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# DEMOGRAPHIC CORRELATES OF POSTGRADUATE STUDENTS' PERCEPTION OF E-LEARNING IN RIVERS STATE UNIVERSITIES, NIGERIA

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## ABSTRACT

*The study investigated demographic correlates of postgraduate students' perception of e-learning in Rivers State universities. Three research questions and three hypotheses were formulated to guide the study. The descriptive survey design was employed in the study. The population comprised all the postgraduate students in Rivers State universities. 50 participants were drawn from the department of guidance and counselling in the tertiary institutions in Rivers State that have institutionalized e-learning (25 from LAUE and 25 from RSU) using cluster and stratified random sampling techniques. Research data were obtained from the respondents using one validated instrument titled "Students Perception Of E-learning Scale (SPES)". The instrument had a reliability index of 0.71 when subjected to test re-test measure of stability. The collected data were analyzed using Mean scores for the research questions and Independent t-test for the hypotheses. The findings of the study revealed that the postgraduate students' perception of e-learning differs along the lines of gender, level of study and marital status. None of these disparities was found to be statistically significant. The researcher made some recommendation among which is that: Inclusive awareness, reorientation and etiquette programmes on e-learning should be organized for the postgraduate students irrespective of their social differences (gender, level of study, and marital status) inclusive.*

**KEYWORDS:** *Post-Graduate Students; e-learning, perception.*

## INTRODUCTION

Electronic learning, also known as online learning or distance-education has gained much ground in 21<sup>st</sup>-century education. It has been adapted and adopted for instruction, interaction, demonstration and experimentation in school and non-school settings. Thus, there is a paradigm shift from actual to virtual learning in our society. As the name implies, virtual learning is a form of learning that makes use of electronic technologies to create

experiences that mould and modify behaviour. It is a network-enabled transfer of knowledge, skills and values. Albert, Dimitrios and Nati (2012) espoused that electronic learning is technology-driven, delivery-system oriented, communication-based and educational evolution oriented. Hence, one can deduce that it is the application of educational technology to deliver revolutionizing communication-based instructions.



E-learning can be traced back to the 1980s when distance learning and televised courses came into limelight. Over the years, it has evolved into computer-managed learning; computer-aided instruction, synchronous online learning, and asynchronous online learning and fixed e-learning, adaptive e-learning, linear e-learning, interactive online learning, individual online learning and collaborative online learning. The prototypes of e-learning can be bifurcated into computer-based e-learning and internet-based e-learning for easy identification and/or classification. The former which subsumes computer-managed learning and computer-based instruction take place offline, while the latter an umbrella term for the other prototypes of e-learning takes place online.

E-learning offers a plethora of links to relevant information. It is efficient, flexible, re-useable, convenient, interactive, attractive, and independence inclined (Clover, 2017). The merits of e-learning make it relevant to the current scheme of things. However, this form of learning as espoused by Clover (2017) has some pitfalls which include but not limited to accessibility challenges, the limited scope of assessment, insecurity, copying syndrome (property theft) and cognitivity with little or no room for affectivity and psycho-productivity. Be that as it may, the researcher observed that the institutionalization of e-learning in our society has generated a wide range of controversies amongst its end users. The controversies have always been over the pros and cons of this development. The stance of learners on this issue which may not be unconnected with their perception is highly decisive as they are the key actors in our educational sector.

The term perception refers to the identification, interpretation and organization of information. It is the manner in which something is regarded, understood or interpreted. Steven (2020) packaged perception as the sensory view of the world. Perception involves recognizing/organizing environmental stimuli and reacting to them. The said stimuli could be visual, auditory, olfactory, hepatic and gustatory. Perception as a concept word was supposedly derived from Latin "perceptio" which means to gather or receive. Suffice it to state that perception is the personal reception of information. It is sensation personified. It is equally interpretation, view, and/ or reaction. How individuals view things tends to vary. To buttress this fact, Iwuama, Nwachukwu and Obimba (2010) recounted a sage which states that; men are not disturbed by things but by their views. This shows that people's views over things vary and that this variation in view is responsible for inter and intrapsychic disturbances towards stimuli.

This study will focus on the demographic correlates of postgraduate students' perception of

institutionalization of e-learning. E-learning is a new innovation in our system of education. Before now, the system of education in the State has been relatively orthodox. Postgraduate students normally had their classes in the four walls of the university; where lecturers employ arrays of teaching methods and teaching aids to impart knowledge into the learners in situ.

This is in keeping with the psycho-educational view of learning which includes but is not limited to getting relevant knowledge in person, being cultivated and being modified as a result of worthwhile experiences (Mba, 2004). Like every new programme, the institutionalization of e-learning in Rivers State is bound to instigate divergent perception worth investigating.

Martins and Baptista (2016) conducted a research study on academics e-learning adoption in higher education institutions: a matter of trust. The researchers investigated how academics ensconce e-learning through systematic identification and projection of its strengths and weaknesses in tertiary institutions. Research data was collected from 62 academics using grounded theory narrative showed change and integration through collective understanding.

Keller and Cernerud (2002) investigated students' perceptions of e-learning in university education at Jonkoping University in Sweden. A customized questionnaire was used to obtain research data from 5,150 students. The collected data were analyzed using Multiple Regression Analysis to accommodate students' perception in relation to gender, age, previous knowledge of computers, attitude to technology, learning styles and the strategy of implementing e-learning. The result of the study revealed that the strategy of implementing e-learning was highly decisive in influencing students' perception. It was further revealed that students did not regard access to e-learning on campus as beneficial. Male students, students with previous computer knowledge, and students with a positive attitude towards nouveau technologies were all less positive towards e-learning when compared with their counterparts on the other side of the divide.

Popovici and Mironov (2015) investigated students' perception of using e-learning technologies. Their findings revealed that students' perception varied significantly on the basis of personal social differentials and e-learning practices. Tamara (2014) investigated students' perceptions of e-learning at the University of Jordan. Tamara's findings revealed that the students are highly prepared and positive towards the e-learning system. It was further revealed that the students were anticipating using it in more advanced ways.

Similarly, Kalyanasundaram and Madhavi (2019) investigated students' perception of e-learning



with special emphasis on their reactions towards online certificate courses such as; foreign exchange management, operations research, medical law and genetics. The usability, user-friendliness, course content and test friendliness were put into consideration. The result of the study revealed that students who embraced online learning felt positive about e-learning.

Linjawi and Alfadda (2018) investigated students' perception, attitudes and readiness towards online learning in dental education in Saudi Arabia. The result of the study revealed that the respondents had a high level of computer skills, technology access and perceived importance of online technology. They showed acceptable levels of e-learning experience and social influence on e-learning adoption. Level of study was found to moderate students perception towards e-learning significantly.

Chukwuere, Mavetera & Mnkandia (2017) investigated students' perception of culture-oriented e-learning in South Africa. Their findings revealed that the perception of the studied children was mixed, in that; some of them accepted the English language as a means of communication while others opted for a hybrid of their native language and English language. It was further revealed that their challenges stem from lack of engagement to the inflexible e-learning system leading to the discovery of factors that facilitate culture-oriented-e-learning system.

In a related study, Anchalee and Jonathan (2016) investigated students' acceptance and readiness for e-learning in northeastern Thailand. The result of the study revealed that students have a slightly positive perception of e-learning in northeastern Thailand. It was further revealed that the studied children use mobile technologies extensively and have as well used social media platforms for fun but are not familiar with other collaborative e-learning tools.

Until now, only a few studies have been conducted on the demographic correlates of postgraduate students' perception of the institutionalization of e-learning in Rivers State Universities. It was against this background that the researcher conducted the study.

## STATEMENT OF THE PROBLEM

The institutionalization of e-learning in Rivers State came as a surprise to many. The programme was instituted suddenly on the heels of the COVID 19 lockdown. The lockdown literally shutdown vital sectors of the Nigerian economy, the educational sector inclusive. Students and teachers were forced to leave school and educational activities were placed on hold. No institution dared to engage in formal scholastic activities in the State for the time being

owing to the prevalent fear of spreading coronavirus disease; a virulent contagious illness with no known cure as at the time of conducting this study and the fear of lethal repercussion following the lockdown of schools, markets and luxury centres by the State government.

As the virus continued ravaging the globe with no end in sight; the State government resolved to adopt e-learning at the ivory tower to save what is left of academic activities in the State from comatose. Little or no prior preparation/consultation of the student's population was made. The scheme was not trial-tested and the perceptions of the students were not put into due consideration.

Postgraduate students being the guinea pigs of the programme in the State were literally impelled or compelled to learn online via; zoom, and Whatsapp, receive and submit mandatory assignments using their mails, and take exams online in ways that deviate from the established norm. The ways that affected students perceive these innovations individually require proper investigation as their perceptions have far-reaching implications. The problem of the study therefore was to investigate demographic correlates of post-graduate students' perception of the institutionalization of e-learning in Rivers State.

## Purpose of the Study

The purpose of the study was to investigate demographic correlates of postgraduate students' perception of the institutionalization of e-learning in Rivers State.

In specific terms, the study intends to:

1. Determine the extent to which gender influences postgraduate students' perception of e-learning in Rivers State Universities;
2. Determine the extent to which level of study influences postgraduate students' perception of e-learning in Rivers State Universities;
3. Determine the extent to which marital status influences postgraduate students' perception of e-learning in Rivers State Universities.

## Research Questions

The following questions guided the conduct of the study:

1. What is the mean difference between male and female postgraduate students' perception of e-learning in Rivers State Universities?
2. What is the mean difference between master's and doctoral postgraduate students' perception of e-learning in Rivers State Universities?
3. What is the mean difference between single and married postgraduate students' perception of e-learning in Rivers State Universities?

**Hypotheses**

The following null hypotheses were formulated to guide the study:

1. There is no significant mean difference between male and female postgraduate students' perception of the institutionalization of e-learning.
2. There is no significant mean difference between masters and doctoral postgraduate students' perception of the institutionalization of e-learning.
3. There is no significant mean difference between single and married postgraduate students' perception of the institutionalization of e-learning.

**METHODOLOGY**

The study employed a descriptive survey design. The population of study encompassed all the postgraduate students in Rivers State Universities. 50

participants were drawn from the department of guidance and counselling in the tertiary institutions in Rivers State where e-learning has been institutionalized (25 from IAUE and 25 from RSU) using a purposive sampling technique. Research data were obtained from the respondents using one validated instrument titled "*Students Perception Of E-learning Scale (SPES)*". The instrument had a reliability index of 0.71 when subjected to test re-test measure of reliability. The collected data were analyzed using Mean scores for the research questions and independent t-test for the hypotheses.

**RESULTS**

**Research Question One:** What is the mean difference between male and female postgraduate students' perception of e-learning in Rivers State Universities?

**Table 1: Mean score analysis of the difference between male and female postgraduate students perception of e-learning**

Gender	Mean	N	Std. Deviation
male	35.7600	25	3.53883
female	34.8000	25	3.05505
Total	35.2800	50	3.30763

Table 1 shows the mean difference between male and female postgraduate students perception of e-learning in Rivers State universities. An overview of the table shows that the mean score of the male students' perception of e-learning is 35.76 while that of their female counterparts is 34.80. This showed that male

students have a more positive perception of e-learning than their female counterparts.

**Research Question Two:** What is the mean difference between master's and doctoral postgraduate students' perception of e-learning in Rivers State Universities?

