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Article



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## PHYSICAL AND TECHNICAL FUNDAMENTALS OF PHOTOELECTRIC SOLAR PANELS ENERGY

**Abstract:** In recent decades, global solar energy has been developing at a rapid pace, with solar power plants becoming part of the energy infrastructure of many countries. The development of solar technology has a significant impact on the economy. In the coming decades, solar energy can be expected to be a stimulus for the economic development of countries and regions with maximum "solar" resources.

**Key words:** Solar collector, solar energy, spectral distribution, air mass, solar radiation.

**Language:** English

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### Introduction

Only a fraction of the energy produced by the sun reaches the earth. Calculations show that the technical potential of solar energy entering the planet each year (calculated using existing technical and technological means) is several times higher than the proven reserves of all fossil fuels (coal, peat, oil, natural gas). If the energy supplied to the planet by the Sun per year is converted into conventional fuel, this figure will be about 100 trillion tons. That's ten thousand times more than we need.

Improvements in solar energy technology have led to the fact that the cost of generating 1 kWh of energy in solar power plants is equal to or less than the cost of generating energy from "non-conventional" sources of hydrocarbons. It is also necessary to take into account the anthropogenic impact of fossil fuels burned for energy purposes, which has led to changes in the biosphere of the planet.

One of the technical problems in the oil and gas industry is the use of energy, including alternative and renewable energy, in the production, processing, and refining of hydrocarbons, which is the main goal of

saving hydrocarbons, which depends on their efficiency and effectiveness.

The amount of energy coming from the sun to the earth's surface is enormous. For example, the power of the solar current, which covers an area of 10 km<sup>2</sup>, reaches 7-9 million kW per day on a cloudless day [5-7].

### Main part.

Solar energy technology converts electromagnetic radiation from the sun into heat and electricity.

There are three main technologies for using solar energy:

- Solar collectors for heating liquid or gaseous refrigerant.
- Concentrated solar energy technology, in which steam is generated from solar heat, turbines generate electricity.
- Photoelectric technologies that convert sunlight directly into electricity.

Today, solar electricity is widely used to supply electricity to homes, offices, and other buildings in

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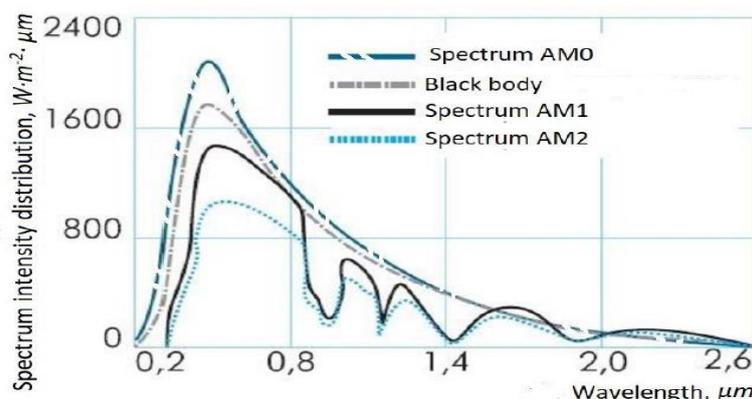
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remote areas where there is no centralized power supply or where there is a centralized power supply network. In recent years, it is this program that provides about 90 percent of the solar panel market. In most cases, solar panels operate in parallel with the grid and generate clean electricity for district power grids. Many countries have special mechanisms to support solar energy, such as special increased tariffs for the supply of electricity from solar panels to the grid, tax breaks, incentives to obtain credit for the purchase of equipment, and more. During the formation phase of photovoltaics, such mechanisms have worked in Europe, the United States, Japan, China, India, and other countries. At present, solar energy provides slightly more than 1% of the electricity generated worldwide. However, in several European countries, this ratio is significantly higher. In Germany, for example, the figure is about 6%.

The intensity of sunlight reaching the earth varies depending on the day, year, location, and weather conditions. The total amount of energy calculated in a day or year is called radiation (or “unwanted solar radiation”) and indicates how strong the solar radiation is. Radiation is measured in  $[W \cdot h / m^2]$  per day or another period.

The intensity of solar radiation in free space at a distance equal to the average distance between the Earth and the Sun is called the solar constant. Its value is  $1353 W / m^2$  [3]. When sunlight passes through the atmosphere, it is weakened mainly by the absorption of infrared radiation by water vapor, the absorption of ultraviolet radiation by ozone, and the scattering of radiation by atmospheric dust particles and aerosols. The measure of the effect of the atmosphere on the intensity of solar radiation reaching the earth's surface is called the “air mass” (AM) [12-13].

Figure 1 shows the spectral distribution of solar radiation intensity under different conditions. The upper curve (AM0) corresponds to the spectrum of the sun outside the Earth's atmosphere (e.g., in a spacecraft), i.e., the mass of air is zero. It is estimated by the intensity distribution of the radiation coming from the black body at a temperature of 5800 K. The curves AM1 and AM2 show the spectral distribution of solar radiation on the Earth's surface when the Sun is at its zenith and an angle of  $60^\circ$  between the Sun and the zenith, respectively. In this case, the total radiation power is about 925 and  $691 W / m^2$ . The average radiation intensity on Earth is approximately equal to the radiation intensity at AM1.5 (the Sun is at an angle of  $45^\circ$  to the horizon) [3].



**Figure 1: Spectral distribution of the intensity of solar radiation in various conditions.**

The average intensity of solar radiation near the surface can be  $635 W / m^2$ ; On a very clear sunny day, this value ranges from  $950 W / m^2$  to  $1220 W / m^2$ , with an average value of about  $1000 W / m^2$ . [3].

Example 1. Total radiation intensity in Zurich ( $47^\circ 30' N$ , 400 m above sea level) on a surface perpendicular to the radiation: May 1, 12:00 p.m. -  $1080 W / m^2$ ; December 21, 12:00 -  $930 W / m^2$  [4].

To simplify the calculation of the arrival of solar energy, it is usually expressed in solar hours with an intensity of  $1000 W / m^2$ . In other words, 1 hour corresponds to  $1000 W / m^2$  of solar radiation. This roughly coincides with the time when the sun shines on a surface perpendicular to the sun's rays in the middle of a sunless cloudless day in summer[6].

Radiation varies throughout the day and from place to place, especially in mountainous areas. For

Northern European countries, it varies from an average of  $1,000 kW / m^2$  per year in the desert to  $2,000$  to  $2,500 kW / m^2$  per year. Weather conditions and solar deflection (depending on the latitude of the area) also lead to differences in the arrival of solar radiation.

The potential of solar energy in Uzbekistan has been studied in detail. The country surpasses Spain in the number of sunny days per year. Programs to develop solar energy technologies in the Central Asian republics were adopted in the USSR in the middle of the last century. Scientific institutions of Uzbekistan, Turkmenistan, and Armenia have been dealing with these issues. V.A. Baum, a well-known Soviet scientist, studied the possibility of desalination of seawater using renewable energy sources at the Academy of Sciences of the Turkmen SSR. In the

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Uzbek SSR, work was carried out in two main areas: thermal power generation and high-temperature materials science.

In 1943, the Institute of Physics and Technology (the largest PTI in Central Asia) was established in Tashkent - the first academic institute, which was tasked with conducting fundamental and applied research in the field of physical sciences and engineering. From 1981-to 1987, the Institute of Solar Physics was established and the unique object “Big Solar Furnace” - a systemic solar concentrator with 10,700 mirrors - was built. In different years of the 20th century, several industrial facilities (used in animal husbandry), autonomous heated residential buildings, and a plant for the production of solar

concentrators were launched to desalinate mineralized groundwater.

In 2003, a special unit, the Heliopoligon, was established at the Physics-Sun NPO research base (part of the FTI), with priorities:

- Carrying out fundamental and applied research on the conversion of solar energy into other types of energy;
- Development of experimental models of thermal, photovoltaic, and power plants;
- Development of technologies for the synthesis of high-temperature oxide materials.

The following figure shows a schematic map describing solar energy potential in different regions of the country.

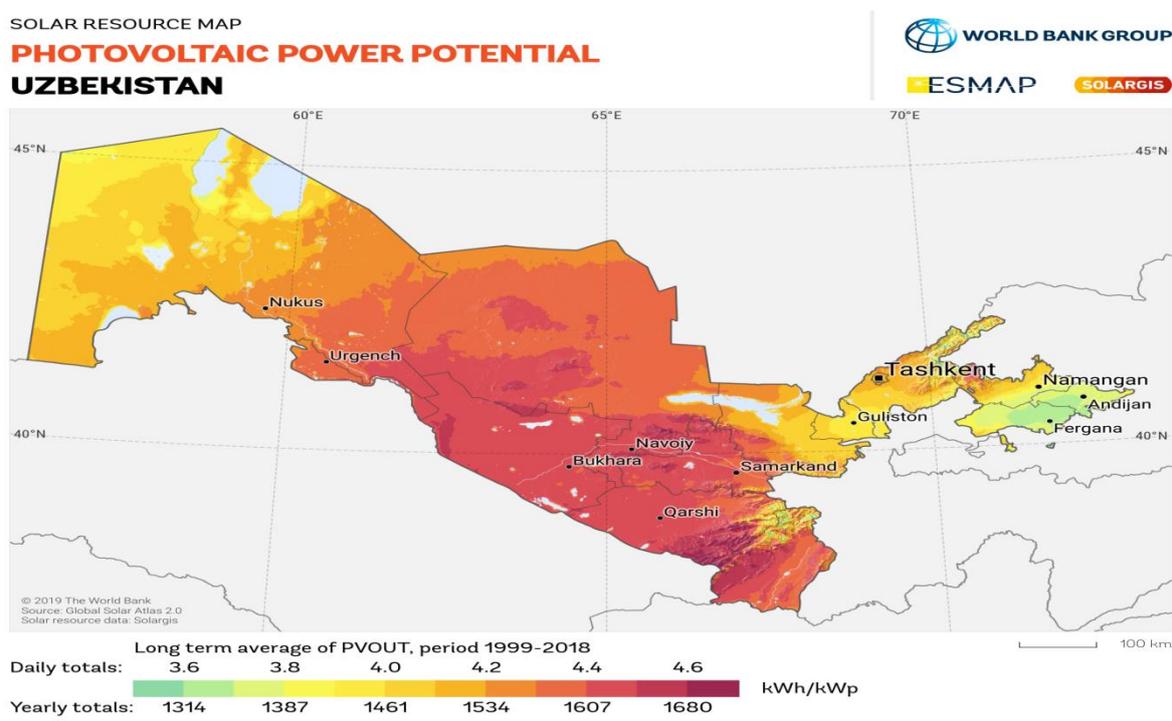


Figure 2: Solar energy potential in Uzbekistan, kW \* h / kW.

In 2012, with the support of the Asian Development Bank, the International Solar Energy Institute (ISE) was established per the Decree of the President of Uzbekistan “On the establishment of the International Solar Energy Institute”.

In the second decade of the new century, the Decree of the President of the Republic of Uzbekistan dated March 31, 2013 “On measures to develop alternative energy sources” was adopted, which sets out the main directions for the development of renewable energy and solar energy. was given. in the medium and long term. Continued construction of plants for the production of renewable energy equipment, expansion of solar power plants and water heating systems (collectors), and low-capacity hydroelectric power plants (collectors) are among the priority measures.

In the new century, several practical measures have been taken in our country to develop solar energy. From 2008-to 2018, projects with the participation of foreign capital were implemented to create mining enterprises and plants for the production of silicon, solar panels, solar concentrators, and several solar power plants were built[9].

It should be noted that taking into account the natural and climatic factors, Gubar district of Kashkadarya region, Sherabad district of Surkhandarya region, Pop district of Namangan region are among the most promising areas for the development of solar energy.

In 2008, the State Committee for Geology and Mineral Resources of Uzbekistan and Neoplant (Republic of Korea) established a joint venture Uz-Kor Silicon to develop quartz and quartzite deposits in

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Kashkadarya and Samarkand regions. In 2012, the participants of the joint venture in the Navoi region built the first complex in the country for the extraction of 39,000 tons of quartz ore per year and the production of 12,000 tons of technical silicon (mainly grade 441 for export).

In 2013, Uzbekenergo and China's Suntech Power Co. Agreed to jointly (in equal shares) plan to build a plant for the production of photovoltaic modules (average annual production capacity - 100 MW) in the Navoi Free Industrial and Economic Zone. As of 2018, the project was not implemented due to the bankruptcy of Suntech Power Holdings Co., possibly unable to compete with Chinese companies in the field [10].

In 2014, the participants of the Uz-Shindong Silicon Joint Venture (Uzbekistan-Republic of Korea) commissioned the second plant in the country to produce 5-5 units of technical silicon in the Angren Special Industrial Zone. 6,000 tons per year (raw materials are imported from the Jizzakh region). In the same year, the Jizzakh SEZ completed the construction of a wide range of solar water heating systems, including vacuum tubular water heating systems (factory capacity up to 15,000). product per year).

In 2015, a low-capacity (130 kW) solar power plant was launched in the Namangan region in collaboration with Korean experts. In 2016, a 1.2 MW solar power plant was commissioned at the Lukoil facility in the Bukhara region.

In the medium term, it is planned to build several large solar power plants (100 MW each) in the Namangan region and the Sherabad district of the Surkhandarya region. Like the Million Solar Roofs program (USA) and similar programs, it is planned to expand the capacity of renewable energy devices in real estate through the installation of public facilities - preschools and about 2,000 solar concentrators (solar panels and concentrators). school facilities, medical facilities, and other state-owned facilities located in remote and inaccessible areas.

In the long run (until 2025) it is planned per the "Solar Road Map" (developed by experts of the Physics-Sun NPO, experts of the Asian Development Bank, agreed with the government). Construction of several hydropower plants in Guzar district of Kashkadarya region (FGU, 100 MW), Navoi city (combined, 130 MW), MISE landfill (combined, 10 MW) in Qibray district of Tashkent region [8].

In May 2018, the President signed a resolution "On additional measures for the implementation of investment projects in the field of renewable energy

sources", according to which Uzbekenergo JSC SkyPower Global (Registered in the Cayman Islands) to begin construction of solar power plants with a total capacity of 1 GW (SkyPower Global Contribution - \$ 1.3 billion). The foreign parent company and its subsidiaries in the regions are expected to receive tax and customs benefits. In addition, the Uzbek government has guaranteed payment for solar electricity from future energy facilities to the public grid, and if the solar power plant is not self-sufficient, the procurement will be funded from the state budget.

In early 2018, the Government of the Republic of Uzbekistan and the International Finance Corporation (IFC, World Bank Group) signed an agreement on attracting foreign capital and providing consulting services for the development of solar energy based on PPP mechanisms. First, a project to build and operate a 100 MW solar power plant to replicate the experiment and increase the total capacity of future solar power plants to 1 GW is under consideration [11].

The media is less aware of the implementation of government plans to develop the renewable energy sector, so it is difficult to assess the success and challenges of relevant national projects today.

## CONCLUSION

In general, the country is developing along the trajectory of solar energy growth. Enterprises producing solar modules and various types of concentrators have been established in our country, the professional level of specialists is constantly increasing, and foreign investments and technologies are entering the industry. Currently, this RES network is in the process of transition to the implementation of a wide range of tasks using various mechanisms of state support from experimental and first experimental models of solar power plants (generators of electricity and/or thermal energy): benefits, connectivity through warranties. Procurement of thermal power plants and electricity for the general electricity network, compensation for losses in the event of reduced competitiveness of electricity prices, implementation of programs to equip state-owned facilities with solar panels and enrichment plants, implementation of projects; principles of public-private partnership. Problems of network development are related to the technical performance of converters (low efficiency, relatively short service life, long payback period of equipment in domestic and industrial networks, estimated at 13-16 years at current gas and electricity tariffs).

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Issue

Article



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## TEACHING A FOREIGN LANGUAGE THROUGH THE FORMATION OF UNIVERSAL LEARNING ACTIVITIES

**Abstract:** *The article analyzes the effectiveness of the use of universal educational actions in the process of teaching a foreign language to senior students. Special attention is paid to the universal nature of cognitive universal actions that contribute to the formation of a new consciousness of the student, increase the level of motivation to learn a foreign language, including by performing various tasks that are given in the work.*

**Key words:** *foreign language, universal educational activities, cognitive universal learning activities, motivation, self-education.*

**Language:** English

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### Introduction

According to the requirements of the state educational standard of the new generation, an important task of the modern education system is the formation of universal educational actions aimed at teaching university students to learn and improve themselves.

It is known that the effectiveness of any human activity depends not only on abilities, but also on rational ways of its implementation.

Educational activity is not an exception, rather, it is a rule, speaking of which, it should be remembered that in the vast majority of cases, mastering knowledge is too much for a student because he does not know how to learn, and, therefore, is not trained to use universal educational activities.

Scientists, in particular, A. G. Asmolov, define universal educational actions as "self-development and self-improvement through conscious and active appropriation of new social experience, a set of actions of the student that ensure his cultural identity, social competence, tolerance, the ability to independently assimilate new knowledge and skills,

including the organization of this process" [1, 27]. The ideology of the new educational standard assumes that in the process of learning English, a student must answer for himself the questions: Why am I learning English? Why am I doing this exercise (reading, writing, listening to the text)? Why do I repeat the material I learned in class at home? What did I learn in class? What else do I need to do?

Thus, the state standard of the new generation, having a pragmatic orientation, in comparison with its predecessors, sets the HEI the task of forming a modern personality, continuing, most importantly, willing to study outside the educational institution. The purpose of modern education is seen in the development of the student as a subject of cognitive activity, the process of self-education. An important stage of training is precisely the senior link of training, as a result of studying at the high education, and entering adulthood.

In the standards of the first generation, the purpose of education was the direct transfer of knowledge from teacher to students, and the result of training was the acquisition of a system of knowledge,

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skills, and skills. The purpose of training has also changed: the student must now not only acquire a set of certain knowledge and skills, but also be able to extract them independently. In other words, the graduate must have certain universal educational actions (UEA). What is it?

Universal educational activities are a set of ways of various actions that contribute to the active self-development of the student, helping the independent acquisition of new knowledge, the development of social experience, the formation of social identity. In simple words, these are actions that help "teach a person to learn."

What is their versatility? It consists in the fact that training activities:

- have a meta-subject (intersubject) character;
- the concept of UEA is not attributed only to any one academic subject;
- form the psychological abilities of students;
- they are the basis of any activity of the student.

In addition, this kind of training activities perform the following universal functions:

- create conditions for the comprehensive development of the individual on the basis of readiness for continuing education;
- contribute to the successful formation of skills, competencies, assimilation of knowledge in various subject areas;
- provide an opportunity for the student to independently carry out the activities of teaching, goal-setting, monitoring and evaluation of the process and learning outcomes.

It is necessary to emphasize the multifunctionality of universal educational actions, the implementation of which can be traced in:

- ensuring the student's ability to independently set educational goals, search for and use the necessary means and ways to achieve them, monitor and evaluate the process and results of activities
- learn;
- creating conditions for harmonious self-development of the individual, readiness for continuous education and self-education;
- ensuring the successful and conscious assimilation of knowledge, skills and abilities, the formation of competencies in the subject area in general, and "foreign language" in particular.

So, in a comprehensive educational establishment, an integral basis of the educational process at the present stage is the formation of the student's desire and ability to independently manage their activities: initiate it, set adequate feasible goals and objectives, adjust them, evaluate the results obtained, plan further educational and cognitive actions.

Ideally, a good student always strives to learn new things. New social demands of society determine the general cultural, personal and cognitive development of students, which provides the key

competence of education "to teach to learn". According to methodologists, for example, Nesterova I. A., it is possible to implement this task precisely through the formation of universal educational actions of various types [5].

Methodologists distinguish the following types of universal educational activities:

1. personal (life, professional self-determination);
2. regulatory (students' organization of their educational activities (planning, forecasting, correction, evaluation));
3. cognitive (formation of general educational, logical abilities of the student);
4. communicative (formation of a student's social competence) [4, 14].

At the same time, the role of universal educational activities as self-development and self-improvement through conscious and active appropriation of new social experience cannot be overestimated.

A fundamental role in the educational process is played by the formation of cognitive universal educational actions, within the framework of which the child is taught to use techniques and methods that form the ability to acquire knowledge, collect the necessary information, put forward hypotheses, draw conclusions and conclusions – independently organize educational activities.

Simply put, cognitive UEA are general educational actions based on the ability to learn, that is:

- independently form a cognitive goal;
- search and structure the necessary information using various means;
- carry out semantic reading;
- simulate the situation.

It is through the ability to learn that students master cognitive learning actions, which creates the possibility of independent successful assimilation of new knowledge, skills and competencies [2, 3]. O. A. Karabanova notes that this opportunity is provided by the fact that universal educational actions are generalized actions that generate a broad orientation of students in various subject areas of cognition and motivation to learn [3, 11], including, and above all, a foreign language.

The student consciously strives to learn about the foreign language world. From a passive consumer of information, he turns into a serious customer of educational services. Cognitive actions of students, undoubtedly, represent the most extensive block of UEA, since they include general educational actions; logical actions; actions to pose and solve a problem.

A highly qualified foreign language teacher should not only be information-savvy, methodically literate, but also, importantly, methodically flexible. This is especially true at the senior stage of education – the stage of formation and development of cognitive

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universal educational actions among university students.

When forming universal educational actions of a cognitive nature, the teacher has the opportunity to predict the results of the process, among which scientists (Nesterova I. A. and others) distinguish cognitive universal educational actions that:

- reflect the methods of cognition of the surrounding world and help to distinguish the methods of cognition of the surrounding world; identify the features of different objects in the process of their observation; analyze the results of research; record their results; reproduce from memory the information necessary to solve the educational task; check information, find additional information using reference literature; apply tables, diagrams, models for to receive information; to present the prepared information in a visual and verbal form;

- they form mental operations and help to compare various objects: to distinguish them from a set of common properties; to compare the characteristics of objects by one (several) signs; to identify similarities and differences of objects; to distinguish common and particular, common and different in the studied objects; to classify objects; to give examples as evidence of the propositions put forward; to establish causal connections between objects; perform training tasks that do not have an unambiguous solution;

- form search and research activities, help to make assumptions, discuss problematic issues, draw up an activity plan; choose a solution from several proposed ones, briefly justify the choice; separate the known and the unknown; transform models in accordance with the content of the educational material and the set educational goal; model various relationships between objects of the surrounding world, taking into account their specifics; explore your own non-standard solutions; transform the object: improvise, change, creatively alter [5].

The process of forming cognitive universal educational actions in older university students is a rather diverse and creative process, since it can occur through a variety of forms and types of activities:

- individual and group;
- based on the existing background linguistic and cultural knowledge of students and through the search for new (research activity);
- under the supervision of the teacher and independently;
- within the framework of regular and extracurricular activities, etc.

To achieve the goals outlined above and considering their possible results, a large number of

different tasks can be offered, some of which are listed below.

- find information in the reference book / dictionary / Internet (about the author, cultural event, customs and traditions of the country of the language being studied (traditional dish, style of clothing, well-known media, etc.));

- find the answer to the question in the proposed English-language text;

- give a short / detailed oral / written answer to the questions posed;

- structure the specified sentences into a coherent text of the correct meaningful sequence;

- independently complete the expression / sentence / dialog / text with the completion of the missing components (words, phrases, sentences);

- classify words by parts of speech / reading rules / belonging to the designated topic;

- to make a table, a diagram-a model of the linguistic phenomenon being studied;

- independently derive a rule (grammatical phenomena, word formation);

- select a description of situational thematic pictures from an English-language artistic work (article, Internet source);

- find an excerpt in the English text that is being studied in the lesson;

- find a similar passage from a work in Uzbek, analyze (compare the similarities and differences of the original and the translation);

- find more than one translation of the proposed passage into Uzbek from the specified work, analyze (compare the similarities and differences of the original and the translation, determine the most successful translation and comment);

- simulate a situation (role-playing game) similar to the one proposed in the read text of the article, based on the clichés, vocabulary, etc. used in the original text.

We will note that it is possible to form UEA skills in a foreign (English) language lesson through all types of speech activity: reading, writing, listening, speaking.

The analysis of educational activity shows that the performance of tasks of this kind is able to teach students to analyze, synthesize, classify, compare, establish cause-and-effect relationships, analyze the structure of the text, highlight the educational goal, identify actions, evaluate their effectiveness and effectiveness.

One of the significant results is an increase in the motivation of university students to consciously learn a foreign language, which contributes to the growth of their self-education and self-development.

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## THE EFFECT OF ACCOUNTING PRACTICES AND PERCEPTIONS OF TAX INCENTIVES ON MSME TAXPAYER COMPLIANCE DURING THE COVID-19 PANDEMIC WITH UNDERSTANDING OF INFORMATION TECHNOLOGY AS MODERATING VARIABLE (EMPIRICAL STUDY ON MSMES IN THE CULINARY SECTOR AT PEKANBARU SENAPELAN SMALL TAXPAYERS OFFICE)

**Abstract:** This study aims to examine and analyze: (1) the effect of accounting practices on taxpayer compliance, (2) the effect of tax incentives on taxpayer compliance, (3) the effect of accounting practices on taxpayer compliance with the understanding of information technology as a moderating variable, and (4) the effect of the perception of tax incentives on taxpayer compliance with the understanding of information technology as a moderating variable. The population in this study was a culinary MSME taxpayer registered at the Pekanbaru Senapelan Small Taxpayers Office. A total of 397 people were included in this study as part of a purposive sampling sample. By distributing questionnaires, this study gathered primary data. SEM-Partial Least Square (PLS) with the WarpPLS 7.0 version application was utilized as the analytical approach. The results of this study indicate that 1) accounting practices had a positive effect on taxpayer compliance with a significance level of  $<0.001$  ( $<0.05$ ), (2) tax incentives had a positive effect on taxpayer compliance with a significance level of  $<0.001$  ( $<0.05$ ), (3) understanding of information technology was able to moderate the correlation between accounting practices and taxpayer compliance and had a positive effect with a significance level of  $<0.001$  ( $<0.05$ ), and (4) understanding of information technology was able to moderate the correlation between perceptions of tax incentives and taxpayer compliance and had a positive effect with a significance level of  $0.015$  ( $<0.05$ ).

**Key words:** Accounting Practices, Tax Incentives, Information Technology, Tax Compliance.

**Language:** English

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### Introduction

Tax is a compulsory contribution to the state made by an individual or entity based on the law, with no direct recompense, that is used to meet the state's demands for the maximum prosperity of the people (Law No. 16 of 2009). For the state, taxation plays a critical function. Taxes account for more than 80% of the country's total revenue. As a source of state revenue, taxes function to finance state expenditures in terms of development, infrastructure, and subsidies. One of the causes of the increase in tax revenue is that since the 1984 fiscal year the government has implemented tax reforms by implementing a self-assessment system in tax collection. The self-assessment system gives full confidence to taxpayers to calculate, deposit, and report all taxes that become obligations. High awareness and compliance of taxpayers is the most important factor in implementing the system. Given the importance of the role of taxes in the economy of a country, the government must strive to increase the awareness and compliance of taxpayers to carry out their tax obligations. The compliance of taxpayers in fulfilling their tax obligations will increase state revenues and in turn will increase the size of the tax ratio (Nurmantu, 2005).

The Covid-19 pandemic has had a considerable effect on the economy, including in terms of tax revenue. Cited from Iaijawatimur.or.id (2020), this is due to unstable economic conditions which ultimately affect many aspects. The company's turnover, people's incomes, and job opportunities have decreased. Moreover, people's education levels are difficult to increase due to the absence of education costs. The social and psychological aspects of the community are also influential, such as a sense of fear of the dangers of Covid-19, confusion about the future, confusion about finding alternative income, hopelessness, and helplessness in life. Although this condition might occur in a short period, it affects a person's mental attitude, including the willingness and awareness of paying taxes. One sector that has an important strategic role in Indonesia is Micro, Small, and Medium Enterprises (MSME). Due to a large number of industries in each economic sector, the potential for employment and its contribution to the formation of Gross Domestic Product (GDP) is very large. Micro, Small, and Medium Enterprises occupy a dominant position in the Indonesian economy (Sarfiyah et al., 2019). In 2020, the number of Micro, Small, and Medium Enterprises (MSME) will reach 64.19 million. This number reaches 99.9 percent of all businesses operating in Indonesia. MSMEs play a role as the breadwinner of the economy and contribute to the national GDP by 61.7%, followed by the national investment by 58% and national exports by 14%

(Ministry of Finance of the Republic of Indonesia, 2020).

MSMEs are business groups that have an important part in the economic cycle of the country's economy, including in Pekanbaru. Data from the Pekanbaru Department of Cooperatives and SMEs, the number of MSMEs in 2018 was 14,254 and decreased in 2019 to 14,120. However, it experienced an increase in various business sectors during the 2020 Covid-19 pandemic, which was 15,102. Wwww.pekanbaru.go.id (2021) mentioned the increase in the number of MSMEs during the Covid-19 pandemic may be due to a large number of company employees or workers being temporarily laid off. This makes them entrepreneurs of SMEs for they do not require large amounts of capital. Although the number of MSMEs has increased during the pandemic, not all MSMEs register as taxpayers and comply with tax regulations. Data from Pekanbaru Senapelan Small Taxpayers Office showed that the number of MSMEs Individual taxpayers experienced a drastic decrease at the beginning of the Covid-19 pandemic, namely a decrease of 14,556 Taxpayers or around 20.21% compared to before the Covid-19 pandemic hit. However, it started to increase in Semester 1 of 2021, which was 8,613 taxpayers or around 24.42%. This is also inseparable from the government's efforts and support, such as providing support incentives for MSMEs through the National Economic Recovery (PEN) program to the preparation of the Job Creation Law which was ratified in 2020. One of the substances regulated in the Job Creation Law is the convenience, protection, and empowerment of MSMEs (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2021).

Referring to pajakonline.com (2020), the decline in the level of tax compliance during the Covid-19 pandemic, especially during the Work from Home (WFH) condition, could occur due to constraints of some taxpayers in the process of preparing financial reports. Azmary et al. (2020) argue that the success of efforts to receive tax from MSMEs is determined by several interrelated things, namely the ability of MSMEs to manage business finances. The ability of MSMEs in managing business finances certainly requires an understanding of accounting which can be seen from the adequate application of accounting for MSMEs. There is an issue faced that becomes the weakness of MSMEs at the same time, namely the application of accounting. The application of accounting in the business world has a very important role in providing information related to the effectiveness and efficiency of all activities carried out by the company during an accounting period. MSMEs cannot fulfill their tax obligations if the company does not have financial reports as a source of tax calculation

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data. MSMEs commonly only focus on the economic activities they are involved in. Thus, they often do not do the bookkeeping or business planning properly. Therefore, on October 24, 2016, the Institute of Indonesia Chartered Accountants (IAI) ratified SAK EMKM which became effective on January 1, 2018. This standard is specifically designed for MSME actors because of its simplicity. It is not too complicated because it does not require a very in-depth analysis of financial statements compared to SAK ETAP. A previous study (Darmawati & Oktaviani, 2018) showed that the application of MSME accounting has a positive impact on MSME taxpayer compliance. The application of good MSME accounting may help MSME in making well-structured and precise financial statements. Hence, it will be easier to calculate the amount of tax payable. Therefore, the level of compliance of MSME taxpayers will be higher in calculating, paying, and reporting the amount of tax payable to be paid. This is in contrast to the findings of another study (Peprah et al., 2020) which concluded that the application of accounting had no significant effect on taxpayer compliance.

In order to improve taxpayer compliance, the government provides convenience in the form of low rates, easy calculation, settlement, and reporting methods, in the issuance of Government Regulation Number 23 of 2018 which stipulates that the income tax rate on MSMEs is 0.5% which was previously 1%, as of July 1, 2018. As a response to the decline in the economy and the productivity of business actors during Covid-19, the Government issued a new policy regulated in Government Regulation Number 23 of 2020 on the Implementation of the National Economic Recovery (PEN) Program which is a mandate from Government Regulation in Lieu of Law No. 1 of 2020 including tax incentives, interest subsidies, and guarantees for new working capital for MSMEs. Through Minister of Finance Regulation Number 44/PMK.03/2020, the government amend Minister of Finance Regulation Number 23/PMK.03/2020 by bringing up a new type of tax incentive, namely Final Income Tax based on Income Tax Article 23 borne by the government. The existence of tax incentives exempts MSME actors from paying Income Tax Article 23. A previous study conducted by Putri (2021) suggests that MSME actors in the application of tax incentives must be able to recognize and interpret information on incentives provided by the government. Accordingly, MSME actors are required to be able to assume that this incentive is a contribution from the government to stabilize the economy from the impact of the pandemic. Therefore, a good interpretation of information from taxpayers can create taxpayer compliance to receive tax incentives. Previous studies conducted by Saputro & Meivira (2020) and Latief et al. (2020) mentioned that the perception factor of the

existence of tax incentives applied by the government has a positive and significant impact on MSME tax compliance. Tax incentives provided by the government can provide motivation and state awareness of taxpayers on their compliance in fulfilling tax obligations. However, this is in contrast to previous studies done by Dewi et al. (2020) and Khairiyah & Akhmadi (2019) which state that the tax incentives provided during the Covid-19 pandemic had no significant effect on taxpayer compliance.

