hashes are 4 times larger than Bitcoin block hashes.



**Figure 4. The development of the Nexus currency over the year.**

Quark(QRK) is one of the most secure digital currencies, uses a hashing algorithm with nine rounds of six unique hashing functions. One of the hash functions is SHA-3(Keccak). Three rounds provide a random hashing function.

Multiple hash provides an additional layer of protection against unknowns that will appear on the market in the future.

The SHA-3 algorithm is not as popular as its predecessor in the mining environment, but it is more often used by newer currencies, this is due to the fact that earlier ones use SHA-2 or other algorithms in most cases and they do not see the point of switching to a new one. Since no attacks and collisions have been detected on SHA-2 so far.

### **3. Possible attacks on cryptocurrencies and protection against attacks.**

This chapter will examine the vulnerabilities observed in cryptocurrencies, analysis of the consequences and methods of protection against these attacks.

The first and most common vulnerability in practice is an external one, this vulnerability when purchasing a currency. To trade it yourself or launch a node, you need to launch a software client, which may also contain vulnerabilities. Most of the recent hacker attacks that have become widely known were attacks not on the blockchains themselves, but on exchanges, websites where people can buy, trade and store cryptocurrencies. And many of these robberies can be blamed on poor-quality security measures.

The following are attacks on the blockchain itself:

#### ***Attack 51%***

The 51% attack is one of the types of attacks that is often found in cryptocurrencies. The basis is the attacker's possession of 51% of the hashing power. This is due to the fact that the blockchain is programmed in such a way that it always follows the longest chain, which is always perceived as a legitimate blockchain. The one with the highest hashing computing power will add blocks to the chain much faster, resulting in the longest blockchain, which will eventually be considered the most



faithful. In this process, also known as mining, nodes spend a huge amount of computing power to prove that they are reliable enough to add information about new transactions to the database. A miner who somehow gains control over most of the network's power can deceive other users by sending them payments and then creating an alternative version of the blockchain in which payments never occurred. This attack starts by creating a private block chain that is completely isolated from the real version of the chain. At a later stage, the isolated chain is presented to the networks to create a real chain. This is what makes a double spending attack possible. Since the blockchain policy follows the longest chain rule, if attackers can get 51% of the hashing power or more, they will be able to control the longest chain by convincing the network nodes to follow their chain.

However, there is no need to get 51% of the hashing power. If attackers get less than half of the hashing power, a double-spending attack is still possible, but less likely. The more hashing power the entire blockchain network contains, the more expensive the attack becomes. Thus, it is assumed that cryptocurrencies with a high level of network hashing are more protected from 51% attack.

#### Distributed Denial of Service (DDoS)

Distributed denial of service (DDoS) is a type of cyberattack that is used to ensure the unavailability of a resource for network participants by avalanching excessive traffic in a distributed manner. This attack has been used since the early 2000s to damage various networks [5]. Studies show that the impact of DDoS is growing and costs businesses on average more than \$2 million for each attack. DDoS is one of the most common attacks in the blockchain network, used by attackers to block authentic transactions so that invalid transactions can be executed. However, due to the decentralized nature of the blockchain, DDoS can only reduce network activity to a certain level.

#### *Sybil's attack*

The Sybil attack is a security threat in an online system when one person or group tries to take over the network by creating multiple accounts, nodes or computers. But in the world of cryptocurrencies, a more appropriate example is the situation when someone launches several nodes in the blockchain network.

#### *What problems Sybilla attacks can cause:*

- Attackers can create private nodes on the network if they create enough fake IDs (or Sybilla IDs). They can then refuse to accept or transmit blocks, effectively blocking other users on the network.
- In large-scale Sybill attacks, when attackers manage to control most of the computing power of the network, they can carry out a 51% attack. In such cases, it is possible to replace the transaction order and prevent transaction confirmation. They can even cancel transactions they made when they controlled them, which can lead to double expenses.

With the release of any vulnerability, various methods of protection are being developed, and this principle also works in digital currencies. To protect cryptocurrencies from these attacks, various methods are used, after analyzing each of them, the most effective are:

### *1. Consensus algorithms*

The consensus algorithm is a fault-tolerant mechanism that is used in computer systems and blockchain systems to achieve the necessary agreement on one data value or one network state between distributed processes or multi-agent systems. Basically, consensus protocols working in peer-to-peer networks prevent Sybil attacks, that is, attacks based on the attacker's ability to represent multiple identifiers. The Bitcoin cryptocurrency, which introduced blockchain technology, bases its own distributed consensus protocol on SHA-256. It prevents attacks by forcing peers to perform a resource-intensive task in order to participate in the consensus algorithm.

This requires adding a new block to the network, only if its hash, calculated by double-applying the SHA-256 hash function, is below a certain threshold, called the target. For this purpose, the header contains a one-time number that can be changed by peers to change the hash value of the block.

### *2. Proof of work (Proof-of-Work -PoW).*

Proof of work is a type of consensus mechanism used to obtain a specific solution by miners using data hashing. In Proof of Work, the protocol sets conditions for what makes the block valid. In blockchain, this algorithm is used to confirm transactions and create new blocks in the chain. With the help of PoW, miners compete with each other to complete transactions on the network and get rewarded.

The main advantages are protection against DoS attacks and DDoS of other possible mining attacks.

Protection against DoS attacks. PoW imposes some restrictions on actions on the network. It takes a lot of effort to do them, it's a lot of computing power and computing time. Therefore, an attack is possible, but useless.