**Table 2 Mean score analysis of the difference between master's and doctoral postgraduate students perception of e-learning in Rivers State Universities**

Level of study	Mean	N	Std. Deviation
masters	35.3200	30	3.40000
PhD	35.7600	20	3.74477
Total	35.5400	50	3.54683

Table 2 shows the mean difference between masters and doctoral postgraduate degree students' perception of e-learning. An overview of the table revealed that the mean score of the perception of e-learning amongst the master's degree students is 35.3200 while that of their counterparts at the doctoral level is 35.7600. This shows that doctoral students have a more positive perception of e-learning than their colleagues at the master's level.

**Research Question Three:** What is the mean difference between single and married postgraduate students' perception of e-learning in Rivers State Universities?



Marital status	Mean	N	Std. Deviation
single	36.6800	25	2.57747
married	36.9600	25	2.18861
Total	36.8200	50	2.37065

Table 3 shows the mean difference between single and married postgraduate students perception of e-learning in Rivers State universities. An overview of the table revealed that whereas the mean score of single postgraduate students perception of e-learning is 36.6800 and that of their married counterparts is 36.9600. This shows that married postgraduate

students have a more positive perception of e-learning than their single counterparts.

**Hypothesis One:** There is no significant mean difference between male and female postgraduate students perception of the institutionalization of e-learning.

**Table 4: Independent t-test analysis of the significance of the difference between male and female postgraduate students perception of e-learning**  
Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances assumed	1.211	.277	1.027	48	.310
Equal variances not assumed			1.027	46.999	.310

Table 4 above shows that there was no significant mean difference in the scores of male (M=35.76, SD=3.54) and female (M=34.80, SD=3.05505) postgraduate students perception of e-learning as the calculated t-value of 1.027 has a p-value of 0.310 which exceeds the significant p-value of 0.05. Thus the null hypothesis is retained. The implication is that

gender does not significantly influence postgraduate students perception of e-learning.

**Hypothesis Two:** There is no significant mean difference between master's and doctoral postgraduate students' perception of the institutionalization of e-learning.

**Table 5: independent t-test analysis of the significance of the difference between master's and doctoral postgraduate students perception of e-learning**

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances assumed	.511	.478	-.435	48	.666
Equal variances not assumed			-.435	47.559	.666

Table 5 above shows that there was no significant mean difference in the scores of masters (M=35.32, SD=3.40) and PhD (M=35.76, SD=3.74) postgraduate students perception of e-learning as the calculated t-value of -0.435 has a p-value of 0.666 which exceeds the significant p-value of 0.05. Thus, the null hypothesis is retained. The implication is that

level of study does not significantly influence postgraduate students' perception of e-learning.

**Hypothesis Three:** There is no significant mean difference between single and married postgraduate students' perception of the institutionalization of e-learning.



**Table 6: independent t-test analysis of the significance of the difference between single and married postgraduate students perception of e-learning**

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Equal variances assumed	1.288	.262	-.414	48	.681
Equal variances not assumed			-.414	46.771	.681

Table 6 above shows that there was no significant mean difference in the scores of single ( $M=36.68$ ,  $SD=2.57747$ ) and married ( $M=36.96$ ,  $SD=2.18861$ ) postgraduate students perception of e-learning as the calculated t-value of -0.414 has a p-value of 0.681 which exceed the significant p-value of 0.05. Thus the null hypothesis is retained. The implication is that the extent to which marital status influences postgraduate students perception of e-learning is not statistically significant.

## DISCUSSION OF RESULTS

The result of research question one revealed that male and female postgraduate students' perception of e-learning differs slightly. The male students were found to have a more positive perception of e-learning. This is in line with the findings of Keller and Cernerud (2002) on the existence of slight disparity in students' perception of e-learning based on gender. This disparity though it is small requires proper consideration. This is so because it has far-reaching implications when it comes to diagnosis or prognosis of learning difficulties. One of the plausible reasons for this disparity is gender-based use of smartphones and other digital devices with internet accessibility. Although such devices are commonly used by both gender in this 21<sup>st</sup> century. Observations show that it is more pronounced among the female folks. It is common knowledge that females start using smartphones at an early age to catch fun. However, males catch up later on and use smartphones for earning owing to stereotypical gender roles.

The result of research question two revealed that level of study influences postgraduate students perception of e-learning slightly. Doctoral students were found to have a more positive perception of e-learning than their counterparts with a masters degree. This is in line with the findings of Popovici and Mironov (2015). Experientially, doctoral students are more advanced than masters' students in their academic pursuit. They are at the apogee of their academic sojourn. Masters students on their part are not nouveau in the system. They have wealth of

experience as well. This no doubt equips them with the nitty-gritty of e-learning. In all, their perception of e-learning has something to do with their level of study. This leads to another assumption, probably the course content, method of delivery, duration of the study, and other extraneous differentials affects the perception of the studied postgraduate students towards e-learning.

The result of research question three revealed that postgraduate students perception of e-learning differs based on marital status. Married postgraduate students were found to have a more positive perception of e-learning than unmarried ones. This result has something to do with marital responsibility. Being married or unmarried are two sides of the same coin. Postgraduate students' perceptions are affected by their marital status in no small ways. The married postgraduate students automatically assume the responsibility of taking good care of their spouse, sharing quality time with him or her and participating in parenting. Here, gender roles come into play. On the other hand, an unmarried postgraduate student does not shoulder such responsibilities. Time management and allied marital status-oriented responsibilities are the crucial factors here. The postgraduate students' perception of e-learning therefore depends largely on their marital status.

## RECOMMENDATIONS

Based on the findings of the study, the researcher recommended as follows:

1. Gender should not be dwelt upon when educating postgraduate students on the modalities and utilities of e-learning as it has an insignificant influence on their perceptions.
2. Inclusive awareness, reorientation and etiquette programmes on e-learning should be organized for the postgraduate students irrespective of their class levels as they share similar sentiments.
3. Adjustment programmes should be organized for both the single and married postgraduate students to enable them to





make judicious use of the opportunities that e-learning offers them.

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# TREND ANALYSIS OF EXPENDITURE PATTERN OF GOVERNMENT OF INDIA DURING PRE AND POST ECONOMIC REFORMS

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## 1. INTRODUCTION

For the fiscal system of every federal nation public expenditure is an important tool. The growth process is very much dependent on the pattern and extent of public spending, it also helps in reducing economic disparities. Till 1920s study of public expenditure was neglected. It was general belief that public expenditure is waste. This belief got strengthened by classical economists especially by Adam Smith, 1776 who opined that activities of government should be restricted to Police, defense and justice (Zahir, 1972). Recardo also viewed public spending as wasteful. John Stuart Mill had less extreme but similar views as classists. Lutz in 1936 favored public expenditure as it is the direct medium for addition in community wealth. Keynes, a revolutionary economist opined that public expenditure is an important policy tool to stimulate the economy. R. A. Musgrave also favored public expenditure by saying that it has capacity to correct market distortions, provision of public good and regulatory activities etc. The increasing participation of government in economic functioning has highlighted the superiority of public spending over other fiscal instruments. In any economy public expenditure has its wide impact not only on consumption but also on production and distribution. Public expenditure has potential to stimulate and stabilize the economy. It promotes positive externality to society as well as economy (Piana, 2001). Public expenditure is an effective tool not only for developed economies but also for

underdeveloped economies across the world. On the one hand it helps developed nations to achieve stabilization by preventing frequent cyclical fluctuations on the other hand it supports underdeveloped nations by promoting economic development and equity in income distribution. India is also not far behind in employing its benefits.

## 2. ROLE OF GOVERNMENT IN INDIA: A HISTORICAL PERSPECTIVE

In India government's economic role changes with changing economic conditions and are dependent on ruling party's political, social and economic ideologies. If we look back to Indian history after independence, during first three decades state had the sole authority to in socio-economic affairs. During 1950s and 1960s India adopted and propagated democratic socialist pattern of society. The concept of five year plan evolved for achieving economic development. Just after independence market entrepreneurs were weak in India. This is the reason why government took the whole responsibility of investing in key areas. Inward looking policy were adopted on the basis of import substitution. Later on after 1980s ideology took a shift. Scholars and public administrators started criticizing 'statist' model. They argued that for faster development of developing nations it is necessary to relax the control of government on economic activities. India started implementing economic reform measures from mid 1980s and later on in the year 1991 liberalization



reached at its full scale. Liberalization, privatization and globalization was the main motto of this reform. Initially these reforms were focusing more upon delicensing of industries and liberalization of trade but later on it got extended to reforms in financial sector and taxation. If we look back to two decades after the reforms we will find remarkable changes in Indian economy. These changes were positive or negative is a matter of enquiry. The structural adjustment which took place during this period affected the economy as a whole remarkably. With this motivation this paper has tried to examine the trend of government spending in India during pre and post reforms so that we can better analyze its desirability and wise decisions can be taken in future.

### 3. BACKGROUND LITERATURE

Several studies have been done previously dealing with pattern of expenditure by Government of India that are a rich source of input for this paper. A study by Joseph suggest that although an increase in development expenditure was expected but declining trend was found in it. No any substantial change was observed in spending pattern of government of India post 1991. After 2001 expenditure on education witnessed a hike but the actual amount spent was still less than the desired or required (Tasleem Araf C, 2016). Government expenditure in India has doubled between the years 1990-91 to 2003-04 (Anuradha De, 2008). Mooji and Dev, 2004 has found increasing trend in social development expenditure during reform era. Joseph and Prarthna, 2015 found that revenue expenditure was increasing, 1991 onwards and suggests that government should focus upon increasing capital expenditure because spending on capital account will help to increase growth and ensure overall economic development. Most of the works are concerned towards studying the government expenditure but their concern is specific towards education and health sector only. Scholars have shown their interest also on problems which arises due to heavy expenditure or budget deficits. Nexus between government expenditure and economic growth has also been studied by most of the researchers worldwide. There is no doubt in it that economic reform was a major breakthrough in the Indian economy. It had its wide range of impact over several sectors of economy. But in literature trend of all the different types of expenditure like revenue and capital and developmental and non-developmental expenditure during pre and post reform has not been dealt in a comprehensive manner. In this backdrop this study has tried to examine the trend of expenditure pattern of Indian government in a comprehensive way.

### 4. OBJECTIVE

This study aims to compare the expenditure pattern of government of India during pre and post economic reforms.

### 5. HYPOTHESIS

There is no difference in expenditure by the government during pre and post reform period.

### 6. DATA AND METHODOLOGY

#### 6.1 Data

This study is based on secondary data and covers a period from 1970-71 to 2016-17. The data is available in Handbook of statistics, a yearly publication of Reserve Bank of India. The study has been undertaken for the period 1970-2016 so as to analyze the change in expenditure pre and post economic reform (1991) more accurately as 22 observation we have of before the reform and 25 observations of after reform. Variables used in the study are total expenditure, revenue expenditure, capital expenditure, developmental expenditure and non-developmental expenditure.

#### 6.2 Methodology

The econometric model used in the study is

$$\ln(Y) = \alpha + \beta t + \mu$$

It is a semi log model because only dependent variable appears in logarithmic form. It is also called log-lin model. Here in the model Y denotes the expenditure (revenue, capital, developmental, non-developmental and total) and t denotes time. Ln is the natural logarithm. Here log of dependent variable is taken because it covers exponential trend to linear trends by nullifying the effect of fluctuations. It simultaneously converts the proportional variance to constant variance.  $\beta$  is the relative change in dependent variable to the absolute change in independent variables. On multiplying  $\beta$  by 100 it will give the percentage change or growth rate in Y or government expenditure for an absolute change in t or time. First of all overall data on time is split into two parts: Pre reform period i.e. 1970 to 1991 and Post reform period i.e. 1991 to 2016. Then all the data on expenditure are regressed thrice times, first time over overall time period (1970 to 1991), then over pre reform period (1970 to 1991) and lastly over post reform period (1991 to 2016) respectively. In this way from each data on expenditure three regression equation will be formed as they are regressed over three time periods individually. The slope coefficient from each regression equation gives the average annual growth rate in expenditure during that time period, when multiplied by hundred. To analyze the basic features of total expenditure in overall time period descriptive statistic is used.