Due to differences in results from previous studies, this study included a moderating variable with the assumption that it might strengthen the correlation between accounting practices and perceptions of tax incentives on taxpayer compliance. Another study (Peprah et al., 2020) states that accounting for MSMEs did not have a significant effect on tax compliance because MSME entrepreneurs were still unable to apply accounting practice properly for it was considered complicated and time-consuming. MSMEs commonly provide unreliable financial statement information about their business to tax officials, which also creates many inaccuracies. Makeeva & Mikhaleva (2019) argue that tax incentives do not have a significant effect on tax compliance because other factors make taxpayers not take advantage of the tax incentive program properly. One of them is due to lack of information and ignorance about the program. Therefore, there must be supporting factors such as computerization or understanding of information technology. All potential improvements that could be achieved through information technology in the process of tax administration and collection will culminate in an increase in the amount realized each year from tax revenues. Akbar & Apollo (2020) found that the use of information technology affects the level of taxpayer compliance. This shows that many people are aware of the new tax information and regulations. Thus, there are still many individual taxpayers who do not ignore government regulations that support the use of information technology in terms of taxation.

From the background of the study that has been elaborated above, the researchers formulated the following research questions: 1) Do accounting practices affect MSME taxpayer compliance during the Covid-19 pandemic?; 2) Do tax incentives affect MSME taxpayer compliance during the Covid-19 pandemic?; 3) Is Information Technology able to moderate the correlation between accounting practices and MSME taxpayer compliance during the Covid-19 pandemic?; 4) Is Information Technology able to moderate the correlation between perceptions of tax incentives and MSME taxpayer compliance during the Covid-19 pandemic?

Meanwhile, the research objectives to be achieved in this study were as follows: 1) To empirically investigate and determine the effect of

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accounting practices on MSME taxpayer compliance during the Covid-19 pandemic; 2) To empirically investigate and determine the effect of tax incentives on MSME taxpayer compliance during the Covid-19 pandemic. 3) To empirically investigate and figure out whether Information Technology is able to moderate the correlation between accounting practices and MSME taxpayer compliance during the Covid-19 pandemic. 4) To empirically investigate and find out whether Information Technology is able to moderate the perception of tax incentives on MSME taxpayer compliance during the Covid-19 pandemic.

### Literature Review

#### Theory Of Planned Behavior

This theory explains that a person's behavior is influenced by the intentions they have. This theory connects beliefs and behavior where attitudes towards behavior, subjective norms, and perceptions of behavioral control form individual behavioral intentions and behavior itself. According to the theory of planned behavior, perceived behavioral control, along with behavioral intentions, can be used to predict behavioral achievement (Ajzen, 1991). A person can have various kinds of beliefs about behavior, but when faced with a certain event, only a few of these beliefs arise to influence behavior. The theory of the planned behavior model explains that the behavior carried out by individuals arises because of an interest in behaving. Human behavior is based on three types of considerations, namely: (1) Behavior belief, where individual beliefs about the results of behavior and evaluation of these results. behavioral beliefs will affect attitudes towards behavior. (2) Normative belief is when a person believes in the normative expectations of others who serve as a source of information for him or her, such as family, friends, and tax advisors, as well as the incentive to meet those expectations. The subjective norm variable for a conduct is formed by this normative expectation. Subjective norms are a result of the expectations that people have when one or more persons in their lives approve of specific behaviors and encourage them to follow them. (3) Control belief, where the individual's belief about the existence of things that support or hinder his or her behavior and perception of how strongly these things affect his or her behavior. Control belief forms the perceived behavior control variable. People who do not believe that they have the resources or opportunities to perform the behavior will certainly not form a strong interest in performing the behavior (Jogiyanto, 2007). These three things can be built with the existence of internal and external factors of the taxpayer. Internal factors of the taxpayer may be knowledge, understanding, skills, willingness, information, and socialization that come from other parties. Taxpayers' external factors come from the existing environment, for example, economic conditions, social environment, law, and many others.

When taxpayers have knowledge, understanding, and experience, they will strengthen their subjective attitudes and norms to behave in compliance with existing tax provisions.

#### Technology Accepted Model (TAM)

Technology Acceptance Model (TAM) is a model to predict and explain how technology users accept and use technology related to user work. The TAM model which was developed from psychological theory explains the behavior of computer users, which is based on belief, attitude, intensity, and user behavior relationship. As a theoretical basis, TAM aims to explain what factors determine the level of acceptance of computer use, as well as to explain the behavior of end-users of technology. The dimensions of information technology using the TAM approach are divided into three, namely: (1) Perceived Ease of Use is a belief in ease of use, i.e. the degree to which the user believes that the technology/system can be used easily and problem-free. The intensity of use and the interaction between the user and the system can also indicate the ease of use (Davis, 1987). (2) Perceived Usefulness is a belief in usefulness, namely the level where users believe that the use of technology/system will improve their performance at work. Thompson et al. (1991) also stated that individuals will use information technology if they know the positive benefits of using it. (3) Behavioral Intention to Use is a behavioral tendency to continue using a technology. The level of use of computer technology in a person can be predicted from the attitude of the user's attention to the technology (Davis, 1987). Indicators of Behavioral Intention to Use are the desire to add a device that is part of the support system, the motivation to keep using it, and the desire to motivate other users.

#### Taxpayer

Law of the Republic of Indonesia Number 16 of 2009 on General Provisions and Tax Procedures defines Taxpayers as individuals or entities, including taxpayers, tax-cutters, and tax collectors, who have tax rights and obligations under the provisions of tax laws and regulations. Every taxpayer is required to carry out all his or her tax obligations. If they violate, they will be subject to sanctions, both administrative sanctions in the form of fines and increase in tariffs as well as criminal sanctions.

#### MSME Taxpayer

MSMEs or Micro, Small, Medium Enterprises are businesses owned by individuals or entities with the criteria stipulated in Law No. 20 of 2008. Law No. 36 of 2008 article 2 on Income Tax regulates that every individual who has an undivided inheritance, entities, and forms of business is still subject to income tax. Therefore, as an MSME entrepreneur, it is obligatory to pay taxes, both taxes paid or reported

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monthly or annually. The tax paid and reported monthly is usually called a mass tax which consists of Income Tax Article 21, Income Tax Article 23, Income Tax Article 26, Income Tax Article 4 Paragraph (2), and Final Income Tax Article 23/2018. Besides, MSME actors, especially medium-sized businesses, will be subject to corporate income tax which is paid once a year. MSME entrepreneurs who have been confirmed as Taxable Entrepreneurs are also required to pay Value Added Tax which required them to issue a tax invoice.

### Tax Compliance

Tax compliance means that taxpayers have the willingness to fulfill their tax obligations. Fulfillment of these tax obligations must be following the applicable regulations without the need for inspection, careful investigation (obtrusive investigation), warnings, threats, and the application of both legal and administrative sanctions (James & Alley, 2009). Tax compliance is divided into two types, namely: (1) Formal Tax Compliance, more directing taxpayers to comply as stipulated in the tax law, such as having a Taxpayer Identification Number (NPWP) for taxpayers who have earned their own income, timely reporting Annual Tax Return (SPT), not arrears in paying taxes, et cetera. (2) Material Tax Compliance, is a condition where the taxpayer substantively fulfills all material tax provisions, for example, the taxpayer fills out the SPT correctly according to real conditions.

### Accounting Practice

Accounting is an information system that measures business activities, processes data into reports, and communicates the results to decision-makers (Horngren et al., 2012). Accounting will produce accounting information from an accounting system that exists within the entity or business organization which will later be utilized by users of financial statements, both decision-makers in organizations, the intellectual community, and the general public. The government has issued a Financial Accounting Standard (SAK) which is simpler and specifically for SMEs, namely SAK EMKM. The Financial Accounting Standards for Micro, Small, and Medium Entities (SAK EMKM) were approved by the Financial Accounting Standards Board of the Institute of Indonesia Chartered Accountants (DSAK IAI) on October 24, 2016. This SAK EMKM is effective for the preparation of financial statements starting on or after January 1, 2018, but early application is permitted. The issuance of SAK EMKM is a form of IAI's support as a professional accounting organization, in increasing the enforcement of transparency and accountability of financial reporting entities, as well as encouraging the growth of the MSME sector in Indonesia.

### Tax Incentive

Wardani (2011) defines tax incentive as "taxation with the aim of providing incentives." The use of taxes is not only to generate government revenue but also to provide an impetus toward economic development, in certain fields. Tax incentives are offered in the form of tax benefits from the government to certain sector actors. Tax incentives are given as a form of stimulation. Not only for the sake of the sustainability of government revenues but also to encourage to development of economic activities in certain fields (which have been determined) in a positive direction. Tax incentives are one of the instruments often used by developing countries to attract investment to their countries, including Indonesia. The provision of tax incentives is expected to have a positive impact on increasing investment levels and cause various multiplier effects on the national economy. Thus, state revenues originating from the tax sector are increasing (Ministry of Finance of the Republic of Indonesia, 2020).

### Information Technology

Computer and telecommunications technology are combined to make information technology. Telecommunications technology is technology connected to long-distance communication, while computer technology is technology related to computers, including equipment associated to computers such as printers, fingerprint scanners, and even CD ROMs (Kadir & Triwahyuni, 2013). The advancement of information technology (IT) has given rise to new ways for business to conduct themselves. Business activities have become faster, easier, and more efficient as a result of technological advancements. Many economic assessments from various countries are progressively emphasizing the role of technology in boosting productivity. Various experts in the field of technology have predicted that in the future technology will play an important role, especially after many industries recapitulate costs and other matters related to their business using technology. Not only in the field of large-scale industry, but many small and medium-sized enterprises have also emerged with the use of technology (Al-Rodhan and Stoudmann, 2006).

According to Rifqi (2009 in Sariningtyas & Diah W., 2011), in terms of understanding information technology, the owners or business actors who double as managers or employees are expected to be able to understand the information generated from various fields, such as in the field of technology or knowledge to be used as a guide in making decisions, achieving efficiency, and effectiveness of business activities. In order to support the implementation of tax modernization and to provide and improve excellent service for the community, business process improvements have been made through the use and application of E-Systems. This is to make it easier for

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taxpayers to carry out their tax obligations to run the business process well, smoothly, quickly, and accurately. Some of the E-Systems that can be utilized are as follows: (1) e-Registration, (2) e-SPT, (3) e-filing (4) e-invoicing, (5) e-Billing.

### Hypotheses

#### The Effect of Accounting Practices on MSME Taxpayer Compliance

Accounting is defined by the American Accounting Association (AAA) as “the process of identifying, measuring, and reporting information of economic value to enable clear and unambiguous judgments and decisions for users of that information.” The financial statement is a document that a corporation submits to the Directorate General of Taxes as a reference for tax reporting. If there are irregularities in the financial statements, the Directorate General of Taxes can conduct an audit to prevent fraud in tax payments. A good method of financial management in a company, including MSMEs, is to practice the accounting cycle properly. Accounting is a system that processes transactions into financial information. Thus, accounting makes MSMEs able to obtain financial information in running their business. One of the information that SMEs can get when they have practiced accounting is information on tax calculations. Based on the income statement generated by accounting, MSMEs can calculate the amount of tax that must be paid accurately for a certain period or can even apply for tax refunds.

According to Ajzen (1975) in Theory of Reasoned Action dan Theory Planned of Behavior, a person's behavior is influenced by one's intentions, while intentions are influenced by attitudes, subjective norms, and behavioral control. In relation to the variable of the accounting application, accounting practices can be influenced by intention. This intention will influence someone in acting or do something. In this case, MSM taxpayers have the intention of implementing accounting, especially SAK EMKM in running their business to help fulfill tax obligations. Intentions are also influenced by, first, attitudes toward behavior where this attitude will be shown if someone feels benefited or even feels disadvantaged when implementing SAK EMKM. The second is subjective norms where a person's intention to behave can be influenced by the social environment, where SMEs in a certain area may have implemented SAK.

A previous study conducted by Darmawati & Oktaviani (2018) showed that the application of MSME accounting has a positive effect on e-commerce MSME taxpayer compliance. The existence of an adequate accounting application can increase the reliability of financial statements and make it easier to calculate the tax payable which in turn has an impact on increasing taxpayer compliance.

This supports a study by Saputra and Meivira (2020) that claims accounting practices have a good and significant impact on tax compliance. The following hypothesis is based on the above description:

H1: Accounting practices affect MSME taxpayer compliance

#### The Effect of Perception on Tax Incentives on MSME Taxpayer Compliance

Tax incentives during the Covid-19 pandemic are donations given by the government to employees and business actors in an effort to stabilize the economy during the pandemic. Accordingly, employees and business actors can survive during the pandemic. In order to overcome the impact on the economic sector due to the Covid-19 pandemic, the government has carried out various socio-economic policy programs, including policy incentives and tax facilities that can be utilized by taxpayers. Tax incentives are used to attract certain individuals or entities to support government programs or activities by reducing or exempting certain taxes.

The correlation between tax incentives and taxpayer compliance can be explained by the Theory of Planned Behavior, namely the intention to behave which will then affect attitudes towards behavior. Attitude is a feeling of supporting or taking sides or feelings of being unsupportive or impartial towards an object to be addressed. This arises from an individual's evaluation of the belief in the results obtained from the behavior. Therefore, taxpayers are also expected to have a positive perception of the tax incentive policies provided by the government.

Compliance includes three dimensions, namely payment, reporting, and filling compliances. A previous study by Latief et al. (2020) showed that tax incentives have a positive and significant effect on taxpayer compliance. Another study (Nuskha et al., 2021) claims that tax incentives provided during the Corona pandemic have a good and significant impact on individual taxpayer compliance in filling tax returns (SPT). The second hypothesis is based on the above description:

H2: Tax incentives affect MSME taxpayer compliance.

#### The Effect of Understanding Information Technology Moderates the Effect of Accounting Practices on MSME Taxpayer Compliance

The quality of financial reports produced by a business entity or company is required to have a quality that is following the needs of the financial statements themselves. This supports the use of information technology that can provide opportunities for business entities to carry out their obligations in reporting their business results, which can be utilized by interested parties. This is because, quality financial reports will make it easier for the management of the company or entity to make decisions and will make it

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easier for tax officials in terms of taxation (Purnama, 2020). To increase tax revenue, the government is modernizing the tax administration system, using technology in taxation activities, namely online tax or an electronic system (e-system).

In the Theory of Planned Behavior, one of the factors that create an individual's intention to behave is Control Belief which will result in Perceived Behavioral Control. Perceived behavioral control explains that a person's motivation can be influenced by how he or she makes a perception of the level of difficulty or ease in performing a certain behavior (Ajzen, 1991). If taxpayers realize the importance of carrying out accounting practices correctly which will then be facilitated by various existing information technologies to avoid recording errors that cause tax calculation errors, it will further increase the intention of business actors to pay taxes.

A study conducted by Achadiyah (2019) shows that making an accounting automation system makes it easier for business owners both in the financial management process and in the decision-making process. Decision-making, which is commonly only carried out according to the owner's estimate, can now be made based on the results of calculations from the program that has been made. This is in line with another study by Tualeka et al. (2021) which found that the use of information technology has a positive effect on tax compliance mediated by a financial administration order. This indicates that the better the use of financial administration technology, the higher the awareness of tax compliance. Therefore, understanding technology will strengthen the correlation between accounting practices and taxpayer compliance. Accordingly, the hypothesis developed in this study is as follows:

H3: Understanding information technology can moderate the effect of accounting practices on MSME taxpayer compliance

### **The Effect of Understanding Information Technology Moderates the Effect of Perception on Tax Incentives on MSME Taxpayer Compliance**

Taxpayers who have understood the purpose of providing incentives, know the procedure for

submitting tax incentives to understand how to report tax incentives during the pandemic, will form a perception that this tax incentive is given by the government to ease the tax payable during the pandemic, enabling MSME taxpayers to be able to pay taxes and survive the pandemic. The existence of a positive perception will encourage taxpayers to comply with taxation, especially in complying with all forms of government regulations in tax incentives (Putri, 2021).

In Technology Acceptance Model according to Davis (1989), the main purpose of TAM is to provide a basis for tracing the influence of external factors on the beliefs, attitudes, and goals of information technology users. Therefore, it is expected that the understanding of information technology by MSME taxpayers can strengthen the effect of the perception of tax incentives on MSME taxpayer compliance. Increasingly sophisticated technology and increased understanding of taxpayers in using information technology will make it easier for taxpayers to calculate, report, and deposit their tax payable (Perceive Usefulness). Moreover, the existence of various kinds of tax incentives during the Covid-19 pandemic will relieve taxpayers to further improve their tax compliance.

Based on research done by Tambun & Muhtiar (2019), the application of the e-filing system has a positive and significant effect on taxpayer compliance. This is supported by another study (Sitorus, 2020) which found that e-invoicing and tax incentives in the era of the Covid-19 pandemic affect taxpayer compliance. Tax incentives in the era of the Covid-19 pandemic are also able to moderate, and even strengthen the effect of e-invoicing on taxpayer compliance. Based on the description above and the results of previous studies, the hypothesis developed in this study is as follows:

H4: Understanding information technology can moderate the effect of tax incentives on MSME taxpayer compliance

Based on the explanation above, the research model of this study is as follows:

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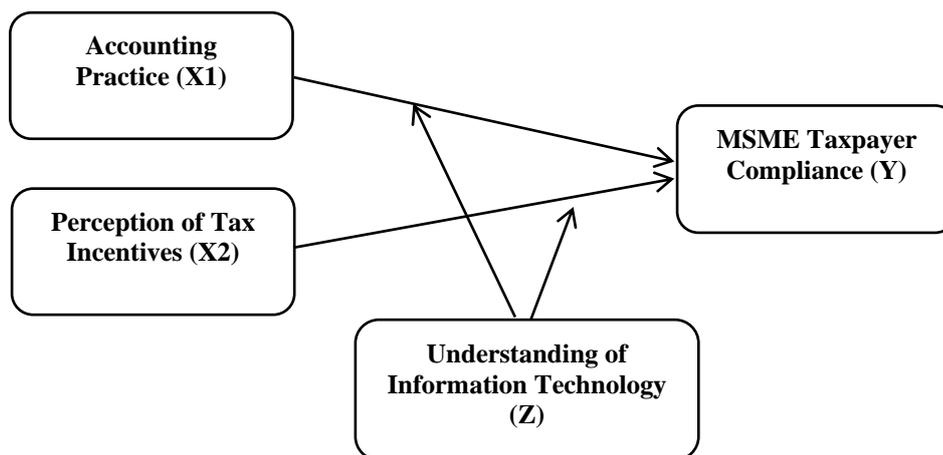


Figure 1 - Research Model

### Method

#### Data

The population of this study was Culinary MSME Taxpayers registered at Pekanbaru Senapelan Small Taxpayer Office. Data from Pekanbaru Senapelan Small Taxpayer Office indicate that the number of culinary MSMEs until the first semester of 2021 was 43,885. In determining the number of samples to be taken, researchers used non-probability sampling by using the purposive sampling method. Sampling was limited to certain types of criteria who can provide the desired information, either because they are the only parties who have the information, or they meet some criteria determined by the researchers (Sekaran & Bougie, 2013). Considerations for the sample in this study were that respondents should meet the following criteria. (1) Individual taxpayers or entities were not included in a Permanent Establishment (PE). (2) Respondents received income from a business, excluding income from services in connection with independent work. (3) An MSME Taxpayer was currently actively operating. (4) MSME taxpayers applied applicable Financial Accounting Standards (SAK). (5) MSME taxpayers had a gross turnover not exceeding IDR 4,800,000,000.00 in one tax year. To determine the minimum sample size, this study utilized the Slovin formula with an error of 5%. Thus, the minimum number of samples to be studied was 397 respondents.

#### Variable Operational Definition

Taxpayer compliance is stated by Norman D. Nowak (Zain, 2008) as a climate of compliance and awareness of fulfilling tax obligations, reflected in a situation where the taxpayer understands and tries to understand all provisions of tax laws and regulations, fills out tax forms completely and clear calculates the amount of tax payable correctly, and pays the tax payable on time. The indicators that were measured based on the taxpayer compliance variable refer to a previous study conducted by Safitri (2021), namely: (1) Taxpayer compliance in depositing taxes; (2)

Compliance in reporting the Tax Return (SPT) on time and voluntarily; (3) Reporting taxes correctly without manipulation.

Accounting practice is a service activity that serves to provide information that is financial in nature, about economic units which are intended to be useful in making economic decisions by choosing among several alternatives that lead to action (APB, 1970). The indicators that were measured refer to a previous study done by Azmary et al. (2020), namely: (1) The preparation of financial statements in the company has been carried out regularly and continuously; (2) The accounting information generated manually/computerized under the Financial Accounting Standards for Micro, Small, and Medium Entities (SAK EMKM); (3) Financial Accounting Standards for Micro, Small, and Medium Entities (SAK EMKM) have been applied in the company's financial statements; (4) The results of the application of the Financial Accounting Standards for Micro, Small, and Medium Entities (SAK EMKM) can help provide an overview of the internal and external conditions of the business.

Tax incentive according to the Black Law Dictionary (Hasibuan, 2016) is an offer from the government, through tax benefits, in certain activities, such as monetary contributions for quality activities. The goal is to recover tax revenues and to encourage all taxpayers, not to arrears or avoid taxes. The tax incentive policy for MSMEs aims to encourage potential MSME sector activities to be able to support the national economic recovery during the Covid-19 pandemic. The perception indicator of the tax incentive policy that will be measured refers to a previous study by Safitri (2021), namely knowledge of the MSME final tax incentives borne by the government.

Information technology is a device used to process data, including processing, obtaining, compiling, storing, and manipulating data in various ways to produce quality information that is relevant, accurate, and timely, which is used for personal,

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business, and government purposes, as well as strategic information for decision making (Sutabri, 2014). The moderating variable indicator in this study refers to previous research (Jascinda, 2020), namely the perception of taxpayers on the application of modernization systems.

### Data Analysis Technique

The variables in this study were measured using several items that were developed based on indicators for each research variable. The main data of this study were obtained through field research, where researchers obtained data directly from the first party (primary data). A research questionnaire was

distributed to MSME taxpayers in the culinary sector registered at Pekanbaru Senapelan Small Taxpayer Office. In terms of measurement, this study employed an ordinal scale measurement, a Likert scale instrument. The measurement scale used was a Likert scale ranging from 1 to 5. The data were analyzed technically using Structural Equation Modeling (SEM) Partial Least Square (PLS) with the help of WarpPls software version 7.0.

## Results

### Descriptive Statistical Analysis Results

The results of descriptive statistical analysis are presented in Table 1 below:

**Table 1. Results of Descriptive Statistical Analysis:**

Variable	N Data	N Question	Minimum	Maximum	Mean	Std. Dev.
Understanding of Information Technology	397	5	15	25	21,985	2,120
Tax Compliance	397	5	15	25	20,831	2,198
Accounting Practice	397	17	51	85	69,950	9,380
Perception of Tax Incentives	397	5	11	25	20,365	3,083

### Calculation Of Measurement Model (Outer Model)

#### Results of Convergent Validity

**Table 2. Loading Factor.**

	X1	X2	Z	Y	Type (as Defined)	P-Value
<b>X1.1</b>	(0.810)	-0.150	0.075	0.043	Reflective	<0.001
<b>X1.2</b>	(0.887)	-0.010	0.031	-0.154	Reflective	<0.001
<b>X1.3</b>	(0.838)	0.090	-0.045	0.189	Reflective	<0.001
<b>X1.4</b>	(0.656)	0.153	-0.044	-0.143	Reflective	<0.001
<b>X1.5</b>	(0.909)	-0.035	0.000	-0.088	Reflective	<0.001
<b>X1.6</b>	(0.829)	0.068	-0.027	0.202	Reflective	<0.001
<b>X1.7</b>	(0.845)	-0.169	0.054	0.083	Reflective	<0.001
<b>X1.8</b>	(0.916)	-0.028	0.008	-0.113	Reflective	<0.001
<b>X1.9</b>	(0.827)	0.089	-0.041	0.183	Reflective	<0.001
<b>X1.10</b>	(0.706)	0.137	-0.058	-0.134	Reflective	<0.001
<b>X1.11</b>	(0.766)	-0.037	-0.003	-0.048	Reflective	<0.001
<b>X1.12</b>	(0.847)	-0.172	0.049	0.091	Reflective	<0.001
<b>X1.13</b>	(0.919)	-0.032	0.000	-0.100	Reflective	<0.001
<b>X1.14</b>	(0.844)	0.078	-0.032	0.207	Reflective	<0.001
<b>X1.15</b>	(0.710)	0.119	-0.043	-0.142	Reflective	<0.001
<b>X1.16</b>	(0.628)	0.086	-0.046	-0.164	Reflective	<0.001
<b>X1.17</b>	(0.736)	-0.098	0.094	0.010	Reflective	<0.001

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	<b>X1</b>	<b>X2</b>	<b>Z</b>	<b>Y</b>	<b>Type (as Defined)</b>	<b>P-Value</b>
<b>X2.1</b>	-0.094	(0.769)	-0.040	-0.146	Reflective	<0.001
<b>X2.2</b>	-0.118	(0.743)	0.231	0.205	Reflective	<0.001
<b>X2.3</b>	0.103	(0.896)	-0.034	0.057	Reflective	<0.001
<b>X2.4</b>	0.000	(0.857)	-0.080	-0.148	Reflective	<0.001
<b>X2.5</b>	0.081	(0.850)	-0.049	0.042	Reflective	<0.001
<b>Z.1</b>	0.050	0.016	(0.925)	-0.114	Reflective	<0.001
<b>Z.2</b>	-0.118	-0.048	(0.728)	0.084	Reflective	<0.001
<b>Z.3</b>	0.047	-0.007	(0.847)	-0.040	Reflective	<0.001
<b>Z.4</b>	-0.110	-0.007	(0.559)	0.294	Reflective	<0.001
<b>Z.5</b>	0.072	0.035	(0.856)	-0.102	Reflective	<0.001
<b>Y.1</b>	-0.089	-0.089	0.009	(0.872)	Reflective	<0.001
<b>Y.2</b>	0.052	-0.012	0.083	(0.797)	Reflective	<0.001
<b>Y.3</b>	-0.112	-0.070	0.011	(0.870)	Reflective	<0.001
<b>Y.4</b>	0.089	0.129	-0.033	(0.685)	Reflective	<0.001
<b>Y.5</b>	0.111	0.091	-0.093	(0.651)	Reflective	<0.001

### Results of Discriminant Validity

**Table 3. Square Roots of Average Variance Extracted (AVEs)**

	<b>X1</b>	<b>X2</b>	<b>Z</b>	<b>Y</b>
<b>Accounting Practice</b>	<b>(0.809)</b>	0.458	0.224	0.551
<b>Perception of Tax Incentive</b>	0.458	<b>(0.825)</b>	0.267	0.475
<b>Understanding of Information Technology</b>	0.224	0.267	<b>(0.794)</b>	0.244
<b>Tax Compliance</b>	0.551	0.475	0.244	<b>(0.780)</b>

Table 2 presents the results of convergent validity, aiming to test the correlation between items/indicators to measure the construct. In other words, it was used to measure the validity of each construct indicator in the study. All items on the indicator had met convergent validity or were declared valid because they have a loading factor value above 0.50. Furthermore, discriminant validity aims to test items/indicators of two constructs that should not be highly correlated. A discriminant validity test was

done using WarpPLS 7.0 showed the value of loading to another construct (cross-loading) which is lower than that of the construct and the square root of AVE > from the correlation between latent constructs. Table 3 presents the correlation value of each indicator or each variable had a high correlation value compared to other variables. Thus, all variables have met the criteria for discriminant validity.

### Reliability Test Results

**Table 4. Outer/Measurement Model.**

<b>Construct</b>	<b>Composite Reliability</b>	<b>Cronbach Alpha</b>
Accounting Practice	0.970	0.966
Perception of Tax Incentive	0.914	0.881
Understanding of Information Technology	0.892	0.845
Tax Compliance	0.885	0.836

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Table 4 presents the composite reliability value of each indicator which has a value greater than 0.7. Thus, all indicators in the estimated model meet the discriminant reliability requirements.

**Calculation Of Structural Model (Inner Model)**

**Table 5. Results of R-Square**

Research Indicator	R-Square
Tax Compliance	0.451

Table 5 presents the R-Square value for the tax compliance variable of 0.451. this indicates that 45.1% of tax compliance variable was influenced by accounting practice and perception of tax incentives

variables, and moderated by understanding information technology. Meanwhile, the remaining 54.9% was probably influenced by other variables not examined in this study.

**Table 6. Model Fit and Quality Indices**

	Indices	P-Value	Criteria	Description
<b>APC</b>	0.242	<0.001	P < 0.05	Accepted
<b>ARS</b>	0.452	<0.001	P < 0.05	Accepted
<b>AARS</b>	0.447	<0.001	P < 0.05	Accepted
<b>AVIF</b>	1.283 Good if < 3.3		AVIF < 5	Accepted
<b>AFVIF</b>	1.508 Good if < 3.3		AFVIF < 5	Accepted
<b>SPR</b>	1.000		SPR > 0.7	Accepted
<b>RSCR</b>	1.000		RSCR > 0.9	Accepted
<b>SSR</b>	1.000		SSR > 0.7	Accepted
<b>NLBCDR</b>	0.875		NLBCDR > 0.7	Accepted

**Table 7. Direct Effect**

Hypothesis	Path coefficient	p-value	Effect size	Decision
H <sub>1</sub>	0.440	<0.001	0.254	Accepted
H <sub>2</sub>	0.233	<0.001	0.113	Accepted
H <sub>3</sub>	0.185	<0.001	0.050	Accepted
H <sub>4</sub>	0.108	0.015	0.034	Accepted

WarpPLS was used to test hypotheses, starting with drawing a Structural Equation Modeling (SEM) according to Figure 2. In testing the hypothesis, if the p-value ≤ 0.05, then the hypothesis is accepted and if the p-value > 0.05, then the hypothesis is rejected.

**Discussion  
Accounting Practices Affect MSME Taxpayer Compliance**

The accounting practice variable had a path coefficient of 0.440, indicating that it has a positive effect. Then the p-value is < 0.001 which means that

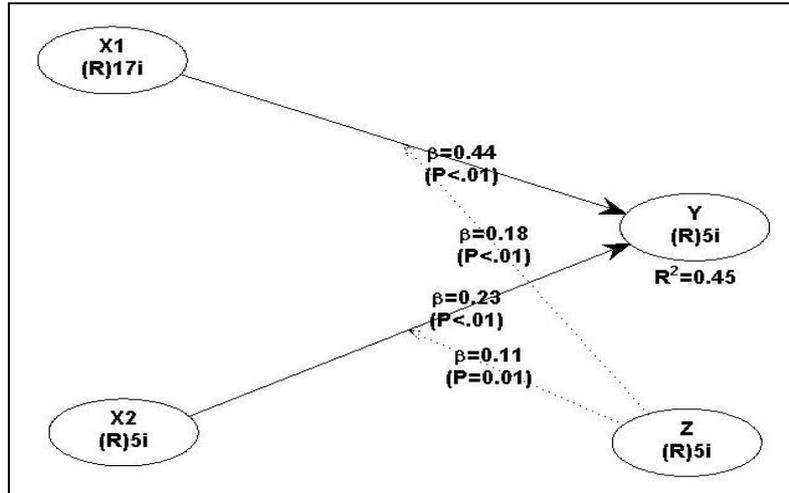
accounting practices have a significant effect on MSME taxpayer compliance registered at Pekanbaru Senapelan Small Taxpayer Office. This means that the better accounting practices and the application of SAK EMKM in MSMEs, the higher MSME tax compliance will be.

**Perception of Tax Incentives Affects MSME Taxpayer Compliance**

The perception of tax incentives variable had a path coefficient of 0.233, indicating that

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**Figure – 2. SEM Model**

It has a positive effect. Then, the p-value of <0.001 indicates that the perception of tax incentives has a significant effect on the compliance of MSME taxpayers registered at the Pekanbaru Senapelan Small Taxpayer Office. In other words, the higher the positive perception of taxpayers on tax incentive policies, the more taxpayer compliance will increase. the tax incentives provided by the government are in the form of final income tax article 23 (borne by the government).

Understanding of Information Technology Moderates the Effect of Accounting Practices on MSME Taxpayer Compliance

Understanding of information technology moderated accounting practices with a path coefficient of 0.185, indicating that it has a positive influence. Then, the p-value was <0.001 which means that every increase in accounting practice with a moderated understanding of information technology will increase and strengthen the compliance of MSME taxpayers registered at the Pekanbaru Senapelan Small Taxpayer Office. This means that the higher the quality of accounting practices in MSMEs moderated by understanding technology, the more tax compliance will increase.

Understanding of Information Technology Moderates the Effect of Perception of Tax Incentives on MSME Taxpayer Compliance

The variable perception of tax incentives moderated by understanding information technology had a path coefficient of 0.108, indicating that it has a positive effect. Then, the p-value was 0.015, which means that any increase in perception of tax incentives with a moderated understanding of information technology by one unit will increase and strengthen the compliance of MSME taxpayers registered at the Pekanbaru Senapelan Small Taxpayer Office. Therefore, the increasing perception of MSMEs on tax incentives moderated by technological understanding will further increase tax compliance.