### *3. Proof of stake (Proof-of-Stake - PoS).*

An alternative consensus mechanism, first implemented in 2012, used by blockchain networks to achieve distributed consensus. The idea is to use the "share" as a resource that determines which side gets the right to mine the next block. From this it follows that here it is possible to limit the network from attacks by 51%. There is no need to use a large number of blocks for energy extraction, unlike PoW, but it is still in its initial state and less tested in battles compared to Proof-of-Work.

### **Conclusion**

In this article, the following tasks were considered:

- the development of a family of SHA hashing algorithms has been studied;
- analyzed currencies that use SHA;
- the reasons for using SHA have been identified;
- the main attacks on cryptocurrencies have been reviewed;
- various ways of ensuring security have been identified.

Hashing algorithms of the SHA family are used in many cryptocurrencies, which are leaders in the global blockchain and for digital signatures. This is due to the fact that this algorithm is reliable and developing. Such as the creation of SHA-3, although there were no serious attacks on SHA-2 and no collisions were detected. The choice of SHA-3, among a huge number of hash functions in emerging currencies, such as in Nexus, suggests that this hash function is the most reliable, relevant and its change will not happen soon.

Also, the relevance and reliability of the SHA algorithm is confirmed by the use of SHA-256 by the leader of cryptocurrencies Bitcoin since the launch of 2009 and the transition to another algorithm has not been carried out, although there are no less developed algorithms for the transition, but SHA is the most popular on the market.

The conclusion follows that the use of SHA in cryptocurrencies and for digital signatures is the most advantageous solution from the security side and from the relevance side. This conclusion follows from the currencies that use this algorithm.

Due to the fact that this type of currency is developing, there are various vulnerabilities that can lead to their changes or destruction. But analyzing the world of cryptocurrencies, it can be concluded that when creating new attacks, each currency finds its own security solutions, an example can be the creation of special functions to protect against a quantum computer.

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## SECTION 3. PEDAGOGY, LANGUAGE AND CULTURE IN EDUCATION

UDC 37

**Baimagambetova M.S., Takhanova G.Zh. Learning a foreign language online: advantages and disadvantages**

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***Abstract.** The paper provides a brief overview of the advantages and disadvantages of learning via Skype and gives the example of exercises used. The major educational benefit is in meeting the needs of the students who make decision of learning autonomously.*

***Keywords:** Skype, digital technology, online learning, computer technology, web camera.*

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Modern students from junior nails master digital technology. They prefer to exchange text messages, play on the Internet and communicate on a social network reading books and going to the theater, not to mention the fact that it will not occur to any of them to write letters by hand. This is a generation that has grown up in a paperless and wireless world; a new tribe of people who have been surrounded since childhood by computers, cell phones and other gadgets. In our rapidly changing world, teachers are also forced to use new technologies that make lessons interesting to students and at the same time empower teachers.

Over the past decade, online learning has ceased to be a bold idea and has long been used in various educational institutions. Computers are very useful in many aspects of learning. They can greatly facilitate and accelerate many processes - for example, it is known that students are successfully using distance learning using the Internet all over the world. Computer technologies can also be useful when working with students in classes.

The advantage of new technologies is that they allow the student to study the subject at a convenient pace and mode. In addition, students can choose how much time they will devote to studying this subject, make their own schedule of classes, choose a convenient day and even an hour when nothing will interfere with their studies. Thus, ideally, students take responsibility for their studies.

Skype is a tool to simplify the learning process, it can make this communication more effective. Highlight the main benefits of Skype training. The usual foreign language lessons are probably not the most effective because the group includes too many students. There are different

textbooks, but the most important aspect is missing - individual communication. Today, using the Internet anytime you want, you can get this communication. There is no backlog, static or postponement. There is also an additional convenience - to build a relationship with one person for a long period of time. Skype classes avoid monotonous and boring exercises.

In the lesson, the teacher and student include Skype, headset and video camera (if desired), download textbooks and begin to study. There is no need to purchase literature. You can copy or download training materials online. In addition to textbooks, additional authentic materials from various sources are used, selected to achieve the personal goals of students. The teacher explains the material, trains students using exercises and secures the material in practice using active games, drilling and role-plays. There are many opportunities to diversify lessons, to make classes take place in a fascinating atmosphere: you can share screenings around Skype, which will save you from explaining many things, you can watch videos together or open sites. The teacher motivates to speak from the first lesson, gives useful advice and corrects errors in the chat. The atmosphere of these classes gives the student the opportunity to liberate and easily leave the comfort zone.

Skype gives us other advantages:

1. It's very convenient. You can learn the language at home or at work (if you have enough time). You only need a few things: a computer with Internet software, headphones and a webcam;
2. It saves you money and time. If you choose this type of class, you save a lot of time, because you are not in a hurry to learn, and this is the main advantage. Lessons in Skype can be held anywhere - where there is the Internet;
3. You can study materials such as texts, tables, audio, video, presentations using a computer. To do this, you do not need to buy textbooks, they can be downloaded and printed. With the Internet, you can listen to audio and watch video, which is not always easy to arrange at an individual meeting or at a lesson in the audience;
4. You can practice with a teacher at any end of the Earth;
5. You don't spend money on public transport and gasoline;
6. Flexible schedule. You can always move the lesson to a more convenient time;
7. The fact that the teacher's attention is drawn to one student, and not to a group, at times increases the effectiveness of the training process;

As for the disadvantages, the main one is dependence on technical means and Internet accessibility. What if the webcam doesn't work? Many believe that the webcam is always used in Skype lessons, but this is far from the case. Practice shows that while working with a student, the teacher may not use the video camera, thus mobilizing his attention as much as possible. This very effectively develops auditing skills, much faster than during a regular classroom session, where auditing is supported by other types of communication.