## 7. RESULTS AND DISCUSSION

Simple regression analysis has been applied to determine the contribution of explanatory variable time, on dependent variable. Here all the dependent variable i.e. total expenditure, revenue expenditure, capital expenditure, developmental expenditure and non-developmental expenditure are regressed over time interval 1970 to 1991 (pre reform period), 1991 to 2016 (post reform period) and 1970 to 2016 (overall time period). The summarized result of regression analysis is shown in Table 1. This table gives the values of slope and intercept of all the variables (total expenditure, revenue expenditure, capital expenditure, developmental expenditure and

non-developmental expenditure). It also gives the t-statistic and p-value. The intercept is the expected mean value of dependent variable (expenditure) when independent variable is zero. The slope coefficient tells about the amount of change in dependent variable that can be expected to result from a unit change in independent variable. In the present study if intercept is multiplied by hundred it will give the average annual growth in expenditures. t-statistic is the ratio of the departure of the estimated value of a parameter from its hypothesized value to its standard error. p-value for each independent variable tests the null hypothesis that the variable has no correlation with the dependent variable.

**Table 1 Regression Results for overall time period (1970-2016)**

Variables	Constant	Slope	t-statistic	p-value
<b>Total Expenditure</b>	3.892964	0.13456	131.951	6.71E-60
<b>Revenue Expenditure</b>	3.509261	0.139242	121.505	2.72E-58
<b>Capital Expenditure</b>	2.769406	0.121736	76.0252	3.57E-49
<b>Developmental Expenditure</b>	3.475336	0.133824	86.7166	9.97E-52
<b>Non-Developmental Expenditure</b>	2.351243	0.143938	85.4299	1.95E-51

It is clearly shown from the t-statistic and p-value that the slope and intercept coefficient are significant as the resultant p-values are smaller than 0.05. Also the intercept coefficients when multiplied by hundred will produce the required average annual growth rate.

Table no. 2 drawn below explains the nature, trend and dynamics of the dependent variable using descriptive statistics. Table shows that in terms of average expenditure total expenditure is at the top

and developmental expenditure at the bottom in terms of mean expenditure. The standard deviation which indicates about the degree of variability or fluctuation in the series is the highest of total expenditure which shows that during the entire time period 1970 to 2016, it is the total expenditure which is continuously varying. Capital expenditure with least value of standard deviation is the least varying and highly stable variable during the entire period.

**Table 2 Descriptive Statistics**

Descriptive Statistics	Total Expenditure	Revenue Expenditure	Capital Expenditure	Development Expenditure	Non-development Expenditure
Mean	4567.58	3628.31	956.29	2915.44	1342.19
Standard Error	1002.49	794.13	208.39	659.43	279.75
Median	1193.35	1088.68	249.82	887.91	378.59
Standard Deviation	6872.72	5444.27	1428.69	4520.87	1917.88
Variance	47234273	29640153	2041154	20438264	3678284
Kurtosis	3.74	3.65	4.17	4.54	2.66
Skewness	2.03	2.02	2.07	2.19	1.79
Range	28216.29	22331.45	5884.85	18880.92	7726.58
Confidence Level	2017.91	1598.5	419.48	1327.37	563.11

Now final table, Table 3 shows the crux of the whole study. It shows the trend of average annual growth of all the variables namely total, revenue, capital, developmental and non-developmental expenditure in the pre reform, post reform and over all time period. From the table we can see that all the expenditure except capital expenditure have a

downward shift in the post reform period. Total expenditure registered a fall from 14.37% to 13.17%, revenue expenditure fell from 15.23% to 12.67%, developmental expenditure fell from 15.68% to 12.93% and non-developmental expenditure also fell to 14.10% from 12.46% only capital expenditure registered a rise from 12.08% to 13.65%.

**Table 3 Average annual growth rates for overall time period (1970 to 2016)**

Variable	Average annual growth rate (in %)			Direction
	Pre Reform (1970 to 1991)	Post Reform (1991 to 2016)	Overall (1970 to 2016)	
<b>Total Expenditure</b>	14.37	13.17	13.45	Downward shift
<b>Revenue Expenditure</b>	15.23	12.67	13.92	Downward Shift
<b>Capital Expenditure</b>	12.08	13.65	12.17	Upward Shift
<b>Development Expenditure</b>	15.68	12.93	13.38	Downward Shift
<b>Non-development Expenditure</b>	14.10	12.46	14.39	Downward Shift

## 8. CONCLUSION

After performing all the above empirical and theoretical analysis it can now be concluded that really there are no any empirical evidences of rise in

expenditure of the state in post reform period. It is valid theoretically also. At the time of reforms position of Indian economy was deplorable. Very high fiscal deficits along with heavy debt burden



pressurized the then government to adopt economic reforms. Reforms took place in industrial policies, trade policies, fiscal and taxation policies. Government started implementing disinvestment policies so as to encourage private investment. The reliance on market economy was increasing and side by side role of state was shrinking. Thus in this way the root cause of decreasing government expenses in post reform era is the growing private sector and heavy debt and fiscal burden. Due to huge fiscal burden government started to curb its expenditure by removing or reducing subsidies, allowances etc. This led to the reduction of revenue expenditure. Government also started curtailing its expenses on health and education like social sector requirements. Only capital expenditure was rising because for encouraging private investment a strong infrastructural base was a precondition, thus government had no option than to invest in it.

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# CHARACTERIZATION AND APPLICATIONS OF SMART TEXTILE TECHNOLOGY

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## ABSTRACT

*Technological innovation has brought tremendous changes in the life of human with the advent of innovative scientific researches. Among these, textiles are good examples. The industrial revolution had shown a step forward on evolution which heralded the manufacturing of textiles on machineries but the advancements continued on the developments of synthetic and regenerated fibers, invention of synthetic dye stuff and new finishing process like plasma and sol gel treatments. ‘Smart E-Textiles’ and ‘Interactive Textiles’ emergence since past two decades had made the availability of smart technological innovative products and are ubiquitous. The geo textiles in the soil to the outer space in the expedition of the universe; from the hospitals beddings and clothing’s to the entertainments; and from the personal healthcare to sportswear applications. Smart E-textiles are fabrics that have been designed and manufactured to inculcate technologies that provide the wearer with increased functionality and performance with provision of interactive interface. These textiles have multitudinous potential applications with the ability to communicate with other devices, conduct energy, transform into other materials and protect the wearer from hazards.*

**KEY WORDS:** *Evolution, Characterization, Application, Smart Textile Technology*

## 1. INTRODUCTION

“Smart E- Textiles” is a broad field of studies with products that are more than the functionality and usefulness of common fabrics but are defined as textile products such as fibers and filaments, yarns together with woven, knitted or non-woven structures that can interact with the environment and the user. The convergence of textiles and electronics (e-textiles)

necessitate the development of smart materials capable of achieving a wide spectrum of functions, found in rigid and non-flexible electronic products. There are significant change in the mechanical properties ( shape, color and stiffness), or their thermal, optical, or electromagnetic properties, in a handy manner in response to the stimuli.





They are systems with different apparatuses and materials such as sensors, actuators, electronic devices together. The integration and combination of advanced tools with advanced smart materials beckon on a bright tomorrow for dynamic textile market.. Many brands have shown a lot of interest in and used e-textiles as wearable technology and Smart and e-textiles have emerged as one of the most promising materials to address one of the biggest challenges facing the world, namely, an ever increasing energy crisis. E-textiles, due to their electrical conductivity together with their flexibility, have attracted many people to engineer various types of textiles, including, lyocell, polyester, nylon and fabrics, for application in batteries, fuel cells, super capacitors and solar cells, and sensing and display inventions. Textiles represent an attractive class of substrates for realizing wearable bio-sensors. Electronic textiles, or smart textiles, describe the convergence of electronics and textiles into fabrics which are able to sense, compute, communicate and actuate. As many different electronic systems can be connected to any clothing, a wearable system becomes more versatile, and the user can change its look depending on environmental changes and individual preference. The vision of wearable computing describes future electronic systems as an integral part of our everyday clothing serving as intelligent personal assistants. Therefore, such wearable sensors must maintain their sensing capabilities under the demands of normal wear, which can impose severe mechanical deformation of the underlying garment/substrate; one promising approach to reduce the rigidity of electronic textiles and enhance its wear ability is to replace PCBs by flexible electronics. Current advances in textile technologies, new materials, nanotechnology and miniaturized electronics are making wearable systems more feasible but the final key factor for user acceptance of wearable devices is the fit comfort and it is convinced that this goal can only be achieved by addressing mechanical resistance, and durability of the materials in what is recognized to be a harsh environment for electronics: the human body and society

E-textiles are made of conductive threads and fabrics which are major materials which have been around for over 1000 years. Artisans have been wrapping fine metal foils, most often gold and silver, around fabric threads for centuries. Many of Queen Elizabeth I's gowns, were embroidered with gold-wrapped threads. The end of the 19th century welcomes the development and advent of electric appliances where people get grew accustomed to these appliances, designers, scientists and engineers began to

combine electricity with clothing and jewelry—developing a series of illuminated necklaces, hats, broaches and costumes. In the collection was the work of Diana Dew, there is a line of electronic fashion, including electroluminescent party dresses and belts that could sound alarm sirens. In 1985, Harry Wainwright developed the first fully animated sweatshirt which comprises the fiber optics, LEDs, and a microprocessor to control individual frames of animation resulting in a full color cartoon on the surface of apparel.

The advancement of smart materials and electronics brought intrinsic potentiality in the field of textile technology for innovative high-tech applications, covering market segments that are far away from conventional textile world in the last few years. One of the best examples is the recent development of new sensing and intelligent cloths.

Smart and interactive textiles bring together interdisciplinary field that brings together specialists in information technology, micro systems, materials, and textiles. This to develop a new area on enabling technologies and fabrication techniques for the economical production of flexible, conformable and, optionally, large-area textile-based information systems that are expected to have unique applications for different end uses. This will be highly applied in the next generation of fibers, fabrics and articles produced from them. Many intelligent textiles are in the global market with all kinds of available opportunities that are created from their applications which include casual clothing, medical textiles, in the military, in protective and safety garments, as well as in the expedition of the space.