**Conclusions**

The following conclusions can be drawn based on the outcomes of data processing and analysis:

1. The results of the first hypothesis testing show that accounting practices have a positive and significant effect on MSME taxpayer compliance. Financial statements are a reference for tax reporting. The existence of accounting practices according to applicable standards will make it easier for MSMEs to calculate taxes and will increase their tax compliance.

2. The results of the second hypothesis testing indicate that the perception of tax incentives has a positive and significant effect on MSME taxpayer compliance. Tax incentives will make taxpayers feel benefited because they can ease the burden they bear. Accordingly, it will encourage taxpayers to report their taxes on time and fulfill all their tax payable and increase tax compliance.

3. The results of the third hypothesis testing show that the understanding of information technology strengthens the effect of accounting practices on MSME taxpayer compliance. The more taxpayers have an understanding of information technology, the taxpayers will be able to practice accounting more effectively and efficiently. This can improve the quality of financial reports and make it easier to calculate and report taxes to increase tax compliance.

4. The results of the fourth hypothesis testing indicate that understanding information technology strengthens the perception of tax incentives on MSME taxpayer compliance. The understanding of information technology makes it easier for taxpayers to know the latest government policies, including tax incentives. Thus, it is easier for taxpayers to fulfill their tax obligations with the various E-Systems provided. This will encourage increased tax compliance.

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### Suggestions

Based on the research that has been carried out, the researchers proposed the following suggestions:

1. Further research is recommended to add or use other independent variables that can affect tax compliance or can add other moderating and mediating variables.

2. This study only examines the culinary sector SMEs registered at Pekanbaru Senapelan Small Taxpayer Office. Therefore, it is recommended for further research to expand the object of the study by examining MSMEs in a wider sector or being able to obtain a larger number of respondents to enable the data obtained to be more developed.

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## FACTORS OF APPLICATION OF INTELLECTUAL EVIDENCE IN THE TAFSIR OF ABU MANSUR MOTURIDI “TA’WILAT AHL AS-SUNNAH”

**Abstract:** It is well known that there have always been critical views on the doctrine of moturidism, and today they are even more prevalent. This criticism is based on the view that Moturidi preferred intellectual evidence to narrative evidence. In fact, such an idea stems from a deep ignorance of the basics of moturidism. Therefore, for a correct understanding of this teaching, it is important to know the style of tafsir of “Ta’wilat ahli-s-sunna” and the features of the work of a scholar.

**Key words:** moturidiyya, tafsir, Ta’wilat ahli-s-sunna, Kitab at-tawhid, intellectual evidence, narrative evidence, nazar, mu’tazilites, atheists, eschatology.

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### Introduction

In the “Ta’wilat ahli-s-sunna”, one can observe a peculiar style in the use of intellectual evidence. Moturidi uses intellectual evidence to support and substantiate the evidence in religious texts. The skill of the scholar is that he is also superior to them in arguing with sects that place intellectual evidence over narrative evidence in terms of mental-logical proof. That is, it defeats them in their own style. At the same time, the narrative evidence stands within its meanings and is based on the foundations of the Ahl as-Sunnah belief. Majdi Basallum states that the scholar was able to maintain a balance in this regard as well:

“What is remarkable about Moturidi's rational commentaries is that he always seeks meanings close to the appearance of the verse and does not delve as deeply into the interpretation as in mystical commentaries. It is also not limited to the appearance of the text of the verse alone, as it seems. Perhaps Moturidi looks at the verses with a meticulous and moderate gaze. He seeks the meaning that the verse is supposed to have and does not deviate it from the intended purpose” [1].

While the scholar’s aim was to establish a comprehensive justification of the Sunni faith, he provides solid evidence on every doctrinal issue in Sunni teaching. U. Rudolf says about the work “Kitab at-tawhid”:

“This work is not limited to summarizing the basic tenets of the faith and giving them favorable explanations. Its purpose was to examine the whole of Islamic theology and to show that it should be recognized as a holistic system of irrefutable evidence” [2].

The same can be said about the “Ta’wilat ahli-s-sunna”. That is, the scholar pays a great amount of attention to substantiating the Ahl as-Sunnah belief in every way, both in terms of standard narrative and in terms of intellect. Although Rudolf, like other Western scholars, was critical of Moturidi and Moturidism, he acknowledges the scholar's ability to argue.

Muhammad Abu Zahra, another scholar who is critical of Moturidi's method of proving, compares Moturidism and Ash'arism and claims that Moturidi put a lot of emphasis on reason. And he also states this:

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“However, an in-depth study of the views of Moturidi and al-Ash'ari shows that there is a difference between the two scholars' views on reason in matters of faith. There is no doubt that both of them try to present rational and logical arguments in proving the beliefs contained in the Qur'an. Although they both rely on the teachings of the Qur'an, one of them gives the mind greater "authority" over the other. For example, in the Ash'arites, it is obligatory to know Allah when one is called to the true religion, while in Moturidism, it is obligatory to understand it intellectually, even if one is not called to it. Moturidi follows the path of Abu Hanifa in this regard” [3].

Abu Zahra seeks to prove his point with similar examples. In fact, this view is widespread in the Arab world, which beliefs in Ash'arism. In denying this, it can be said that Moturidi, in his “Kitab at-tawhid”, enumerates the foundations of science, puts the mind at last, and refutes those who oppose its use as evidence in matters of faith, first and foremost, from narrative evidence. In particular, he quotes the following verses from the Qur'an against them:

“We will show them Our signs in the universe and within themselves until it becomes clear to them that this is the truth” (Fuṣṣilat: 53).

“Do they not observe the camel,[to see] how she has been created? and the sky, how it has been raised? and the mountains, how they have been set? and the earth, how it has been surfaced?” (Al-Ghāshiyah: 17-20).

“Indeed in the creation of the heavens and the earth, and the alternation of night and day, and the ships that sail at sea with profit to men, and the water that Allah sends down from the sky – with which He revives the earth after its death, and scatters therein every kind of animal – and the changing of the winds, and the clouds disposed between the sky and the earth, are surely signs for a people who apply reason” (Al-Baqarah: 164).

Moturidi was also forced to resort more to reason and logic in arguments with the groups such as the Mu'tazilites and atheists, who saw reason as the basic norm to prove that they were wrong. Because, often, the evidence that proves the falsity of a mental argument is also mental:

“He who denies nazar (intellectual proof) has no proof other than nazar (intellect). This is proof that intellectual evidence is necessary for the denial of intellectual evidence. In order to understand the wisdom of creation and to understand that it is not simply done, that is, without a purpose, one must look at reason. It is also necessary to reason to prove who created the universe, or whether it existed spontaneously, or whether it was created later or eternal. All this is proof that there is no other way for other than science to look” [4].

It is clear from this that Moturidi's extensive use of intellectual and logical evidence does not mean that he prefers reason to the narration. Perhaps this was to

give a reasonable rebuttal to those who preferred intellectual evidence, or to support the narrative evidence [11, 12, 13].

One of the contemporary scholars, Muhammad Fazl Muhammad Abu Jabal, says the following about the role of reason in the scholar's style of interpretation:

“Imam Moturidi often refers to reason in his commentary. The reason for this, in short, is that the scholar followed the representatives of the "Iraqi school", that is, the "Ahl al-Ray". This school was founded by the great Companion Abdullah ibn Mas'ud (r.a.), after whom many famous scholars raised the flag of this school. The most famous of these is Abu Hanifa Nu'man and his two disciples: Abu Yusuf and Muhammad. They had a great influence on the intellectual and scientific life of Islamic civilization. Imam Moturidi was also a representative of this school, but also one of the leaders who formed its foundations. However, he was not just a follower and imitator, but also the one who added unique, special and new features to it” [5].

At a time when attempts are being made to misinterpret the Islamic creed, it is important to study Moturidi's debates with those who prefer the intellect to the evidence in the divine texts. Because they have sensible solutions to many of the problems raised by modern Mu'tazilites and atheists.

The following commentary on the sura “Al-Nahl”, verse 70, also shows Moturidi's skill in logical reasoning: “Allah has created you, and then causes you to die. And some of you are left to reach the most feeble stage of life so that they may know nothing after having known much. Indeed, Allah is All-Knowing, Most Capable.”.

“Allah reminds us that He has made human deaths different. The wisdom behind this is to want them to be always in fear and hope. Because if people's deaths were the same, they would be at peace because they knew exactly when they would die, and they would continue to sin until then, seeking repentance before death” [6].

“There is a time for every nation: when their time comes, they shall not defer it by a single hour nor shall they advance it” (Yūnus: 49). In the interpretation of this verse, the scholar says:

“That is, when they die, they cannot delay it, nor can they advance it beyond its term. It is also not permissible for a person to ask to a delay and speed it up. Because when death comes, it will not be postponed, and nothing will happen without its expiration. There is strong evidence in this verse that no one can without death being destined for him. This verse also refutes the Mu'tazilites' statement: “Whoever kills a person, he has killed him before his fate” [7].

As can be seen from the examples above, Moturidi cites the intellectual evidence to support the

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narrative evidence. This does not allow any objection from the other party.

Even in the time of Abu Mansur Moturidi, there were many atheistic views formed under the influence of Ancient Greek philosophy. Speaking of different groups of atheists, the scholar says:

“They agree on the primacy of the foundation of the universe, but differ in their views on what and how it came into being” [8].

If we pay attention to Moturudi's refutations of the atheists' views on eschatology, we can see that the scholar gave very perfect answers for his time, defeating the atheists who claimed reason and logic in his own way:

“Indeed those who defy Our signs, We shall soon make them enter a Fire” (Al-Nisā: 56).

In the interpretation of this verse, the scholar says:

“Atheists and those who deny the resurrection like them say: “The whole universe, that is, animate and inanimate beings, came into being at once. At the heart of existence is power, and then the action”. How can they deny the resurrection when the first creation is evidence against them?” [9].

That is, Moturidi says that the atheists' own hypothesis about the emergence of the universe would be sufficient evidence that the resurrection is true. It can be seen from this example that the atheists believed that the universe was created gradually, that is, not in an evolutionary way, but suddenly. From this

point of view, they differ from materialists, most of whom are Darwinists today.

In the commentary on this verse, the scholar also says:

“A group of atheists said: “The reward that will be given in the Hereafter will not be given to this body that eats and drinks and does various deeds. But it will be given to a soul whose original ore is light”. We say: “The life of the body is tested in the world by actions such as eating and drinking, it is surrounded by various imperfections and calamities. If the body is able to avoid guilt and shortcomings in spite of all the obstacles that stand in its way, there will be great blessings and a great reward for them” [10].

It seems that during the time of Imam Moturidi, some atheists did not completely deny the Hereafter. Perhaps they were only against certain beliefs that did not fit their beliefs.

Based on the above, it can be said that the information contained in the “Ta'wilat ahli-s-sunna” is important not only in the struggle against the modern followers of heretical sects such as Mu'tazilism, but also in preventing atheistic ideas in the form of missionary and proselytism, as well as popular culture. This is because in this work, the scholar was able to answer the questions of various misguided sects and members of the faith that condemn Islam on the basis of irrefutable evidence of the conspiracy questions that cast doubt on the Muslims and the misconceptions about Islam.

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Issue

Article



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## LEARNING RUSSIAN LANGUAGE THROUGH READING

**Abstract:** Learning Russian language is life-long and requires a great deal of attempts and resources to page on and through, consequently, being familiar with the spelling and grammatical rules. Besides, learners of other languages should begin from acquiring vocabulary words on and on due to increasing their reading and listening comprehension and ability to interpret the written and spoken contexts on a wide range of topics. Furthermore, we have to follow the rules to catch each parts of dialogues being indicated in the sentences of the technical contexts. This paper highlights the main peculiarities concerning the issues regarding enhancing reading comprehension.

**Key words:** Russian language, spelling and grammatical rules, spoken and written contexts, enhancing reading comprehension.

**Language:** English

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### Introduction

In the period of reading the contexts which are full of technical and semi-technical vocabulary (words) and interpreting them requires us a wide range of knowledge and experience. Furthermore, the words we encounter with in the texts are sometimes difficult to comprehend. Therefore, we should use a series of dictionaries online and paper-made. At present, learners of studying engineering, especially, petroleum one intend to grasp the meaning of every words in the contexts. However, the words are found in the written context is not given a translation in Uzbek language because there is not advanced dictionary which fully indicates the meaning of technical words in Uzbek one. Moreover, we found some ways of reading comprehension such as skimming, scanning, intensive reading, close reading and others which students may use in interpreting the whole context. We have made a needs analysis in acceptable methods in reading comprehension. A good deal of scholars stated their statements to the issues concerning learning Russian language through reading.

### The views of scholars

A distinguished scholar Kh. Abdinazarov (1) in their statement concerning issues regarding reading comprehension, indicated ideas of scholars' and their experiences, thoughts for, example, Golinkoff (2) compared the reading comprehension strategies of poor and good readers and found that good readers have rapid and accurate word recognition and automatic decoding skills. They read in phrasal units, are flexible in their reading pattern, vary their eye movements, and shift the size of their processing units. They also make use of contextual information in the text and pay attention to information relevant to their purpose, while ignoring information that has no utility for the task. On the other hand, poor readers are slow decoders and are less able to organize texts, which they read word by word. They are inflexible when it comes to variations in task demands. Furthermore, Hosenfeld (3) reported that good readers keep the meaning of the passage in mind as they read and skip words that they view as unimportant to the total meaning. They use context cues as aids in decoding meaning of unfamiliar words and look up words only as a last resort. They also have a positive self-concept of themselves as readers. Training in text

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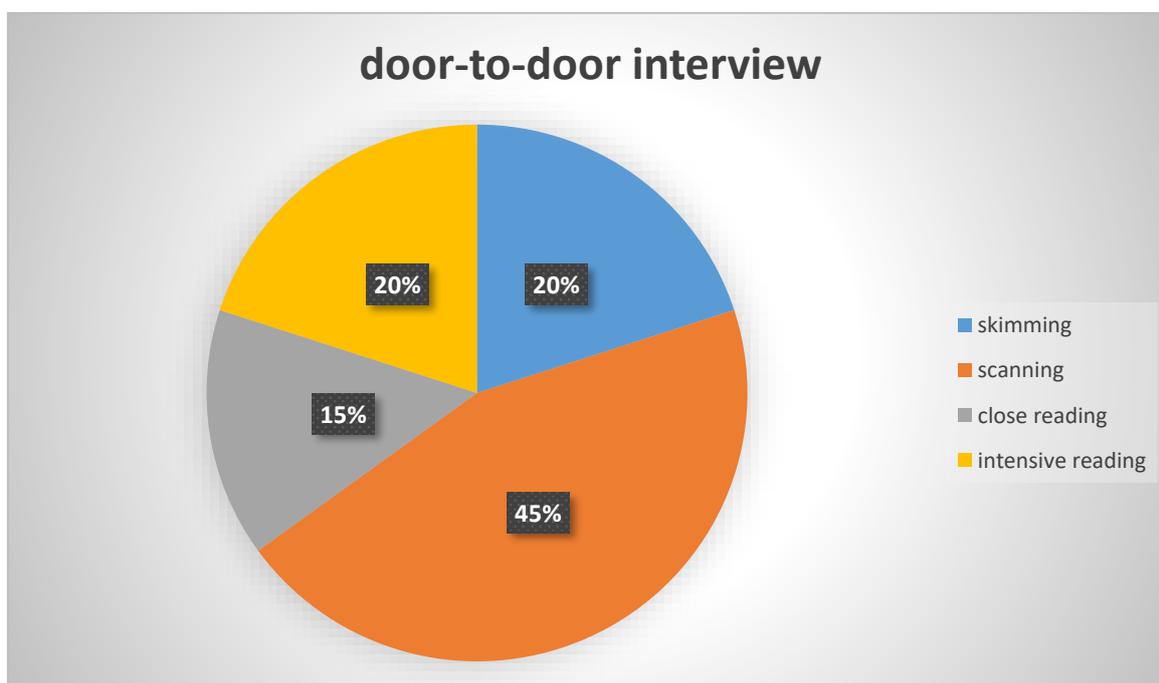
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organization can facilitate reading comprehension, that readers' background knowledge about text structure affects their reading comprehension (4, 461–481), and that the organization of expository text may be used to familiarize students with text structure (5). A schema is a variable, abstract and mental structure that pertains to previous experience: i.e. it is prior knowledge. In reading, readers need to activate appropriate schemata for each new text they encounter, in terms of content, culture, text structure rhetorical patterns (6-7, 173). It was sometimes difficult to understand the more specialized content of some texts and it was therefore necessary to consult subject-specialist lecturers at the Technical Department. Consequently, students need to focus on reading skill in order to understand terminology of specialty and pronounce it correctly. Furthermore, where the learner's grammatical weaknesses interfere with comprehension of meaning, the relationship between meaning and form can be taught or revised in context through analysis and explanation. Engineering specialist subject texts frequently comprise figures, and pictorial data and the ability to deduce information from them facilitates the reading process. It is more effective to review them before reading the descriptive discourse as they activate learners'

schemata about the text topic and sometimes give meaning to words. The visually depicted information is much easier and faster to find and assimilate than the verbal items in reading comprehension.

### Data analysis

In this door-to-door questionnaire experiment, we made a professional approach to the issues in order to find out target needs of students focusing on reading comprehension in learning Russian language. The participants were students studying at the faculty of oil and gas, learning Russian language through reading written contexts. The number of them were 20. The questionnaire consisted of questions focusing on applicable methods which may help to increase learners' reading comprehension and building self-confidence in acquiring Russian language. Besides, the interview held to invite students for answering relevant questions, mainly demands target needs arisen in the process of reading context and understanding technical words which rarely found in the dictionary of Russian and Uzbek languages dictionary. Moreover, respondents were eager to demonstrate their will according to difficulties they feel during the period of reading written contexts.



Pic.1.

### The result

As it is indicated in the diagram, the methods of skimming, scanning, close reading, and intensive reading were urgent in order to interpret the words in the context. However, as we knew from the grasping the information on the interview results that scanning mean is more valuable and useful in comprehending

the technical language in Russian. What's more, skimming and scanning are also considered to be essential one to interpret the text because they may be able to strengthen the background knowledge and help them to guess unknown words accordingly.

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### Conclusion

A language varies according to its specific terminology for example, engineering, doctoring, mathematics, physics and astronomy, nursing and others. Russian language consists of technical words portrays different relevant specialties which students should learn in order to be proficient user in the sphere of engineering; both in spoken interaction and written one. Good reader must suffice his/her initial

knowledge by increasing a range of vocabulary. If learners are in failure of knowing technical words, it may hamper them to reach the aim of interpreting the language they intend to master. That's why, they should be aware of methods of reading such as skimming, scanning, close reading and intensive reading in order to clear out the meaning of whole context.

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## STUDY OF THE PHYSICAL PROPERTIES OF COMPOSITE POLYMERIC SORBENTS SYNTHETIZED BASED ON LOCAL RAW MATERIALS

**Abstract:** The article presents a study of the physical properties of composite polymer sorbents synthesized on the basis of local raw materials. Composite polymer sorbent is obtained from electrolyte polymers, which consist of polymers such as polyaniline and polyacrylic acid, as well as polyaniline and polycaproamide. The content of copper and lead ions in a solution of copper sulfate and  $Pb(NO_3)_2$  is 40 mg-eq/l. The sorption kinetics was carried out in the temperature range from 30 to 50°C. In addition, the sorption kinetics of composite polymeric sorbents using bentonite and kaolin fillers was studied.

**Key words:** polyaniline, polyacrylic acid, polycaproamide, polymer, composition, sorbent, honey, kinetics, solution, modification, kaolin, bentonite, filler.

**Language:** Russian

**Citation:** Tukhtaev, F. S., Dzhaliilova, I., & Shonazarova, N. (2022). Study of the physical properties of composite polymeric sorbents synthesized based on local raw materials. *ISJ Theoretical & Applied Science*, 04 (108), 531-536.

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### ИССЛЕДОВАНИЕ ФИЗИЧЕСКИХ СВОЙСТВ КОМПОЗИЦИОННЫХ ПОЛИМЕРНЫХ СОРБЕНТОВ, СИНТЕЗИРОВАННЫХ НА ОСНОВЕ МЕСТНОГО СЫРЬЯ

**Аннотация:** В статье приведены исследование физических свойств композиционных полимерных сорбентов, синтезированных на основе местного сырья. Композиционный полимерный сорбент получают из электролитных полимеров, которые состоят из полимеров как – полианилина и полиакриловой кислоты, а также полианилина и поликапроамида. Содержание ионы меди и свинца в растворе сульфата меди и  $Pb(NO_3)_2$  составляет 40 мг-экв/л. Кинетику сорбции проводили в температуре диапазон от 30 до 50 °С.

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Кроме того, была изучена кинетика сорбции композиционных полимерных сорбентов с использованием бентонитовых и каолиновых наполнителей.

**Ключевые слова:** полианилин, полиакриловая кислота, поликапроамид, полимер, композиция, сорбент, мед, кинетика, раствор, модификация, каолин, бентонит, наполнитель.

### Введение

В настоящее время в странах мира ведутся исследования по разработке недефицитных, сравнительно дешевых КПП, обладающих высокими сорбционной способностью и физико-механическими свойствами и соответственно, долговечностью, что является важной задачей. При этом необходимо создать композиционные полимерные сорбенты (КПС) нового поколения на основе местного сырья и отходов производств, предназначенные для выделения цветных и тяжелых металлов и очистке промышленных сточных вод в производстве металлургической и химической промышленности.

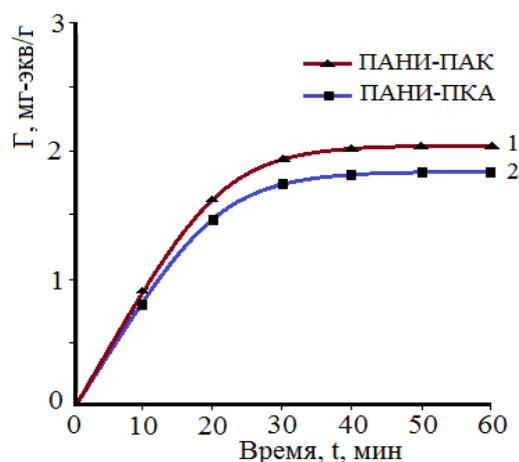
Созданный нами композиционный полимерный сорбент был основан на использовании местного сырья и промышленных отходов, которые основаны на очистке ионов цветных и драгоценных металлов в сточных

водах, образующихся в химической и металлургической промышленности.

Композиционный полимерный сорбент на основе полианилина и полиакриловой кислоты (ПАНИ-ПАК) и полианилина и поликапроамида (ПАНИ-ПКА).

### Результаты и обсуждение.

Кинетику сорбции ионов меди с композиционных полимерных сорбентов изучали статическим методом. Для этого в навеске композиционного полимерного сорбента, предварительно набухшего в растворе  $\text{CuSO}_4$  через определенные промежутки времени, измеряли концентрацию меди в растворах. Концентрацию меди определяли фотоколориметрическим методом при  $\lambda=440$  нм. На рисунке 1. представлены кинетические кривые ионов меди в растворе  $\text{CuSO}_4$  с сорбентами.



СОЕ сорбентов по  $\text{NaOH}=2,0$  мг-экв/г; ПАНИ-ПАК(1); ПАНИ-ПКА(2).

Рис.1. Кинетика сорбции ионов меди в растворе  $\text{CuSO}_4=40$  мг-экв/л комплексами при  $30^\circ\text{C}$

Из рисунка 1 видно, что на начальных стадиях этот процесс протекает очень быстро, затем замедляется и наблюдается эффект запределивания. Скорость сорбции зависит от строения функциональных групп в полимере.

Природа функциональной группы используемых сорбентов оказывает большое влияние на их комплексообразующую способность с ионов меди. Видно, что модифицированный Полианилин и полиакриловой кислота (ПАНИ-ПАК), сорбирует меди с большей скоростью, чем сорбенты полианилин и поликапроамида (ПАНИ-ПКА).

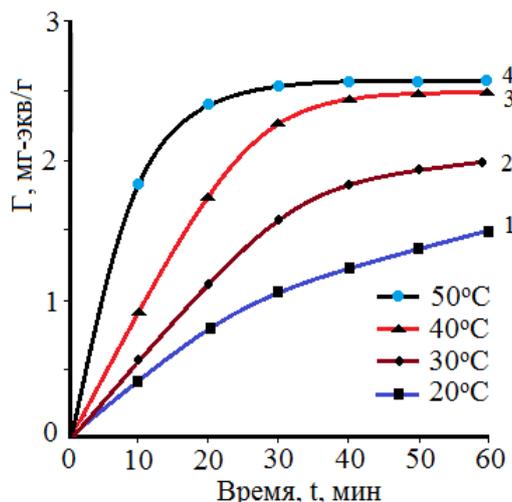
Скорость сорбции композиционных полимерных сорбентов высока в первые 30 минут, т.е. кинетики сорбции ПАНИ-ПАК составляет 1

мг-экв/г за 10 минут, в ПАНИ-ПКА 0,8 мг-экв/г, за 20 минут ПАНИ-ПАК 1,65 мг-экв/г, 1,45 мг-экв/г в ПАНИ-ПКА, ПАНИ-ПАК 1,95 мг-экв/г в 30 минут, 1,75 мг-экв/г в ПАНИ-ПКА, через 40 минут ПАНИ-ПАК 2,0 мг-экв/г, ПАНИ-ПКА 1,80 мг-экв/г, ПАНИ-ПАК 2,05 мг-экв/г за 50 минут, ПАНИ-ПКА 1,85 мг-экв/г ПАНИ-ПАК через 60 минут составлял 2,05 мг-экв/г, тогда как ПАНИ-ПКА составлял 1,85 мг-экв/г.

Полученные данные показывают, что сорбция ионов меди с сорбентами зависит не только от времени контакта, но и от температуры. На рисунках 2-3 показано влияние температуры на процесс комплексообразования меди с модифицированными ПАНИ-ПАК и ПАНИ-ПКА.

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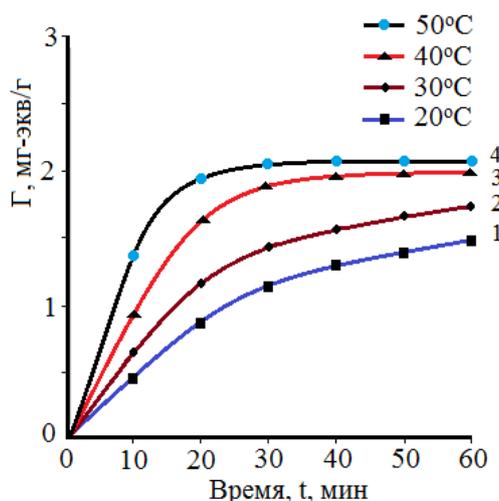
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СОЕ сорбентов по  $\text{NaOH}=2,0$  мг-экв/г;  $V=100$  мл;  $g_{\text{ПАНИ-ПАК}}=0,25$  г  
Рис.2. Кинетика сорбции ионов меди в растворе  $\text{CuSO}_4=40$  мг-экв/л комплекса ПАНИ-ПАК при температурах 20°C(1), 30°C(2), 40°C(3) и 50°C(4)

Из рисунка 2 видно, что с повышением температуры композиционный полимерный сорбент на основе ПАНИ-ПАК увеличивает

кинетику сорбции ионов меди. Этот процесс можно объяснить химической сорбции.



СОЕ сорбентов по  $\text{NaOH}=2,0$  мг-экв/г;  $V=100$  мл;  $g_{\text{ПАНИ-ПКА}}=0,25$  г  
Рис.3. Кинетика сорбции ионов меди в растворе  $\text{CuSO}_4=40$  мг-экв/л комплекса ПАНИ-ПКА при температурах 20°C(1), 30°C(2), 40°C(3) и 50°C(4)

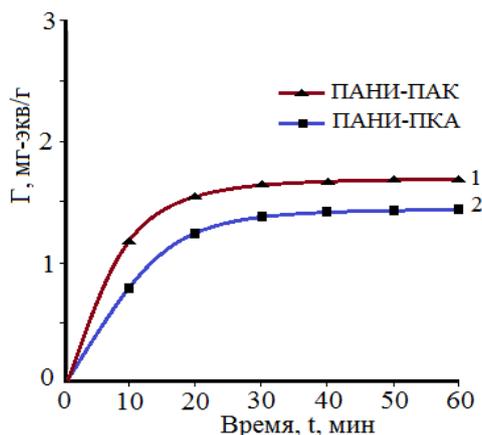
Как видно из рисунков 2-3, наиболее лучшие результаты получены при 50°C. После 50°C кинетика сорбции не меняется.

Кинетику сорбции ионов свинца с композиционных полимерных сорбентов изучали статическим методом. Для этого в навеске композиционного полимерного сорбента, предварительно набухшего в растворе  $\text{Pb}(\text{NO}_3)_2$

через определенные промежутки времени измеряли концентрацию свинца в растворах. Концентрацию свинца определяли фотокolorиметрическим методом при  $\lambda=440$  нм. На рисунке 4. представлены кинетические кривые ионов свинца в растворе  $\text{Pb}(\text{NO}_3)_2$  с сорбентами.

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СОЕ сорбентов по  $\text{NaOH}=2,0$  мг-экв/г; ПАНИ-ПАК(1); ПАНИ-ПКА(2).

Рис.4. Кинетика сорбции ионов свинца в растворе  $\text{Pb}(\text{NO}_3)_2=45$  мг-экв/л комплексами при  $30^\circ\text{C}$

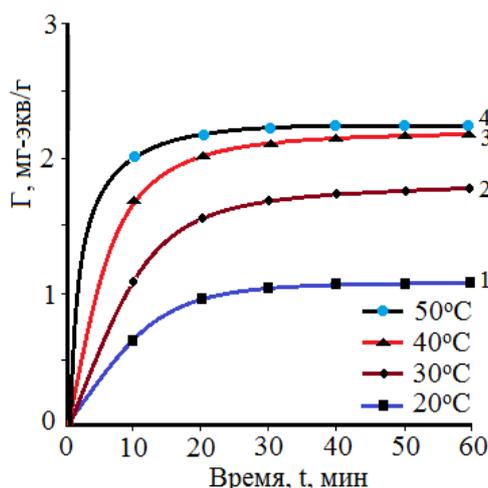
Из рисунка 4 видно, что на начальных стадиях этот процесс протекает очень быстро, затем замедляется и наблюдается эффект зауределивания. Скорость сорбции зависит от строения функциональных групп в полимере.

Природа функциональной группы используемых сорбентов оказывает большое влияние на их комплексообразующую способность с ионов свинца. Видно, что модифицированный Полианилин и полиакриловой кислота (ПАНИ-ПАК), сорбирует свинца с большей скоростью, чем сорбенты полианилин и полиапроаида (ПАНИ-ПКА).

Скорость сорбции композиционных полимерных сорбентов высока в первые 30 минут, т.е. кинетики сорбции ПАНИ-ПАК составляет 1,2

мг-экв/г за 10 минут, в ПАНИ-ПКА 0,75 мг-экв/г, за 20 минут ПАНИ-ПАК 1,55 мг-экв/г, 1,25 мг-экв/г в ПАНИ-ПКА, ПАНИ-ПАК 1,65 мг-экв/г в 30 минут, 1,45 мг-экв/г в ПАНИ-ПКА, через 40 минут ПАНИ-ПАК 1,75 мг-экв/г, ПАНИ-ПКА 1,5 мг-экв/г, ПАНИ-ПАК 1,78 мг-экв/г за 50 минут, ПАНИ-ПКА 1,58 мг-экв/г ПАНИ-ПАК через 60 минут составлял 1,78 мг-экв/г, тогда как ПАНИ-ПКА составлял 1,58 мг-экв/г.

Полученные данные показывают, что сорбция ионов свинца с сорбентами зависит не только от времени контакта, но и от температуры. На рисунках 5-6 показано влияние температуры на процесс комплексообразования свинца с модифицированными ПАНИ-ПАК и ПАНИ-ПКА.



СОЕ сорбентов по  $\text{NaOH}=2,0$  мг-экв/г;  $V=100$  мл;  $g_{\text{ПАНИ-ПАК}}=0,25$  г

Рис.5. Кинетика сорбции ионов свинца в растворе  $\text{Pb}(\text{NO}_3)_2=45$  мг-экв/л комплекса ПАНИ-ПАК при температурах  $20^\circ\text{C}$ (1),  $30^\circ\text{C}$ (2),  $40^\circ\text{C}$ (3) и  $50^\circ\text{C}$ (4)

Из рисунка 5 видно, что с повышением температуры композиционный полимерный сорбент на основе ПАНИ-ПАК увеличивает

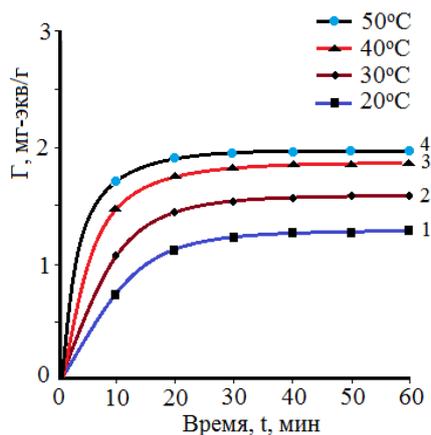
кинетику сорбции ионов свинца. Этот процесс можно объяснить химической сорбции.