It is believed that Skype lessons are more expensive than individual occupations. That's not always the case. If you want to engage with professionals and at the most convenient time for you, the price can be the same as for an individual lesson.

Who may not be recommended for Skype training?

1. Skype is not the best teaching tool for children under 13 due to their psychological and age characteristics. Children of primary school age lack motivation to learn a foreign language, as well as the ability to focus for a long time.
2. If a person already spends a lot of time at work with a computer, additional time spent on the screen will negatively affect his health.

In parallel with self-improvement, the teacher needs to work on preserving his students and developing his own brand. We usually set out principles, teaching methods, and information on education on our website. Potential students get acquainted with this information, ask questions of interest to them. This helps them make a choice in our favor. Creativity and the ability to keep up with the times will be useful here. Undoubtedly, a special responsibility in conducting such classes should fall on the teacher, who acts not only as a consultant on a certain subject, but also as the organizer of the entire educational process at a new stage. That is, the teacher's task is to intensify the cognitive activity of the student in the process of teaching foreign languages. The use of multimedia programs does not exclude traditional methods at all, but is harmoniously combined with them at all stages of training: familiarization, training, application, control. The use of the computer allows not only to repeatedly increase the efficiency of education, but also to encourage students to continue to study the English language independently. Gaming components may also be present to facilitate understanding and assimilation of the presented material. Success largely depends on how methodically well the material is organized, where part of the classes can be implemented using multimedia courses, and monitoring can be carried out using a testing system. However, it should be noted that the effectiveness of language programs is related to the conditions of the environment in which they are applied.

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UDC 37

## Glushchenko O.Yu. Features of the development of communicative competencies of students

Особенности развития коммуникативных компетенций студенческой молодежи

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***Аннотация.** В статье автор рассматривает вопрос особенностей развития коммуникативных компетенций студенческой молодежи.*

***Ключевые слова:** компетентность, коммуникативные компетенции, студенческая молодежь, образование.*

***Abstract.** In the article, the author considers the question of the peculiarities of the development of communicative competencies of student youth.*

***Keywords:** competence, communicative competence, student youth, education.*

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Современные исследования, как педагогов, так и психологов посвящены проблеме формирования и развития коммуникативной компетентности студентов высшего и среднего специального образования. Для формирования коммуникативной компетентности у студентов необходим системный подход, который должен происходить на всех этапах непрерывного образования. Для качественного процесса формирования коммуникативных умений и навыков специалиста нужны следующие педагогические условия: повышение мотивации обучения студентов, повышение творческой активности студентов, обогащения содержания образовательного процесса.

Компетенция по умению работать «на равных» в команде позволяет достигать высоких общественных результатов во всех направлениях деятельности. Способность сплачивать вокруг себя команду единомышленников, воодушевлять и вести за собой, вовлекать и мобилизовать команду для их достижения, видеть и использовать индивидуальные особенности и потенциал каждого члена команды, мотивировать к совместной деятельности через широкий спектр инструментов внутренней мотивации, является показателем высокого уровня коммуникативной компетентности молодого человека. Одной из самых перспективных систем построения образовательно-воспитательного процесса в этом направлении является индивидуально-дифференцированная технология. Данный подход ориентирован на индивидуальную и дифференцированную педагогическую деятельность по проектированию и организации профессиональной подготовки с необходимым для положительного эффекта обеспечением психолого-педагогических условий для взаимодействия студентов и преподавателя. Его ключевой особенностью является то, что в процессе профессиональной

подготовки с академической или лекционной группой преподаватель одновременно взаимодействует с ней индивидуально или дифференцированно. В первом направлении с отдельными обучающимися по различным моделям взаимодействия, учитывая их индивидуальные особенности и создавая психолого-педагогические условия развития не только всех студентов, но и каждого в отдельности. Во втором направлении дифференцирует обучающихся для реализации профессиональной подготовки на коммуникационные подгруппы, ранжированные на различные роли или функции в процессе коммуникации.

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**Kovaleva T.A., Barabadze K.D. Cognitive universal educational actions of students in teaching foreign languages**

Познавательные универсальные учебные действия учащихся при обучении иностранным языкам

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**Abstract.** *A personality-oriented approach is necessary for individualization of learning, since it allows taking into account the individual psychological characteristics of students, which, in turn, largely determine the features of their learning. In the process of studying, the English language course, which aims primarily to develop cognitive skills and linguistic competence of schoolchildren, also acquires general educational significance, as it contributes to the development of intellectual and creative abilities.*

**Keywords:** *foreign languages, universal educational activities.*

**Аннотация.** *Личностно-ориентированный подход необходим для индивидуализации обучения, поскольку он позволяет учитывать индивидуальные психологические особенности учащихся, которые, в свою очередь, во многом определяют особенности их обучения. В процессе учебы курс английского языка, который ставит цель в первую очередь развить познавательные УУД и лингвистическую компетенцию школьников, приобретает также общеобразовательное значение, так как способствует развитию интеллектуальных и творческих способностей.*