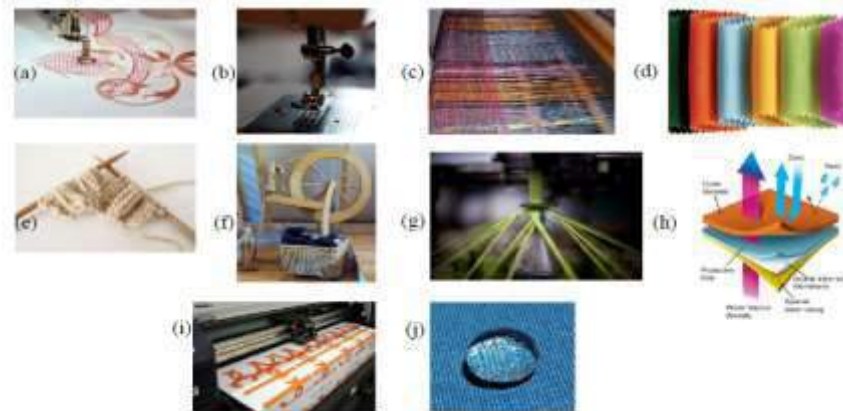
Textiles are world most versatile materials because of the design to which they are engineered, their conventional and emerging applications, their ease of fabrication, their flexibility, lightweight, and low cost. Electronic textiles have found their way into everyday life in the form of technological equipment within regular clothing to improve the quality of life have gone far beyond their application to civil engineering, agriculture, aircraft, sportswear, and bulletproof vests, the rapid development of smart garments is due to their application to military purposes; however, added fashion and convenience remain only secondary to their precise end use. It is also important to note that the advent of smart textiles with various characteristics in a single material or those that produce a composite and hybrid structure using a range of new classes of materials has brought various disciplines of the engineering sciences together.. This work critically looks into Smart E- textiles as it finds



applications and has outstanding outlooks almost in every sphere of human activities due to the possession of properties of conventional textile materials and additive functional values.

## 2. TEXTILES/FABRIC MANUFACTURING TREATMENT

There are many types of textile or fabric some of them are group into categories as shown in figure 1.



(a) Embroidery; (b) sewing; (c) weaving; (d) non-woven; (e) knitting; (f) spinning; (g) braiding; (h) coating/laminating; (i) printing and (j) chemical treatment.

**Fig 1:** Categories of textile

*Source: MatteoStoppa and Alessandro Chiolerio(2014)*

The combinations of these materials sources result into a whole range of textiles which comprise conventional cables, miniaturized electronic components, chips and special connectors. Individuals to put on comfortable textiles rather than hard, rigid boxes, first efforts have been made to use the textiles themselves for electronic functions. These smart materials are incorporated into the textile structure using different technologies perspective such as embroidering, sewing, non-woven textile, knitting weaving, spinning making, braiding, coating/laminating, printing and chemical treatments that provide specific features such as controlled hydrophobic behavior. Smart Textiles are used in the medical, sport, and artistic communities, the military and aerospace.

### 3. CLASSIFICATION OF SMART TEXTILES BASED ON FUNCTIONS

The various parameters that can be sensed by smart textiles are thermal, mechanical, chemical, electrical, magnetic, and optical. Hence, smart textiles can be divided into [3] four types based on their functions.

#### I. Sensor Based Smart Textiles (Passive)

Sensors provide a nervous system to detect signals; hence, in a passive smart material, the existence of

sensors is essential. They are the first generations of smart textiles that provide additional feature in a passive mode i.e. irrespective of the change in the environment. For example, a highly insulating coat would remain insulating to the same degree irrespective of the outside temperature. Wide range of capabilities, including anti-microbial, anti-odour, anti-static, bullet proof are the other examples. They only able to sense the environment/user through sensor therefore called Sensor based smart textiles. The fabric sensors can be used for electrocardiogram (ECG), electromyography (EMG), and electroencephalography (EEG) sensing. Fabrics incorporating thermocouples can be used for sensing temperature; luminescent elements integrated in fabrics could be used for bio-photonic sensing, shape-sensitive fabrics can sense movement, and can be combined with EMG sensing to derive muscle fitness. Carbon electrodes integrated into fabrics can be used to detect specific environmental or biomedical features such as oxygen, salinity, moisture, or contaminants. Sensor based smart textiles; show up what happened on them, Such as changing color, shape, thermal and electrical resistivity. These kinds of textile materials are more or less comparable with high functional and performance textiles



## II. Actuator – Sensor Based smart Textiles (Active)

These smart textiles that has both actuators and sensors and they adapt their functionality to changing environment automatically; hence called the name **Active Smart Textiles**. The actuators act upon the detected signal either autonomously or from a central control unit together with the sensors, they are the essential element for active smart materials. Active smart textiles are shape memory, chameleonic, water-resistant and vapor permeable (hydrophilic/nonporous), heat storage, thermo regulated, vapor absorbing, and heat evolving fabric and electrically heated suits. Active functionality could include power generation or storage, human interface elements, radio frequency (RF) functionality, or assistive technology. Power generation can be achieved through piezoelectric elements that harvest energy from motion or photovoltaic elements. Human interfaces to active systems can be roughly grouped into two categories: input devices and annunciation or display devices. Input devices can include capacitive patches that function as pushbuttons, or shape-sensitive fabrics that can record motion or flexing, pressure, and stretching or compression. Annunciation and display devices may include fabric speakers, electroluminescent yarns, or yarns that are processed to contain arrays of Organic Light Emitting Diodes (OLEDs).

## III. Ultra smart textiles (Very Smart Textiles).

The ultra-smart textiles are also called Very smart textiles which can sense, react and adopt themselves to environmental conditions or stimuli (That is, Very smart materials are materials and systems which can execute triple functions; first, they are sensors which can receive stimuli from the environment; secondly they are able to give reaction based on the stimuli; thirdly they can adapt and reshape themselves accordingly to the environmental condition). A very smart or intelligent textile essentially consists of a unit, which works like the brain, with cognition, reasoning and activating capacities. The production of very smart textiles is now a reality after a successful marriage of traditional textiles and clothing technology with other branches of science like material science, structural mechanics, sensor and actuator technology, advance processing technology, communication, artificial intelligence, biology etc. New fiber and textile materials, and miniaturized electronic components make the preparation of smart textiles possible, in order

to create truly usable smart clothes. These intelligent clothes are worn like ordinary clothing, providing help in various situations according to the designed applications. Materials with even higher level of intelligence develop artificial intelligence to the computers. These kinds of materials and systems are not fully achieved in the current investigation of human beings

## 4. MATERIALS, CONNECTIONS AND FABRICATION METHODS

The smart E-textiles can be made with series of materials using different fabrication methods. The selected materials and fabrication methods are always interconnected with the final application; hence this makes smart E-textile a multidisciplinary research field, with the need of expertise in several fields, such as textile, materials, electronics, mechanics, and computer engineering.

### A. Adapted Fabrics: Smart E-Textiles Fabrication Methods

For the past few years it has been shown that traditional fabrication methods that are used to produce conventional textiles could be used in smart E-textiles production too. The developments of flexible conductive yarns with diameters that are similar to the conventional textile yarns enable the use of traditional fabrication methods to merge conductive threads with non-conductive threads. The conductive yarns incorporation processes into conventional textiles threads can be manually done by sewing conductive yarns or automatically through embroidery, weaving, knitting and braiding machines. Coating non-conductive yarns with metals, galvanic substances or metallic salts can also be used to make electrical conductive yarns from pure textile threads, which also enables a Smart e-textile production. Common textile coating processes include electro plating, chemical vapor deposition, sputtering, and with a conductive polymer coating. Stamping conductive inks is also an alternative to embed conductive lines into textiles. There are several technologies that can print conductive material on textile substrates, but all of them use conductive inks with high conductive metals, such as silver (Ag), copper (Cu), and gold (Au). Below is a list of manufacturing techniques with a quality comparison of fabrication attributes.

**Table 1: Qualitative comparison of fabrication attributes.**

SMART E-Textile Manufacturing Techniques	Costs of Machinery	Costs of Material	Process Complexity	Resistance to Wear
Sewing	Low	Low	Low	High
weaving	Low	High	High	High
knitting	Low	High	High	Low
Non-woven	Low	Low	Low	Low
spinning	Low	Low	Low	Low
breeding	Low	Low	Low	High
coating	High	Low	Low	Low
embroidery	High	Low	High	Low
printing	High	High	Low	High

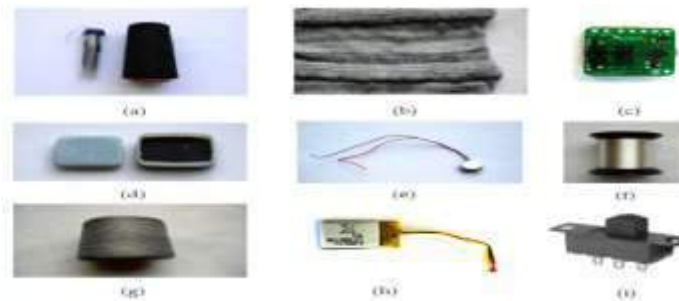
Source: Carlos Gonçalvesetal (2018).

Connecting to data acquisition systems are achievable through mechanical or electrical mechanisms. This way, textile structure platforms as woven, knitted, or nets can be used to produce smart e-textiles, avoiding attaching electronics to textile substrates.

### B. Electrical Components

Smart e-textiles would not be possible without electrical components, such as electrodes, connectors, and interconnectors and when used for the acquisition of electrical biological signals such as electrocardiogram (ECG), the electrodes are the bridge between the body and the circuit. The process where there is no need of electrical signals acquisition, there is still the need of connectors and interconnectors in order to bridge the textile with the electronics.

Copper wire can be used in applications without skin contact, and silver thread can be used in applications that require direct contact with skin. The energy needed to power smart e-textile circuits is normally provided from Lithium Polymer (LiPo) batteries. The LiPo batteries are selected accordingly to a tradeoff between power autonomy and battery size. Therefore, the goal is to select the smallest LiPo battery that is able to supply the smart textile circuit power demands during a predefined amount of time. With energy harvesting solutions, it is possible to charge small LiPo batteries, keeping the e-textile energy demands during use. Someof examples of the components or connection techniques that are used in smart e-textile circuits and transducers are shown below:



**Fig2: Electronic materials and Textile used in Smart e-textiles.**

Source: Carlos Gonçalvesetal (2018).

- (a) Solder and polyester thread used into e-textiles
- (b) E-textile capacitor
- (c) Printed Circuit Board (PCB) for e-textiles
- (d) Casing shell for e-textiles;
- (e) Vibration motor
- (f) Electrisola textile conductive wire
- (g) Bekintex conductive thread
- (h) Lithium-ion battery used to power e-textiles and (i) Slide switch used to switch On/Off e-textiles.

The two main categories of bond used for connectors and interconnects are mechanical and physical.

- (i) Mechanical connections are made with snaps that are directly pressed into conduction lines, and are normally made when there is a need to detach any electrical module from the e-textile.
- (ii) Physical connections include micro-welding, thermoplastic adhesion, mixed conductive polymer adhesion, joint soldering, and





electroplating. Physical connections are made when there is a need for a permanent connection.

Smart e-textile connectors remain an open research field due to the diversity of application environments where each solution is customized and is almost unique.