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СОЕ сорбентов по  $\text{NaOH}=2,0$  мг-экв/г;  $V=100$  мл;  $g_{\text{ПАНИ-ПКА}}=0,25$  г

Рис.6. Кинетика сорбции ионов свинца в растворе  $\text{Pb}(\text{NO}_3)_2=45$  мг-экв/л комплекса ПАНИ-ПКА при температурах 20°C(1), 30°C(2), 40°C(3) и 50°C(4)

Как видно из рисунков 4-6, наиболее лучшие результаты получены при 50°C. После 50°C кинетика сорбции не меняется.

Также можно наблюдать, что скорость сорбции сорбентов увеличивается в течение первых 20 минут, а затем замедляется скорость сорбции. Мы можем объяснить это скоростью сорбции сорбента. В начальные минуты сорбция сорбента ускоряется с ростом температуры, сорбция ускоряется, ионный обмен между молекулами происходит быстро, ионы с небольшим ионным радиусом быстро обмениваются, этот процесс ускоряется с ростом температуры. Затем процесс замедляется из-за насыщения сорбента, то есть после того, как ионы осаждаются.

### Выводы.

Таким образом, скорость процесса зависит от концентрации меди и свинца в растворах, а также

от природы функциональных групп сорбентов. В процессе комплексообразования равновесие, наиболее ускоряется при использовании сорбента ПАНИ-ПАК в кислых средах при  $\text{pH}=2-3$  (30-60 минут). Повышение температуры также заметно влияет на процесс комплексообразования.

По результатам экспериментальных исследований выявлено, что при погружении композиционный полимерный сорбент в водные растворы  $\text{CuSO}_4$  и  $\text{Pb}(\text{NO}_3)_2$  протекает эффективная сорбция ионы меди и свинца с образованием тройного (полимер-металл-полимер) комплекса. В результате сорбции ионы меди и свинца наблюдается более значительное увеличение объема ППК по сравнению с гелем полиакриловой кислоты в 4-7 раза.

Показано улучшение физико-химических и механических свойств композитов с наполнением различными минеральными наполнителями.

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Article



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## METHODS OF TEACHING THE TOPIC “EVOLUTION OF STARS”

**Abstract:** The article shows the methodology of teaching the topic evolution of stars in the preparation of future physics teachers. In the preparation of physics teachers, the methodology of teaching the topic evolution of stars based on graphic methods-organizers is described.

**Key words:** Evolution of stars, stationary and non-stationary stars, white dwarfs, neutron stars, kinematics, dynamics, conservation laws, mechanical vibrations and waves, magnetic field, fundamentals of molecular kinetic theory, fundamentals of thermodynamics.

**Language:** Russian

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**Scopus ASCC:** 3304.

### МЕТОДИКА ПРЕПОДАВАНИЯ ТЕМЫ “ЭВОЛЮЦИЯ ЗВЕЗД”

**Аннотация:** В статье показана методика преподавания темы эволюция звезд при подготовке будущих учителей физики. В подготовке учителей физики изложена методика преподавания темы эволюция звезд на основе графических методов-органайзеров.

**Ключевые слова:** Эволюция звезд, стационарные и нестационарные звезды, белые карлики, нейтронные звезды, кинематика, динамика, законы сохранения, механические колебания и волны, магнитное поле, основы молекулярно-кинетической теории, основы термодинамики.

#### Введение

Сегодня выпускники общеобразовательных школ недостаточно знакомы с достижениями астрофизики и космологии. Однако наблюдения показывают, что у школьников и учащихся старших классов интерес к астрономии иной, чем к физике. Наличие такого интереса послужило бы толчком к изучению физических процессов в космическом масштабе.

Хотя человечество занимается изучением звёздного неба и его движения с древних времён, только в 20 веке физическая природа звёзд и происходящие в них процессы были изучены более основательно. Физические процессы, происходящие в звездах, прояснились благодаря открытиям в области ядерной физики, астрофизическим наблюдениям,

совершенствованию приборов и созданию квантовых образов, объясняющих события в атомном и ядерном масштабе.

В данной статье эволюция звезд анализируется с комплексной методологической точки зрения. Внедрение представлений о природе звезд в сознание учащихся общего среднего образования имеет важное значение на следующем этапе обучения, особенно при подготовке будущих учителей физики и астрономии. Хотя звезды проходят в своей жизни много стадий, наблюдается, что процессы эволюции в них подчиняются определенным законам. Эволюцию звезд во Вселенной можно объяснить на основе условной схемы на рисунке 1 ниже

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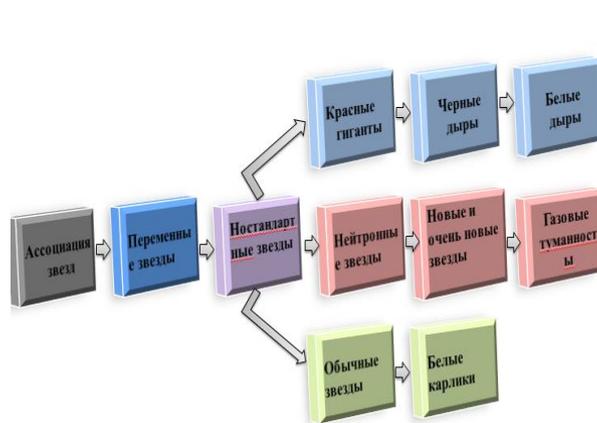


Рис. 1. Условная схема звездной эволюции

Эволюция звезды зависит от ее массы, размера и других физических параметров. В звездной эволюции переменные звезды в созвездиях превращаются в нестационарные

звезды. Сами нестационарные звезды в эволюционном процессе делятся на три стадии:

1. Обычные звезды
2. Нейтронные звезды
3. Красные гиганты.

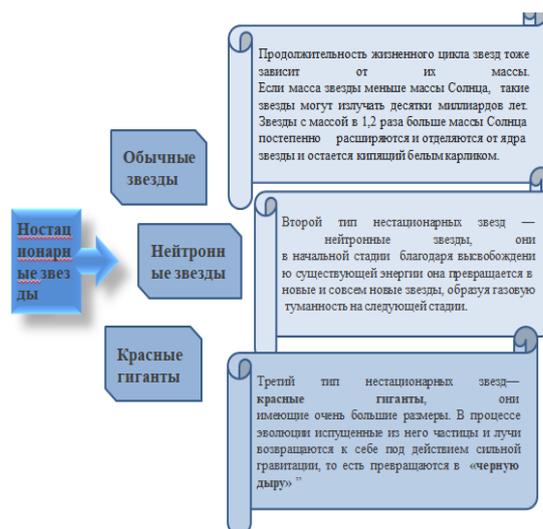


Рис. 2.

При изучении небесных тел можно предположить, что наука астрономия ставит перед собой следующие три основные задачи, которые необходимо решить:

а. изучать видимое положение и движение небесных тел в пространстве, а затем и их движение на основе этой информации, определять расстояния, размеры, массы и формы перед ними;

б. определение физических условий (температуры, плотности, давления и других подобных физических величин), связанных с внутренним и внешним химическим составом небесных тел

с. изучать происхождение, эволюцию и дальнейшую судьбу небесных тел и систем

Одним из важных направлений повышения качества образования в области преподавания физики и астрономии является новый подход к междисциплинарной взаимозависимости, заключающийся в объяснении общности законов физики и демонстрации их справедливости для всего мироздания. Основная идея заключается в изучении понятий и проблем астрофизики, что расширяет мировоззрение учащихся в отношении строения и свойств Вселенной.

Одним из важных направлений повышения качества образования в области преподавания физики и астрономии является новый подход к междисциплинарной взаимозависимости, заключающийся в объяснении общности законов

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Объяснение следующих понятий на уроках астрономии с использованием нескольких схематических методов позволит достичь желаемого результата. Исходя из этого, мы объясним, используя метод «Найти партнера».

Табл. 1.

№	Разделы физики	Отношение астрономии к науке
1	<i>Кинематика</i>	Общие представления о строении Вселенной, ее пространственно-временных измерениях, времени распространения света, световом году, невидимом движении звезд, небесной сфере, горизонтальной и Экваториальной системе координат, измерении времени, фазах и невидимом движении Луны, суточном и годовом невидимом движении Солнца, движении Солнца между звездами, невидимом движении планет, согласно учению Коперника его объяснение, тангенциальная и световая скорости звезд, определение расстояний до объектов Солнечной системы, расстояния до звезд и их яркость, расстояния до галактик
2	<i>Динамика</i>	Законы Кеплера, движение тел под действием взаимной гравитации, определение масс небесных тел, закон тяготения всей Вселенной и физика небесных тел, коллапс на Земле, физические условия, взаимодействие галактик, гравитационная идея
3	<i>Законы сохранения</i>	Движение космических аппаратов, космические скорости, основное уравнение небесной механики (проблема двух тел)
4	<i>Механические колебания и волны</i>	Эффект Доплера
5	<i>Магнитное поле</i>	Магнитосфера Земли и других планет Солнечной системы, магнитное поле Солнца, космические лучи и межзвездное магнитное поле, поведение веществ в сверхмощном магнитном поле (на примере пульсаров)
6	<i>Основы молекулярно-кинетической теории</i>	Межзвездный газ, области звездообразования, впечатления от образования звезд и планетных систем
7	<i>Основы термодинамики</i>	Температура и размеры звезд, диаграмма “температура-яркость”, равновесие звезд и физическое состояние вещества звезды
8	<i>Электромагнитные волны и вибрации</i>	Всеволновая астрономия, шкала электромагнитных волн, зеркало прозрачности атмосферы, радиоинтерферометры, радиогалактики, излучение пульсаров, ультрафиолетовые лучи, телескопы, гамма-телескопы
9	<i>Оптика</i>	Оптическая система телескопов, увеличение или угловое расширение, солнечные и лунные затмения, законы излучения абсолютно черного тела, спектры звезд
10	<i>Квантовая физика</i>	Фотометрическая фантазия
11	<i>Ядро физики</i>	Источники энергии звезд
12	<i>Элементарные частицы</i>	<i>Нейтральная астрономия</i>
13	<i>специальная теория относительности</i>	Экспериментальное исследование общей теории относительности
14	<i>Физический взгляд на вселенную</i>	Космологические и космогонические проблемы (определение возраста Вселенной, проблема черной дыры, закон Хаббла)

Этот метод не должен быть выполнен в цвете, как показано на рисунке. Для большей ясности в статье соответствующие слова выделены одним цветом. Благодаря этому методу заимобусловленность физики и астрономии, а также интеграция наук у учащихся повышает их компетентностные знания.

Применение комплексного подхода к анализируемой эволюции звезд в образовательном процессе на основе инновационных технологий имеет важное значение при подготовке передовых специалистов, особенно будущих учителей физики и астрономии, исследователей.

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## IMPROVING THE TRAINING OF TECHNICAL AND CREATIVE AND CREATIVE THINKING AND CREATIVE THINKING IN PEDAGOGICAL TRAINING IN HIGHER EDUCATION INSTITUTIONS OF THE ASTRONOMY USING MODERN EDUCATIONAL PROGRAMS

**Abstract:** STEM (Science, Technology, Engineering, Mathematics) education — this is a model that combines natural sciences and engineering items into a single system. It is based on an integrative approach: astronomy, physics, chemistry and mathematics are not individually taught, but in connection with each other to solve real technological problems. This approach teaches to consider problems as a whole, and not in the context of one field of science or technology.

**Key words:** STEM, technology, science, integration, planet, radius, diameter, eccentricity, mass, volume, axis, rotation period, density, space velocity, accelerations, area, ellipse.

**Language:** English

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### Introduction

American writer William Arthur Ward “The average teacher tells a story, a good teacher explains. An excellent teacher inspires.

At a time when our country is developing rapidly, the successful support of young people, the formation of their creative, skills and assessment, based on advanced foreign practices and requirements to study international experiences on this way A close cooperation of the existing system is important to work closely with international and foreign organizations, agencies, research institutions.

Innovative progress is good, but almost every day, the development of new new inventions in the world, the appearance of new areas requires a very large skill from a modern teacher

The use of STEM Education System to increase the technical and creative skills of students and design skills gives good results.

STEM This abbreviation is spreading as follows: Science, technology, engineering, mathematics. In stem education, natural sciences, technology, engineering and mathematics are based on integration of the sciences into a single education system.

The education system of the STEM education system has a positive impact on the efficiency. Its main idea is that we create practices in this system and build the theory with our brain and have learned.

The advantage of stem education is that the student is not with posters or videos hanging on the wall, but also the topic, not with videos hanging on the wall, but also the topic. Because during the current period of rapidly developed, it is difficult to interest the lesson with posters and videos hanging on the wall.

Stem training is not only a method of thinking but also thinking. In in the educational environment of the STEM, children will not only acquire knowledge

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but also learning to use it. It helps the student of STEM can also learn events that may face in everyday life. The reason is that 4 routes are not only one fan in education.

Today, the term integration is used around the world as a social concept that encompasses various areas, such as social, regional, economic, religious, racial, organizational integration. And the question naturally arises

- What is integration?
- What is its role in the education system?
- How to integrate in the teaching of natural sciences?

Integration is derived from the Latin words *integratio*- restore, fill, and *integer*- whole, an attempt to combine, add, or replace parts to make them one.

Establishing interdisciplinary links in the teaching of science through the integration of education, achieving the integrity of educational content through the interaction between different educational programs and achieving a one-sided but comprehensive development in the student's knowledge and imagination of the world. Interdisciplinary connection (integration) serves to form the student's scientific outlook, to teach him to understand nature correctly and completely, to use it wisely, to think logically.

In modern conditions, insufficient attention is paid to ensuring their integration in the teaching of sciences. Measures to address the problem are limited to the coordination of the teaching of these subjects over time in the relevant curricula or to the partial harmonization of the content of the subjects. To solve it radically, it is necessary to develop the necessary conditions, forms, content and tools for the integration of academic disciplines, ensuring a high level of knowledge of students.

The purpose of teaching a subject is not to acquaint the student with objective novelty in science, but to form in him knowledge that has subjective novelty. In this sense, integration can be seen as a form of interdependence aimed at correcting the shortcomings of the teaching system into historically composed disciplines due to the differentiation of disciplines.

The didactic essence of the integration of academic disciplines is determined by the need to develop the order and laws of pedagogical activities that allow to determine the conceptual structure and methods of formation of new knowledge in different disciplines. In the narrow sense, the integration of educational sciences is an integral continuation of the mutual synthesis of disciplines and scientific knowledge.

The main purpose of the integration of educational sciences is the synthesis of subjective new knowledge, and the main task of integration processes is the development of pedagogical technologies aimed

at the synthesis of subjective new scientific knowledge

Didactics offers different forms of integration, such as combining teaching materials related to different subjects into one course.

In science, the process of interdisciplinary synthesis of new knowledge is slow, sometimes it spans several decades. In the learning process, the teacher will have to "bring" the student to a new subjective knowledge based on previously acquired knowledge in various disciplines in one or more sessions, or even a few minutes

The STEM education system changes our views on our education. In this case, the student increases practical skills, as well as the student will, technical creativity. Because if a student can imagine the knowledge he gained in lectures and practice, he will increase his self-confidence in this student. The Stem Education System is a logical result of uniting this theory and practice.

STEM education helps the student idea to make the truth. That is, if we say that the main purpose of traditional education is to teach knowledge and to think and think and create this knowledge, STEM teaches to combine the knowledge gained in traditional education with real skills. This increases knowledge, and the knowledge that can actually be used is truly valuable.

The most popular example of the Stem approach is the Massachusetts Institute of Technology (MIT). The motto of this institute helped the same institute to learn and get to know the concept of STEM to students.

By focusing on research statistics, starting from 2011, demand for the system of Stem education has increased 17%. In another education system, the figure increased by 9.8%. This figure is also good in the world education system; the demand for this education system is good.

Basic motto of STEM education Science is Fun! Education should be cheerful, student should be interested in reading this subject. Science should attract a student. The reason is that most astronomy thinks that most astronomy is difficult and unnecessary subject.

But in fact, it is not like that, because everything in life is astronomy. Study of the universe, universe and teaching it with everyday life gives great results.

Compared to traditional teaching methods, the stem approach can help you to spend experiences independently, create models, to create models, independently create music and movies.

STEM Education raises the student's technical and creative and design skills as well as the student's ability to create creativity.

Creativity is a creative ability to create innovations, the creative ability to solve problems. It is the cruise that helps solve certain pragmatic

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problems. Because of creative thinking, we invent new things.

Creative thinking - effective thinking creates progress (discoveries, new ideas and valuable results).

Creativity is available at each student. The students creatively think are distinguished by the presence of certain features.

The main features of creative thinking:

- Tenderness of new, unusual things
- The idea is a desire to achieve further supply through the idea of the present idea by adding new details, improving
- Courage for Rapid
- Is it permissible or difficult task, whether to face barriers and preparing for overcoming them
- Is the patience for the situation of uncertainty

The following abilities must be available:

- Finding the problem and clearly marking
- Creating a lot of new ideas
- View the problem from different sides, applying different solutions, various approaches and methods

(consciousness)

➤ Consideration and response

➤ Fulfillment of actions in the imaginary

(consciousness)

➤ Analysis and synthesis

Weaks of creative thinking development:

- Aviation of the average of Motivation
- Lots of haste to escape
- Nether or medium level of responsibility
- A positive attitude towards the results by people who are important

➤ Independence in relations with the society (independence of views, relations, conduct from society or group)

➤ Experience

Weaks of creative thinking development:

- It is very weak or vice versa very high motivation

➤ There is a lack of time

➤ High level of responsibility

➤ The opinion of criticism and valuable persons are the critical, dissatisfied, misinterpretation of

➤ Dependence on available traditions and views

➤ Untiletime experience

➤ The lack of adequate development of the abilities

➤ Disagreement and fear of differing in other people in their actions and decisions

➤ The ability to think outside of the string of thinking is slowly decreasing

Ways to develop creative thinking:

➤ Giving confidence in respect

➤ Develop the idea

➤ Expansion of worldview

➤ Promotion to learn more

- Protection and protection of the feedback
- Teaching a positive consideration, for the fear of failure, bugs (and as a result) prevent achievement, and the error is also a step towards victory.

➤ Teaching a problem that needs to be addressed

➤ The ability to think outside of the string of thinking is slowly decreasing

Necessary skills to develop creative thinking

➤ Logical thinking

➤ Formulation of expectations

➤ Find logical contacts between facilities, objects, facts

➤ Establishment of sterema

➤ Order in strict and non-standard situations

➤ Finding the right knowledge and appropriate methods

➤ The ability to think outside of the string of thinking is slowly decreasing

Three main elements of creative cruise

➤ Competition (Knowledge database, experience, skills)

➤ Personal adjectives (ingenuity, flexibility, perseverance)

➤ Internal and external) internal motivation - personal interest in solving the problem, self-suffration, self-awareness, self-sufficiency

STEM- the education system also increases scientific awareness and practical competence in the student.

➤ The competence of scientific awareness includes the following

➤ Based on theoretical knowledge, he knows, imagines, imagines, and explains his essence

➤ Natural events and processes observed in daily life are based on knowledge, concepts, and general laws, apply to the skills and skills of natural sciences, apply to practice

➤ Analyzes the information provided in different sources of information, uses them for educational purposes, and understands the points expressed in the communication process, expresses independent and creatively.

➤ It is aware of the socio-economic, scientific news in society and can develop its activities to develop

➤ He knows the importance of natural and other resources in society and their personal activities

➤ It explains that human rights have a positive and negative impact on the environment and knows the causes of the global and regional environmental problems

➤ He promotes ways and ideas for solving the environmental problem, he expresses his opinion

➤ Plans to discuss various studies, design, propose methods of implementation

In conclusion, through teaching on the basis of the STEM training program, the student realizes the

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unique, integral whole integrity of the universe, the scientific outlook is formed, and research skills will develop and competet.

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## TECHNOLOGY «MATHEMATICS TOGETHER» WHEN STUDYING THE TOPIC «PLANET EARTH» IN ASTRONOMY

**Abstract:** This article presents the use of new advanced pedagogical technologies in teaching astronomy. The introduction of new individual, advanced and pedagogical technologies in the educational process requires a change in the attitude of the teacher and student to learning. The means of personality development, capable of revealing its potential abilities, is independent mental and cognitive activity. The educational process at the university should be organized in such a way that the knowledge gained in the classroom by students is the result of their own searches. This approach to learning leads to the student's self-confidence in their abilities.

**Key words:** planet, radius, diameter, eccentricity, mass, volume, axis, rotation period, density, space velocity, accelerations, area, ellipse.

**Language:** Russian

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### ТЕХНОЛОГИЯ «МАТЕМАТИКА СООБЩА» ПРИ ИЗУЧЕНИИ ТЕМЫ «ПЛАНЕТА ЗЕМЛЯ» ПО АСТРОНОМИИ

**Аннотация:** В данной статье приведено использование новых передовых педагогических технологий при обучении астрономии. Внедрение новых индивидуальных, передовых и педагогических технологий в учебный процесс требует изменения отношения педагога и студента к обучению. Средством развития личности, способным раскрыть её потенциальные способности, является самостоятельная мыслительная и познавательная деятельность. Учебный процесс в вузе нужно организовать таким образом, чтобы полученные знания на занятиях студентами были результатом их собственных поисков. Такой подход к обучению приводит к самоуверенности студента в своих способностях.

**Ключевые слова:** планета, радиус, диаметр, эксцентриситет, масса, объём, ось, период вращения, плотность, космическая скорость, ускорения, площадь, эллипс.

#### Введение

Практика рождается из тесного  
соединения физики и математики.

**Роджер Бэкон**

Развитие системы образования  
осуществляется в условиях коренных изменений в  
развитии страны. День за днем возрастающий  
поток информации требует внедрения таких  
методов обучения, которые позволяют за  
короткий промежуток времени передавать

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большой объём знаний, обеспечивающий высокий уровень овладения изучаемым материалом и закреплении его на практике.

Современные методы и технологии обучения, которые способствуют овладению обучающимися качественными знаниями, формируют способность к самостоятельному мышлению, рационально распределять учебное время на усвоение урока. Инновационный подход к обучению делает учебный процесс интересным, студенты с большим удовольствием учатся. Внедрение новых индивидуальных, передовых и педагогических технологий в учебный процесс требует изменение отношения педагога и студента к обучению. Средством развития личности, способным раскрыть её потенциальные способности, является самостоятельная мыслительная и познавательная деятельность. Учебный процесс в вузе нужно организовать таким образом, чтобы полученные знания на занятиях студентами были результатом их собственных поисков.

Астрономия – это целый мир, полный прекрасных образов. Эта удивительная наука помогает найти ответы на важнейшие вопросы нашего бытия, узнать об устройстве Вселенной и ее прошлом, о Солнечной системе, о том, каким образом вращается Земля, и о многом другом. Между астрономией, математикой и физикой существует связь, ведь астрономические прогнозы являются результатом строгих расчетов. По сути, многие задачи астрономии стало возможным решить благодаря математике и физике.

Приведем пример использования технологии «Математика сообща» при изучении темы «Планета Земля» по астрономии.

Мы знаем, что в Солнечную систему входит 8 крупных планет, которые вращаются вокруг Солнца по эллипсу. Планета Земля 3-планета Солнечной системы и находится на расстоянии 150 миллионов километров от Солнца (это расстояние – 1 астрономическая единица длины). Зная, расстояние между Солнцем и Землей, можно вычислить длину орбиты (пути) Земли [1, с. 107]. Орбита планеты – это кругообразный (эллипс).

Из-за этого расстояния между Землей и Солнцем меняется от 0,87 а.е. до 1,03 а.е. Самая приближённая точка планеты к Солнцу называется перигелий точкой, а удалённая афелий точкой.

Зная формулу объёма шара и учесть радиус планеты можно вычислять объём земли, по формуле площади сферы можно вычислять площадь земли, зная период вращения Земли вокруг Солнца можно вычислять орбитальную скорость планеты, по основным физическим формулам определим ускорения свободного падения, плотность, также космические скорости на поверхности земли и т.д.

Доску можно разбить на столбце. В первой столбец записать все математические и физические величины, которые характеризует физические параметры Земли. Во второй столбец следует записать все формулы, по которыми определяется физические параметры Земли.

Например, величины должна выглядеть следующим образом.

Длина круга

$$L_{\text{круг}} = 2\pi \cdot r = L_{\text{земля}} = 6,28 \cdot 150000000 \text{ км} = 942000000 \text{ км} = 1,0 \text{ ас.ед.длины}$$

Эксцентриситет планеты

$$e = 0,0175$$

Приближенная точка (перигелий) = 0,87 ас.ед. длины.

Удаленная точка (афелий) = 1,03 ас.ед. длины.

Диаметр и радиус

$$d_{\text{земля}} = 12742 \text{ км}; r_{\text{земля}} = 6371 \text{ км}$$

Объем

$$V_{\text{земля}} = \frac{4}{3} \pi R^3 = 4,18 \cdot (6371 \text{ км})^3 = 1,08 \cdot 10^{12} \text{ км}^3$$

Площадь планеты

$$S_{\text{земля}} = 4\pi R^2 = 12,56 \cdot (6371 \text{ км})^2 = 509,8 \cdot 10^6 \text{ км}^2$$

Из них,

$$S_{\text{гидросфера}} = 361 \cdot 10^6 \text{ км}^2$$

$$S_{\text{литосфера}} = 148,8 \cdot 10^6 \text{ км}^2$$

Масса Земли

$$m_{\text{земля}} = 6 \cdot 10^{24} \text{ кг}$$

Средняя плотность Земли

$$\rho_{\text{земля}} = \frac{m}{V} = \frac{6 \cdot 10^{24} \text{ кг}}{1,08 \cdot 10^{12} \text{ м}^3} = 5500 \frac{\text{кг}}{\text{м}^3} = 5,50 \frac{\text{г}}{\text{см}^3}$$

Ускорение свободного падения

$$g_{\text{земля}} = \Omega \frac{M_{\text{земля}}}{R^2} = 6,67 \cdot 10^{-11} \frac{\text{Н} \cdot \text{м}^2}{\text{кг}^2} \cdot \frac{6 \cdot 10^{24} \text{ кг}}{(6371)^2 \text{ км}} = 9,81 \frac{\text{м}}{\text{с}^2}$$

Период вращения Земли вокруг Солнца

$$T_{\text{земля}} = 365,2424 \text{ сутки}$$

Период вращения планеты вокруг своей оси

$$T = 23 \text{ часа } 56 \text{ минут } 4,9 \text{ секунд}$$

Орбитальная скорость Земли

$$V_{\text{земля}} = \frac{L_{\text{орбита}}}{T} = \frac{942000000 \text{ км}}{365,2424 \cdot 86400 \text{ с}} = 29,76 \frac{\text{км}}{\text{с}}$$

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Космические скорости на поверхности планеты

$$v_I = \sqrt{g \cdot R} = \sqrt{9,81 \frac{m}{s^2} \cdot 6371000 m} = 7900 \frac{m}{s} \approx 7,9 \frac{km}{c}$$

$$v_{II} = \sqrt{2 \cdot g \cdot R} = \sqrt{2 \cdot 9,81 \frac{m}{s^2} \cdot 6371000 m} = 11200 \frac{m}{s} \approx 11,2 \frac{km}{c}$$

Земля имеет плотную атмосферу (потому что ускорения свободного падения на поверхности планеты больше, из-за большей массы), состав которого состоит в основном из азота 78,09% и кислорода 20,95%.

Кроме этих газов ещё имеется в меньшие количества инертных газов и др. Атмосферное давление на поверхности планеты в 500000 раз больше, чем у Меркурия [2, с. 78-90]:

$$P_{земля} = 500000 \cdot P_{меркурий} = 101325 \text{ Па} =$$

$$= 1 \text{ атмосфера} = 760 \text{ мм.рт.ст.}$$

Изменения атмосферного давление в земной атмосфере можно определить барометрической формулой:

$$-dp = \rho \cdot g \cdot dh$$

При изучении атмосферы её можно разделить на 5 основных слоев: тропосфера, стратосфера, мезосфера, термосфера и экзосфера. Также в атмосфере имеется 3 проходящих слоев: тропопауза, стратопауза и мезопауза. Основная масса атмосферы находится на 3 нижних слоях. В термосфере и экзосфере концентрация атмосферных частиц мало. 80% массы атмосферы и около 90% водяных паров находится только на тропосфере.

Как нам известно в земной атмосфере имеется ещё одно жизненно важный слой – озоносфера. Озоносфера сохраняет земной биосферы от вредных солнечных лучей и находится на высоте 18÷25 км над поверхности земли. Изменения высоты связано с рельефом земли, потому что во всех точках земли высота неодинакова. При нормальных условиях толщина озоносферы составляет около 3÷4 мм [3, с. 118].

Средняя годовая атмосферная температура Земли

$$T = 287 \text{ K}$$

Самая высокая атмосферная температура в тени (г. Триполи, Ливия)

$$T = 333 \text{ K}$$

Самая низкая атмосферная температура (Антарктида, станция Мир)

$$T = 184 \text{ K}$$

Атмосфера и литосфера земли поглощает 55% солнечных лучей, а отражает 45%. Исходя из этого альbedo земли составляет 45%, альbedo оценивается количеством отражённых солнечных лучей.

Лава вулканов нам даст оценка внутреннего строения земли. С увеличением глубины увеличивается температура, плотность, давления и количество тяжёлых элементов. На поверхности (литосфера) земли широко распространено кислород и кремний, а около 40% массы земли составляет железо.

Прежде чем заполнить таблицу, студентам следует провести вычисления. В конце занятия преподаватель сверяет правильность вычислений с таблицей.

Такой подход к обучению приводит к самоуверенности студента в своих способностях. В таком процессе обучения преподаватель становится консультантом, источником информации и координатором.

Таким образом, проведение таких занятий позволит:

1. Выявить полноту и уровень знаний по астрономии;
2. Активизировать мыслительную деятельность с максимальным развитием её творческого характера;
3. Повысить профессиональную подготовленность и приблизить её к подготовленности студентов высших учебных заведений;
4. Повысить заинтересованность в изучении дисциплины «Астрономия»;
5. Прикладывать больше усилий в освоении теоретического материала студентами, полученных на лекционных, практических и лабораторных занятиях.

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Article



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## DFT STUDY OF THE SOLVATE OF $\alpha$ -(N-BENZOAZOLINE-2-ONE) ACETIC ACID WITH FORMIC ACID COMPARING TO ITS COMPOSITION PARTS

**Abstract:** Present work describes the DFT studies of  $\alpha$ -(N-Benzoxazolin-2-one)acetic acid and its solvate with formic acid comparing to N-benzoxazolin-2-one and 2-aminoacetic acid. The electronic structures of these compounds are considered using quantum chemical parameters, the distribution of the total charge and the surface of the electrostatic potential on the atoms. In addition, non-covalent interactions were studied for the solvate molecule.

**Key words:** benzoxazolin-2-one,  $\alpha$ -(N-Benzoxazolin-2-one)acetic acid, DFT, ESP surface, global quantum-chemical parameters.

**Language:** English

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### Introduction

Benzoxazolin-2-one and some of its derivatives are important chemicals as fungicides against crop diseases [1-3]. Therefore, a large amount of literature [4, 5] is devoted to the synthesis of new derivatives of

benzoxazolone-2 and their testing against various types of diseases of cultural plants. Additionally, the structure were studied by XRD methods and theoretical methods [6-10] in a number of works. The presence of labile proton on the carboxyl group of  $\alpha$ -

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(*N*-Benzoxazolin-2-one) acetic acid.  $\alpha$ -(*N*-Benzoxazolin-2-one) acetic acid can participate in intermolecular interactions through the labile proton of the carboxyl group and it can be easily deprotonated. Due to this proton, a solvate of  $\alpha$ -(*N*-Benzoxazolin-2-one)acetic acid with formic acid was obtained [7].

Theoretical analysis of the solvate using quantum chemical parameters in comparison with its constituents makes it possible to reveal changes in the electronic structure of the solvate and  $\alpha$ -(*N*-benzoxazolin-2-one) acetic acid. In this regard, we studied the electronic structure of  $\alpha$ -(*N*-benzoxazolin-2-one) acetic acid and its solvate with formic acid in comparison with *N*-benzoxazolin-2-one and 2-aminoacetic acid by DFT method.