**Ключевые слова:** *иностраннные языки, универсальные учебные действия.*

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В современной реальности преподавание в общем и преподавание такой дисциплины как английский язык в средней школе опирается в первую очередь на личностно-ориентированный подход, учет индивидуальных особенностей личности каждого учащегося, а также на компетентностный подход, в преподавании языков крайне важен такой аспект компетентностного подхода, как формирование познавательных УУД. Они представляют собой «способность решать средствами иностранного языка актуальные для учащихся и общества задачи общения из бытовой, учебной, производственной и культурной жизни; умение

*учащегося пользоваться фактами языка и речи для реализации целей общения» [1]. С учетом первостепенной важности формирования познавательных УУД учащихся преподавание английского языка в средней школе в первую очередь должно учитывать организацию учебного процесса в соответствии с ориентацией на коммуникацию и коммуникативный подход обучения.*

Личностно-ориентированный подход необходим для индивидуализации обучения, поскольку он позволяет учитывать индивидуальные психологические особенности учащихся, которые, в свою очередь, во многом определяют особенности их обучения. Такими особенностями являются: уровень интеллекта (способность усваивать знания, приобретать навыки и уметь применять их для решения задач в сфере иноязычного общения); креативность (аналитические способности для генерации решений в нестандартных межкультурных коммуникативных ситуациях); учебная мотивация (переживания по поводу (не)достижения учебных целей); самооценка. Кроме базовых психологических особенностей индивида, выделяют социальный интеллект (коммуникативная компетенция, направленная на установление контакта с педагогом и с носителями языка, и его поддержание для решения поставленной задачи) [2].

Говорить о том, что учащийся среднего школьного возраста способен полноценно и эффективно осуществлять коммуникацию на изучаемом языке с его носителями можно только тогда, когда в практике такой коммуникации он показывает выполнение задачи по достижению взаимопонимания и эффективного общения с выполнением поставленных в коммуникативной ситуации целей в соответствии с нормативной системой общения, профессиональными компетенциями, особенностями культуры и менталитета представителя языковой среды. Важнейшая задача – эффективно коммуницировать с носителями языка на уровне бытового общения – для ученика среднего школьного возраста может быть решена только при использовании корректной, точной, емкой и образной с точки зрения лексики и фразеологии речи. Соответственно, наиболее важная задача при изучении английского языка – обрести необходимый лексический запас, а на более высоких, продвинутых уровнях обучения – познакомиться с фразеологическими единицами, свойственными разговорной речи.

В процессе учебы курс английского языка, который ставит цель в первую очередь развить познавательные УУД и лингвистическую компетенцию школьников, приобретает также общеобразовательное значение, т.к. способствует развитию интеллектуальных и творческих способностей.

Перечислим основные направления формирования познавательных УУД в процессе изучения английского языка в средней школе и предметные области, с которыми они связаны [5]:

- 1) сообщение новых сведений об английском языке в целом (связь с историей, культурологией Англии);

2) сопоставление фактов и явлений из английского, русского и других иностранных языков (связь с изучением других иностранных языков и культурологией);

3) сопоставление явлений английского языка в истории – например, сравнение староанглийских и современных идиом (связь с историей, социологией, культурологией);

4) сопоставление явлений разных уровней английского языка (систематизация, углубление и расширение сведений из базового курса английского языка).

Английский язык, как и все дисциплины, которые преподаются в школе, нацелены на определенный результат обучения.

В качестве результатов обучения следует понимать те знания, умения и навыки, которые будет демонстрировать ученик после завершения отдельных блоков, модулей, предметных дисциплин и их циклов, которые он приобретает в процессе обучения и которыми после завершения обучения может пользоваться на различных уровнях. Соответственно, внутри дисциплины каждый изучаемый модуль будет иметь свои цели, задачи, методы и технологии обучения, а также критерии и методики оценивания результатов учащихся [4].

Поскольку учебный процесс предполагает в равной степени достижение определенных результатов обучения всеми учащимися, то учебная программа должна иметь систему непрерывного мониторинга, контроля и инструменты коррекции процесса обучения согласно выполнению учениками запланированного учебного плана, а также вся система должна иметь механизмы обратной связи для корригирования и совершенствования учебной программы.

При использовании английского языка как средства общения, познавательные УУД будут формироваться при развитии следующих видов речевой деятельности [3]:

а) говорение

- ученик должен уметь начать, поддержать или вести и закончить диалоги различных типов в обычных коммуникативных ситуациях с соблюдением норм речевого этикета, при необходимости с использованием наводящих и уточняющих вопросов и замечаний.

- ученик должен уметь расспросить своего собеседника о предмете интереса, уметь ответить на его вопросы, выразить свое мнение, сформулировать просьбу, согласиться или отказаться в ответ на просьбу или предложение в соответствии с изученным лексико-грамматическим материалом по изученным темам.

- ученик должен уметь рассказать о себе, о своих увлечениях, о семье, о друзьях, планах на будущее.



- ученик должен уметь описать различные ситуации или явления, передать суть событий, выразить основную мысль услышанного или прочитанного, сформулировать свое мнение, дать краткую характеристику персонажам текста.

- сообщить данные о своем месте проживания, о своей стране, своей культуре.

**б) аудирование**

- ученик должен уметь слышать и понимать речь педагога и одноклассников

- ученик должен уметь слышать и понимать несложные аутентичные видео- и аудиотексты, которые относятся к разным коммуникативным типам речи

- ученик должен уметь воспринять на слух и понять с опорой на языковую догадку и контекст простые прагматические аутентичные видео- и аудиотексты, в которых он должен выделять значимую и необходимую информацию.