### C. Textile Circuitry

Textile circuitries are electrical circuits built on textile substrates. Embroidery conductive thread into textile substrates is a widely used approach and this approach is used to stitch patterns that define circuit traces, component connection pads or sensing surfaces using Computer Assisted Design (CAD) tools or FEA. The conductive patterns can also be done using inkjet-printed techniques of graphene-based conductive inks. A textile circuit is designed to have a low power consumption rate and high input impedance, which is opposite to the conventional requirement of low impedance for component interconnections. Many yarns available in the market can be used for connections and circuit elements which include silvered yarns, stainless steel thread, titanium, gold, and tin. Another technique to fabricate textile circuits is to iron a welded circuit to the textile substrate. The circuit is attached to the textile, and can be soldered like a traditional printed circuit board. Flexible conduction lines could also be made of any conductive ink and conductive polymer. Thick and thin printing processes are two production techniques that are used to print conductive inks. An example of a thick film process is silk screening, where an adhesive conductive ink is applied to the open areas of a textile mesh allowing for the ink to penetrate into the fabric. A sputtering process can also be used to produce high-resolution circuits on textile substrates. The textile substrate, kept at 150° C, needs to be placed in a vacuum chamber with an inert gas like argon and a shadow mask to make the circuit patterns. There are also other approaches on the use of Nano -soldering methods to produce smart e-textiles with carbon nanotubes (CNT) conductive lines. The CNTs are soldered onto the fiber surface of non-woven fabric by ultra-sonication, which brings a strong

adhesion between the carbon nanotubes and the textile fibers. The CNTs do not detach when the e-textile is under vigorous mechanical stirring, or even after being washed

### 1. Textile Circuit Elements

Textile circuit elements are built in order to adapt to the textile substrates. Small electric components can be sewn into the conductive lines on fabrics directly or by using sockets attached to the fabric with connection resistivity that is lower than 1 Watts. Gripper snaps and textile switches can also be used so as to ensure connectivity, allowing strong connections. Electronic elements can be made out of conductive thread by sewing thread fibers in patterns, with concerted crossings, to achieve desired electrical properties. Conductive properties can be given to threads by several techniques before and after the thread manufacturing process.

Another very common technique entails the application of metal or conductive polymer coatings to the textile substrate. Laminating techniques are also used, including those that are adapted from conventional and flexible electronics. With those techniques, passive elements can be formed with conductive inks and polymers. Resistors (i.e., 2–8 W/mm), capacitors (i.e., 1 pF to 1 nF), and inductors (i.e., 500 nH to 1μH at 10 MHz) can be made by planar printing techniques, such as screen printing or sputtering metal inks onto fabric substrates, such as cotton, polyester, silk, wool, polyacrylonite, and fiberglass fabrics. It has also been shown that resistive elements can be made by adjusting the dimension of an already coated conductive polymer fabric. In the case of transistors, the core of ametalized yarn can be used as gate, while source and drain contacts can be made by depositing metals or polymers using evaporation or soft lithography processes. Transistors can also be fabricated on strips of Kapton and be later interlaced into a textile substrate. Below is a sample of a textile electrode suitable for acquiring signals, such as biological signals in an ECG.



**Fig 3: Biological signals textile electrode for electrocardiography**

Source: Carlos Gonçalves et al (2018)

**2. Fabric Smart E-textile Sensors.  
Resistive Pressure Sensors**

These are sensors that are made up of different conductive materials in different structures using different production techniques and the variable resistive materials can be sewn, embroidered or glued to the textile substrate to measure pressure. The working principle of a resistive pressure sensor is based on an electric resistance that increases when the

resistive material is stretched or compressed. According to Ohm's Law,

$$V = IR \quad [i]$$

for the same electric current, a higher resistance makes the output voltage increase.

This way, the stretch or compression can be correlated to the sensed voltage. The conductive material and production technique influence the sensitivity and sensed pressure range.

**Table 2: E-Textile pressure sensors based on resistive mechanism**

Production Techniques	Elements	Sensitivity	Pressure range	Size	Characteristics
Tooth structured	Conductive fabric	$2.98 \times 10^{-3} \text{ kPa}^{-1}$	-2000 kPa	760 mm <sup>3</sup>	Strain in under pressure fabric
Switch tactile sensor	Plated fabric Cu, Ni	Threshold at 500 g/mm <sup>2</sup>	70-500 g/mm <sup>2</sup>	8 mm <sup>2</sup>	Active sensing cells
Polyurethane foam	PPyPolyurethane	0:0007 mS/N	1-7 kN/m <sup>2</sup>	4 cm <sup>3</sup>	Conductance increases with compression
Conductive Rubber based	Carbon polymer	250 W/MPa	0-0.2 MPa	9 mm <sup>2</sup>	Resistance changes with applied load
QTC-Ni based	Pressure composite	~106 W/1% compression	25% compression	Diameter = 5.5 mm	Switching behavior

Source: Carlos Gonçalves, Alexandre Ferreira da Silva, João Gomes and Ricardo Simoes(2018)

**3. Capacitive Pressure Sensors**

The textile capacitors are made from compliant conductive materials that are acting as conductive plates separated by dielectrics. The conductive plates can either be woven, sewn and embroidered with conductive thread/fabrics, or can be painted, printed,

sputtered, or screened with conductive inks or conductive polymers.

Usually, capacitive pressure sensors are made on textiles that can be sewn, snapped, or glued to a fabric substrate and welded to other electronics or wires; the dielectrics used are typically synthetic foams, fabric

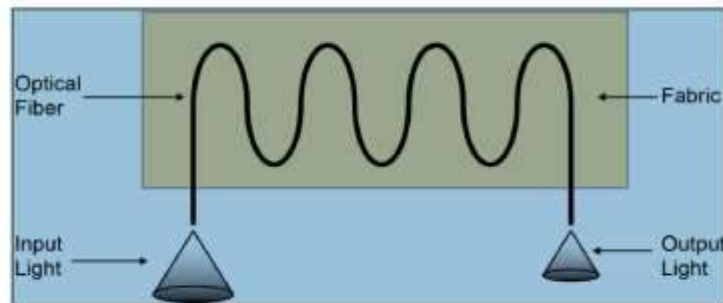


spacers, and/or soft non-conductive polymers. Capacitive fibers can also be manufactured using techniques that are similar to those found in flexible electronics, such as a silicon fiber sputtered with metals. The capacitance of a capacitive pressure sensor depends on the following factors: (i) the area of two conductive parallel plans (ii) the conductive material and (iii) the distance between each other. Keeping the same area for the conductive plates, the capacitance will change with the distance between them. When the distance between the conductive plates decreases, the capacitance increases, and when the distance between the conductive plates increases, the capacitance decreases.

#### 4. Optical Textile Sensors

These types of sensors were first developed in the late 70s when the photosensitivity in optical fibers was

found and since then, it is incorporated into fabrics. The working principle of optical textile sensors is based on the variation of the light intensity or the amplitude that can be sensed by a fiber Bragg grating (FBG) sensor. The small glass optical fibers diameters (in the microns range) make these materials suitable for seamless textile integration with industrial processes. The optical fiber light source can be a small light emission diode (LED), and the light amplitude at the end of the optical fiber can be sensed with a small photo detector; depending on the textile movements, the light amplitude will change allowing to sense textile displacements and pressures. The optical textile sensors can be used to sense textile displacements and pressures in applications where the electrical currents cannot cross textile substrates.



**Fig 4: Optical fibers incorporated into a Fabric.**

*Source: Carlos Gonçalves (2018)*

The schematic diagram above is a fabric with optical fibers incorporated. Stretching the elastic fabric, the light amplitude passing through the fiber increases; this therefore increases the output voltage coming out from the photo detector. There are possibilities of building several smart e-textiles that can sense temperature and humidity changes. Resistance and capacitance are the main principles behind the building of humidity textile sensors. The resistive humidity textile sensors respond to moisture variation by changing its conductivity, while the capacitive humidity textile sensors answer to water vapor by varying its dielectric constant. Polymers that are suitable for capacitive humidity sensors include polyethersulfone (PES), polysulfone (PSF), and divinylsiloxanebenzocyclobutene (BCB). Other humidity sensing devices have flexible transistors that changes conductivity with the humidity levels. Coated sensors on fabrics typically react to humidity if they are organic or carbon based. Temperature sensors harmonious with fabrics can be made on flexible substrates, such as plastics and polyimide sheets. These sensors can be later attached to fabrics or integrated

into their structure. Resistance temperature detectors (RTDs) have elements, such as platinum/nichrome (NiCr) and related materials that can be coated on flexible surfaces and Kapton based plastic stripes of platinum RTDs can be woven into fabrics to manufacture a temperature sensitive textile. Thermoelectric generators can also be attached to fabrics using molding techniques and fabric connection technologies and Fiber optic sensors can also be used to sense temperature changes as well as temperature sensitive inks.

## 5. SOME HIGH PERFORMANCE TECHNICAL TEXTILE PROCESSES

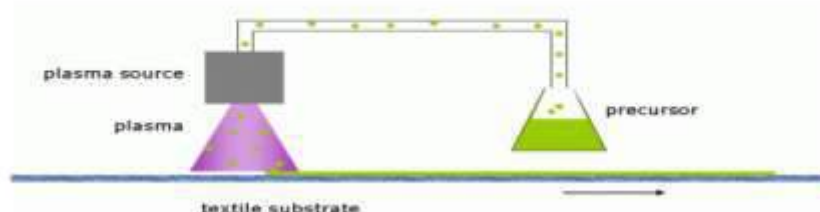
### P. Plasma Treatment

Plasma treatment as the name implies, refers to a textile surface modifying treatment which offers an improved performance textile surface without altering the properties of tear resistance, flexibility, density of the textile material. The working principles of the plasma treatment process are that when the data's are varied, the surface properties change to:





- (a) Sterilization from micro organisms
- (b) Improving the dyeing and printing affinity
- (c) Increasing adhesion property for the textile - Apply a fire retardant finish
- (d) Apply antibacterial finishes for medical appliances and safety
- (e) Influences the electrical conductivity of the surface
- (f) Confer anti-crimp properties to wool
- (g) De -sizing cotton surface after weaving.



**Fig 5: The principles of plasma treatment on textile surface.**

Source: HenockHundeDadi (2010)

The technology of Plasma treatment gives rise to the possible applications:

- i. Anti-bacterial effects
- ii. Fire retardant finishes for fire protective clothing's.
- iii. Perfume realizing fabrics applications
- iv. Creating ultra-hydrophobic surfaces and the lotus effect for textile surfaces.
- v. Creating ultra-hydrophilic (water-loving) fabrics for fog harvesting textiles.

#### Q. UV treatments

This is an electromagnetic radiation with a wavelength of 1 to 400 nm. UV- treatment technology is a technology that involves photochemical process to dry or "cure" inks, pigments, dyes, coating layers, glues, and other materials using ultraviolet light. This technology of UV-treatment has been effectively applied in graphics, wood, automotive and Tele communications since decades. This surface treatment technology is an interesting alternative to traditional

- (i) Water, oil and soil repellence
- (ii) Improved abrasion resistance
- (iii) Antimicrobial activity
- (iv) UV protection

#### 6. NANOTECHNOLOGY APPLICATIONS FOR FUNCTIONAL TEXTILES

Nanotechnology is a structure with a Nano size for the construction of material with enhanced properties. The

water and solvent based processes. The predominant advantages to the functional and technical textile sector include: (i) Energy efficiency (ii) Production efficiency (iii) Low emission of VOC (iv)Application on temperature sensible materials (v) Compact appliance Textiles treated with this technical method have good acceptance for medical and hygienic applications.

#### R. Sol gel technology for textile treatment

The word Sol is a colloidal suspension of small solid particles (10-9–10-6m) in a liquid; While Gel is a molecule of macroscopic dimensions which extends throughout the solution (polymeric network). Inorganic sol-gel layers applied for surfaces of textile are highly strong and wear resistant. Since then, there is an increasing interest in the application of the sol-gel technology for functional textile treatments.

The Important advantages of the sol gel treatment for the functional and technical textile include:

- (v) Easy care properties
- (vi) Immobilization of bioactive agents and dyes
- (vii)Flames retardant
- (viii) Electrical conductivity

application of Nano technology in the areas of functional textiles is increasing for better outcomes and most of the finishes based on Nano particles brought the highest strength, breathability and soft hand.