### Materials and methods

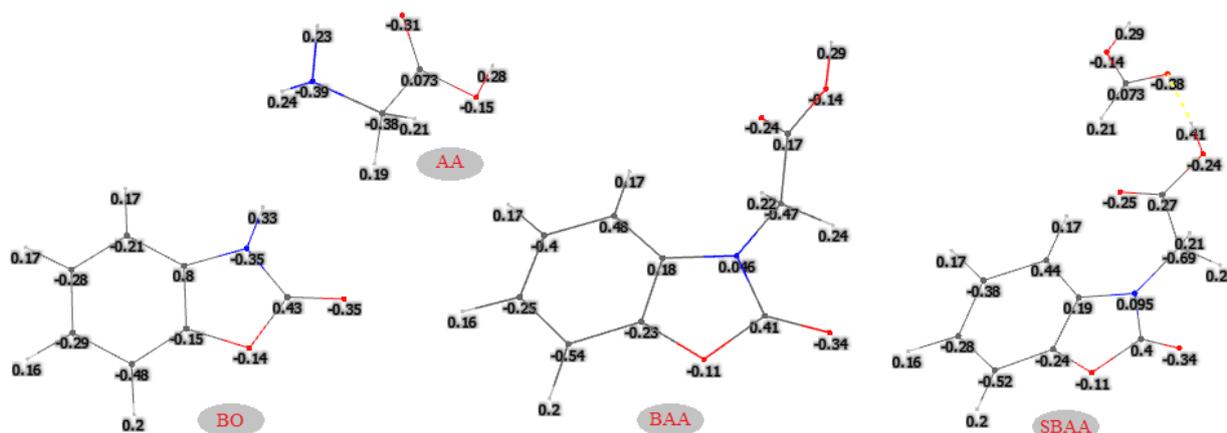
The objects of our study are  $\alpha$ -(*N*-Benzoxazolin-2-one)acetic acid (BAA) and its solvate with formic acid – solvate of  $\alpha$ -(*N*-Benzoxazolin-2-one)acetic acid – SBAA. Besides, 2-Benzoxazolinone (BO) and 2-aminoacetic acid (AA) also were considered as composition part of  $\alpha$ -(*N*-Benzoxazolin-2-one) acetic acid.

**Table 1. The comparison of XRD and theoretical bond lengths (angles)**

Compound	MAE, Å (°)	LE, Å (°)	R <sup>2</sup>
BAA	0.01 (0.84)	0.034 (2.6)	0.95 (0.97)
SBAA	0.92 (0.94)	1.88 (3.9)	0.95 (0.97)

The Mulliken analysis of the charge distribution on the atoms of compounds BAA and SBAA shows a significant change in the charge on the C4 and N3 atoms comparing to its composition parts (AA, BA).

These changes can be explained by the inductive (-I) effect of acetic acid in the case of BAA and SBAA (Fig.1).



**Fig.1. Charge distribution on the atoms of the 2-AA, BO, BAA and SBAA.**

It is known that HOMO and LUMO play a huge role in chemistry and pharmaceuticals, since many reactions and biological processes (binding of a ligand to a receptor) can be proceed with the participation of these orbitals [15-16]. The electron densities on

HOMO and LUMO of BA, BAA and SBAA are illustrated in figure 2. Similar pictures of HOMO and LUMO for BA and BAA have been found, which is localized in the 2-benzoxazolinone ring. However, in the case of solvate (SBAA) the LUMO is localized in

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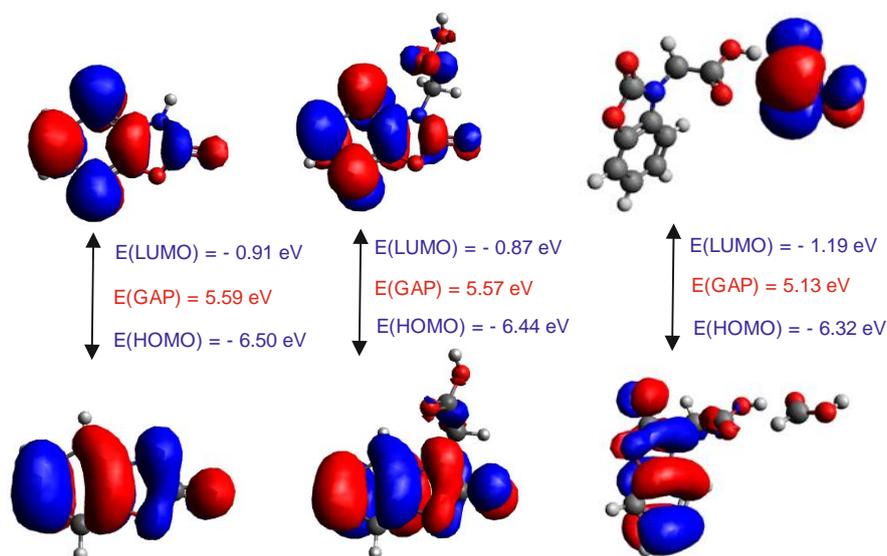
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formic acid part of the cocrystal. In a number of BA, BAA and SBAA, the level of HOMO increases and the energy gap decreases. In the solvate, the system is stabilized by intermolecular hydrogen bonding with the participation of the BAA carboxyl group and

carbonyl oxygen and the hydrogen atom of formic acid. This is reflected in the energy gap of the solvate (Table 2). In table 2, the global quantum-chemical parameters [17-18] are determined based on HOMO and LUMO energies of BA, BAA and SBAA.

**Table-2. Quantum-chemical parameters for BA, 2-AA, BAA and SBAA**

Quantum-chemical parameters	BA	BAA	SBAA
$E_{\text{HOMO}}$ (eV)	-6.50	-6.44	-6.32
$E_{\text{LUMO}}$ (eV)	-0.91	-0.87	-1.19
Energy gap, $ \Delta E  = E_{\text{HOMO}} - E_{\text{LUMO}}$ (eV)	5.59	5.57	5.13
Ionization Potential, $I = -E_{\text{HOMO}}$ (eV)	6.50	6.44	6.32
Electron Affinity, $A = -E_{\text{LUMO}}$ (eV)	0.91	0.87	1.19
Electronegativity, $\chi = (I + A)/2$ (eV)	3.70	3.65	3.75
Chemical hardness, $\eta = (I - A)/2$ (eV)	2.79	2.78	2.56
Chemical potential, $\mu_p = -(I + A)/2$ (eV)	-3.70	-3.65	-3.75
Chemical softness, $\sigma = 1/(2\eta)$ (eV <sup>-1</sup> )	0.18	0.18	0.19
Electrophilicity index, $\omega = \mu_p^2/2\eta$ (eV)	2.46	2.4	2.75



**Fig.2. Electron densities on HOMO (left) and LUMO (right)**

The electrostatic potential (ESP) surface analysis is a powerful parameter that describes electron-rich and electron-deficient centers of a molecule [19]. The ESP surfaces of BAA and SBAA are demonstrated in Fig. 3. In the ESP surface, red parts (positive numbers) are maxima and they indicate electron-deficient centers, which are prone to attack by nucleophiles. Blue parts (negative numbers) are minima and these centers are rich in electrons. The maximum (57.10 kcal/mole) is located on the vicinity of the H atom of the COOH group in the case of BAA. However, in the case of SBAA,

the maximum is localized near to the H atom (61.52 kcal/mole) of the COOH group of formic acid. The minima are situated near to oxygen atoms of the benzoxazolin-2-one ring and C=O group. It should be pointed out that the smallest minimum is found near the oxygen atom of >C=O (-39.11 kcal/mole) group. The next smallest minimum falls on the oxygen atom of the COOH group (-29.16 kcal/mole). The last smallest minimum is located on the vicinity of the oxygen atom of the oxazole ring (-25.81 kcal/mole).

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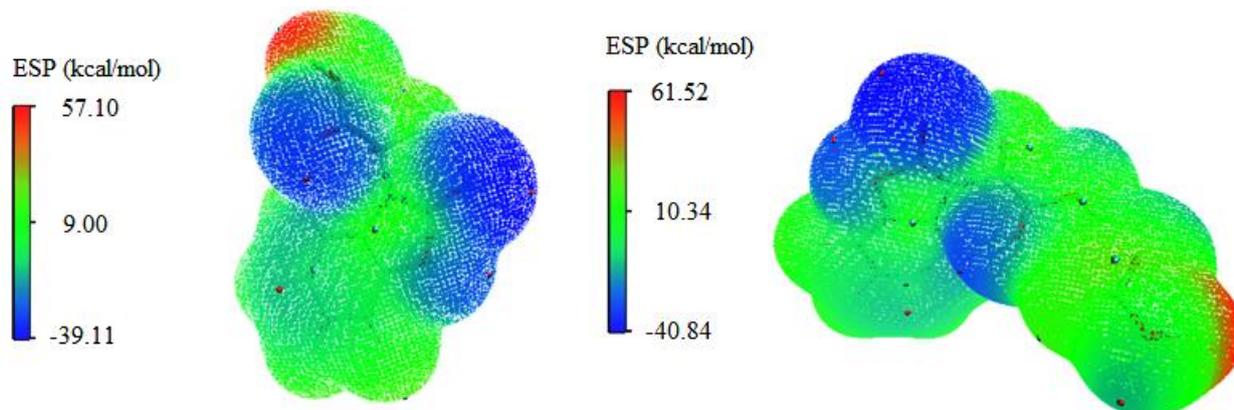


Fig.3. ESP surface maxima and minima for BAA and SBAA

In Fig.4, non-covalent interactions (NCI) and RDG plot [20-23] are given for visualization of specific interactions in solvate (SBAA). The RDG isosurface map is illustrated as reduced density gradients (RDG, Y axes) versus electron density multiplied by the sign of the second Hessian eigenvalue ( $(\lambda_2)\rho$ , X axes). The  $(\lambda_2)\rho$  sign values indicate the strength of the interaction, attractive interactions have large negative  $(\lambda_2)\rho$  sign values, while steric

effects have large positive  $(\lambda_2)\rho$  sign values. The regions of weak Van der Waals interaction have sign values  $(\lambda_2)\rho$  close to zero [23].

The presence of strong H-bond (attractive force) is highlighted in blue color. The strong repulsive force (steric effect) is indicated in red color. Weak interactions (Van der Waals interactions) are highlighted with a green color [20-23].

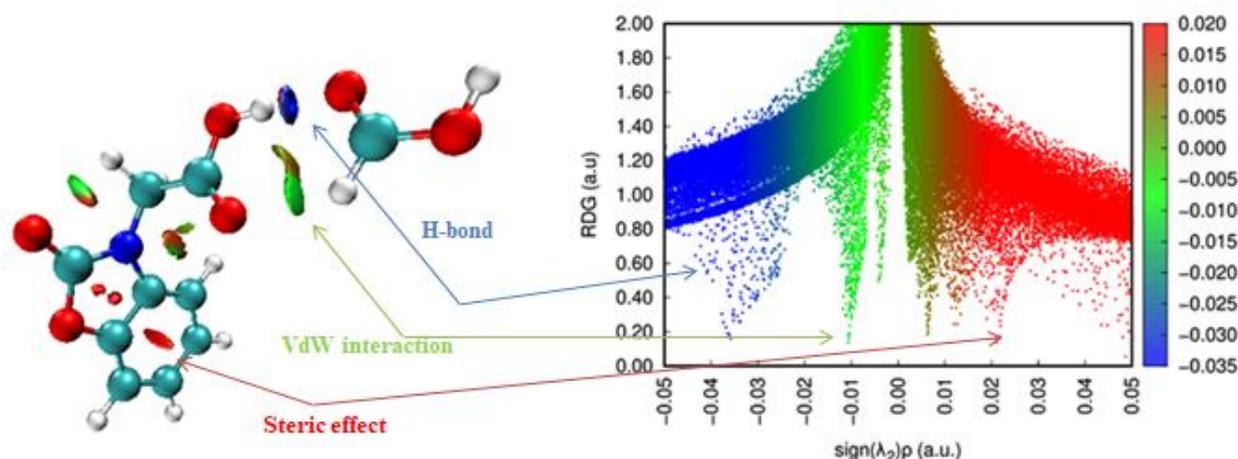


Fig.4. NCI and color-filled RDG map for SBAA

## Conclusion

Thus, the electronic structure of compound 1 and its constituents was studied. The Mulliken analysis of the charge distribution on the atoms of compounds BAA and SBAA shows a significant change due to the inductive (-I) effect of acetic acid in the charge on the C4 and N3 atoms comparing to its composition parts (AA, BA). In the case of solvate, a significant change is occurred in O and H atoms of COOH group

of  $\alpha$ -(N-Benzoxazolin-2-one) acetic acid. In the case of solvate, an electron density in HOMO is localized in the ring of 2-benzoxazolinone and LUMO is localized in formic acid. This shows that in orbital-controlled processes,  $\alpha$ -(N-Benzoxazolin-2-one) acetic acid can enter as an electron donor particle. The presence of strong H-bond, steric effect and VdW-interactions visualized by Non-covalent interactions and color-filled RDG plots.

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**THE PROBLEM OF FAITH («IMAN») IN THE DOCTRINE OF  
 MATURIDIYAH: HARMONY OF LANGUAGE WITH LANGUAGE  
 (SOUL) (BY THE EXAMPLE OF THE VIEWS OF ABU-L-MU'IN AN-  
 NASAFI)**

**Abstract:** This article provides information on the issue of faith "iman" from the point of view of the Telologic teachings of Maturidiyah and a detailed comparative and contrastive analysis of other doctrines, such as Mu'taziliyah, Ash'ariyah and others.

**Key words:** Ash'ariyah, kalam, aqidah (theology), Ahl al-Sunnah wa'l-Jamaah, Maturidiyah, Mu'taziliyah, Hanafiyah, iman, al-amal, kufr, shaf'i'iyah.

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**ВОПРОС ВЕРЫ («ИМАН») В УЧЕНИИ МАТУРИДИЯ: ГАРМОНИЯ ЯЗЫКА С ЯЗЫКОМ  
 (ДУШОЙ) (НА ПРИМЕРЕ ВЗГЛЯДОВ АБУЛЬ МУ'ИНА АН-НАСАФИ)**

**Аннотация:** В данной статье дается информация о вопросе веры "иман" с точки зрения телогической учения матуридия и детально составлен сравнительный и сопоставительный анализ другими доктринами, как му'тазилити, аш'ариты и другие.

**Ключевые слова:** Аш'ария, калям, 'ақида (теология), Аҳл ас-Сунна вал-джама'а, матуридия, му'тазилия, ҳанафия, иман, ал-'амал, куфр, шафи'ия.

**Введение**

В начале этой статьи хотел бы затронуть один вопрос: "Какого человека мы можем считать мусульманином? На самом деле, все приведенные ниже аргументы и дискуссии будут направлены для освящения этого вопроса. Надеюсь, читатель, внимательно прочитавший эту статью, найдет верный ответ на этот вопрос своим глубоким мышлением...

Большинство сторонников последователей Имама Аль-Матуридий полагают, что «иман» это только подтверждение сердцем. Определенная сторона Абу Ханифы поддерживает мнение о

вопросе «иман», что это произношение языком и подтверждение сердцем [1, p. 48]. Следовательно, отсюда можно сделать небольшой вывод, что даже у этих двух схожих между собой учениях, есть заметная разница по вопросам «иман» [2, p. 46] (*Учение матуридитов сформировалось в X-XIII веках в Мавераннахре, а точнее в Самарканде на основе догматических взглядов Имама Абу Ханифы. Основатель - Абу Мансур аль-Матуриди (853-944). Из наиболее ярких представителей этого учения следует особо отметить Абула Му'ина ан-Насафи (1046-1115).*) [8, p. 163].

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Ученый и последователь аль-Матуриды из Насафа Абуль Му'ин ан-Насафи в своем труде под названием «Бахр аль-калям» четко и ясно освятил тему о вере («иман»), который будет понятен даже простому читателю. Ниже мы постарались раскрыть суть вопроса о вере именно через эту работу.

На самом деле, сторонников, давших определение вопросу веры, можно условно разделить на три большие группы

В первую группу сторонников относятся Имам Аш-Шафи'и, Имам Ахмад бн Ханбал, Имам Малик они как и му'тазилиты и аш'ариты утверждают, что вера это *“Икран бил лисан ва тасдик бил джанан валь ‘амал бил аркан”* то есть, произношения языком и подтверждения сердцем и следование столпам ислама (аль-'амал). Согласно этому определению, предпосылкой веры было следующее: произнеся на языке слово

«لَا إِلَهَ إِلَّا اللَّهُ مُحَمَّدٌ رَسُولُ اللَّهِ»

«*Ля илааха иллаллах Мухаммаду Расулуллах*» верить что нет бога кроме Аллаха, верить в Коран, подтверждать его и постоянно совершать молитвы (намаз, пост, закят, хадж) [7, р. 103].

Вторая группа – определение Имама А'зама Абу Ханифы и матуридитских ученых. Согласно их убеждению, условие веры состоит в следующем: *“тасдик бил лисан ват тасдикд бил калб бима джа'а бихи мин ‘индиллахи Мухаммад (мир ему и благословение Аллаха)”*, то есть “вера – Мухаммеда как посланника Аллаха, да благословит его Аллах и приветствует, словесное произношение того, что ему было ниспослано от Аллаха, и подтверждение сердцем”.

Третья группа – джахмиты и каррамиты, относительно «имана» утверждают, что необязательно подтверждение сердцем, достаточно будет только произнесения языком. В качестве аргумента они приводят хадис, в котором говорится: *«Кто произнесет слова нет Бога кроме Аллаха то обязательно войдет в рай» (передается от Имама Муслима)* [3, р. 78]

Среди приведенных выше трех различных определений «иман», взгляды ученых ханафитской сторонников считались умеренными. Ученые матуридитской школы приводят ряд пословиц и логических аргументов, осуждающих взгляды каррамитов. В частности, представитель этой доктрины Абуль Му'ин ан-Насафи в своем труде «Бахр аль-калям» опровергает утверждение о том, что «иман» определяется только языком, и приводит в качестве доказательства 41-й аят из суры Корана Маида: [3, р. 80]

**«О Посланник! Пусть тебя не печалят те, которые стремятся исповедовать неверие и говорят своими устами: «Мы уверовали», - хотя их сердца не уверовали. Среди**

**исповедующих иудаизм есть такие, которые охотно прислушиваются ко лжи и прислушиваются к другим людям, которые не явились к тебе. Они искажают слова, меняя их местами, и говорят: «Если вам дадут это, то берите, но если вам не дадут этого, то остерегайтесь». Того, кого Аллах желает подвергнуть искушению, ты не властен защитить от Аллаха. Их сердца Аллах не пожелал очистить. В этом мире их ожидает позор, а в Последней жизни им уготованы великие мучения.»**

Автор цитируя данный аят в своем труде в качестве аргумента подметил, что язык и душа человека разные, то есть, произносить языком но при этом не подтверждать сердцем, это не исповедания веры, иначе является стремлению к неверию.

По мнению Абуль Му'ина, если исповедания веры заключается в произношения только языком, то между лицемером (мунафик) и искренним мусульманином не останется разницы, то есть такой подход к вере он связывает с знаком лицемера, и считает если вера («иман») не будет исходить от души, от этого не будет никакой пользы.

В качестве аргумента на то, что вера должна быть от сердца, сторонники ханафитской школы ссылаются на аят 17 из суры «Худжурат» где говорится:

**«Они попрекают тебя тем, что обратились в ислам. Скажи: Не попрекайте меня вашим обращением в ислам. Это Аллах оказал вам милость тем, что привел вас к вере, если вы вообще говорите правду».**

Дополнительно в качестве аргумента они приводят из суры «Мумтахана» 10-й аят:

**О те, которые уверовали! Когда к вам прибывают переселившиеся верующие женщины, то подвергайте их испытанию. Аллаху лучше знать об их вере. Если вы узнаете, что они являются верующими, то не возвращайте их неверующим, ибо им не дозволено жениться на них, а им не дозволено выходить замуж за них. Возвращайте им (неверующим) то, что они потратили на брачный дар. На вас не будет греха, если вы женитесь на них после уплаты их вознаграждения (брачного дара). Не держитесь за узы с неверующими женами и требуйте назад то, что вы потратили на брачный дар. И пусть они (неверующие) требуют то, что они потратили на брачный дар. Таково решение Аллаха. Он решает между вами. Аллах - Знающий, Мудрый.**

Кроме того, последователи ханафитской и матуридитской школы в отличие от шафи'итов и му'тазилитов полагают, что деяние (аль-'амал) не является частью «имана». Согласно

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высказыванию Абуль Му'ина ан-Насафи, что по мнению Абу Мансур аль-Матуриди "иман" – включает в себе только подтверждение сердцем (мужаррад ат-тасдик). Сторонники Имама Матуриди в качестве доказательства привели следующий аят из Корана: [3, р. 79]

**«О те, которые уверовали! Вам предписан пост, подобно тому, как он был предписан вашим предшественникам, - быть может, вы устрашитесь.» (аят 183, сура Бакара)**

Насафи полагает, что в вышеприведенном аяте Аллах ссылается на тех, которые до выполнения предписанных им обязательств как намаз, пост и тд, считаются все еще верующими. Данный аят подтверждает то, что деяние (аль-'амал) не является частью веры. Также Насафи полагает, что даже если сторонники и колдуны Кахфа и Фараона не успели выполнять свои обязательства (аль-'амал), но при этом произнесли шахаду, по этой причине они перед Аллахом считаются верующими [3, р. 80].

Шафи'иты и Аш'ариты по вопросам веры считают, что дела (аль-'амал) являются неотъемлемо частью веры, и в качестве довода они приводят (177-й аят из суры Бакара), где говорится: **«Благочестие состоит не в том, чтобы вы обращали ваши лица на восток и запад. Но благочестив тот, кто уверовал в Аллаха, в Последний день, в ангелов, в Писание, в пророков, кто раздавал имущество, несмотря на свою любовь к нему, родственникам, сиротам, бедным, путникам и просящим, расходовал его на освобождение рабов, совершал намаз, выплачивал закят, соблюдал договора после их заключения, проявлял терпение в нужде, при болезни и во время сражения. Таковы те, которые правдивы. Таковы богобоязненные.»**

По мнению Абу Ханифы не соблюдать предписанное не отрицая их, не выводит мусульманина из веры. Но он будет считаться грешным верующим. Кроме того, даже если мусульманин совершил тяжкий грех, и его деяния относятся к хараму (запретному), в этом случае также он не выходит из состояния веры, но будет считаться грешным мусульманином.

Еще одна тонкость вопроса «иман» заключается в том, что были также споры и о состоянии веры мусульманина. Потому что среди ученых были разные мнения относительно того, будет ли вера увеличиваться или уменьшаться в зависимости от действий и поступков верующего. С точки зрения Абу Ханифы и ханафия-матуридитских ученых, вера не увеличивается и не уменьшается. Однако шафи'иты, Ахмад ибн Ханбаль, Абуль Хасан аль-Аш'ари и му'тазилиты считают, что в зависимости от того, что делает верующий, его вера может уменьшаться или увеличиваться. В доказательство своего

вероучения Имам Шафи'и привел 4-й аят суры Фатх: [3, р. 85]

**«Он – Тот, Кто ниспослал покой в сердца верующих, чтобы их вера увеличилась. Аллаху принадлежит воинство небеса и земли. Аллах – Знающий, Мудрый.»**

Кроме того, Шафи'иты привели следующий хадис свидетельствующий об увеличении веры: передается от Абу Хурайры, Анаса Ибн Малика, Абу Саид Худры, рассказывается от Абдуллы ибн Аббаса что Посланник Аллаха (мир ему и благословение Аллаха) сказал: **«тот, у кого в сердце есть даже частица веры, будет изгнан из ада».** Согласно этому хадису Шафи'иты утверждают, что количество веры в душе человека может варьироваться.

Абуль Му'ин ан-Насафи в своем труде «Бахр аль-калям» трактует вышеуказанные аяты следующим образом: в аяте 4 суры Фатх Аллах изложил веру сподвижников. Потому что сподвижники верили в каждый ниспосланный аят. В аяте 2 суры Анфаль, Аллах описал качества верующих. Вера мусульман не может отличаться друг от друга, в зависимости от выполнения предписанных Аллахом обязательств.

Абу Ханифа также прокомментировал 4-й аят суры Фатх следующим образом: Сподвижники верят одним словом. Затем, когда след за следом приходят обязательства, они верят в каждое новое обязательство, и их вера увеличивается. В такой вере постоянство, и преемственность в ней являются причинами ее увеличения с каждым часом. Это все равно, что иметь дирхам, а затем увеличивать его каждый час. Этот избыток не сам по себе, в то же время он свободен от деяний. Только его свет в душе (нур) может увеличиваться и уменьшаться из-за добрых дел. Также совершение греховных поступков приводит к уменьшению света веры. Абу Ханифа привел следующие аяты, свидетельствующие о том, что вера-это свет и убыток: [9, р. 162]

**«Они хотят погасить свет Аллаха своими ртами, но Аллах сохранит Свой свет, даже если это ненавистно неверующим.»**

Также с точки зрения Абу Мансура аль-Матуриди, вера не увеличивается. Он считал, что вера в сердце человека будет единственной, подобно луне на небесах. Если он уменьшается, он должен превратиться в половину, а если увеличивается, он должен измениться в полтора или на два. И это нереально. Некоторые ученые одобряют идею о нестабильности веры и считают, что действия также исходят от веры. Если это так, то ни одна вера не может быть полноценной.

Абуль Му'ин ан-Насафи в своем труде "Табсират аль-адилла" утверждает, что истинность веры – это утверждение (маджаррад ат-тасдик). Вера на самом деле не будет совершенной с другими молитвенными

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поступками. Умножение дел – это не увеличение веры, а умножение молитв. Это как если бы в один дом вошла одна женщина где были десять мужчин, то в этом случае не количество мужчин а количество людей увеличивалось бы. Тот, кто скажет, что число лиц увеличилось с появлением женщины, подтвердит правду. А тот, кто скажет, что число мужчин увеличилось, будет лгать. Ученые-матуридиты утверждают, что если поступка (аль-'амал) была бы неотъемлемой частью веры, то мусульмане раннего периода ислама, присягнувший на веру и скончавший не успев совершить обязательства (например: до объявления поста (ась-саум) обязательным (фард) для мусульман), ниспосланные после их смерти, также их веру посчитали бы неполноценной. И это далеко не логично [4, р. 813].

Старонники Ахли ас-сунна вал джама'а считают, даже если термены "иман" (вера) и "ислам" отличается в лексическом значении но в переносном значении они несут одинаковый смысл. Подобно арабским терменам как "асад" и "лайс" которые переводятся как "лев". Каждый праведный мусульманин и каждый мусульманин считаются верующими. Оба эти термены дополняют друг друга и будет нелогично отделить их по смыслу [10, р. 310]. Потому что "иман" - это имя, которое включает в себя подтверждение единства Аллаха посредством разума, аятов и религиозных источников. У него нет партнера в этом отношении. "Ислам" - это полное подчинение человеческой души. По мнению матуридийтов, неразумно считать одновременно верующего (му'мин) немусульманином или же мусульманина (муслим) неверующим.

Однако некоторые исламские теологические секты в частности представители хашавитов утверждали, что «иман» и «ислам» не связаны между собой, и в качестве довода на это привели 14-й аят из суры Худжурат (Комнаты):

**Бедуины сказали: «Мы уверовали». Скажи: «Вы не уверовали. Посему говорите: «Мы покорились». Вера еще не вошла в ваши сердца. Если вы подчинитесь Аллаху и Его Посланнику, Он нисколько не умалит ваших деяний. Воистину, Аллах – Прощающий, Милосердный».**

В труде Абуль Му'ина ан-Насафи "Табсират аль-адилла" где излагается о том, что пока Абу Мансур аль-Матуриди цитировал данный аят, из него термин "аслама" определил как "сдаваться". Согласно этому аяту, он дал следующую интерпретацию (тафсир): "Арабы сказали: мы присягнули на веру. (Эй, Мухаммад! Скажи им): Вы до сих пор не приняли веру. Иначе, вы принимаете веру из за того, что потерпели поражения и сдались. Вот почему вы говорите: мы сдались от удара мечов".

Согласно учению матуридитов, использование терменов ислама с верой в одном значении похоже на то, как арабские слова "قعود" и "جلوس" (сидеть) несут одинаковый смысл.

Согласно ментальному свидетельству матуридитов, во времена Посланника Мохаммеда (с.а.в.) люди делились на три категории: верующие (му'мин), неверующие (кафир) и лицемеры (мунафик). Кто из них был мусульманином (муслим)? Хотя четвертого из них не было. Термин "муслим" использовался редко, а позже стал использоваться в широком смысле. Абуль Му'ин ан-Насафи в качестве доказательства на взгляды Имама аль-Матуриди привел следующий аят:

**«Мы вывели оттуда всех уверовавших, но нашли там только один дом с мусульманами».** (Сура Аз-Зарият, 35-36 аяты).

**Муса (Моисей) сказал: «О мой народ! Если вы уверовали в Аллаха и стали мусульманами, то уповайте на Него».** (Сура Юнус, 84-й аят).

В этих приведенных аятах термины «верующий» (му'мин) и мусульманин (муслим) несут одинаковый смысл. Также, Насафи в качестве аргумента привел следующий хадис где говорится: «**Никто не войдет в рай, кроме как верующий**», передается от Имама Ахмада, Имама Тирмизи и другие. Насафи привел вышеуказанные аргументы, утверждая, что нет никаких сомнений в том, что между верой и исламом нет никакой разницы.

Вопрос об исключении в вере также был предметом больших споров в истории. Аш'ариты утверждали, что мусульманин должен быть исключительным в вере (аль-истисна), то есть, он выражает свою веру языком, должен сказать: "Я верующий, если Аллах пожелает" (он верующий ин ша Аллах). Они признают, что раб Аллаха не знает наверняка, останется ли он в состоянии абсолютной веры до конца своей жизни. Потому что Аллах может ввести его в заблуждение. Поэтому использовался термин "лафзи" если Аллах пожелает " (ин ша Аллах) [5, р. 97].

В учении матуридии, напротив, человек, выражая свою веру языком, должен сказать: "Я действительно верующий" (ан му'мин бил хакк). Абу Мансур аль-Матуриди считает, что, хотя Аллах точно знает, когда родится ребенок в утробе матери, его нельзя судить как живого по повелению Аллаха. Даже если Аллах знает когда умрет живое существо, оно не будет осуждено как мертвое. О положении рабов судят с точки зрения реальности, то есть того времени [11, р. 55]. Поэтому верующий, в данный момент времени является абсолютным верующим, сомневаться в своей вере и колебаться будет неразумно.

Согласно учению матуридия, богохульство (куфр) является противоположностью веры. Богохульство – это обман веры и отвращение от

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нее. Эти двое будут в сердце. Таково же противопоставление веры и богохульства. Абуль Му'ин ан-Насафи также подтверждает эти утверждения: “Аллах поставил неверие в качестве альтернативы вере. Об этом свидетельствует 256-й аят суры “Бакара”: [6, р. 39]

**“Нет принуждения в религии. Прямой путь уже отличился от заблуждения. Кто не верует в тагута, а верует в Аллаха, тот ухватился за самую надежную рукоять, которая никогда не сломается. Аллах - Слышащий, Знающий.”**

Поскольку Насафи продолжает свое мнение, отречения раба от неверия приходит с верой. Если бы все дела были с верой, то тот, кто прекратил богохульство (куфр), не был бы остановлен, пока он не выполнил бы все молитвы.

Аллах про неверие говорит так: **“Скажи неверующим, что если они прекратят, то им будет прощено то, что было в прошлом. Но если они возвратятся к неверию, то ведь уже были примеры первых поколений”** (сура Анфаль, 38-й аят).

**“Стремления того, кто совершал праведные деяния, будучи верующим, не будут отвергнуты. Воистину, Мы записываем их для него”** (сура Анбия, 94-й аят).

Если бы вера “иман” была бы именем всех добрых и благих дел, то она была бы условием всех этих вещей. [4, р. 802]

Другой ханафитский ученый, аль-Хахим ас-Самарканди, сказал: “Вы должны знать, что вера не может увеличиваться или уменьшаться. Кто говорит, что вера увеличивается или уменьшается, тот еретик. Потому что это все может быть в действиях. Никто из сподвижников и праведников

не говорил, что вера будет увеличиваться или уменьшаться”.

Следовательно, согласно учению матуридия, вера является подтверждением языка (муджаррад ат-тасдик). Действия будут происходить отдельно от нее. Вера не будет преувеличена или искажена. Согласно вероучению Абу Ханифы, вера – это исповедание языком и утверждение сердцем. Сама Вера не уменьшается, но свет веры может уменьшаться или увеличиваться в соответствии с поведением раба [12, р. 238].

Подводя итог, можно сказать, что на самом деле вопрос о вере является основой всех споров, идейно-догматических споров в истории науки ислама. Причина всех бед заключалась в неправильном толковании вопроса веры. Исторически сложилось так, что радикальные течения, такие как хариджиты, му'тазилиты, открыто осуждали мусульман, которые имели различную степень соблюдения шари'ата, за неверие и осмеливались даже приговаривать их к смертельной казни. Весь исламский мир обеспокоен тем, что сегодня отвратительное проявление таких категорий проявляется в таких экстремистских течениях, как ИГИЛ, талибы, ихван аль-муслимин. Как видно из приведенных выше примеров в данной статье, в учении ханафия-матуридия “иман” заложена в строгом и ясном виде, и эти условия твердо подтверждены Кораном и хадисами. Таким образом, никто не имеет права обвинять в неверности (такфир) человека, который, несомненно, искренне считает себя мусульманином. Здесь, конечно, то, что человек говорит языком, должно быть таким же, как сердце. Поэтому испокон веков в нашем народе большое внимание уделялось тому, чтобы язык и душа всегда находились в равновесии.

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## WAYS TO INCREASE THE INTELLECTUAL INTEREST OF HIGH SCHOOL STUDENTS IN THE SPORT OF ATHLETICS

**Abstract:** At present, the problem of involving children in various sports is particularly relevant. This is evidenced by the unsatisfactory health indicators of students, according to which every third child has various kinds of deviations in health. Meanwhile, the direct dependence of the level of health of schoolchildren on the degree of their involvement in physical culture and sports activities has long been proven. At the same time, it is important that each student has a choice of one or another type of physical culture and sports activity.