**в) чтение**

- ученик должен уметь читать несложные аутентичные тексты в разных стилях и жанрах, с пониманием основного содержания.

- ученик должен уметь читать несложные аутентичные тексты в разных стилях и жанрах с точным и полным пониманием текста при использовании разных методов смысловой переработки текста – это может быть выборочный перевод, использование словарей, справочного материала, языковая догадка и т.п. На основании прочитанного он должен уметь оценить полученную информацию и сформулировать собственное мнение.

- он должен уметь читать более сложные аутентичные тексты с частичным пониманием необходимой или интересной информации.

Таким образом, овладение познавательными универсальными учебными действиями ведет к формированию самостоятельности для получения новых знаний. В результате формируются важные личностные характеристики: ответственность за собственные решения, действия и поступки, способность самостоятельно учиться. Учащиеся научатся поиску и выделению необходимой информации, смогут применить метод информационного поиска, в том числе с помощью компьютерных средств, осознанно построят речевое высказывание в устной и письменной форме, сделают выбор наиболее эффективных способов решения задач в зависимости от конкретных условий, сформулируют проблему и самостоятельно смогут создать алгоритм деятельности при решении проблем творческого и поискового характера.

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**Kovaleva T.A., Kolosova A.V. The need to use a differentiated approach in the process of teaching foreign languages to younger schoolchildren**

**Необходимость использования дифференцированного подхода в процессе обучения иностранным языкам младших школьников**

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**Abstract.** *The essence of the differentiated approach is that the teacher should build the learning process in such a way that the child is comfortable working in these conditions, he had the opportunity to develop his creative thinking, creativity, while the priority of the teacher should be not only the successful assimilation of the information received by the student, but also his personal needs and desires. The teacher must build the learning and upbringing process in such a way that all the characteristics of the child are taken into account, and he can easily assimilate the presented material.*

**Keywords:** *training, differentiated approach, personality-oriented approach, teacher.*

**Аннотация.** *Суть дифференцированного подхода заключается в том, что педагог должен построить учебный процесс таким образом, чтобы ребенку было комфортно работать в данных условиях, у него была возможность развивать свое творческое мышление, креативность, при этом в приоритете у учителя должны стоять не только успешное усвоение учеником получаемой информации, но и его личные потребности и желания. Учитель должен построить процесс обучения и воспитания таким образом, чтобы были учтены все особенности ребенка, и он мог с легкостью усваивать преподносимый материал.*

**Ключевые слова:** *обучение, дифференцированный подход, личностно-ориентированный подход, педагог.*

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Проблема внедрения личностно-ориентированного подхода все же имеет место быть и заключается эта проблема в том, не всегда есть возможность уделить должное внимание каждому ребенку, особенно, когда большой класс. Так же, не всегда экономически это возможно, что создает ряд иных проблем. Первая проблема заключается в том, что, хоть и происходит процесс переквалификации традиционного обучения в дифференцированное, все

равно не всегда возможно создать для этого условия, т.е., например, не каждая школа может позволить себе приобрести оборудование для детей с особенностями развития. Вторая, и самая главная проблема большинства среднеобразовательных школ, невозможность организовывать учебный процесс в соответствии с требованиями и желаниями каждого школьника, поэтому все задания в учебниках и в целом вся программа рассчитана на среднестатистического школьника. "Мы долго занимались построением педагогических и методических систем, не считаясь с детьми, их устремлениями и потенциями, не считаясь с их личностью, самолюбием, стремлением к радости и успеху" [Амонашвили, с. 202].

Несмотря на это, уже с давних времен развивалась концепция личностно-ориентированного обучения, в которой различные педагоги и психологи пытались разработать построение «идеального» урока, в котором учитывались бы все индивидуальные особенности каждого школьника. Разработкой данной концепции занимались такие ученые, как В.А. Сухомлинский, Ш.А. Амонашвили и многие другие.

Традиционная учеба не направлена на развитие индивидуальности, так как задача такого режима обучения направлена только на передачу информации от учителя ученику. Мало кого заботит, сможет ли усвоить эту информацию ребенок на должном уровне или нет. Традиционный подход в обучении не развивает творческое мышление, не помогает научиться уважать окружающих, взрослых. Данный вид обучения не способствует активному воображению, креативности и т.д. Главное, у детей могут начаться проблемы в общении не только с учителем, но с одноклассниками, так как возможности детей не всегда учитываются, от этого может пострадать успеваемость и в последствие межличностные отношения между детьми. Так как на стадии обучения в школе, у детей происходит активная социализация, для ребенка очень важно иметь друзей среди одноклассников, иметь хорошие отношения с ровесниками. Так как социализация начинается с младших классов, нужно интегрировать дифференцированный подход с самого начала.

Для того чтобы решить все вышеперечисленные проблемы, нужно использовать различные пособия, игры, методики, в которых учитываются индивидуальные способности каждого отдельно взятого школьника.

Множество педагогов и психологов считали, что ученик должен быть главным звеном в образовательном процессе, учитель должен стараться учитывать все его возможности и желания, не оставлять без внимания. Ребенок имеет право всегда выражать свое мнение, делать заявления, принимать участие там, где он хочет. Таким образом, можно вырастить свободную, творческую личность. В поддержку данной концепции вставляли такие педагоги, как Ушинский и Жан Жак Руссо.