The Nano materials can be applied to textile by coating using various other components and different



technology of coating. Out of the many possible

- (i) Wrinkle and soil resistance
- (ii) water repellence
- (iii) Anti -Bacterial property

## 7. APPLICATION OF SMART TEXTILES

The following are few numerous applications of smart e-textiles:

### a) Life Jacket

Life jacket is a smart textile that monitors the heart rate and blood pressure of an ill patient wearing it. The information collected by the device embedded in the jacket is transferred to a computer which can be read by medical practitioners. This life saving jacket can also be used to measure Cuff-less BP through the radial pulse waveform by arterial tonometry.

### b) Military/defense

Technological advancement has led to the imputation of miniaturize electronics that can be embedded into textiles and used by civilians or special personnel, such as soldiers. The integration of electronics into military textiles could assist soldiers in achieving levels of performance and capabilities never realized before on the battlefield. Soldiers on active duty can face varying threats, often unpredictable. In extreme environmental conditions and hazardous situations there is a need for real time information technology to increase the protection and survivability of the people working in those conditions. Improvements in performance and additional capabilities would be of immense assistance within professions such as the defense forces and emergency response services. The requirements for such situations are to monitor vital signs and ease injuries while also monitoring environment hazards such as toxic gases.

The applications of the e-textile in military field may be divided into two categories: (1) Personal protective clothing and individual equipment (battle dress uniforms, ballistic protection vests and helmets, chemical protection suits, belts, ropes, suspenders and field-packs) and (2) Defense system and weapons (tents, parachutes, shelters, tarpaulins and textile composites).

When a military man wears the "Smart Shirt" during war and gets injured, information on the wound and the

applications in textile, some of which includes:

- (iv) Antistatic Properties
- (v) UV Protection

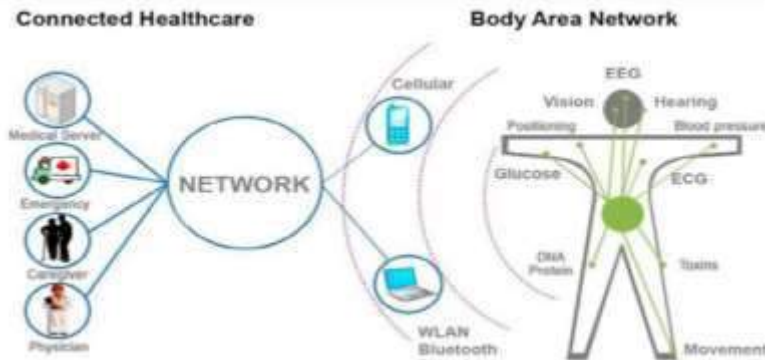
soldier's condition would be immediately transmitted to a medical triage unit near the battlefield. This shirt can help a physician determine the extent of a soldier's injury based on the strength of his heartbeat and respiratory rate. This information lets physicians know the urgency of what to treat first.

Obviously, a lot needs to be done to develop better protective fabrics for the military personnel not only in terms of performance of individual aspects of protection but also integration of solutions into a protective system that is economical, stress free and performs optimally.

### c) Health and Medicine

Health care centres are major area that has benefitted tremendously in the applications developed from the combination of smart textiles and wearable computers in the form of Telemedicine. These devices that are wearable enable physiological signals to be monitored frequently during normal daily activities. It therefore overcomes the problem of infrequent clinical visits that can only provide a brief window into the physiological status of the patient. Smart clothing serves an important role in remote monitoring of chronically ill patients or those undergoing rehabilitation and also promotes the concept of preventative healthcare. Traditionally, textiles have been regarded as an essential passive 'skin' that provides enhanced protection, comfort and appearance, whereas smart textiles have the potential to emulate and augment the skin's sensory system by sensing external stimuli such as proximity, touch, pressure, temperature and chemical/biological substances. For conditions such as diabetes mellitus, where the patient loses sensation in the limbs, or bedridden patients, pressure sensitive fabrics may aid in assessment and warning to reduce the occurrence of pressure ulcers. With nanotechnologies smart textiles may provide a fully functioning haptic interface – potentially a second, more sensitive skin.

Few of such immense achievements of smart textiles in health care are shown below:



**Fig 6: Applications of smart textiles and wearable computers in health care.**

*Source: Yinka-Banjo Chika et al (2017)*

#### **d) Sport and Human Performance**

The sports sector, through seeking to improve athletic performance, personal comfort and protection from the elements, has driven significant research activity within the textile industry. In sports generally, important monitoring functions such as body temperature, heart rate, breathing, and other physiological parameters such as number of steps taken and total distance travelled can be achieved using smart devices embedded on sport clothing. Smart textiles in sports also help in protection against injury of athletes. Walking shoes could be embedded with GPS (Global Positioning Systems) that helps in the tracking of its wearer in times of emergency rescues services. Most of the smart running shoes, make use of a special sensor that helps in tracking the athletes' movements while running and sends the information to information technology tools such as a personal iPod. It helps to keep track of the athletes' running speed, total distance covered and other relevant data.

#### **e) Networked Jacket**

The network jacket aids in the tracking of location of the wearer through the use of a GPS and the map is projected into a flexible display screen on the sleeve of the jacket. It also displays the moods of the wearer via color changes and signs.

### **8. ELECTRONIC TABLECLOTH**

The Electronic Tablecloth is an e-textile device that is used in a social gathering where it enables users to communicate with one another through an interface with a computer via its sensor surface. Attendees at the function are able to identify themselves by entering their assigned "coaster tags" on the curly pattern, on which are embroidered the words "Place your coaster here." The coaster is in turn a capacitive coupled radio frequency identification device (RFID) tag, and is read by the tag reader in the tablecloth when the user sets it on the swirling pattern and touches the fabric electrode on top of the coaster. The computer then enters a dialog with the user through the appropriate fluorescent display and keypad. Radio frequency identification (RFID) technology is one of such pervasive technology which is now increasingly utilized in industrial logistics, supply chain management, cold chain monitoring, retailing, purchase tracking and manufacturing analysis. RFID principles show several advantages over traditional technologies like barcode and data loggers and its devices are more accurate and do not require visual contact. It provides real-time information that can help retailing and distributing officer for product delivery schedule and allows customers to identify interior information of product and services.



**Fig 7:Sample of Electronic tablecloth.**

Source: Yinka-Banjo Chika, and SalauAbiolaAdekunle(2017).

Apart from the few out of numerous applications mentioned, Smart textiles find variety of applications and possess sensing and actuating functions that can be efficiently used in different field of studies like engineering, fashion and entertainment, medicine, Sport (Smart bra,), Music industries, and defense academy etc.

## 9. CONCLUSION

The development of smart fabrics requires a multidisciplinary approach and technology in which knowledge of computer science and engineering, smart materials, chemistry, circuit design, and micro-electronics are fundamentally integrated with a deep understanding of textile fabrication. Finally, the hybridization of textiles and electronics brought changes in the interactive textiles; this developing field of smart textiles could show a lot of new things in all its applications as it has its importance for medicine and healthcare, protective clothing's, in the casual clothing's and lifesaving products. The useful features that are incorporated into e-textiles bring market advantages in several areas, such as sports and healthcare; business companies already perceived the wearable e-textiles business potential and are developing e-textile products to incorporate them in their product portfolios. The wearable e-textiles are still a new field with opportunities to build innovative products that can revolutionize the way a person's interact with their garments. There are so many potential applications where smart Nano-textiles have impact on our lifestyles, and comfort and become ubiquitous in this technology driven world by making man to be able to interact with his environment and space.

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## **SCAR ENDOMETRIOSIS: PATHOLOGY THE HALLMARK DIAGNOSIS**

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### **ABSTRACT**

*Presence of functioning endometria outside the uterine cavity is termed endometriosis. Scar endometriosis is a rare condition wherein endometriosis occurs at the incision site post operatively. Often it is confused with other comparatively common mass or tumors seen and is misdiagnosed. One such rare case of scar endometriosis at the site of cesarean section is reported here. The clinical presentation, diagnosis and treatment approach taken are discussed. Along with this, the case report emphasizes on significance of pathological findings in preliminary as well as confirmative diagnosis of scar endometriosis.*

**KEYWORDS:** *Endometriosis, cesarean section, scar endometriosis, histopathology, pathological findings*

### **INTRODUCTION**

Endometriosis is defined as presence of endometrial glands outside the uterus. Scar endometriosis is rare and usually seen following surgical interventions like cesarean sections or hysterectomy. Its occurrence is explained using different relatable events and implantation of endometrial tissue directly into scar at the time of gynecological procedures is one among them. Often, they are detected when the patient presents with swelling, pain or discharge from the site of surgical incision. Though endometriosis occurs in 5% to 10% of all women in reproductive age group, scar endometriosis is a rarer entity affecting less than 1% of

the cases.<sup>1</sup> Usually, scar endometriosis may occur during an abdominal or pelvic surgery. <sup>2,3</sup> Owing to the non-specific clinical presentation, many a times they are misdiagnosed as abscess, lipoma, hernia, cyst, foreign body, fibroma, tumor or granuloma.<sup>4</sup> Usually patients with scar endometriosis come to gynecology, surgery or dermatology departments and differential diagnosis plays a vital role in identifying it. Clinical history, physical examination and radiological investigations are taken into account for differential diagnosis, and surgical excision stands as a better treatment plan, as medicines can give symptomatic relief, but not reduce the swelling size. However, histopathology which has a crucial part in effectively





omitting the conditions mimicking endometriosis are not always referred. The current case report sought to highlight the role of histopathological examination in efficient diagnosis of scar endometriosis.

### CASE REPORT

The pathology laboratory received an excised mass sample along with skin tags from gynecology department. The mass measured 3 cm×2 cm×1 cm and the attached skin showed a sinus tract formation, pigmentation as well as reddish discoloration. On gross sectioning of the mass, cut sections revealed a few hemorrhagic areas. All the sections were sent for processing and hematoxylin-eosin staining. The slides prepared were subjected to histopathological examination. Sections studied showed stratified squamous lining with endometrial stroma and glands. Along with this, few areas of hemorrhage and hemosiderin laden macrophages were also observed. As all three histological criteria namely; endometrial glands, hemosiderin-laden macrophages and endometrial stroma were seen on microscopy (Figure

1), hence a confirmed diagnosis of scar endometriosis was given.

The clinical history revealed that it was a 45-year-old female who presented with pain and swelling at the site of Cesarean section scar, performed 6 years back. Chief complaints that the patient reported to the gynecologist were increased intensity of pain near the scar site during the menstrual cycle, recurrent episodes of pain associated with periods. This was what brought her attention to the swelling at scar site and prompted her to undergo a checkup. Physical examination detected a swelling measuring 3.5 cm×2.5 cm×1 cm just near the LSCS scar. Since there was history of increased pain and as the patient was ready and convinced for surgery, the mass was excised and sent for histopathological confirmation, with a provisional diagnosis of scar endometriosis. Sonographic findings showed a 3 cm×2 cm×1 cm, oval shaped heterogeneous mass within the right rectus abdominis muscle. All the routine blood tests including FSH, LH and TSH were within normal limits.