**Key words:** physical culture, health indicators, kinds of deviations, level of health of schoolchildren, sports activity.

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### Introduction

Modern realities mainly offer sports that, with an undoubted healing effect, carry a high level of injuries, as they are often extreme or related to martial arts. In this regard, it is important that traditional sports that do not involve a high level of injuries and have a pronounced health effect also attract modern children. Thus, we should talk about the formation of interest in children to engage in such sports. One of these types is athletics.

Athletics, of course, have a positive effect on the level of human health. This is especially true for cyclic disciplines. According to sports theory, athletics should begin at the age of eight or nine. An analysis of studies on involvement in a particular sport did not reveal any work on the indicated age in this sport. The problem of interest has also been widely studied in modern pedagogy and psychology, but despite this, interest remains one of the "mysterious" categories, since many studies do not clarify the essence of this

phenomenon of the psyche, but rather, on the contrary, lead to even greater confusion.

So, for example, there is still no single definition of this concept, shared by all researchers. An analysis of the literature on the problem of interest showed that several directions for determining interest can be distinguished. The first direction can be called axiological. It is connected with the etymology of the word "interest". I am interested in something, I am interested in it, I need it, it is important - this is its broad understanding, which corresponds to the literal translation of the word "interest" from Latin - it matters, it is important. Hidden in this explanation is another interpretation of interest as benefit.

### Literature review

There is an opinion that cognitive interest is disinterested, but there is another point of view. Thus, G. I. Shchukina is convinced that the concept of "interest" in the meaning of "benefit", "good",

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“benefit” should exist in the conceptual apparatus of pedagogy. She believes that at present all pedagogical literature recognizes the existence of only cognitive interest, the word “interest” in it means only attention, direction, desire, and most researchers do not leave a place in the general concept of teaching motivation for the student’s interest as a benefit. Therefore, in this concept, there is almost no theoretical provision on interesting learning, and in scientific pedagogical treatment there is no concept of “interest” in the sense of “benefit”.

G. I. Shchukina cannot agree with this and proposes to reconsider the current situation in pedagogical science, based on the fact that the idea of personal interest combined with public interests is now widely spread [54]. This interpretation of interest is close by definition to value orientations, since values are subjective reflections in the mind of an individual of certain properties of objects and phenomena of the surrounding reality from the point of view of their ability to satisfy human needs. We can say that the second direction of determining interest can be called attitude (English attitude - attitude), since some researchers consider interest as an attitude. E. P. Shcherbakov believes that this is the cognitive attitude of a person to the world around him, which is based on an orienting-research reflex. According to N. I. Shevandin, interest is the emotional and cognitive relationship between the subject and the object, and N. A. Stepanova emphasizes that this is a stable positive emotional relationship. G.I. Shchukina, argues that this is a special selective attitude towards the world around.

### Analysis

We believe that this interpretation of interest is close to the definition of a social attitude, or rather, its derivative - a semantic attitude that expresses the attitude of a person to objects that have a personal meaning. The third direction can be designated as a vector, since the definition of interest as a direction is one of the most common. Some authors speak of orientation as a quality of personality, that is, personal education. So, S. L. Rubinshtein understood the specific orientation of the personality as interest, and in the dictionary of S. Y. Golovin, interest is considered as one of the forms of personality orientation, V. B. Bondarevsky clarifies that this is a specific cognitive orientation of the personality. As a complex personal formation, interest is a unity of objective (content of activity) and subjective (selectivity of activity) principles. Other scholars speak of interest as an orientation, but in connection with mental processes. G. I. Shchukina calls it “the selective orientation of mental processes to objects and phenomena of the surrounding world”, at the same time arguing that this is “a special selective attitude towards the surrounding world”. The author believes that this is the direction of activity, and K. E. Izard

believes that this is a positively emotionally colored focus of attention on phenomena, objects, the realm of reality.

In our opinion, it is necessary to single out the fourth direction of determining interest - the need-motivational direction. We believe that it most accurately reflects its nature. First of all, there is a point of view on interest as motivation. For example, in the psychological dictionary, interest is defined as the subjective representation of the elements of the motivational-need sphere in the form of an incentive to activity from functional motives, the satisfaction of which is associated not with the result, but with the process of activity. Functional motives, including cognitive ones, arise on the basis of needs. A. K. Markova relates interest to one of the types of motivation. It emphasizes its dependence on other aspects of the motivational sphere and is called the derivative component of motivation.

We believe that it is possible to determine the essence of the concept of “interest” by comparing with the concepts of “need” and “motive”. Let’s start with the fact that the same authors in their works call interest either a need or a motive. Sometimes researchers of the nature of interest try to combine the concepts of “need” and “motive”. For example, they believe that interest is a need deployed outward, into social reality, which is realized by the subject in the form of a motive. A. A. Rean and Y. L. Kolominsky write that interest can act as a motive, which is an internal motivation of a person to be active, and the motivation is associated with the satisfaction of a need. They also believe that this is a socio-psychological formation that is actualized in the form of needs, and then determines activity through a motive. But there are also unambiguous definitions. For example, interest is a form of manifestation of a cognitive need that ensures the direction of the individual. The statement that the basis of interest is a need is shared by the largest number of researchers. Scientists attach special importance to cognitive interest. According to G. I. Shchukina, it grows out of the need to know, that is, it is born from the general global human need for knowledge. D. K. Gilev believes that it arises on the basis of awareness of the need, acceptance of it by the individual. N. I. Shevandin believes that interest is a cognitive-motivational state of a cognitive nature, which is associated with one central need. E. P. Ilyin made an attempt to analyze the diversity of views on interest as a psychological phenomenon. He came to the conclusion that different definitions of interest have two common circumstances: the presence of a need in an interest and the positive experience of this need. Interest is connected with need, this is obvious to most researchers, but, as E. P. Ilyin notes, it would be wrong to equate interest and need. He is convinced that the difference here is very subtle, many scientists feel it intuitively, but find it difficult to explain. D. K. Gilev,

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arguing that interest is not a need, points to their differences in the ratio of biological and social, as well as in breadth and life function. According to S. L. Rubinshtein, it is impossible to put an equal sign between interest and need, since the need causes a desire to possess an object, and an interest to get acquainted with it. On this basis, he defined interest as a specific motive for cognitive activity and revealed the presence of two aspects in it: emotional attractiveness and conscious significance.

On the other hand, there is an opinion that an interest in the dynamics of its development can turn into an inclination, a need. Thus, it is indicated that in a number of need relations, interest occupies an intermediate position, arises on the basis of cognitive attraction (desire) and can develop into a stable need. V. N. Maksimova deduces the following sequence of development of interest: cognitive interest as a motive for activity contributes to the emergence of cognitive need, and on the basis of cognitive need, in turn, cognitive interest as a motive for action is born. The point of view on interest as a motive is as common as the statement that interest is a conscious need. In the dictionary edited by V.P. Zinchenko and B.G. Meshcheryakov, interest is presented as a motive or motivational state. A.V. Petrovsky calls interest a motive, which is a constant incentive mechanism for cognition. D.K. Gilev believes that of all the motives, the strongest motive is the one based on cognitive interest.

### Discussion

M. V. Matyukhina and G. I. Shchukina also consider cognitive interest as a motive for learning activities. According to N. G. Morozova, interest is not a kind of motive at all. Despite the many approaches to determining interest, the opinions of researchers converge when highlighting its parameters and characteristics. They note that, first of all, it is characterized by a positively colored and selective appeal of the student to different aspects of the teaching. In other words, it is found in an emotional tone, in attention to the object of interest. In addition, interest is manifested in the desire to learn as much as possible, in the desire for an independent search for a new one, concentration of attention, that is, it has a pronounced volitional component.

And, finally, interest is characterized by manifestations of mental activity, such as students' questions, active participation without requirements and instructions, addition and correction of answers, the desire to clarify the incomprehensible. Thus, interest is an "alloy", a unity of intellectual, emotional, volitional manifestations of a personality, the core of which is thought processes. In addition, the main properties of interest are determined - objectivity and awareness. An analysis of the literature on the problem of interest showed that, indeed, interest is a complex and heterogeneous concept. And this is

confirmed by many of its interpretations and definitions. We share the point of view on interest as a form of need. We believe that interests arise in connection with the needs of the relationship of a person with the world around him. Interest is a conscious, objective need, expressed in a certain focus on activity. We are also convinced that only by developing cognitive interests can one achieve the development of independence and subject-subject relations in the educational process.

*Characteristics of track and field athletics as a form of physical culture and sports activity*

Track and field sports can be classified according to various parameters: by groups of athletics, by gender and age, by venue.

The basis is five types of athletics: walking, running, jumping, throwing and all-around. Classification by sex and age characteristics: male, female species; for boys and girls of all ages. In the latest sports classification for athletics, there are 50 sports played in stadiums, highways and cross country, and 14 indoor sports for women, 56 and 15 sports for men, respectively. The following classification of sports is given according to the places of training and competition: stadiums, highways and country roads, rough terrain, sports arenas and halls.

According to the structure, athletics sports are divided into cyclic, acyclic and mixed, and from the point of view of the predominant manifestation of any physical quality: speed, power, speed-strength, speed endurance, special endurance. Also, the types of athletics are divided into classical (Olympic) and non-classical (all the rest). To date, the program of the Olympic Games for men includes 24 types of athletics, for women - 23 types of athletics, which play the largest number of Olympic medals. All types of athletics are divided into groups.

Walking is a cyclical type that requires the manifestation of special endurance, is carried out by both men and women. Race walking is a cyclic locomotor movement of moderate intensity, which consists of alternating steps, in which the athlete must constantly make contact with the ground, and at the same time the extended leg must be fully extended from the moment it touches the ground to the moment the vertical.

For women, entries are made:

- at the stadium - 3, 5, 10 km;
- in the arena - 3.5 km;
- on the highway - 10, 20 km.

For men, entries are made:

- at the stadium - 3, 5, 10, 20 km;
- in the arena - 3.5 km;
- on the highway - 35, 50 km.

Classic types: for men - 20 and 50 km, for women - 20 km.

Running is divided into categories: smooth running, hurdling, steeplechase, relay running, cross-country running. For runners, the most important

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qualities are: the ability to maintain high speed over a distance, endurance (for medium and long), speed endurance (for a long sprint), reaction and tactical thinking. Smooth running is a cyclical type that requires the manifestation of speed, speed endurance, special endurance. Sprint, or sprinting, is held at the stadium and in the arena. Distances: 30, 60, 100, 200 m, the same for men and women. The long sprint is held at the stadium and in the arena. Distances: 300, 400, 600 m, the same for men and women.

Endurance running:

- middle distances: 800, 1000, 1500 m, 1 mile - held at the stadium and in the arena, for men and women;

- long distances: 3000, 5000, 10000 m - held at the stadium (in the arena - only 3000 m), the same for men and women;

- extra-long distances: 15; 21.0975; 42.195; 100 km - held on the highway (it is possible to start and finish at the stadium), the same for men and women;

- ultra-long distances - a daily run is held at a stadium or highway, both men and women participate. There are also competitions for 1000 miles (1609 km) and 1300 miles - the longest continuous running distance. Hurdling is a mixed type in structure, requiring the manifestation of speed, speed endurance, agility, and flexibility. It is held for men and women, at the stadium and in the arena. Distances: 60, 100 m for women; 110, 300, 400 m for men (the last two distances are held only at the stadium).

Obstacle racing is a mixed type in structure, requiring the manifestation of special endurance, agility, and flexibility. It is held for women and men at the stadium and in the arena. Distance for women - 2000 m; distances for men: 2000, 3000 m. Soon this type of running for women will become Olympic.

The relay race is a mixed race in structure, very close to cyclic races, a team race that requires the manifestation of speed, speed endurance, agility. The relay race includes the classic types of 4x100 m and 4x400 m and are held for men and women at the stadium. The arena hosts 4x200m and 4x400m relay competitions, the same for men and women. Competitions can also be held at the stadium with different length stages: 800, 1000, 1500 m and a different number of them. Relay races are held along city streets with unequal stages in length, number and contingent (mixed relay races - men and women).

Previously, the so-called Swedish relay races were very popular: 800, plus 400, plus 200 and 100 meters for men and 400, plus 300, plus 200 and 100 meters for women. Cross-country running is a mixed type, cross-country running, requiring the manifestation of special endurance, agility. Always held in a forest or park area. For men, distances: 1, 2, 3, 5, 8, 12 km; in women: 1, 2, 3, 4, 6 km. Track and field jumps are divided into two groups: jumps over a

vertical obstacle and long-distance jumps. The first group includes: high jump with a run, pole jump with a run. The second group includes: running long jumps; triple run jump. The first group of track and field jumps:

- high jump with a run - and acyclic type, requiring the athlete to demonstrate speed-strength qualities, jumping ability, agility, flexibility. It is held for men and women, at the stadium and in the arena;

- pole vault with a running start is an acyclic sport that requires the athlete to demonstrate speed-strength qualities, jumping ability, flexibility, dexterity, one of the most difficult technical types of athletics.

It is held for men and women, at the stadium and in the arena.

The second group of athletics jumps:

- long jumps with a run - a type of mixed structure that requires the athlete to demonstrate speed-strength, speed qualities, flexibility, agility. They are held for men and women, at the stadium and in the arena.

- Triple jump from a run - and acyclic type, requiring the athlete to demonstrate speed-strength, speed qualities, agility, flexibility. It is held for men and women, at the stadium and in the arena.

Track and field throwing can be divided into the following groups: throwing projectiles with and without aerodynamic properties from a direct run; throwing projectiles from a circle; pushing a projectile out of a circle.

### Conclusion

It should be noted that in throwing it is allowed to perform any type of run-up according to the technique, but the final effort is performed only according to the rules. For example, you need to throw a spear, a grenade, a ball only from behind the head, over the shoulder; you can only throw the discus from the side; throwing a hammer - only from the side; you can push the core from the jump and from the turn, but be sure to push.

Javelin (grenade, ball) throwing is an acyclic sport that requires the athlete to demonstrate speed, power, speed-strength qualities, flexibility, agility. Throwing is performed from a straight run, men and women, only at the stadium. The spear has aerodynamic properties. Discus throwing, hammer throwing are acyclic types that require strength, speed-strength qualities, flexibility, dexterity from an athlete. Throwing is performed from a circle (limited space), by men and women, only in the stadium. The disk has aerodynamic properties. Shot put is an acyclic sport that requires the athlete to demonstrate speed-strength qualities and agility. Shot is performed from the circle (limited space), by men and women, in the stadium and in the arena.

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## THEORETICAL AND METHODOLOGICAL FUNDAMENTALS OF DEVELOPING NON-STANDARD THINKING IN STUDENTS

**Abstract:** Today, the development of non-standard thinking in students is a very important issue, but it is recognized as a factor that determines the development and prospects of science and leads to any inappropriate situations and situations. Also, the formation of non-standard thinking in students is one of the socially important issues of the school education system and should be aimed at adapting knowledge and skills to the real situation. This article analyzes the theoretical and methodological issues of developing non-standard thinking in students.

**Key words:** education, knowledge, thinking, creativity, creative thinking, creativity, non-standard thinking, skill, learner, approach.

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### Introduction

The development of human society, the study of nature and the environment, communication with them and their coordination in the interests of man have been important factors in all periods, and different views and theories have been formed in this regard. This process is a factor that directs humanity towards development, gaining individuality and giving rise to non-standard, contradictory and contradictory opinions in the approaches of scientists, from the common man to the non-standard appearance. From this point of view, a non-standard way of thinking is inherent in human nature, and everyone is faced with creativity in their lives, with the opportunity to change some aspect of it. However, it is precisely this issue that is explained by the type of activity that is understood and not understood, based on the possibility of discovering something or missing it unknowingly. If a person has a non-standard way of thinking, then he has the competence to discover new things.

### The main part

It should be noted that having a non-standard way of thinking is a source of creativity, a "engine"

that reveals the results and effectiveness and innovation associated with human activity. Researcher LS Vygotsky's scientific comments on this subject are relevant, in his opinion, creation is the work of a few selected people, in particular, geniuses, who created unique works of art and art, contributed to the development of mankind, made scientific discoveries, technological advances and inventions. the fate of talented people "[30, 144].

Scientists and researchers who have studied the human mind and thinking since ancient times have conducted a number of scientific and practical studies on creativity and its source, and put forward various theoretical approaches. In particular, ancient Greek scientists and philosophers studied the process of non-standard and creative thinking, which is the product of human thought and thought, and put forward a number of scientific and theoretical views in this regard.

Plato developed a mystical theory of professional training and artistic creation in art, advancing his doctrine that the theory of creation is the rational knowledge of ideas, and declared Plato's act of artistic creation to be an illogical act. According to Plato, the source and cause of creativity in art is obsession (directing or subjugating the human mind to

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something), and the artist sees himself as a creative individual who has formed in himself a source of inspiration with sublime influences and charms of divine powers [39].

Unlike Plato, Socrates' theoretical views that creativity, which is the product of human thought, is in some way different from others, and that his achievements in any field are a divine source given to man, support Plato's approach. In his view, all epic poets acknowledge that their art and creativity create beautiful works of art in harmony with the divine inspiration bestowed upon them [39]. Analyzing these perspectives, creativity is not simply illogical or incomprehensible, as Platon pointed out, but a great blessing bestowed on man by God. In our view, everyone has a higher level of ability and talent than any profession or field. However, it should be possible for the state and society (family, MTC, school, community, educational institutions, non-governmental organizations) to realize it in a timely manner with the targeted use of pedagogical methods and tools. The human mind and worldview play an important role in this, it is possible to see the talent and creativity of each child and increase its ability to target innovation, to develop innovative and non-standard approaches in all areas and to serve the interests of the state and society.

Plato's obsession with creativity was advanced, three of which were repeated in the work of aesthetic idealists of later periods.

In our view, the element of curiosity and attention to something in the creative problem of human creativity and non-standard thinking is sensitively stimulated and stimulated, providing the triggers, while the illogical nature of inspiration is not just a wonder and emotional approach to everything. It is understood that the inner spiritual world is connected with it through invisible chains and seeks resources to materialize, to create the existing conditions as much as possible and not to interfere in their activities, as a basis for aesthetic talent.

We believe that this process is a source of creativity for everyone and contributes greatly to the development of creative thinking. Every creative thinking is the common wealth of the state and society, as well as of humanity. In this regard, it is important to pay attention to Aristotle's scientific-theoretical objections, which, in his opinion, the activation of the human way of thinking, a creative approach to everything is an active process that arises from the point of view of its belonging to the perceived type of activity. In his view, a person has a passive mind ("potential mind"), so he sometimes thinks and sometimes doesn't. In order to know, a person must receive a source of knowledge through intuition (sight, hearing) and direct the passive mind to the state of activity, that is, bring the mind closer to the active mind [35]. It should be noted that when it comes to equating the mind with the active mind,

everyone can think, but it means the measures to implement it in the real world, its results and the possibility of further improving its capabilities and effectiveness. Man is always given the opportunity to think, and there is ample basis for choice and approach. Therefore, as Aristotle said, passive consciousness has potential knowledge. If it is put into practice with non-standard approaches and several alternatives, it becomes a product of active consciousness, turns into real knowledge and gives its effect and result.

Aristotle described true intelligence as the consciousness that produces everything and has properties such as a light source. Because light in some sense makes possible colors real. This mind, on the other hand, exists separately, is not subject to anything, does not interfere with anything, and is an activity in its essence.

The non-standard approach in man is the product of constant research and various creative approaches, requiring constant effort. This frees the human mind from the process of regression and serves as a basis for drawing operations-specific conclusions on the basis of more precise operations of thinking, ie analysis and synthesis. As Aristotle points out, knowledge in action is the same as its object, unless the knowledge in the individual's capacity is revealed, it is not knowledge at all. After all, everything that comes into being comes from what actually exists.

Above we can once again substantiate our scientific view that each person has the ability, creative quality and potential for a particular field, which in any case has the potential to emerge in non-standard situations, with the above hypothesis of Aristotle.

When a person studies the essence of things and events, of course, its essence and properties are summed up on the basis of the operations obtained in the process of analysis and synthesis, and the results of logical analysis occur. Of course, this process is the product of the compatibility of the fundamental worldview and creative concepts of the individual, implementing the strategic plan of thinking.

Researcher JE Ermakova analyzes this process from the point of view of the associative approach and puts forward the theoretical view that the elements of all cognitive processes occur in accordance with the nature of the connections between them [32]. From this point of view, the creative activity of an individual is recognized as a product of the processes that take place in the world of imagination and manifests itself as a social reality. We must not deny that creativity is based on certain conceptual factors, coordinated with rational activity, harmonized with the essence of scientific and cognitive understanding. In our opinion, the occurrence of this process is based on a certain algorithm, which creates its movement in the center of interaction of emotionally sensitive "points" that are previously manifested in human thinking.

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If we analyze psychologically, we can see that the elements of creativity that occur at the center of the interaction of emotionally sensitive "points" and its structure are consistent with the theory of the association approach. However, associative psychology has recognized creativity as a non-conscious, emotional approach for a certain period of time, assuming only the conscious, i.e., the product of thinking, as the object of study. But we recognize that any creativity is a product of thinking. The reason is that creativity is unique to each person and is reflected in this or that type of activity.

The problem of human thinking has always been of conceptual importance, and its study has been one of the key factors in the implementation of constructive projects in the life of the state and society. The results of scientific analysis were incorporated into the principles of creativity on the basis of a transformational approach and served as a basis for the implementation of technical and innovative projects for their time. If we analyze the essence of this concept from a pedagogical and psychological point of view, creative thinking is a conceptual improvement aimed at the emergence of scientific research, the search for alternative ways to overcome acute life problems. From a philosophical point of view, the essence of conflicting issues based on conceptual approaches to creative thinking is the development of knowledge based on new ideas and conflicting views, in particular, materialism and idealism, the relationship between being and consciousness, human civilization, religious and mythological ideas and consciousness. we can observe the essence of the primacy of objective knowledge.

Human thinking has also been studied by proponents of the cognitive approach, who have analyzed this process in terms of the idea of 'artificial intelligence'. In the cognitive approach, human brain activity is taken in the form of computer operations, the ability to transform the initially given information into something new is analyzed, and the process of changing the received sensory signal by the brain is studied [37]. In our view, the research conducted by proponents of the cognitive approach is based on the goal of using the product of human thinking in the interests of the state and society, and to identify and nurture existing creative abilities in the future.

In the future, it is necessary to purposefully implement the pedagogical and psychological factors of such differential scientific research, which is of great importance in preventing the loss of creative abilities, which are the intellectual resources of the state and society, and serving the future of mankind.

Researcher E. Torrens, one of the representatives of the psychometric approach to the problem of thinking, analyzed the problem of creativity from a scientific point of view and put forward his views on the problems of ability, lack of knowledge, existing

difficulties and the development of concrete proposals and hypotheses. According to Guilford, creativity is a universal cognitive creative ability, based on the processes of divergence and convergence, as well as the processes of transformation and semiotics [41]. In our view, J.Guilford's creativity is usually based on a strategy of solving problems and tasks, finding many of its solutions, using previously learned algorithms to solve a specific problem, and discovering new approaches in a non-standard situation in terms of sequence and content of elementary operations. advanced the scientific view that

Researcher J. Guilford also notes the following six parameters of creativity. They are: -compatibility - the ability to produce different ideas; ability to identify and formulate problems; specificity - the ability to respond to stimuli in a non-standard way; ability to generate a large number of ideas; the ability to improve an object by adding certain details; the ability to solve problems, i.e. the ability to analyze and synthesize [41].

Analyzing the above parameters of the researcher's creativity, we can distinguish the following elements of the creative approach, which is specific to the individual:

-first, clarity in thinking, with a divergent and convergent approach that occurs over a period of time, and a general conclusion;

-second, mental deformation and mobility, ie a rapid transition from one idea to another and a logical approach;

- Third, individualism in thinking, that is, the promotion of optimal opposing and progressive ideas in the approach from general to specific and from particular to general;

- Fourth, a sympathetic approach to the environment and a high level of curiosity, ie a conscious attitude to natural and social processes;

- Fifth, to have scientific analysis and contradictions, that is, to put forward certain scientific and theoretical hypotheses;

- Sixth, a rational approach, that is, to reflect the real situation, to make practical suggestions and recommendations, and to defend their position;

- Seventh, high sensitivity and reaction, ie the ability to see the impact between subjective and objective factors and respond appropriately;

- Eighth, logic, ie the compatibility of the combination of answers and responses in the process of analysis and synthesis;

- Ninth, creativity, ie a non-standard approach to problem and problem solving, as well as the priority of logic in the conclusions;

- Tenth, to generalize the conclusions, that is, to make a clear and rational decision by rounding up the details of the issue and the problem.

From this point of view, the p of creativity proposed by us above From this point of view, the creative approach to the parameters proposed by us

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above, the creative approach, that is, the manifestation of creativity in non-standard situations, is directly related to the breadth of the human imagination, the ability to fantasize and advance scientific theoretical hypotheses.

If he is rich in life experience, reads a lot of books, analyzes the events and happenings in the activities of himself and others, the process of their occurrence and features, the elements that give a preconceived notions are embodied in the imaginary world. In short, the enrichment of the human experience serves as a basis for the further expansion of the world of creative imagination.

In the psychological and pedagogical literature studied in the process of scientific analysis of research, creative thinking and creative imagination are studied as a separate source of scientific research [2-9]. Creative thinking and creative imagination, based on the experience gained during human life, can not only be the creator of something new, but also to express in their personal activities ideas and thoughts that can not be imagined by other people, the product of spiritual and material creativity. From this point of view, we promote the scientific view that creativity and creativity are an integral part of the human imagination, and we agree with the above-mentioned researchers who think about it.

As researcher V.N.Drujinin points out, we gain new experience and start building or creating something during it. It depends on the scale of our fantasy. The human imagination may or may not correspond to reality, but it depends on a creative approach to the situation that expresses the desire to reveal it [31].

Creativity and imagination in man express the factors of creativity and constructiveness and reflect the essence of improvisation. The lack or lack of a database in the process of doing something by an individual serves as a motivator for the emergence of a creative imagination and the implementation of a creative approach to the missing information.

Creative imagination and a creative approach to the essence of the problem provide constructive ideas and alternative ways of solving the problem, offering a number of non-standard solutions. From this point of view, we believe that a creative imagination and a creative approach serve the rational modeling of things and events, events and processes, and allow it to be presented in visual images. According to our scientific considerations, the combination of rational modeling and visual imagery in fantasy, creative imagination and a creative approach leads to the emergence of a scientific hypothesis and can provide a way and result to solve an existing problem.

We will try to substantiate the above scientific considerations with the following scientific views of the researcher V.A. Yasvin. In his view, the creative imagination and fantasy, as well as the scientific hypothesis, bind the compositional creativity to a

whole chain of links and serve as a basis for human creative approaches. Creative imagination transforms something new, creates fantasy models and emphasizes solutions, while scientific hypothesis focuses on the correct search for solutions that are relevant to the essence of the problem. This creative approach creates a "finished product" that is interconnected in a chain link fence that belongs to human activity [44].

An analysis of the scientific literature on the issue of creative approach suggests that the idea that creativity in the individual is also related to social factors has been advanced [10 - 19].

According to the scientific analysis of the researcher NV Markina, the most in-depth study of socio-psychological factors in the dynamics of creativity was carried out in the scientific research of T. Emeyal. T. Emeyal highlighted the following factors that negatively affect creativity: Fear of failure leads to a reluctance to take risks; paying too much attention to order and tradition; not being able to see his own strengths and the strengths of other people in the team; much hope for efficient algorithms; unwillingness to advance their ideas; reluctance to play overuse of rewards [38].

Researcher EL Yakovleva has experimentally proved that high sociometric status among high school students does not always lead to the adaptation of creative leadership development programs. puts forward [43].

While we have seen the effect of social factors influencing creativity on the extinction of T. Emeyal's approach, we have observed in EL Yakovleva's research that in the social approach, group relations are one of the factors that create creativity. From this point of view, given the direct influence of social factors on the emergence or extinction of creative imagination and creative approaches in the individual, the child's ability in family and educational institutions, his free thinking, any approach to the issue to create the necessary conditions and psychological it is required to refrain from any means of interaction. If we approach it from the point of view of our national mentality, we will prioritize education and upbringing, which eliminates the creative abilities put forward by the researcher T. Emeyal. This leads to the extinction of any talent and creativity to ignorance and decline, destroys the confidence of young people in themselves and in the future, and serves as a basis for increasing the mood of dependency. The proliferation of this category of individuals in society does not only benefit itself but also the community.

It should be noted that the ability of an individual to be creative is not only hereditary, but also a characteristic of a vitally formed personality, based on scientifically fundamental sources. However, today it is necessary to fully reveal the opportunities for the development of individual creativity and creative

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approach through education, as well as a comprehensive study of the shortcomings in this area from a scientific point of view.

From a pedagogical and psychological point of view, 3 years is a very good time to develop creative abilities, at this age children have a very high level of curiosity and a great desire to learn things and events and the connections between them. During this period, their spiritual and material support, the creation of the necessary conditions will serve as a basis for the accumulation of experience and knowledge necessary for a creative approach and creative imagination in the future. It is during this period that the elements of creative imagination are formed in the child's personality, and the existing curiosity forms the basis of creativity, combined with stereotypes that direct the study of the essence of the problem to the elements of detail, which requires first of all freedom. Especially considering that a child's creativity is combined with behavior based on play activities that are typical of the age, in this process we should not only limit the child's activities, but also take measures not to interfere.

Researcher J.E. Ermakova puts forward her scientific objections, substantiating this position with the scientific opinion of the researcher R. Sternberg that the adaptation of man to the external world is based on the creative behavior in his efforts to change it [32].

From this point of view, we can say that in the organization of relations with the outside world during human activity, the creative approach to the processes that take place in it requires first of all the ability to adapt, secondly the choice of the external environment, and thirdly the attitude to change. occurs, resulting in the manifestation of human conscious activity. It is the end of these processes with the result of perceived activity, thinking is recognized as an example of creativity formed on the basis of analysis and synthesis.

Researchers GI Ruzavin, BCStyopin, MKSotiboldieva, KSTodjibaeva, T.S. N. Shcherbakova, E.L. Yakovleva, E.A. Yakovleva, A.V. Leibina, E.P. Ilin, B.M. Velichkovskiy, Yu.V. Velichko and others [20-29].

From this point of view, thinking is a process of reflection of objects, creative change of objective and subjective images in the human mind, elimination of contradictions in life, formation of new ideas and setting goals and discovering plans for their implementation. reveals its essence by ensuring compliance.

From a pedagogical point of view, the problem of creative thinking and creativity is coordinated with the problem of "production". Because in the creative process, many new ideas and creative products emerge. From this perspective, the thought process is based on the "production" and reproductive component. A number of researchers have put forward their scientific views on the pedagogical and

psychological nature of creative thinking, the mechanisms of creative activity, the specificity, unique nature and individuality of creative thinking.

Researcher I.Ya. Lerner argues that creative thinking should have a certain product, in the process of creation a person discovers a subjective novelty by demonstrating his individuality [36]. In D.B. Bogoyavlenskaya's scientific point of view, creativity is an situational activity, which is manifested in the desire to go beyond the given problem [1], while Ya.A. Ponomarev, defining the essence of creative thinking and focusing on the mechanism of action, implements the scientific approach that intellectual activity is sensitivity to the by-products of its activity [40].

Based on the above scientific considerations, we provide the following descriptive approach to creative thinking. In our opinion, creativity and creative thinking is the predominance of a non-standard approach in individual creativity, individuality in the creative process, the manifestation of subjectivity in the product of creativity, the priority of non-standard in assessing the situation, compatibility with emotional intelligence.

From this point of view, the creativity and creative thinking of teachers working in the field of education should be given priority to the following factors: first, the ability to demonstrate professional aesthetics and the level of moral consciousness with the content of education; second, the ability to distinguish between individual and general tasks and assignments given to students in the educational process, as well as a creative approach to the issue quickly; third, to determine the competence to form each element of creativity in the educational process; fourth, the ability to see the existing problems in the process of education and upbringing and to recommend several alternatives to the optimal options for their solution; fifth, education and upbringing to see the contradictions between the professional and personal qualities of a teacher, which affect the quality of education and upbringing; sixth, the use of mobility and developmental components in the full expression of creative imagination in self-taught science classes; seventh, the diversity of creativity and creative imagination aimed at achieving effective results in pedagogical activity.

BM Teplov, who studied the creative approach to pedagogical activity, in his scientific views, the creativity of the teacher - based on experience, understanding, idea, individual example, form, style, gradually decreases the component of imitation and, consequently, the creative component of pedagogical activity [42].

Analyzing this idea, pedagogical creativity manifests itself from the moment it refuses to copy through creative imitation and imitation creativity. We fully agree with the same researcher BM Teplov, acknowledging that today we can free the education

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system from the problem of molding it as a technology or a method, and that every teacher of science will be able to fully develop himself and his creativity. we

In this regard, it is worth noting the following scientific comment of the researcher A.V. Leibina, which is similar to the above ideas. From his point of view, a creative teacher in modern conditions is, first of all, a researcher with scientific creative psychological-pedagogical thinking, high pedagogical skills, developed pedagogical intuition, critical analysis, and the need for self-professional development [34].