Множество других педагогов, а в частности и психологов работали над развитием данной концепции внедрения личностно-индивидуального подхода в процесс обучения. Например, было выведено так называемое проблемное обучение. Это так же гуманистический

способ личностно-индивидуального подхода, при котором обучение происходит с помощью постановки проблемной ситуации, при которой дети сами ищут решения и ответы на поставленные вопросы. Проблемное обучение представил Джон Дьюи. Выготский же разработал концепцию обученности и обучаемости ребенка, при которой легко можно определить, что ребенок может усвоить самостоятельно, а что он может усвоить с помощью учителя или же кого-то другого.

Guu R. Lefrancois [Вайсбурд, Климентенко, с. 135-145] выявил три направления личностно-ориентированного подхода:

открытые школы, классы;

обучение по индивидуальному стилю;

обучение в сотрудничестве.

На данный момент происходит так или иначе переход к обучению, с учетом личностно-индивидуальных особенностей. Он происходит в 2 этапа:

Первый этап – это постепенное использование специальных технологий, которые учитывают индивидуальные способности детей, а так же с помощью которых можно выстроить учебно-познавательный процесс таким образом, чтобы заинтересовать каждого из обучаемых.

Второй этап – это плавный переход к самостоятельному обучению (т.е. когда ребенок сам совершает поиск информации, ее изучение и т.д.).

Так как преподаватель должен переключить внимание со всего класса на каждого конкретного ученика, уделить каждому должное внимание, придумать задания разной степени сложности (с целью учесть возможности детей), современному учителю достаточно тяжело абстрагироваться в данной сложившейся ситуации. При таком обучении, от учителя требуется намного больше прикладываемых усилий, чем при традиционном.

Задача учителя состоит в том, чтобы направлять и регулировать учебную и познавательную деятельность ребенка, а так же контролировать его познания в различных областях.

При таком обучении, так же меняется деятельность ученика. Понятно, что в основе лежит активное познание, но способы достижения этой цели заметно меняются. Речь идет о различных технологиях обучения, которые в соответствии с переходом к личностно-ориентированному подходу, так же претерпевают изменения. Для ребенка, сложность заключается в перестройке с одного типа обучения на другое, в переходе с одних технологий обучения на другие. Меняется и роль ученика в учебном процессе, ребенок должен быть самостоятельным, т.е. учитель не преподносит информацию, а дает подсказки, как и где эту информацию извлечь. Ученик же должен сам найти для себя наиболее подходящие способы по поиску информации и пути решения различных учебных задач. Учитель идет в качестве наставника, он помогает, подсказывает, направляет.

Так же нужно обращать внимание на гуманизм в обучении, который должен идти наряду с дифференцированным подходом. Когда речь идет о гуманизме в обучении, учитель должен воспитать у ребенка такие качества как право выбора, право на свободу счастье и т.д. То есть речь идет о личности самого ребенка, его правах и ответственности. Данную тему в своих работах освещали Платонов, Непомнящая, Леднев, Лернер и многие другие отечественные психологи и педагоги.

Леднев, например, выделил основные составляющие личности человека: "функциональные механизмы личности, опыт личности, обобщенные типологические свойства личности " [Леднев, с.36]. Данный педагог считает, что личностно- ориентированный подход - это такой подход, который учитывает индивидуальные качества ребенка, индивидуальные свойства личности ребенка. Так же он считает, что нужно учитывать уровни обучаемости и обученности школьника, психическое и психологическое развитие, общее развитие, приобретенный опыт, склад личности, темперамент и особенности характера. Леднев так же, отметил, что дифференцированный подход- это то, на что опирается личностно-ориентированное обучение.

Мы рассматриваем младших школьников, это дети в возрасте 6-10 лет. Данный возраст- самый благоприятный для изучения новых иностранных языков. В этом возрасте идет быстрое усвоение получаемой информации. От природы ребенок имеет способность усваивать языки намного быстрее, чем взрослый, так как ребенку присущи имитационные способности. Дети очень любознательны, они всегда хотят познавать что-то новое, у них нет языкового барьера, то есть они не стесняются говорить, отвечать, они не боятся ошибиться и эти возможности помогают им усваивать материал и решать поставленные учителем задачи не только по английскому языку, но и по другим предметам тоже. [Биболетова, с.48]. Педагогами и психологами доказано, что все эти возможности помогают ребенку быстрее усваивать материал, заданный программой. Но, к сожалению, эти способности угасают по мере взросления ребенка. Преподаватель должен знать все особенности детей данного возраста, чтобы успешно организовать процесс обучения и воспитания детей (речь идет о гуманистическом подходе).

Самое главное в обучении детей-это развитие ф-ций интеллекта, памяти и восприятия ребенка. Если данные функции развиты на должном уровне, то ученик способен на должном уровне воспринимать и перерабатывать получаемую информацию. Важно так же отмечать память и внимание на начальном и конечном этапах обучения и воспитания, мы выясним, что начальный и конечный моменты памяти и внимания будут расходиться мало, т.е. интеллект становится в центр развития.

Такой феномен имеет место быть потому, что память и восприятие интеллектуализируются. Это значит, что они претерпевают изменения в результате интеллектуальной деятельности. Память и внимание интеллектуализируются в соответствии с



интеллектуальной деятельностью и имеют более благоприятные возможности и условия для развития именно в этом возрасте, так как она связана с основными явлениями, развивающимися в этом возрасте " [Брусенцова, с.188].

Как отмечал Выготский, младшие школьники намного лучше усваивают получаемую информацию и знания в целом по всем предметам. Исходя из этого, важно найти подходящие формы и способы обучения и воспитания.