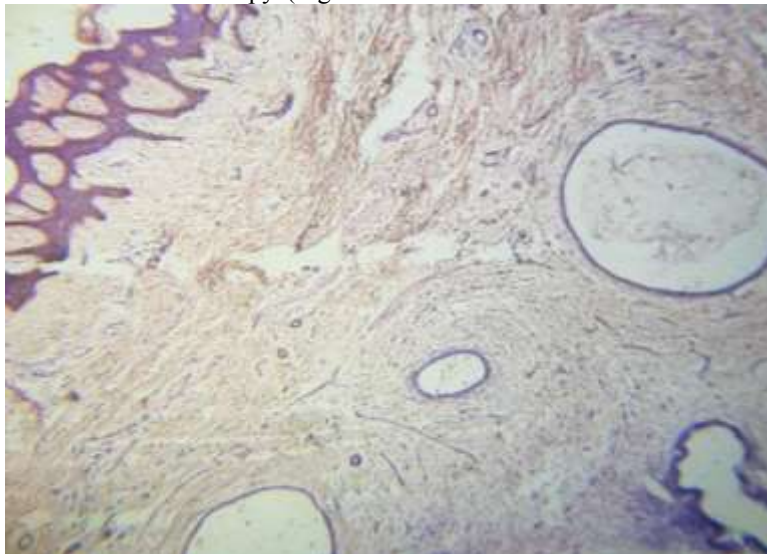


Figure 1: Scar Endometriosis showing endometrial glands, stromal cells and hemosiderin laden macrophages.

### DISCUSSION

The term endometriosis was coined by Karl Von Rokitansky in 1860.<sup>5</sup> Scar endometriosis is a rare condition and may often be confused with other abdominal wall lesions like an abscess, sebaceous cyst, suture granuloma, incisional hernia or lipoma.<sup>6</sup> Different theories have been postulated to understand how endometriosis is caused. Among these, Sampson (in 1868) was the first to suggest that there may be reflux of the endometrial tissue through the fallopian tubes and these may eventually be implanted on the

parietal or pelvic organs. In a similar manner, endometrial tissue might get implanted in the incision site during surgery, and cell proliferation may occur in response to hormones associated with menstrual cycle.<sup>7</sup> All cases of endometrial tissue does not fit this theory of direct implantation and here, comes the other prominent theories into picture. Another theory suggests transport of endometrial cells to adjacent locations during surgical procedures or through lymphatic or hematogenous route, thereby named metastatic theory.<sup>8</sup> Metaplastic theory on the other hand





states, that pluripotential mesenchymal cells may undergo a metaplastic change into endometrial tissue.<sup>8</sup>

Amidst all cases of endometriosis, scar endometriosis is lesser seen and has an incidence of 0.03% to 0.15%.<sup>9,10</sup> Although reports of scar endometriosis following hysterectomy, episiotomy appendectomy and amniocentesis also exists, scar endometriosis associated with LSCS is comparatively seen more.<sup>11</sup> However, variation in the clinical presentation and absence of visible symptoms many a times make it difficult for diagnosis. The classical signs and symptoms like cyclic change in intensity of pain and swelling during menstruation are witnessed in 20% of the cases.<sup>12</sup> Often it is confused with abscess, tumor, hernia, lipoma, granuloma, hematoma or sebaceous cyst when present in the abdominal wall.<sup>4</sup> A person may present with scar endometriosis, as early as months or as late as years after the surgery.<sup>13</sup>

Surgical excision of the mass is the ideal treatment approach adopted, along with hormone replacement therapy for temporary relief of symptoms. Diagnostic aids like Doppler Sonography, CT scans and MRI are widely used methods to differentially diagnose scar endometriosis. However, the most reliable method to diagnose remains histopathology. When two of the classical findings, namely endometrial glands, stromal cells and hemosiderin laden macrophages are observed on microscopy, a confirmative diagnosis of scar endometriosis can be given.<sup>14</sup> In the present report all the three of hallmark characteristics were seen. As pathological confirmation can aptly confirm the clinical suspicion of scar endometriosis, histopathology is a crucial tool.

## CONCLUSION

Scar endometriosis, although rare, is seen at the site of incision in females post gynecological and obstetric surgeries. A suspicious eye towards any mass at the scar site is needed to ensure prompt diagnosis. Confirmative diagnosis is dictated by histopathological analysis. However, a method to arrive at a diagnosis before excision of the mass is a need of the hour. Fine needle aspiration (FNAC) here comes into picture and reports suggest it to be an apt rapid and cost-effective method to arrive at a preliminary diagnosis. In the present case, the excised mass was received at the lab for histopathology and hence, an FNAC could not be done.<sup>15</sup> All in all, understanding the critical role played by pathological findings in diagnosing scar endometriosis and relying on it for preliminary as well as confirmative diagnosis would enable early diagnosis and prompt treatment.

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# WAYS OF EFFECTIVE DEVELOPMENT OF INNOVATIVE ACTIVITIES AT PRODUCTION ENTERPRISES OF THE REPUBLIC OF UZBEKISTAN

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## ABSTRACT

*In this article, special attention is paid to the problems of the development transfer of products and technologies in increasing the efficiency of innovative activity and methods of their elimination are proposed, aimed at increasing the efficiency of production, also the ways of effective development of innovative processes at manufacturing enterprises are proposed.*

**KEYWORDS:** *production, innovative development, innovative technologies, efficiency, technoparks, technopolises.*

## DISCUSSION

In a globalized world, the innovative development of industries and sectors is a priority in ensuring sustainable economic growth of the world and national economies. In economically developed countries, 70-90% of the gross domestic product is created precisely through the development of innovative activities. At the same time, the economy achieves high rates of development based on the introduction of scientific and technological and promising innovative techniques and technologies, useful and profitable innovations, modernization of leading industries, modern technical and technological update, and the introduction of local innovative technologies.

The experience of industrialized countries shows that the high innovative activity of the economy is ensured by the leading role of the state in the market of science and technology, the determination of national priorities, the active influence of the state on the process of innovative development through economic incentives.

The priority strategic direction of the innovative development of the economy of Uzbekistan is the creation of a national innovation mechanism, which is a system of organizational, economic and legal measures and the implementation

of certain innovative projects. This system should ensure the production of new knowledge, the operational application of research results in the real sector of the economy and the sale of new products to consumers. In this regard, the effective development of innovation is of great importance, since the competitiveness of industrial enterprises of the republic as domestic

In this regard, the effective development of innovative activities is of great importance, since the competitiveness of industrial enterprises of the republic both in the domestic and foreign markets depends on the efficiency and effectiveness of its activities.

Research shows the need to form a balance between all the components and links of the innovation cycle to increase the innovative activity of industrial enterprises of the republic. One of these directions is the creation of mechanisms for the interaction of subjects directly implemented or participating in innovation in the production process. This creates demand for the effective formation of innovative activities at manufacturing enterprises and the creation of conditions for their development. The systematization of foreign experience in the formation and development of innovative activity allows us to identify the main, basic aspects of the



creation of some of its elements and to show the possibilities of their use in the national economy.

One of the most prospective foreign practices, from the point of view of the development of innovation activity and its directions, is the use of models with the participation of the private sector and research organizations. These models ensure the distribution of investment risks and savings in public funds in organizing innovative activities.

In our opinion, the mechanism for the development of innovative activities should be based on the following principles:

Ensuring coordinated communication of existing research institutes, industrial enterprises and credit and financial institutions;

Creation of a mechanism for ensuring coordination and sustainable interaction in the implementation of innovative activities at industrial enterprises;

Need to identify the long-term prospects for the innovative development of industrial enterprises;

Adaptation to the changing conditions of the external and internal environment and focus on the final result in the implementation of innovative activities in industrial enterprises.

The structure of innovation activity can include the following elements: educational institutions, research institutes, venture capital firms, engineering centers, techno parks, technopolises, business incubators, experimental certification centers, technology transfer centers, marketing centers, small innovation firms, databases intellectual property and others. Market factors are more influencing the development of decisions on the implementation of innovations in industrial enterprises, while the influence of subjective factors determines a more empirical approach to this process. All this indicates the low efficiency of innovative development of industrial enterprise.

Based on this, the industrial enterprises of the republic have sufficient potential for innovation, and in this regard, it is advisable to take the following measures: introduction of new equipment and technologies, diversification of production and application of new management methods; improvement systems of information support and communication to accelerate transfer of technology, the process of commercialization; Creation of an investment system and opportunities to stimulate innovative activity; improvement of mechanisms for the development of innovative activities at enterprises.

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# WAYS OF EFFECTIVE DEVELOPMENT OF JOINT STOCK COMPANIES ON THE BASIS OF INNOVATIVE ACTIVITY

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## ABSTRACT

*At a time when the world innovation management system was considered a strategic factor of economic development, conceptions and programs were adopted on the organization of infrastructure of innovative activities, development of organizational and economic context of innovative processes, improvement of management of innovation centers, development of innovation strategies of the region. However, in the practice of Innovation Management, little attention is paid to the development of organizational and economic management strategies for Innovation Management in the regions.*

**KEYWORDS:** *Innovative potential, modern problems, innovation potential management, innovation aims, resources.*

## 1. INTRODUCTION

In the context of globalization, innovative development of industries and sectors is a priority in ensuring sustainable economic growth of the world and national economies. In economically developed countries, 70-90% of GDP is created due to the development of innovation. At the same time, they are achieving high development of the economy on the basis of modernization of leading industries, modern technical and technological renewal, introduction of local innovative technologies through the introduction of strategically important scientific and technological and promising innovative techniques and technologies, useful and profitable innovations.

## 2. LITERATURE REVIEW

Today, special attention is paid to scientific research on the organization of innovative activities and the improvement of effective development mechanisms in countries around the world. In this regard, the research on the support of innovative entities, targeted and effective development of the market of innovative products and the improvement of the mechanism of financing research projects of

innovative entities play an important role. It should be noted that the application of effective mechanisms for the implementation of innovative activities in scientific research is considered a priority.

In the context of growing competition in the world economy, our country is taking consistent measures to build a modern, ie innovative form of economy. To this end, on the initiative of the President of the Republic of Uzbekistan Sh.M.Mirziyoev, a strong mechanism linking science and industry is being gradually developed.

The experience of industrialized countries shows that high innovative activity of the economy is ensured by the leading role of the state in the science and technology market, the definition of national priorities and the active influence of the state on the process of innovative development through economic incentives.

The priority strategic direction of innovative development of the economy of Uzbekistan is the establishment of a national innovation mechanism, which is a system of organizational, economic and legal measures and the implementation of certain innovative projects. It should ensure the process of production of new knowledge, rapid application of





research results to the real sector of the economy and the sale of new products to consumers.

In almost all modern economic theories, innovation is recognized as a source of development. Innovative potential is a separate key source of growth that ensures the development of not only an individual economic entity, but also the entire system.

The concept of "innovative potential" began to enter the science in the late 70s of the twentieth century. It has been identified and developed in the methodological, theoretical research of a number of scientists. However, to date, no single universally accepted definition of this concept has been developed. Each scientist or specialist interprets the innovative potential in a specific direction, taking into account the characteristics of their country.

The absence of a universal innovation theory today has led to the emergence of many of its meanings and concepts. However, most approaches are based on the ideas of 'innovation' and 'change'.

Although many definitions of innovation emphasize the different characteristics of object innovation, the following selection serves to reflect the relevance of the nature of innovation.

One of the first economists to define the concept of innovation was Joseph Schumpeter. He used the terms "creative state" and "new combinations" and meant:

- production of a new product or improvement of product quality;
- creation of a new method of production;
- conquest of new markets;
- conquest of new markets for raw materials and semi-finished products;
- implementation of organizational changes

### 3. DISCUSSION OF RESULTS

The process of how to produce the innovations described by German innovation researchers Jürgen Hauschildt and Klaus Brockhoff plays an important role in gaining an understanding of the concept of innovation. It is especially important that Brockhoff distinguishes between the origin of the idea, the invention itself, and the processes that shape the production of a ready-to-sell product.