### Conclusion

In conclusion, in today's society, the creativity and creativity of teachers engaged in pedagogical activities in the pedagogical activity serves as a basis for ensuring the following in the educational environment:

- to increase the ability to apply modern non-standard technologies that serve the quality of

education in the educational process on the basis of a creative approach;

- to strengthen the ability to find the intersection between modern education and traditional education and to identify alternatives to existing problems and offer solutions;

- to analyze the shortcomings of educational technologies that affect the quality of education and to develop the ability to search for systematic methods of solving current problems of education;

- to stabilize the practice of consistent improvement of methods and forms of pedagogical activity in education and upbringing on the basis of a systematic approach;

- to focus on innovative activities in the process of education and upbringing, to develop the skills to make new and non-standard and important and promising projects the main aspect of their professional activity.

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Issue

Article



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## ON THE IMPORTANCE OF HIGH-QUALITY PROFESSIONAL LABOR FOR THE PRODUCTION OF PRODUCTS THAT ARE A PRIORITY FOR CONSUMERS IN THE REGIONS OF THE SOUTHERN FEDERAL DISTRICT AND THE NORTH CAUCASUS FEDERAL DISTRICT

**Abstract:** *In the article, the authors, using the developed software, assessed the possibility of a new term for assessing the quality of products, namely, "lean products" to help the consumer of this very light industry product have more effective criteria for preference when choosing an assortment for their needs. For the first time, we investigated the possibilities of motivating a person for his effective management of the collective of a light industry enterprise for the manufacture of demanded and import-substituting products in the demand market, taking into account its attractiveness and guaranteeing the enterprise sustainable TPE from their activities, considering the possibilities of a union of culture and effective management to ensure the production of demanded and competitive products consumers of the regions of the Southern Federal District and the North Caucasus Federal District. In addition, the authors believe that control within the framework of the QMS carries a psychological load and forms in the team a sense of responsibility for the implementation of the tasks formulated before it. But this is provided that a competent selection and recruitment of personnel is implemented, who have communication skills, professionalism and stress resistance.*

**Key words:** *respondents, experts, randomization, demand, competitiveness, import substitution, concordance coefficient, competence, survey, questionnaire, demand, product sales, convergence, divergence, quantity, measure, market, consistency, consumer, manufacturer, consumer culture, quality activity, quality of life, purchasing qualifications, economic policy.*

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## Introduction

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Quality represents a system of essential for a product properties - it is commonplace and well-known, which is actively used, replacing properties, or their consistency in a quality product. Essential properties are those that are not simply inherent in the product, they determine its functionality. Such properties, as a rule, are revealed in the process of "work" of the product for its intended purpose, they are hidden from the unprofessional glance of the consumer. In its "pure" form, the market is an intermediary and should not be interested in the quality of products. The task of the market in the theory of the organization of commodity production is the organization of exchange between the producer and the consumer. Market development stimulates the growth of production in the interests of the consumer within the framework of the infrastructural status of the market.

Monopolization of production led to the accumulation of financial capital, the autonomy of the latter and control over the market. As a result, the market has turned from an intermediary into a key subject, the indicator function - to show the demand for goods - is trying to replace the role of the organizer of economic activity as a whole, which distorts the economic system.

The economy of commodity production was created by the production of a product and the need for a mass product. The system-forming factor here is the production of goods as a product necessary for consumption by others, that is, the process of alienating consumption. In natural production, product quality was hardly a pressing issue. The quality was "dissolved" in the conservatism of technique and technology, in the tradition of the assortment. The question of quality was raised by the consumer when he got the opportunity to compare at the fair. The market, which grew out of fair gatherings, gradually enriched the representative status with the advertising business, taking control of the relationship between the manufacturer and the consumer. Levers of management - financial policy, directions - the main - two: the impact on the quantity and quality.

Product quality has gained relevance in commercial production. It became clear that in the understanding of quality there are sensory and rational thinking (the latter in the form of calculation). The subjective factor is objectified and fetishized. The market is not able to directly influence the objective properties of a product (with the help of its own mechanisms), but it can very well even objectify subjective ideas. Thus, the manipulation of quality was first included in the functions of the market, then it became an element of economic policy.

A sound and healthy economic policy is designed to work on improving quality in two interrelated directions: technical and technological, completed by a rigid legal block of support, and socio-cultural - to provide comprehensive support for the formation of conditions for subjective perception of quality, to block the negative effect of advertising influence, which has long and thoroughly become an attribute of market speculation. on the importance of quality to the customer. The availability of choice and ability to pay does not serve as the basis for the indisputability of a high-quality acquisition.

In the existing market, price and quality are divorced even at auctions that are famous for the careful organizational culture. The buyer is turned into an expert, and this grimace of the market is not as bad as it is illogical. The market forces the consumer to develop as a person. From a layman with a wallet, in order not to be suckers, we involuntarily try to learn more about the subject of interest, improve our "purchasing skills". The term is not new, it is used by journalists, but for them it is a passing, verbal number, and for us it is no longer a new combination of common words, but the most important concept, without which the modern theory of quality does not have a systemic integral form.

"Purchasing qualifications" include, along with certain knowledge that helps to determine the location of the store, the range of prices for the goods, requires basic information about the manufacturer, the quality characteristics of the goods, the market reputation of the manufacturer, the tradition of the company, the scale of activity. Today, in the consumer market, the naive buyer runs the risk, beyond all reasonable measures, of becoming a victim not only of deception, but also of his own carelessness, therefore, without any rights to compensation.

A buyer in Russia is formally protected. In real life we have to be guided by the famous rule "the rescue of drowning people ("buyers") is the work of the drowning people themselves, read "buyers".

Improving the "purchasing qualifications", if desired, is a mutually beneficial business for the state, activating the cultural national heritage and the patriotic mood of the mass consumer. Although there is another way, tested under Mao in China - "the worse the better."

Imported consumer goods - not Chinese - in the 1980s and 90s. was with us on Hooray! The assortment, packaging, external features of the product were impressive. And what is the bottom line? After 10 years, the manufacturer is returning Soviet brands, naturally in the absence of effective control, not Soviet quality.

We know how to make quality products and are quite capable of regaining "our" market. The issue is not even the price, the problem is the loss of control over the consumer (and not only consumer, judging by

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the malfunctions in rocketry, the operation of aircraft, etc.) market. They explain to us: we need economic measures. Correct, however, this is half-truth. If necessary, then accept. The authorities should have power that is not nominal. It's time to understand that economics has always been politics, economic theory has always been political economy.

### Main part

Economic movement is self-movement, but it does not take place in a vacuum. Economy is the basis of social movement. Society provides the conditions for economic movement, and the state has the right to energetically join the mechanisms of economic self-movement, directing the development of the economy in the interests of society.

An amazing thing. When it comes to the future of technical progress, futurologists of all stripes groan that the autonomization of the movement of technology will lead to the dominance of robots over humans, and it is better not to interfere with the development of the economy. For whom is it better? One conclusion suggests itself: not to disrupt the self-movement of the economy in the interests of those who have privatized the economy and whose service is the "border guards" who prohibit the control of economic processes through politics.

None of the convertible currencies is backed by a quality commodity equivalent and the "free" movement of currency continues under the guise of politics. Financial self-movement creates opportunities for chaos in the consumer market. The state sluggishly protects the legitimate interests of the national producer, even when the product is a product of interethnic integration. There is no political aggressiveness, politics is dragged along the wagon train of the economy instead of outstripping its development on the basis of objective socio-economic trends. I would like to believe the explanations of politicians regarding the success of joining the WTO. It is good that they were bargaining, creating a legal "safety cushion" for the domestic producer of consumer goods. Problem: how will they use concessions from the WTO now?

The time for political action - not decisions - is the most favorable. The intoxication of the nineties and zero seemed to be on the decline. Awareness of the qualitative advantages of many Soviet products of the light and food industries is returning. There is a revival in consumer cooperation, which can stimulate the production of agricultural products in the countryside. Mistrust in consumer imports is growing, including due to its massive Chinese production. Migration flows are stabilizing.

A harsh assessment of the socio-economic situation and a direct indication of the government's responsibility for the failure to fulfill the presidential instructions of 2017 in the Address of V.V. Putin, are

associated with the determination to "tighten the screws" so that the movement goes on the intended course. A clear activation in interethnic economic relations within the Customs Union, a reboot of strategic relations with an emphasis on China, India, Iran, Latin America. The real possibility of full-scale cooperation with Egypt, Syria and the same Iran - the key states of the Middle East and the African North - all this is a unique international sphere for restoring the balance in the domestic consumer goods market.

Domestic producers need a "coherent" economic policy. By "intelligibility" they mean: clarity, consistency, guarantee support, allowing to cut off the many-sided arbitrariness of administrative authorities and "guardians" of order. Everyone is responsible for quality. Both those who produce and those who are called to ensure the rights of producers. The Customs Union lit the green light on the path of national goods in the markets of the Treaty countries. Thus, an equilibrium real market competition has been created, which makes it possible to evaluate the natural rather than advertising quality. By the way, a wonderful research topic is "real and advertising quality", that is, generated by advertising. It is no less important to analyze the problem of quality in the coordinate system of national mentality and interethnic integration. Integration is deliberately replaced by globalization, despite the obviousness of the difference between these phenomena. Both tendencies are objective and characteristic of modern history.

Integration - interethnic interpenetration of various activities of a socio-economic, cultural and humanitarian scale. It can have an interethnic size, for example - "Union State (RF and RB); local - the Customs Union; regional (Shanghai Organization, EEC). Globalization indicates a worldwide scale of the phenomenon. Among the global problems are those that have arisen as a result of general, but not necessarily integration, processes, and require a consolidated solution. Global problems, in contrast to the problems associated with integration, are potentially relevant and have a strategic meaning. For example, how to protect life on Earth from large meteorites. When the time of the onset of the event is postponed, but it itself is extremely relevant in importance, then speculators, including financial oligarchs, actively rush into the gap, trying to profit from uncertainty.

Quality is associated with globalization, but practically not so relevant. Quality is directly related to integration.

Let's consider the problem of "quality of consumer goods" in the "national" and "international" coordinate system. First of all, it is necessary to find an answer to the question: is integration capable of displacing the national component of quality?

Integration processes are based on standardization and uniform metrological characteristics of production, which corresponds to

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objective reality. Technological progress is based on science, scientific knowledge is imperative in terms of normativity. However, the being of the common is not self-sufficient. General requirements are realized through special development, due to the specificity of the circumstances of the action. In other words, no matter how standardized the production of a product is, the originality of production conditions will still manifest in it.

The specificity of conditions - regional, national, is immanently present in raw materials, climate, traditions, culture of performers' consciousness. And in all this is the power of production, which determines the nuances of the quality of the goods, which create a special consumer interest in it. Tea is grown in our time all over the world, but the uniqueness of tea plantations in Sri Lanka, the national attitude to tea, ensured the leading position in the quality of the Ceylon product. The same can be said for Kenyan coffee, bell and chilean peppers, French cognacs and champagne, Ukrainian lard, Bavarian and Dutch beer, Scotch whiskey, Russian flax, Egyptian cotton, Chinese silk, Argentinean leather, Greek olive oil and much more. The specificity of the environment should be cherished and preferences for its reproduction should be ensured. In fundamental treaties,

The Customs Union consolidates the interethnic division of labor, built in the XX century, contributes to the expression of the objective and subjective aspects of the development of production, mutually enriches the market, making it easier for producers to access it. But this is all theory. Theory develops into a rational practice, not only because it is correct. Activity makes theory a practice; moreover, in order to obtain the desired result, activity must be systemic and consistent.

Interest in the quality of a product, in theory, should not start in production. Its initial position in the normalized market, more precisely at the meeting of the manufacturer and the buyer. A normal market is an indicator of the quality of a product. Demand pulls along the production chain. But not the spontaneous demand of abandoned buyers. Demand is a state of consciousness conditioned by purchasing power, however, it cannot be reduced only to the amount of money, especially when lending is stimulated in every possible way by banks. The demand, left at the mercy of intermediaries, lobbyists, speculators, is a deadly disease for the national producer of Russia. Demand should be taken under control and generated, the buyer should be educated. Consumer education costs a lot. But it's worth it if you look to the future.

Market liberalism corresponded to the flourishing of the first type of mass production economy, focused on ensuring free access and choice of goods. Such production perceives the consumer as an abstract subject of the relationship in the "producer - seller - buyer" system. The seller is assigned the role

of an active intermediary, but nothing more. It culturally provides a meeting point for producer and consumer. The system, however, must be functionally active, which presupposes not the presence of its constituent components, but their complicity. The perfection of a system is not determined by aesthetics, but by a design feature. It manifests itself in the maximum activation of the possibilities of the system of relations of which it acts. The perfection of the system design lies in the maximum realization of the potential of relations that create consistency.

The buyer is perfect as a subject of systemic interaction with his purchasing preparation. It is not perfect for the size of its payment capacity. His complicity is determined by the knowledge of the commodity-economic situation. The consumer is not an object of application of the actions of the seller and the producer. The consumer is a subject of the market and it is in his (and other subjects') interests to be informed not by the advertising community, but by professional sources. Then counterfeit and "lochism" will cease to populate the market. The quality of the product begins in the mind of the consumer. To impose an idea of quality is bad for all legitimate subjects of economic relations. It needs to be educated again by everyone: the manufacturer, the seller, the buyer himself and the institutions of civil society, if the state is passive.

Moving to mass production the second type - "smart", "Lean" economy activates systemic relations. The function of the market appears in a new light. Together with the manufacturer, the seller focuses on the knowledge of consumer tastes. There is only one, but not an easy, step to make to the system's perfection - the whole world to take up the formation of consumer culture.

Blaming the current generation for consumer attitude towards life is not entirely fair. Consumption is the ultimate goal of production. The trouble is in the absence of a consumer culture of the mass consumer; the trouble is, indeed, of a socio-cultural dimension. Another consequence of the financing of cultural progress. Why is one power replacing another, while culture is still in power last in line for political relevance? It is time to understand that not only science has turned into an immediate productive force. Culture is also a factor in the development of production, moreover, a multifaceted and very effective factor.

There is not a single enterprise that does not have an external environment and is not in a state of constant interaction with it. Any enterprise needs regular receipt of initial products from the external environment to ensure its life. Moreover, each enterprise must give something to the external environment as compensation for its existence. As soon as connections with the external environment are broken, the enterprise dies. Recently, due to the intensification and complication of competition, as

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well as a sharp acceleration of the processes of change in the environment, enterprises are increasingly forced to pay attention to the issues of interaction with the environment, to increasingly develop the ability to adapt to changes in the external environment.

The key role in the development and implementation of the policy of interaction between the enterprise and the environment is played by management, especially its upper level. The issues of long-term strategy of interaction of the enterprise with the environment are becoming the cornerstone of the construction of all management processes. The management no longer deals only with the internal issues of the enterprise. Equally, and perhaps to a greater extent, his gaze is directed outside the enterprise. Management tries to build effective interaction between the enterprise and the environment, not only by influencing the processes occurring in the enterprise, but also by influencing the environment.

Strategic management that solves these problems is highlighted in the complex of enterprise management processes. The external environment of the enterprise, the state of interaction with which is determined mainly by the quality of its management, can be represented in the form of two spheres.

*First sphere*- this is the general external environment of the enterprise. This the external environment reflects the state of society, its economy, natural environment and is not directly related to a specific, enterprise. The general external environment is more or less the same for the vast majority of enterprises.

*Second sphere*- it is the so-called direct business environment of the enterprise. This environment is formed by such environmental subjects that are directly connected or directly affect the activities of this particular enterprise. It is important to emphasize that the enterprise, in turn, can directly influence them.

The general external environment is formed under the influence of political, legal, socio-cultural, economic, technological, national and international processes, as well as environmental management processes.

The direct business environment of the enterprise is created by buyers, suppliers, competitors, business partners, as well as regulatory services and organizations such as administrative bodies, business associations and associations, trade unions, etc.

Managing the processes of interaction of an enterprise with the environment, management is faced with a number of serious problems generated by uncertainty in the state of the environment. In this regard, one of the most difficult tasks facing management is to reduce the uncertainty of the company's position in the environment. This is achieved by developing its adaptability to the external environment and establishing broad connections with the environment, allowing the company to organically

fit into the environment.

Depending on how adaptive the enterprise is to changes in the environment, there are two types of enterprise management:

- 1) *mechanistic type of management;*
- 2) *organic type of management.*

*Mechanistic type of enterprise management* characterized by a set of the following characteristics:

- conservative, inflexible structure;
- clearly defined, standardized and sustainable objectives;
- resistance to change;
- power comes from hierarchical levels in the organization and from position in the organization;
- hierarchical control system;
- command type of communications going from top to bottom;
- the content of communications is mainly orders, instructions and decisions made by the management.

*Organic type of enterprise management* characteristic:

- flexible structure;
- dynamic, not rigidly defined tasks;
- willingness to change;
- power is based on knowledge and experience;
- self-control and control of colleagues;
- multi-directional communications (vertical, horizontal, diagonal, etc.);
- content communications are information and advice. Each of these types has certain advantages.

Accordingly, each of these types can be given a certain preference depending on the nature of the environment and the level of uncertainty. In the event that the environment is dynamic, if the level of uncertainty is high, the organic type of enterprise management is more effective. If the environment is stable and the uncertainty is at a low level, preference can be given to the mechanical type of control.

Development of views on management: "one-dimensional" and "synthetic" teachings:

*When starting to analyze the development of the doctrine of management, it should be remembered that the main task of management is to coordinate the efforts of all elements of the enterprise in the implementation of the success of its functioning.*

*It is useful to pay attention to the structure of the internal environment of the organization, highlighting such elements as goals, personnel, tasks, technology and structure.*

*We must also remember about the presence of the external environment of the enterprise, clearly understanding that it is it that opens access to resources and, thereby, determines the possibility of its existence.*

*It is completely unacceptable to forget that "a person thinks because he does what he does." And, although thought itself is not subject to time, its*

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materialization is carried out in time and space and, most importantly, requires the expenditure of energy.

In other words, the development of thought is really possible only with the experience of its implementation.

The practice of management is as old as the enterprise. Clay tablets dating from the third millennium BC contain information about commercial transactions and the laws of ancient Sumeria.

Let's keep in mind: A task is a goal in specific conditions. A task (task) is a prescribed work, a series of works or a part of a work that must be performed in a predetermined manner within a predetermined time frame. Tasks are assigned to the position, not to the employee.

Views on management evolved as social relations developed, production technology improved, and new means of communication and information processing appeared. However, management thought has always marked the milestones, starting from which there were broad transformations in management practice.

Managerial thought constantly turns to the sphere of the collective activity itself or the activity of management. If we single out the subjective and object plans in the first, then we get three areas of attention and searches: tasks, people and managerial activity. For the initial stage of development of the science of management, it was typical to focus on one of them (one-dimensional doctrines), subsequently the coverage of the number of studied factors increased (multidimensional, synthetic doctrines).

To date, these two groups of the most important approaches are sufficiently developed and represent a jointly systemically defined science of management.

### "One-Dimensional" Management Exercises

The most notable teachings of this group include: scientific management, behavioral teachings, and organizational theories.

The founder and main originator of scientific management ideas is Frederick Taylor. Starting as a worker, he went through all levels of the hierarchy to the chief engineer in a steel company. Taylor was an engineer, so it was completely natural for him (within the paradigm of his day) to view human control as machine control. Based on a mechanistic understanding of the essence of the work of a person of labor, his place in the organization, Taylor saw the solution to the problem of the success of an enterprise in the rationalization of labor operations. Therefore, the starting point for him was the study of the problem. At the same time, he believed that workers are lazy by nature and can work well, at best, with economic incentives. Therefore, managers must think, and workers must work. The basic principles of Taylor's scientific management are as follows:

- development of optimal techniques and methods for carrying out work on the basis of a scientific study of the time spent on individual

operations;

- absolute adherence to scientifically based standards and norms;
- selection, training and placement of workers in those jobs and tasks where they, realizing their abilities, can give the greatest return;
- pay based on labor results (the greater the specific result, the higher the pay);
- the use of functional administrators who exercise regulatory control in specialized areas;
- maintaining friendly relations between workers and managers, in order to implement scientific management.

Without weakening attention to the scientific organization of labor, in the 20-30s of the last century, they drew attention to the fact that labor productivity significantly depends on the social conditions in the organization, and can be significantly increased if special relations are created in the working groups in the process of joint activities - with signs of collectivism. The shift of the center of gravity in management from tasks to a person gave rise to the development of various behavioristic theories of management.

Thus, Walter Dill Scott advocated that managers should look not only through the prism of their economic interests, but also social ones, recognizing their merits. Marie Parker Follett believed that a manager should abandon formal interactions with workers, be a leader, recognized by workers, and not relying on official authority. Her interpretation of management as "the art of achieving results through the actions of others" prioritized flexibility and harmony in the relationship between managers and workers, based on the situation, rather than relying on functional prescriptions.

Abraham Maslow made a huge contribution to the development of the behavioral direction in management. According to Maslow's teachings, a person has a complex structure of hierarchically arranged needs, and management in accordance with this should be carried out on the basis of identifying the needs of the worker and using appropriate methods of motivation.

The specific opposition of the scientific direction and behaviorist concepts in the form of their theoretical generalization was reflected in the theories "X" and "Y" by Douglas McGregor. There are two types of management, reflecting basically two diametrically opposed views of workers.

For enterprises of type "X" the following conceptual prerequisites are characteristic:

- the common person has an inherited dislike for work and strives for work;
- due to the reluctance to work a person only by coercion, with the help of orders, control and threats of punishment, it is possible to induce him to carry out the necessary actions and expend the necessary efforts to achieve its goals by the enterprise;

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• the average person prefers to be ruled, tries not to take responsibility, has relatively low ambitions, and wants to be in a safe situation.

*The following prerequisites are typical for enterprises of type "Y":*

• the expression of physical and emotional efforts at work is as natural for a person as when playing or relaxing. External control and the threat of punishment are not the only means of motivating a person to work. A person in his activities is guided by a certain set of values, learned in the process of education, exercising self-control and self-motivation;

• responsibility and obligations in relation to the goals of the organization depend on the remuneration received for the results of work. The most important reward is that associated with satisfying the needs for self-expression and self-actualization;

• an ordinary person, brought up in a certain way, is not only ready to take responsibility, but even strives for it.

At the same time, McGrigor emphasized that many people have a willingness to use their experience, knowledge and imagination in solving the problems of the enterprise. However, the modern industrial society makes little use of the intellectual potential of an ordinary person.

If, caring about the success of the enterprise, Taylor focused on how to better perform tasks, exploring operations and functions, Mayo and behaviorists looked for answers to the same questions, referring to the nature of relationships in a team, to the motives of human activity, then Faol tried to approach to solve the problem from the position of improving the management activity itself.

Henri Fayol has spent almost his entire adult life in a French company for the processing of coal and iron ore. He believed, based on personal experience, that with the right organization of his work, every manager can achieve success.

Considering the enterprise as a single organism, Fayol believed that any business organization is characterized by the presence of six specific types of activities, or functions:

- technical activities (manufacturing);
- commercial activity (purchase. Sales and exchange);
- financial activity (search and optimal use of capital);
- security activities (protection of corporate property);
- accounting (analysis, accounting, statistics);
- management (planning, organizational function, management, coordination and control).

Having separated management into an independent type of activity and endowing it with five specific functions (planning, organization, management, coordination and control), Fayolle

developed fourteen principles of management, which he himself followed in his practice and on which, he believed, the success of management depends:

• *Division of labor* (improves qualifications and the level of work performance).

• *Power* (the right to give commands and be responsible for the results).

• *Discipline* (a clear and clear understanding between workers and managers, based on respect for the rules and agreements existing in the enterprise, is mainly the result of leadership capabilities).

• *Unity of management* (orders from only one manager and accountability to only one manager).

• *Unity of leadership* (one leader and one plan for each set of actions to achieve some common goals).

• *Subordination of individual interests to common interests* (the manager must achieve through personal example and tough but fair management so that the interests of individuals, groups and divisions do not prevail over the interests of the enterprise as a whole).

• *Staff remuneration* (payment should reflect the state of the enterprise and encourage people to work with efficiency).

• *Centralization* (the level of centralization and decentralization should depend on the situation and be chosen in such a way as to give the best results).

• *Interaction chains* (clear construction of command chains from management to subordinates).

• *Order* (everyone should know their place in the enterprise).

• *Equality* (workers should be treated fairly and kindly).

• *Staff stability* (cadres must be in a stable situation).

• *Initiative* (managers should encourage subordinates to nominate ideas).

• *Corporate spirit* (a spirit of unity and joint actions, develop a brigade form of work).

While affirming the universality of the formulated principles, Fayol nevertheless emphasized the need for their flexible application, taking into account the situation in which the management is carried out.

Undoubtedly, a huge contribution to the development of management thought was made by the German lawyer and sociologist Max Weber, who developed the theory of the bureaucratic organization of an enterprise and the management system in particular.

Weber believed that a bureaucratic system should ensure the operation of the enterprise as a machine, guaranteeing speed, accuracy, order, certainty, continuity and predictability.

According to Weber, the basic principles of building an enterprise that ensure these qualities

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should be as follows:

- division of labor based on functional specialization;
- a well-defined hierarchical system of power distribution;
- a system of rules and regulations defining the rights and obligations of employees;
- a system of rules and procedures for behavior in specific situations;
- lack of personality in interpersonal relationships;
- admission to the company based on the competence and needs of the company;
- career development based on the competence and broad knowledge of enterprises that come with seniority;
- strategy life-long employment;
- a clear career system that provides upward advancement for qualified workers;
- management of administrative activities consists in the development and establishment of detailed written instructions in enterprises.

For "synthetic" doctrines, a view of management as a multidimensional, complex and changing phenomenon associated with many connections with the internal and external environment of the enterprise is characteristic. The first successes of this understanding of management took shape as a systematic approach to the enterprise. The opportunity has opened up for deep penetration into the system of internal and external relations and multifactorial analysis of both the object and the subject of management activity.

Undoubtedly, Peter Drucker should be considered one of the most prominent theorists of our time in the field of systems view of management. The center of Drucker's ideas about management is the systematic teaching of management as a professional activity and manager as a profession. This made it possible to organize the study of management in educational institutions and open the training of managers.

One of the most famous theoretical positions put forward by Drucker is his concept of management by goals. Drucker's idea that management should begin with setting goals and then move on to the formation of functions, a system of interaction and a process, radically turned the logic of management.

Situational theories occupy a prominent place among the "synthetic" doctrines of management. Situational theories provide guidance on how to handle specific situations. In this case, a step-by-step algorithm for solving problems is recommended. First, it is necessary to carefully analyze a specific situation, highlighting what requirements the situation presents to the enterprise and what is typical for the situation. Second, an appropriate management approach must be chosen. Thirdly, management must create capacity in the enterprise and the necessary

flexibility in order to be able to move to a new management style appropriate to the situation. Fourth, management must make appropriate changes to accommodate the situation.

One of the most popular systemic management concepts is the 7-S theory, developed in the 80s. (USA) It was noticed that an effective organization, as a rule, is formed on a meringue of seven interrelated components, changing each of which necessarily requires a corresponding change in the other six. These key ingredients are as follows:

*structure* -the internal composition of the enterprise, reflecting the mutual position of organizational units, the hierarchical subordination of these units and the distribution of power between them;

*systems*- procedures and routine processes in the enterprise;

*state*- key groups of personnel existing at the enterprise and characterized by age, gender, education, etc. ;

• *qualification* - the distinctive capabilities of key people in the enterprise;

• *shared values* - the meaning and content of the main activities that the company communicates to its members.

In 1981, the American Ulyam Ouchi, based on the Japanese management experience, put forward the theory "Z", as if supplementing and developing the ideas of McGrigor and leveling the provisions of situational theories. The starting point of Ouchi's concept is the position that a person is the basis of any enterprise and the success of the enterprise depends on him first of all. Proceeding from this, W. Ouchi formulated the main provisions and rules of effective people management. The ideas of the theory "Z" in a condensed form are as follows:

- long-term recruitment of personnel;
- group decision making;
- individual responsibility;
- slow differentiated appraisal of personnel and their moderate step-by-step promotion;
- indirect, informal control by clear and formalized methods;
- non-specialized career;
- comprehensive care of employees.

This review of management doctrines shows that practice constantly highlights more and more problematic facets of managing joint activities that arise during its progressive development. Science, in turn, responds in a timely and effective manner to the requests of practice, while putting forward a kind of guidelines that are very useful for practitioners, so guided by a four-step model of achieving success, namely:

1. Decide what you want (formulate and set a goal for yourself).
2. 3. See what happens.

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4. If necessary, change the approach until you achieve what you want.

*Setting the right goals means being able to "correctly formulate the result."*

*The basic principles of the formation and selection of their goals:*

1. Choose goals that deserve to be achieved.
2. Choose a goal that you can achieve on your own.
3. State your goal in affirmative terms.
4. Express your goal accurately in sensory categories.
5. Match your goal with the context (situation).
6. Soberly assess the consequences of achieving your goal.

The subconscious mind plays an important role in everything we do. Business and organizational methods of achieving goals (formalized) usually omit this factor. The same applies to individual goals, chosen in a logical, systematic way, "left hemisphere".

*Thinking in the affirmative is the principle of correctly formulating the result.*

Unfortunately, they usually focus on trying to avoid the unwanted instead of thinking about the desired and achieving the desired. They develop an "aggressive-defensive", "denying" character instead of a "affirming" one. In the end, the "denying person" experiences the scenario that he would like to avoid, because it is he who is strategically fixed and implemented. You might call this "avoidance" system prudence, realism, prudence, and so on. It manifests itself most effectively when achieving internal goals, but when it comes to the perceived goals "...? ..", it often leads to incomprehensible at first glance blunders. Therefore, the first principle of a correctly formulated result reads: "I express my goal in affirmative terms."

### Balanced Self-Renewal Principles

Perhaps we began to understand that if we want to change something, then we must start the change with ourselves. And in order to change ourselves effectively, we must first of all change our perception.

The principles of NLP (neuro-linguistic programming) involve taking into account all four dimensions. This means that we must develop them regularly and consistently in the most sensible and balanced way. Spending time on self-renewal requires initiative on our part.

*Effective skills are well-learned principles and behaviors.* To turn something in your life into a skill, you need three components: Knowledge, Skill, Desire.

Knowledge is a theoretical paradigm that determines what to do and why. Skill determines

*how to do...* And desire is motivation - I want to do it.

If one day we believe that from now on our behavior depends on our decisions, and not on the surrounding conditions, then the very first skill

necessary for the beginning of personal self-development is about activity. By about activity we must understand it, comprehending it as a fact that, initiating what is happening, subordinating our feelings to our values, we are responsible for our actions (and, above all, in front of ourselves). The behavior of a proactive person is a product of his own choice; he does not look for the "guilty" for his actions and for their results. In this case, he asks himself, and looks for the answer in himself. Stephen R. Covey believes that in order to achieve personal victory (victory over oneself), a person needs at least two more skills (Figure 1) (except for "Be active" (1): this is "Start by imagining the ultimate goal" (2), and "First, do what must be done first" (3). If we have already quite clearly defined the meaning of the goal in our activity, then we still need to figure it out with the third skill. In this case, we mean the need to manage your time, clearly understanding the degree of importance and urgency of those things that we are planning to do.

*Despite the fundamental differences between these concepts discussed above, they nevertheless have something in common at their core, which reflects a certain commonality in motivating a person to action.* The named concepts of Maslow, Alderfer, McClelland, Herzberg allow us to conclude that there is no canonized one that explains what lies at the heart of a person's motivation and how motivation is determined. Each of the theories outlined has a certain fundamental difference.

Thus, each of the theories has something special, distinctive, which gave it the opportunity to gain wide recognition from theorists and practitioners and make a significant contribution to the development of knowledge about motivation. However, despite the fundamental differences, all four of the above theories have something in common, which makes it possible to establish certain parallels between them. A characteristic feature of all four theories is that they study needs and provide a classification of needs that allows one to draw some conclusions about the mechanism of human motivation. Comparing the classifications of all four theories, it can be noted that the groups of needs identified in various theories quite definitely correspond to each other.

Much depends on organizational culture and team management light industry enterprises.

An enterprise is a complex organism, the basis of the life potential of which is organizational culture: that for the sake of which people became members of the enterprise; how relationships are built between them; what stable norms and principles of life and activity of the enterprise they share; what, in their opinion, is good and what is bad, and much more that relates to values and norms. All this not only distinguishes one organization from another, but also significantly predetermines the success of the operation and survival of the enterprise in the long

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term. Organizational culture is not so obvious on the surface, it is difficult to “feel” it. If we can say that an enterprise has a “soul”, then this soul is organizational culture.

Organizational culture is carried by people. However, in enterprises with an established organizational culture, they seem to be separated from people and become an attribute of the enterprise, its part, which has an active influence on the members of the enterprise, modifying their behavior in accordance with the norms and values that form its basis.

Since culture plays a very important role in the life of an enterprise, it should be the subject of close attention from the side of management. Management not only corresponds to the organizational culture and strongly depends on it, but can, in turn, influence the formation and development of organizational culture. To do this, managers must be able to analyze the organizational culture and influence its formation and change in the desired direction.