Важно отметить слова Ж.Пиаже. Он полагал, что "не приспосабливать содержание обучения к наличным особенностям детской мысли, а, наоборот, вводить такое содержание, которое требовало бы от ребенка новых, более высоких форм мысли " [Амонашвили, с.187].

Именно в контексте обучению иностранному языку, учитывая личностно-ориентированный подход, нужно учитывать так же комфортные условия для развития речевой, творческой деятельности. В обучении иностранному языку эти факторы являются одними из важнейших.

Всем известный факт, что начальный этап-это самая важная ступень в обучении и воспитании ребенка. На данном этапе выявляются и закладываются основы коммуникации. С помощью данного навыка ребенок может в дальнейшем осуществлять иноязычное общение, а так же другие различные виды взаимодействия как учеников между собой, так и учителя с учеником.

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## SECTION 4. PHILOLOGY

UDC 80

Akhmetova G.S., Nurtaza A.Sh. English Abbreviations in Internet Correspondence

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**Abstract.** The article considered English abbreviations as a modern form of communication, characteristic of symbols as a means of communication. The article describes particularity of youth communication on the Internet and gives a classification of English abbreviations for communication through the Internet. English abbreviations in electronic correspondence are an integral part of modern communication of teenagers through the Internet. The use of abbreviations in electronic correspondence contributes to a deeper study of English language, gives understanding of the importance of learning English for using it not only in real, but also in Internet communication

**Keywords:** Internet correspondence, information exchange, social networks, abbreviation, communication, e-mail, English language, teenagers, SMS, effective technology.

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The Internet is a whole world where information can be exchanged with all the inhabitants of our small planet. There are many ways to receive, transmit and exchange information. It will be discussed in the most effective and popular forms of electronic correspondence used by modern adolescents, as well as the features of communication on the Internet. English abbreviations in e-mails are an integral part of modern teenage online communication. The use of abbreviations in electronic correspondence contributes to a deeper study of English, provides an understanding of the importance of learning English for using it not only in real, but also through the Internet.

The issue of communication on the Internet has two sides - linguistic and psychological. They are interconnected and. In modern psychology, there is the concept of "effective communication technologies." Communicating, we unconsciously (and sometimes consciously) highlight and emphasize some aspects of our personality so that the partner has a certain stereotype of our personality. By speech tactics chosen in the process of communication, we give the partner certain material so that he optimally "models" our image. And if we manage to impress, then the mechanism of interest in communication works. In relation to communication through the Internet, e-mail and SMS, the use of modern English emotional-colored abbreviations makes it easier to interest those who in other cases would be indifferent to this partner.

Having analyzed the specifics of communication through the Internet, we can certainly say that we talk about a special speech tactic - the tactics of communicating on the World Wide Web in English, which has some particularity and differences from the standard version. Therefore, for a modern student who communicates through the Internet, it is no longer enough just to learn and apply English, it is also necessary to be able to use special speech tactics.

Writing e-mails using the keyboard, reading them from screens, texting frequently - it all became as if you were talking. Consequently, the Internet has its own specifics of writing, for example, emotionally colored icons and abbreviations to describe the feelings and emotions of the "writer". In 1979 Kevin McKenzie, a member of one of the earliest newsgroups, the MsgGroup, proposed the use of visual icons made up of punctuation marks - colons, hyphens and brackets - to express emotions in written speech. Initially, the reaction to this proposal was different for everyone.

Someone took the idea sarcastically, but someone liked it. Moreover, those were in the majority, and for more than 20 years, emoticons have been filling all kinds of forums, chats and are used in communication through SMS and decorate emails. There is another kind of "incomprehensibility" - strange words like lol, omg, etc. These are well-established abbreviations of formulaic English phrases. After all the Internet began in America, and for a long time it was in English that remained the predominant language of the Web. Therefore, all network slangs have English roots. Understanding where these abbreviations came from really is very simple.

The main reason for their appearance is the necessity to save their own and other people's time wherever it is possible. Time spending online was once quite an expensive pleasure. Therefore brevity was also necessary from an economic point of view.

The exchange of SMS provides short, chopped phrases, conciseness and the exchange of Russian words to shorter English ones, the use of abbreviations and emotionally colored icons, called "smiles" (from the English "to smile").

Before classifying abbreviations according to certain criteria, it is necessary to analyze the concept of "abbreviation". The dictionary of the Russian language gives the following concept: "An abbreviation is a compound word or a conditional abbreviation of words in a letter. There are 5 types of abbreviations used in electronic correspondence:

1. Alphabetic. They consist of the names of initial letters of words included in original phrase.  
ILU / Luv U = I love you
2. Sound. They consist of initial sounds of words of original phrase, i.e. read like a normal word.  
CU - See you
3. Letter-sound. They consist of both names of initial letters and initial sounds of words of original phrase.  
BBS - Be back soon.
4. Alphanumeric abbreviations. They consist of initial letters and a number read like a normal word.  
2U = to you .

2MORO / 2MROW = tomorrow

5. Digital abbreviations. They consist of a number reading like a normal word.

4- For; 2-to; too- particle or preposition "to";

### **Classification of English abbreviations for online communication**

#### **Greetings**

LTNS - long time no see

LTNT - long time no type

WB - welcome back

#### **Acquaintance**

- AFAIK - as far as I know
- ASL - age/sex/location
- F2F - face to face
- FAQ - frequently asked questions
- MF - male or female
- RE - how are you
- SUP - what's up

#### **Goodbye**

- BBIAF - be back in a few minutes
- BBIAH - be back in an hour
- BBIAM - be back in a minute
- BBIAS - be back in a second
- BBS - be back soon
- CU - see you
- GTG - I got to go
- TTFN - ta ta for now

#### **Signature at the end of the letter**

- WBR - with best regards
- WBW - with best wishes
- WRT - with respect to

#### **Positive emotions**

- GR8 - great
- LOL - lot of laugh
- ROFL - rolling on the floor laughing

#### **Discontent**

- H8 - hate
- ONNA - oh no, not again
- TANJ - there are no justice

### **Gratitude**

10X - thanks

TFHAOT - thanks for help ahead of time

### **Set expressions**

- AFK - away from the keyboard
- IMO - in my opinion
- IMHO - in my humble opinion
- IMNSHO - in my not so humble opinion
- LOL - lot of laugh
- PMJI - pardon my jumping in
- POV - point of view
- ROFL - rolling on the floor laughing

In the 21st century, brevity has become “the closest sister” of not only talent, but also a close friend for most Internet users. Brevity is sometimes a close relative of saving time and money. In fact, abbreviations in chats and emails are a new language of communication that is currently formed as a result of the rapid development of the Internet and communications. In order to communicate with the world freely you will have to learn a little about this language, especially the origin of abbreviations in e-mail and chats is easily understandable and accessible to everyone.

To communicate through the Internet, especially online, each Internet user needs to know the methods and specifics of the formation of English abbreviations. This will save your time and the time of your partner. Youth slang is a subject of discussion and of course condemnation in any country but let's try to understand that language begins with communication and if slang helps someone communicate then it is worth paying attention to.

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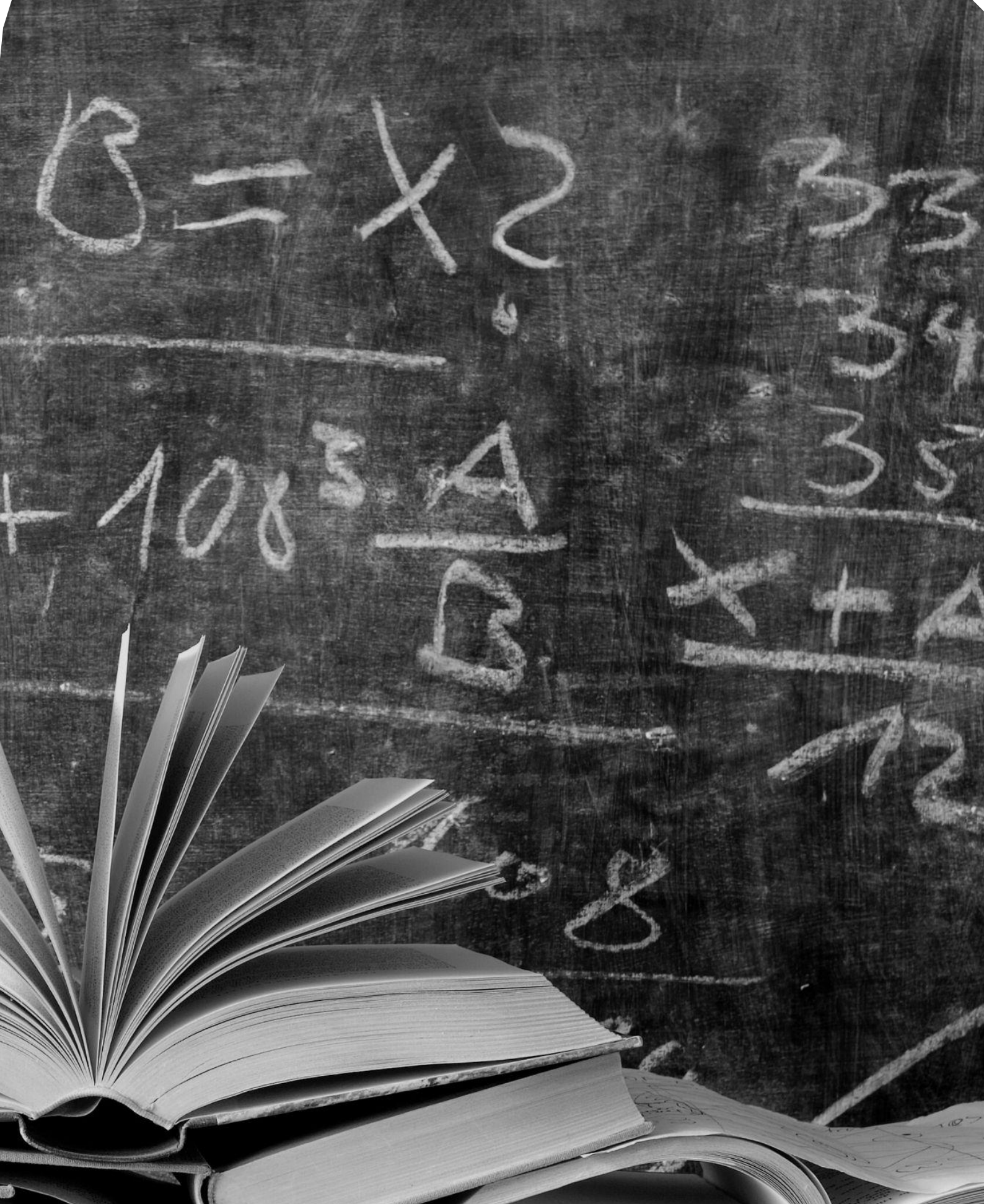
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