In modern literature, there are both very narrow and very broad interpretations of what constitutes an enterprise culture.

Most often, organizational culture is interpreted as the philosophy and ideology of management accepted by the majority of the enterprise, assumptions, value orientations, beliefs, expectations, dispositions and norms that underlie relations and interactions both within the enterprise and outside it.

Using what is common to many definitions, you can understand organizational culture as follows. Organizational culture is a set of the most important assumptions that are accepted by the enterprise's team and expressed in the values declared by the enterprise, which set the guidelines for their behavior and actions. These value orientations are transmitted to individuals through the "symbolic" means of the spiritual and material within the organizational environment.

*Basic assumptions* are what the collective of the enterprise adheres to in its behavior and actions. These assumptions are often associated with the vision of the environment surrounding the individual (groups, enterprises of society, the world) and its regulating variables (nature, space, time, work, relationships, etc.). It is often difficult to articulate this vision for an enterprise.

*Values* (or value orientations) guide the individual in what behavior should be considered acceptable or unacceptable. For example, in some enterprises, it is believed that “the client is always right,” therefore, it is inadmissible in them to blame the client for the failure in the work of the enterprise team. In others, it may be the other way around. However, in both cases, the accepted value helps the individual understand how he should act in a particular situation.

*"Symbolism"* it is the means by which value orientations are "transferred" to the collective of the enterprise. Many enterprises have special documents

intended for all, in which they describe in detail their value orientations. However, the content and meaning of the latter are most fully revealed to workers through the "walking" stories, legends and myths. They are told, retelling, interpreted. As a result, they sometimes have more influence on individuals than the values that are written in the company's advertising brochure.

Organizational culture has a specific structure. The latter can be viewed as a three-tier one.

*The first, "superficial" or "symbolic" level.* Includes such visible external facts as - applied technology and architecture, use of space and time, observed behavior, language, slogans, etc., or everything that can be felt and perceived through the known five human senses (see, hear, taste and smell, touch). At this level, things and phenomena are easy to detect, but not always they can be deciphered and interpreted in terms of organizational culture.

*Second, "subsurface" level...* At this level are found values and beliefs shared by the enterprise team, in accordance with how these values are reflected in symbols and language. The perception of values and beliefs is conscious and dependent on the will of the people.

*The third, "deep" level...* Includes basic assumptions that are difficult to grasp, even by the enterprise team itself, without special focus on this issue. These hidden and accepted assumptions guide people's behavior by helping them perceive the attributes that characterize organizational culture.

According to which of these levels are being studied, there is a division of organizational cultures into subjective and objective.

Subjective organizational culture comes from employee-shared patterns of assumptions, beliefs and expectations, as well as from the group perception of the organizational environment with its values, norms and roles that exist outside the individual. This includes a number of elements of "symbolism", especially its "spiritual" part: the heroes of the enterprise, myths, stories about the enterprise and its leaders, organizational taboos, ceremonies and rituals, the perception of the language of communication and slogans. Subjective organizational culture serves as the basis for the formation of a management culture, i.e. styles of leadership and decision-making by leaders of problems, their behavior in general. This creates a distinction between seemingly similar organizational cultures. For example, two businesses can claim to provide quality service to their customers. But the end result will largely depend on

Objective organizational culture is usually associated with the physical environment created in the enterprise: the building itself and its design, locations, equipment and furniture, colors and volume of space, amenities, cafeteria, reception rooms, parking lots and cars themselves. All this, to one degree or another, reflects the values that the collective of the enterprise adheres to. While both

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aspects of organizational culture are important, the subjective aspect creates more opportunities for finding both common and differences between people and between enterprises.

A specific organizational culture can be considered based

*ten characteristics:*

- awareness of oneself and one's place in the enterprise (some cultures value the employee's concealment of their internal moods, others encourage their outward manifestation; in some cases, independence and creativity is manifested through cooperation, and in others - through individualism);

- communication system and language of communication (the use of oral, written, non-verbal communication, "telephone law" and openness of communication differs from group to group, from enterprise to enterprise; jargon, abbreviations, gestures vary depending on the industry, functional and territorial affiliation of enterprises);

- appearance, clothing and presentation of oneself at work (a variety of uniforms and workwear, business styles, neatness, cosmetics, hairstyle, etc. confirm the presence of many micro cultures);

- what and how people eat, habits and traditions in this area (organization of meals for employees, including the presence or absence of such places in the enterprise; people bring food with them or visit the cafeteria inside or outside the enterprise; food subsidies; frequency and duration of meals; whether employees eat different levels together or separately, etc.);

- awareness of time, attitude towards it and its use (the degree of accuracy and relativity of time among workers; adherence to a time schedule and reward for it; mono-chronic or polychronic use of time);

- relationships between people (by age and sex, status and power, wisdom and intellect, experience and knowledge, rank and protocol, religion and citizenship, etc.); the degree of formalization of relations, support received, ways of resolving conflicts);

- values (as a set of guidelines for what is good and what is bad) and norms (as a set of assumptions and expectations about a certain type of behavior) - what people value in their organizational life (their position, titles or work itself, etc.) and how these values are preserved;

- belief in something and attitude or disposition towards something (belief in leadership, success, in one's own strengths, in mutual assistance, in ethical behavior, in justice, etc.; attitude towards colleagues, clients and competitors, towards evil and violence, aggression, etc.); the influence of religion and morality);

- the process of employee development and learning (thoughtless or conscious performance of work; rely on intelligence or strength; procedures for

informing employees; recognition or rejection of the primacy of logic in reasoning and actions; abstraction and conceptualization in thinking or memorization; approaches to explaining reasons);

- work ethics and motivation (attitude to work and responsibility at work; division and substitution of work; cleanliness of the workplace; quality of work; work habits; job evaluation and reward; person-machine relationship; individual or group work; work progress) ...

The above characteristics of enterprise culture, taken together, reflect and give meaning to the concept of organizational culture.

The members of the company, sharing faith and expectations, create their own physical environment, develop a language of communication, perform actions that are adequately perceived by others and show feelings and emotions understood by all. All this, when perceived by employees, helps them to understand and interpret the culture of the enterprise, i.e. give meaning to events and actions and make meaningful in your work environment. The behavior of individuals and groups within an enterprise team is strongly bound by norms arising from these shared beliefs, expectations and actions.

The content of organizational culture influences the direction of behavior and is determined not by the simple sum of assumptions, but by how they are related to each other and how they form certain patterns of behavior. The hallmark of a culture is the relative order in which underlying assumptions form it, which indicates which policies and which principles should prevail in the event of conflict between different sets of career planning assumptions.

There are two ways in which culture influences organizational life. First, culture and behavior mutually influence each other. Second, culture influences not so much what people do, but how they do it. There are various approaches to identifying a set of variables through which the influence of culture on an enterprise is monitored.

V. Sate considers the influence of culture on organizational life through seven processes:

- cooperation between individuals and parts of the enterprise;

- control;
- communications;
- dedication to the enterprise;
- perception of the organizational environment;
- justification of their behavior.

At the same time, the first three processes correspond with the first, surface level of organizational culture or patterns of organizational behavior, and the next four - with the second, subsurface level, which has a "value" basis. The efficiency of the enterprise depends on how these processes proceed.

*Cooperation* as a pattern of behavior in the enterprise cannot be established only with the help of

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formal management measures, since it is impossible to foresee all possible cases. How much people really cooperate in collectives of enterprises depends on the assumptions they share in this area. In some enterprises, the highest value is group work, in others - internal competition. In other words, it all depends on which philosophy prevails: individualist or collectivist.

The influence of culture on decision-making is carried out through shared beliefs and values that form a stable set of basic assumptions and preferences among members of the organization. Since organizational culture can help minimize disagreement, decision-making becomes more efficient.

*The essence of the process control* is to stimulate action towards achieving the set goals. In the nature of management, there are three control mechanisms: the market, administration, clannishness. Usually, the collectives of enterprises have all three mechanisms at once, but to varying degrees. Market control relies heavily on prices. The underlying assumption is that changing prices and payments should stimulate necessary changes in the enterprise.

*Administrative* the control mechanism is based on formal authority. The process itself consists of changing rules and procedures through the issuance of directives. This mechanism is based on two assumptions:

- from above it is better to see what measures to achieve the desired result;
- employees obey without question within shared underlying assumptions.

*Clan* the control mechanism is entirely based on shared beliefs and values. It is from them that the members of the collective of the enterprise proceed when carrying out their actions. It is also assumed that employees are sufficiently committed to the enterprise and know how to operate within the given culture. As the enterprise grows and develops, the clan mechanism is replaced by an administrative one, and then a market one.

The influence of culture on communication occurs in two directions. The first is that there is no need to communicate in matters for which there are shared assumptions. In this case, certain actions are performed without words. Second, shared assumptions provide direction and aid in the interpretation of the messages received. So, if at the enterprise the employee is not considered an appendage of the machine, then the news of the upcoming automation or robotization will not shock him.

The content of culture also affects the content of communication. In some enterprises, the openness of communication is valued, while in others it is the other way around.

An individual feels dedicated to an undertaking when he identifies with the latter and experiences

some emotional connection with it. A strong culture makes the individual's identity and feelings about the enterprise strong. Also, workers can step up their actions in an effort to help the enterprise.

*Perception* organizational reality or what he sees is largely due to what his colleagues say about what he sees, who share the same experience with him. Culture influences this process by providing collective members of the enterprise with a common interpretation of their experience. In enterprises where timely customer service is highly valued, the perception of a lack of resources for work will not be interpreted as a need to change the developed disposition towards the client. Otherwise, the client could be seriously hurt.

Culture helps people in an enterprise to act meaningfully by providing justification for their behavior. In enterprises where risk is valued, a person takes it, knowing that in case of failure, he will not be punished and that lessons for the future will be learned from failure. Actions that are justified in this way reinforce existing behavior, especially when it fits into the situation. This process is a source of funds for changing the culture itself. Because people use culture to justify behavior, it is possible to change culture through behavior change. However, for this process to succeed, it must be ensured that people cannot justify their new behavior with the "old" culture.

The bestselling authors of *In Search of Successful Management*, T. Peters and R. Waterman, discovered the link between culture and business success. Taking as a model successful American firms and describing management practices, they "derived" a set of beliefs and values of the organizational culture that led these enterprises to success:

- belief in action;
- communication with the consumer;
- encouraging autonomy and entrepreneurship;
- considering people as the main source of productivity and efficiency;
- knowledge of what you control;
- do not do what you do not know;
- simple structure and few management staff;
- a simultaneous combination of flexibility and rigidity in the enterprise.

*Faith in action.* According to this value, decisions are made even in the absence of information. Postponing decisions is tantamount to not making them.

*Consumer communication.* For successfully operating enterprises, the consumer represents the focus in their work, since it is from him that the main information for the enterprise comes. For these businesses, customer satisfaction is at the heart of their organizational culture.

*Autonomy and enterprise.* Enterprises those struggling with a lack of innovation and bureaucracy are "divided" into smaller manageable parts and provide them, as well as individuals, with a certain

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degree of independence necessary for the manifestation of creativity and risk. This cultural norm is maintained through the dissemination of legends and stories throughout the enterprise about their own Edison and Ford.

*Performance depends on the individual.* This value proclaims a person as the most important asset of an enterprise. At the same time, the efficiency of an enterprise is measured through the satisfaction of its members. The belief that treating people with respect and dignity leads to success is at the heart of the culture of these businesses.

*Know what you control.* In line with this deeply ingrained cultural norm, successful businesses are expected to “be run not by the closed doors of their executive offices, but through visits by managers at the facilities they manage and through direct contact with subordinates in the field.

*Do not do what you do not know.* This provision belongs to the category of one of the important characteristics of the culture of successfully operating enterprises. These businesses do not accept diversification away from the core business.

*Simple structures and few managers.* Typical for successful enterprises is the presence of a small number of management levels and a relatively small staff of managers, especially in the upper echelon. The position of a manager at such enterprises is determined not by the number of his subordinates, but by his influence on the affairs of the enterprise and, most importantly, on its results. According to this cultural value, managers are more focused on the level of their subordinates' performance, rather than on increasing their staff.

*Simultaneous flexibility and rigidity in the enterprise.* The paradox of this attribute of the organizational culture of successful enterprises is resolved as follows. High organization in them is achieved due to the fact that all employees understand and believe in the values of the enterprise. This ties them together and integrates them tightly. Flexibility is ensured by minimizing “governing” interventions and minimizing the number of regulations and procedures. This encourages innovation and the willingness to take risks. As a result, the rigid structure of shared cultural values makes possible a flexible structure of administrative control.

In a more general form, the relationship between culture and enterprise performance is presented in the model of the American sociologist T. Parsons. The model is developed on the basis of the specification of certain functions that any social system, including the enterprise, must perform in order to survive and succeed. The first letters of the English names of these functions in the abbreviation gave the model name - AGIL:

- adaptation;
- achievements of goals;
- integration;

- legitimacy.

The essence of the model is that for its survival and prosperity, any enterprise must be able to adapt to the constantly changing conditions of the external environment, achieve the goals set by it, integrate its parts into a single whole and, finally, be recognized by people and other enterprises.

This model assumes that the values of organizational culture are the most important means or tools for performing the functions of this model. If the beliefs and values shared by an enterprise help it adapt, achieve goals, unite and prove its worth to people and other enterprises, then obviously such a culture will influence the enterprise in the direction of success.

T. Parsons' ideas were developed and concretized by R. Queen and J. Rohrbach in their model "Competing values and organizational effectiveness", which explains the influence of certain groups of values on organizational efficiency. In the development of the AGIL model, it was proposed to consider this influence not in one, but in three dimensions. Therefore, a model of so-called "competing values" was used.

This model includes the following three dimensions:

*integration - differentiation:* refers to the design of works and the enterprise as a whole. This dimension indicates the degree to which the enterprise team places emphasis on either control (stability, order and predictability are preferred) or flexibility (innovation, adaptation and change are preferred);

*inner focus - outer focus,* this dimension reflects the predominance in the collective of the enterprise of interest either in the arrangement of its internal affairs (coordination and satisfaction of employees), or in strengthening the position of the enterprise as a whole in the external environment;

*means / tools - results / indicators:* measurement in the model demonstrates the difference in concentration of attention, on the one hand, on processes and procedures (planning, goal setting, etc.), and on the other, on the final results and indicators of their measurements (productivity, efficiency, etc.). These three dimensions give birth to four different approaches to organizational performance models:

quadrant 1 - the “human relations” approach, reflecting the state of maintaining the system of social relations, human obligations, decentralization and differentiation through the development of cohesion and skills among workers;

quadrant 2 - the “open system” approach, reflecting the state of decentralization and differentiation, growth and adaptation, improving the competitive position for the entire enterprise through a concentration on the development of flexibility and the ability to acquire the necessary resources;

quadrant 3 - the “rational-target” approach,

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reflecting the strengthening of the competitive position of the enterprise as a whole, the maximization of results, centralization and integration through an emphasis on planning, efficiency and productivity; quadrant 4 - the "internal processes" approach, reflecting the state of centralization and integration, consolidation and continuity, maintenance of the system of social relations through the distribution of information and the strengthening of stability and order.

This general model describes the values of enterprise culture in relation to each individual approach to measuring performance and compares the perspective of one approach to all others. The measurement of competing values in the Quinn-Popbach model is carried out using "scaled" questionnaires. Therefore, the model can be used as an effective tool for organizational diagnostics. In contrast to one-dimensional models, in this case it is impossible to get the "only correct answer" about the efficiency of the enterprise. The model reveals shortcomings in all four of its parts to the extent that they are present in the activities of the enterprise.

*For management practice, it is important to get from the theory the answer to two questions: what is necessary to know about the national culture in order to take into account its influence on the efficiency of team management, and is it possible to "splice" elements of different national cultures within the framework of one enterprise?*

**Systems approach.** The entire "flavor" of the national culture of the society in which the given enterprise operates takes part in the formation of the organizational culture.

Systematization, like ordering in the relationships between parts, contributes to the direction of analysis and consideration of the level of influence of individual elements of the whole. And they are the following: the family system, the education system, the economic system, systems - political, religious, socialization, health, recreation.

The family system is about family relationships and the way people reproduce, educate, and introduce their children into society. In a family, children for the first time develop behavioral patterns that they need to fulfill in the future various roles in the enterprise team (for example, relationships by status, age, gender, etc.)

The education system is how young and new members of society are provided with information, knowledge, skills and value guidelines. So, for example, in some cultures they teach more through what not to do, while in others it is the other way around.

An economic system is the way in which a society produces and distributes goods and services. In this case, there are group, collective and individual approaches.

The political system is what is primarily used to maintain order and existing power. These can be

attributes of a tribal and even generic approach, or they can be elements of a developed democracy.

The religious system is outside - material, spiritual means of providing meaning and motivation in the actions of people. This system determines the morality and prevailing values in society, which are guided by the enterprises operating in this society.

A socialization system is a network and principles of social grouping created by people in a given society.

The health system is the way in which culture prevents and heals disease and cares for the victims of disasters and incidents.

The recreation system is a way of socializing people and using their free time. Some cultures pay significant attention to sports activities, and various types of outdoor activities are cultivated. In a number of cultures, there is an emphasis on folk dancing and singing, attending shows, etc., during recreation.

In Hofstede's model, the approach to the study of the national in organizational culture, developed by G. Hofstede and based on five variables, is very popular:

- *power distance;*
- *individualism;*
- *masculinity;*
- *the desire to avoid uncertainty;*
- *long term orientation.*

*Distance of power* - This is the degree of inequality between people, which the population of a given country considers acceptable or normal. At the same time, a low degree is characterized by relative equality in society, and a high degree is the opposite.

*Individualism* - it is the degree to which people in a given country choose to act as individuals rather than as members of a group. The high degree of this variable suggests that a person, being in conditions of free social ties in society, takes care of himself and his loved ones in the family, as well as bears full responsibility for all his actions. This same variable is characterized as collectivism (or a low degree of individualism). In collectivist societies, people are taught from childhood to respect the groups to which they belong, usually a family, clan, clan or organization. No distinction is made between members of the group and those outside it. Group members expect the group to protect them and be held accountable if they get in trouble. For this they are obliged to pay with loyalty to their group throughout their lives. In individualistic societies, from childhood, they are taught to think of oneself in terms of "I", and not a part of "Us". It is expected that, once standing on his feet, the individual will no longer receive protection from his group, and she will not be responsible for him. Therefore, he should not show strong loyalty to the group.

*The third variable also has two poles: masculinity and femininity.*, reflecting how people of this culture relate to values such as "persistence" and "self-confidence", "high level of work", "success and

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competition", which are associated almost everywhere to a greater extent with the role of men. These values differ from "tender" values such as "life comforts," "maintaining warm personal relationships," "caring for the weak and solidarity," which are associated primarily with the role of women. We are talking about the predominance in society of patterns of behavior inherent in either the male or female. The role of a woman is different from that of a man in all countries, not in "hard" societies this difference is greater than in "gentle" ones.

*The fourth variable is called "the desire to avoid uncertainty" and can be defined as the degree to which people in a given country have a preference for structured situations over unstructured ones. Structured situations are situations with clear and precise rules for how to behave. These rules can be formalized, or they can be supported by traditions. In countries with a high degree of uncertainty avoidance, people tend to be very anxious and anxious, hectic at work, or "rush." Otherwise, people behave and work more calmly and systematically. In countries with a high degree of ambition to avoid uncertainty, the prevailing view is that everything "not ours and the unfamiliar" is dangerous. With a low degree of desire to avoid uncertainty, everything that is "not one's own and unusual" arouses cognitive curiosity.*

*The fifth variable is measured by long-term or short-term orientation. In the behavior of members of society. Long-term orientation is characterized by a look into the future and manifests itself in the desire to save and accumulate, in perseverance and perseverance in achieving goals. Short-term orientation is characterized by a look into the past and present and manifests itself through respect for traditions and heritage, through the fulfillment of social obligations.*

Lane's model and Distefano on the impact of the national on organizational culture is built on six variables, defined as the problems that society faces throughout its history. Anthropologists have found that different societies deal with these problems in different ways. The model calls these different paths "variations in value orientations."

The six variables of the model under consideration include:

*1. the relationship of man to nature;*

- *orientation in time;*
- *belief about human nature;*
- *activity orientation;*
- *relationship between people;*
- *orientation in space.*

The model assumes that each of these variables and its "national" variation are directly related to certain characteristics and variations of their state within the organizational culture prevailing in a given society.

So, belief about human nature is not about understanding how one individual thinks about

another, but what the individual believes, considering the possibilities of a person. For example, is it possible to change a person or not. Or whether people are inherently bad, good, or both.

In an organization, value orientations in relation to human nature can, according to the model, be measured through the following characteristics: control system; management style; organizational climate.

The most obvious, from the point of view of the influence of human nature on organizational efficiency, is the control system. An orientation toward the initially "bad" in human nature serves as the basis for a rigid control system that presupposes a suspicious attitude towards people. Other orientations ("neutral" and "good") in relation to human nature will reproduce correspondingly more flexible control systems.

The well-known organization of the "Z" type, described by W. Ouchi, is an attempt to show how the combination of the advantages of two rather different cultures (Japanese and American) "gives birth" to an effective version of the culture of American business enterprise. W. Ouchi based his research on a comparative analysis of seven variables of organizational culture:

- *the obligations of the enterprise in relation to its members;*
- *evaluation of work performance;*
- *career planning;*
- *control system;*
- *making decisions;*
- *level of responsibility;*
- *interest in a person.*

Obligations towards employees. According to W. Ouchi, all three types of businesses value low employee turnover. Dismissals apply only in stalemate. However, how this cultural value is maintained differentiates these three types of enterprises. If in Japan the system of life-long employment is more often used for this purpose, then American firms traditionally focus on short-term employment, giving the individual freedom of choice. In practice, however, most American workers and employees build their life careers by changing a small number of enterprises.

All three types of enterprises carry out this work using both quantitative and qualitative measures. However, the time lag and its impact on careers differ. Thus, in a "purely" American enterprise, rapid progress is valued, based on the assessment of work using a variety of quantitative measures.

The number of functions performed in the course of the career path significantly distinguishes Japanese and American managers. The "third" way offers to diversify the manager's career in the framework of three to five functions.

Not a single enterprise can do without control. However, each company solves this in its own way. If

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a typical American enterprise has a clear, clear and rather formal reporting system, then for the "ideal" model, a mainly Japanese approach is proposed, when control is carried out through informal and less structured mechanisms. Organizational culture is one of the most effective mechanisms.

Preference is given to the Japanese version, when decisions in the enterprise team are made at the group level and on a consensus basis (everyone basically agrees and makes decisions for implementation).

Unlike the advantages of a group consensus decision, W. Ouchi's model suggests that the American firm "Z" maintain responsibility at the individual level. In this case, it is assumed that two different cultural values (group decision and individual responsibility) should coexist with each other. This is solved in many cases through the mechanism of participation in management, which traditionally retains the last word in the decision for the manager. The American personality, however, does not suffer. Following the Japanese approach, U. Ouchi suggests, in variant "Z", to consider the personality in the enterprise collective more than just an employee, to show interest in his home life, hobbies, faith, desires, fears and inspiration.

U. Ouchi's model was applied in practice at a number of Japanese automobile factories of Toyota and Nissan in the USA. Where businesses have systematically invested in their workers and their work over an extended period of time, there have been gradual and significant improvements.

The main groups of methods of maintaining culture are as follows:

*objects, and objects of attention, assessment, control by managers.* This is one of the most powerful methods of maintaining culture in the collective of the enterprise, since through repeated actions the manager lets the employees know what is important and what is expected of them. In these situations, managers and their subordinates discover organizational culture to a degree that they never imagined. The depth and scope of the crisis may require the enterprise to either strengthen the existing culture, or introduce new values and norms that change it to a certain extent. For example, in the event of a sharp decrease in demand for manufactured products, the organization has two alternatives: to lay off some of the employees or to partially reduce the working time with the same number of employees. At enterprises where a person is declared as the "number one" value, apparently, they will accept the second option.

Aspects of organizational culture are internalized by subordinates through how they are supposed to fulfill their roles. Managers can specifically incorporate important "cultural" cues into training programs and the day-to-day help of subordinates at work. For example, an educational film can focus on the cleanliness of the workplace.

The manager himself can also demonstrate to subordinates, for example, a certain attitude towards clients or the ability to listen to others. By constantly focusing attention on these points, the manager helps to maintain certain aspects of the organizational culture. The culture in an organization can be learned through a system of rewards and privileges. The latter are usually tied to certain patterns of behavior and, thus, prioritize employees and indicate values that are more important for individual managers and the enterprise as a whole. The system of status positions in the collective of the enterprise works in the same direction. Thus, the distribution of privileges (good office, secretary, car, etc.) indicates roles and behavior that are more valued by the enterprise. At the same time, practice shows that this method is often not used fully and systematically.

This is one of the main ways to maintain culture in the team of the enterprise. What the company and its management come from, regulating the entire personnel process, becomes quickly known to its members by the movement of employees within the company. The criteria for personnel decisions can help, or can hinder the strengthening of the organizational culture existing in the collective of the enterprise. Thus, the turnover of personnel on assembly lines inherent in conveyor production prompted many enterprises to switch to either a group approach in work, or to a transition to a "cart" assembly within the framework of an integrated team.

Many of the beliefs and values underlying the enterprise culture are expressed not only through legends and sagas that become part of organizational folklore, but also through various rituals, ceremonies, traditions and ceremonies. Rituals include standard and repetitive team activities at set times and on special occasions to influence employee behavior and understanding of the organizational environment. Rituals are a system of rituals. Even certain management decisions can become organizational rites that employees interpret as part of the organizational culture. Such ceremonies act as organized and planned activities of great "cultural" significance. Observance of rituals, rituals and ceremonies enhances self-determination.

The culture of the enterprise collective includes three levels: symbols; values and beliefs; basic assumptions. The question arises about the possibility of manipulating culture through the implementation of changes at each of the indicated levels.

There is a position that regardless of the stage of development at which an enterprise is located, its top management can manage culture in two ways. The first is, as it were, a vision from above, which should arouse the enthusiasm of the majority of the company's team members. The leader-leader inspires and realizes the core values of the enterprise. This presupposes a clear and sincere personal commitment from the leader to the values in which he believes.

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The application of the second method starts from the other end of the enterprise, from its lower levels. In this case, much attention is paid to the details of real life in the enterprise team. Managers must track throughout the enterprise what is happening with them, while trying to manage the enterprise culture step by step.

It is known that a number of managers confidently adhere to certain values and beliefs, but do not pass them on to other members of the enterprise team. In such a situation, they lose the opportunity to influence the culture of the enterprise. Recluse managers can grasp all the "technical" secrets of management, but they cannot influence the culture of the enterprise, remaining "invisible". It follows that the first method can be realized through public statements, speeches and personal example, testifying to a consistent interest in the values being introduced. Leaders are encouraged to speak in print, on radio, and on television as often as possible preaching the values that are being set. The latter should not be the secret of the enterprise. The second method requires an understanding of the importance of culture in the daily life of the enterprise. At the same time, the manipulation of symbols and things of the material world of the enterprise, the creation and development of patterns of behavior, the introduction of the conditions of interaction step by step can be effective means. Cultural management implies the ability to influence the subsurface level through the constant manipulation of surface-level attributes, up to and including changing basic assumptions. If the daily actions of managers in the enterprise team are in accordance with their declared values, then this, of course, contributes to the development of culture and its strengthening. Cultural management implies the ability to influence the subsurface level through the constant manipulation of surface-level attributes, up to and including changing basic assumptions. If the daily actions of managers in the enterprise team are in accordance with their declared values, then this, of course, contributes to the development of culture and its strengthening. Cultural management implies the ability to influence the subsurface level through the constant manipulation of surface-level attributes, up to and including changing basic assumptions. If the daily actions of managers in the enterprise team are in accordance with their declared values, then this, of course, contributes to the development of culture and its strengthening.

Obviously, managing organizational culture is not easy. Value orientations should not only be declared, but also become an integral part of the inner life of top management and be transmitted to the lower levels of the enterprise in all their details.

When managing a culture, it should be borne in mind that it can serve as a kind of "glue" that holds together parts of the enterprise. However, it must be remembered that if the parts are bad, then even the

best "glue" in the world will not make the whole strong enough. Unification of Values and the daily work of managers to "implement" them in life can lead an enterprise to success.

Crop management is a rather lengthy process; it bears little resemblance to quick troubleshooting. The basic assumptions that lie deep in the minds, beliefs and behavior of members of an organization cannot be changed overnight. This process provides for the constant socialization of new members of the enterprise, endless clarification of what they believe in and what they value in the team of the enterprise, tireless attention to both the general abstract view of things and the specific details of the everyday life of the enterprise, and, finally, the correct planning of all this work. ... The following guidelines can help managers improve the effectiveness of culture management in the enterprise team.

*Pay special attention to intangible, outwardly invisible aspects of the organizational environment. Deeply rooted assumptions and value orientations can require lengthy and difficult changes in the management system and structure. Culture is the way that helps to understand the organizational "Through the Looking Glass".*

*Be skeptical about proposals calling for rapid transplantation or culture transformation.*

*Try to understand the significance of important organizational symbols (company name, logo, slogans).*

*Listen to the stories told in the enterprise team, analyze who their heroes are and what these stories reflect in the culture of the organization.*

*Periodically introduce organizational rituals to convey basic ideals and strengthen culture.*

*Implement abstract ideals directly and directly in your daily activities. The manager is required to understand what ideals he should adhere to and*

*what actions should be taken to convey these ideals down the levels of the enterprise.*

Organizational culture represents the set of the most important assumptions, values and symbols shared by the members of the enterprise team. There are different levels of organizational culture: superficial, subsurface, deep.

Depending on the predominance of elements of one or another level, subjective and objective culture is distinguished in the collective of the enterprise. The first is the basis for the formation of a management culture or leadership style.

Organizational culture is not a monolith, but consists of a dominant culture, group subcultures and countercultures that enhance or weaken the culture of the organization as a whole. The strength of culture depends on the scale and separability of its main attributes to the members of the enterprise team, as well as on the clarity of its priorities.

*Development* organizational culture involves its formation, maintenance and change. The formation of

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culture takes place in the context of solving two important problems by the enterprise: external - adaptation and internal - integration. The formation of culture in the collective of an enterprise is influenced by the culture of the society / people within which the enterprise operates.

Organizational culture is supported by what attention is paid to, by how the activities of the company's team members are assessed and monitored, by ways of responding to critical situations - modeling roles and training personnel, motivation criteria, as well as criteria in personnel work. The observance of rituals, ceremonies and traditions also helps to maintain the organizational culture.

Changing organizational culture is, to a certain extent, the exact opposite action in relation to its maintenance. Changes in behavior can lead to changes in the culture of the collective of the enterprise, and vice versa. Three combinations of changes in behavior and culture in the collective of an enterprise are possible:

- 1) change in culture without changing behavior;
- 2) changing behavior without changing culture;
- 3) change in behavior and culture.

*The study of the influence of culture on organizational performance is related to the choice of approach and variables.* Each of the existing models of cultural influence uses its own criterion for the formation of a set of organizational variables; So, for V. Sate these are organizational processes, for Peter and Waterman - value orientations, for T. Parsons - the functions of a social system, and for Quinn and Rohrback - a system of competing values.

Business success requires a high degree of strategy compatibility and culture in the team of the enterprise. The following situations may arise: the culture is ignored, which strongly interferes with the effective implementation of the chosen strategy; the management system adjusts to the culture existing in the collective of the enterprise; an attempt is made to change the culture in accordance with the chosen strategy; the strategy adapts to the existing culture.

### Conclusion

The influence of the national in the organizational culture is great. When studying the

national in the organizational culture, two questions are resolved: what you need to know about the national culture in order to foresee its impact on the culture of the enterprise; is it possible to "splice" the best of different national cultures within one collective of an enterprise in order to increase its efficiency?

When answering the first question, various models are used: J. Miller - a systematic approach; G. Hofstida - the variables of national culture; Lane and Distefano are cultural variables and variation in their variation, correlated with specific variation in organizational variables. For these purposes, groups of elements that form the state of a given society can also be studied: territory, nature and climate; language, faith, morality and law; family, upbringing and education; forms of socialization of people's life; the way of doing the economy, economics and business; politics, history and government. Ouchi's Theory "Z" attempts to answer the second question about synergy among different cultures. The model uses a comparative analysis of seven organizational variables in refraction to national characteristics and, based on its results, a culture of the "Z" type is formed.

Thus, today, and even more so tomorrow, for the light industry there are all the prerequisites to get out of the stagnation and reassert itself as an industry that is able to successfully implement import substitution for most of the products that are in demand, endow them with competitiveness, while maintaining such a price niche. which would be available to all segments of the population of the regions of the Southern Federal District and the North Caucasus Federal District, but this is possible only in an alliance between manufacturers and all branches of government - federal, regional and municipal. It is gratifying that both the President and the head of government understand this, which inspires hope for the successful implementation of the strategy for the development of light industry until 2025, which they have approved, and we will strive to implement it.

I am glad that they are supposed to be implemented in full and within the established time frame, understanding the responsibility of the named persons and their motivation to act.

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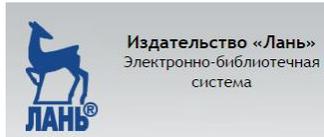


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