In the above steps, he described the concept of innovation in more detail, taking invention and product creation as the basis for understanding innovation. Each stage involves the decision-making process of accepting or rejecting an idea, its technological suitability, and the proposed economic achievement.

In this regard, the effective development of innovative activities is of paramount importance, and the competitiveness of industrial enterprises of the republic in both domestic and foreign markets depends on the efficiency and effectiveness of its activities.

In order to increase the innovative activity of industrial enterprises of the republic, it is necessary to form a balance between all components and links of the innovation cycle. One of such directions is the creation of mechanisms of interaction of the subjects directly carrying out or participating in innovative activity in production process.

This creates the need for the effective formation of innovative activity in industrial enterprises and the creation of conditions for its development. Systematization of foreign experience in the formation and development of innovative activities allows to identify the basic aspects of the creation of some of its elements and identify opportunities for their use in the national economy.

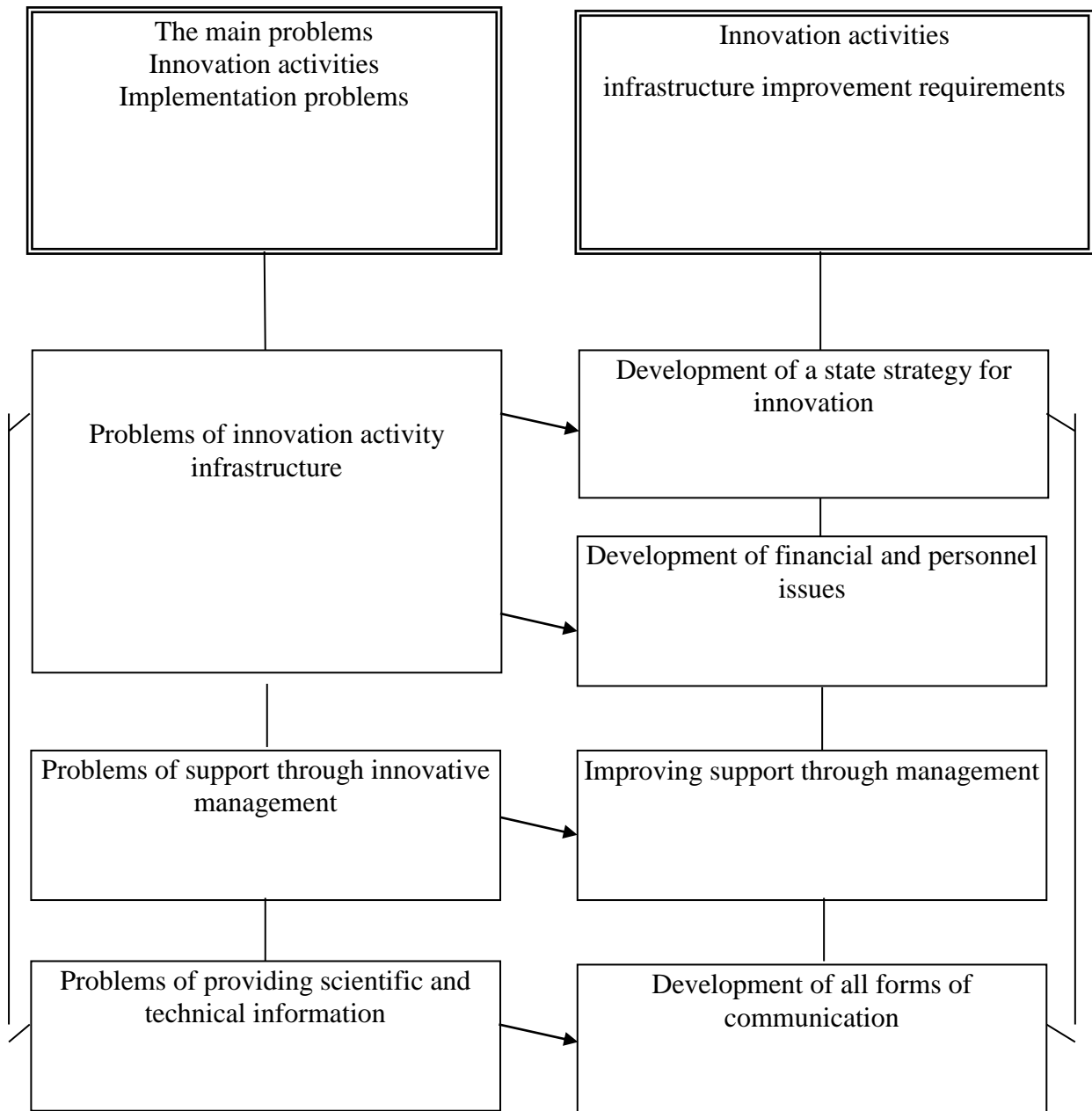
One of the most promising foreign experiences and directions in terms of the development of innovative activities is the use of models involving the private sector and research organizations. These models ensure the distribution of investment risks and savings of public funds in the organization of innovative activities.

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- Ensuring consistent communication between existing research institutions, industrial enterprises and credit and financial organizations;
- creation of a mechanism to ensure coordination and sustainable interaction in the implementation of innovative activities in industrial enterprises;
- the need to determine the long-term prospects for innovative development of industrial enterprises;
- Adaptation to the changing external and internal environment and focus on the end result in the implementation of innovative activities of industrial enterprises.

The analysis of the existing problems of innovative activity in the enterprises of the coal industry of the republic shows that the current situation does not fully meet the needs of enterprises today. This requires the improvement of the infrastructure support system, which will create favorable conditions for innovative activities.





**Figure 1. The system of links between the development and improvement of innovative activities**

The analysis shows that despite the scale of work on further improving the efficiency of innovative activities in industrial enterprises of the country, the introduction of innovative technologies and developments in industries and sectors, today fully mobilizes all material, technical, scientific and intellectual resources. the potential is not fully used. This, in turn, requires further improvement of specific mechanisms that ensure innovative activity between producers and consumers of scientific

products in enterprises and full adaptation of these mechanisms to the pace of economic and socio-political reforms in the country.

In our opinion, the definition of innovative activity as an economic category should reflect the following aspects:

- a set of processes of production and non-production nature, providing continuous improvement as a result of the development of science and technology, the growth of the



needs of the population and society on the basis of objective economic laws and regulations;

- Opportunities to use the innovative potential needed to create, commercialize and put into practice new products with a new quality of production.

The results of our research show that the development of mutual cooperation between the subjects of innovative activity, programs that allow to increase the effectiveness of cooperation, is an objective necessity.

Along with the existing opportunities, in order to further develop innovative activities in the country, the state must: create a favorable business environment that focuses on private initiative to innovative research; establishment of a venture financing mechanism: assistance in developing the infrastructure of innovative activities at the micro, meso and regional levels (insurance, institute of innovative intermediaries, technoparks, etc.).

In the process of solving these tasks, private entrepreneurs and producers will have the opportunity to move from the traditional model of business organization to an innovative model.

World experience shows that one of the most effective ways to develop the economy innovatively and increase its competitiveness is the integration of partners and subsidiaries of a particular industry, all participants in the value chain.

The organization and implementation of the process of modernization of modern production in industrial enterprises necessitates the identification and evaluation of innovative activity and its potential. Infrastructure that effectively influences the innovation sector is an important factor that ensures the assimilation of advanced technology and economic adaptation to its procedure, based on various - district, complex and long-term interaction between the market and the innovation sector. To some extent, the competition mechanism ensures the intensity (speed) of innovation processes.

The share of exports of innovative products in total exports is only 1.46%. It should be noted that in developed countries, 70-90% of GDP is accounted for by the development of innovation.

Because the innovative potential of an industrial enterprise is formed on the basis of a large number of different factors, it is difficult to determine its generalized level and value.<sup>1</sup>

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<sup>1</sup>Uzbekistan Republic state of statistic Declaration official statistician Informatics, long and periodic publishing declamation fundamental analysis.



**Table 1**  
**Dynamics of important indicators of development of innovation activity (industry) in Uzbekistan in 2012-2018**

№	Indicators	2012		2014		2016 й.		2018 й.	
		total	industry	total	industry	total	industry	total	industry
1.	The share of innovative products in total sales,%	2,9	4,5	3,2	3,9	5,8	8,4	6,5	8,4
2.	Growth rate of sales of innovative goods, works and services,%	100	100	62,3	54,6	126,4	130,7	116,4	125,4
3.	The share of own funds of organizations in the total cost of innovations,%	60,5	74,9	70,6	75,2	68,4	54,0	36,8	31,0
4.	Cost ratio for innovations	0,014	0,012	0,005	0,004	0,003	0,005	0,026	0,043
5.	Rate of growth of expenditures for innovations,%	100	100	121,4	63,8	73,0	122,4	72,0	91,1
6.	Share of innovative active enterprises	0,13	0,37	0,07	0,25	0,07	0,23	0,35	1,29
7.	The number of technological innovations introduced, corresponding to the contribution of each innovative active enterprise	2,2	3,5	4,4	3,5	3,8	3,9	1,7	1,6
8.	University-Company Level of cooperation in research	25,5	15,5	15,8	19,3	8,8	16,3	9,2	4,5

It is not an assessment of the dynamics of individual factors affecting innovation potential in industrial enterprises, but the identification of changes in the general trends of innovation potential through a cumulative index. In our opinion, one of the most convenient methods in assessing the level of innovative potential of the enterprise is the expert evaluation method (including scoring method), and analyzes show that it is usually evaluated by - relative indicators - indices and average performance methods.

#### 4. CONCLUSION

The generalized indicators of the level of innovation potential determined by the cumulative index are calculated as the average value of the average indices in each group. This makes it possible to determine the different objective effects of selected conditional indicators on innovation potential in different directions.

Effective development of innovative activities in the coal industry of the national economy should be based on the following successive stages: creation of favorable conditions in the industry - implementation of effective and efficient research - organization of financial and investment support - consulting and expertise - building infrastructure - commercialization. Each step requires that it be carried out on the basis of specific measures aimed at ensuring its implementation.

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# EPIGENETIC REGULATION: THE LEADING ELEMENT OF STEM CELL DIFFERENTIATION

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## ABSTRACT

*Stem cells go through broad self-recharging and have the ability to separate along with various cell genealogies. Movement from immature microorganisms into separated offspring requires dependable changes in quality articulation. Epigenetic components, including DNA methylation, histone changes, and noncoding RNA-interceded administrative occasions, are fundamental to controlling the heritable cell memory of quality articulation during improvement. Ongoing examinations on cell destiny detail of early-stage and grown-up foundational microorganisms/begetters have featured a general and essential part for dynamic epigenetic guidelines in undifferentiated cell self-reestablishment and separation.*

**KEYWORDS:** *histones, DNA, microRNA, ESC*

## INTRODUCTION

Undifferentiated organisms are portrayed by in any event two fundamental properties: broad self-recharging and the capacity to separate into various cell-type explicit descendants. Undeveloped immature microorganisms (ESCs) and early-stage germ cells are pluripotent immature microorganisms, both of which can offer ascent to all phone types inside a bioorganism. Tissue-explicit stem/begetter cells continue in many, if not all, tissues all through life. These stem/begetter cells are typically multipotent or unipotent and can separate into limited genealogy descendants. The natural properties of undeveloped cells, as well as extraneous signs, gave by the specialty (microenvironment where foundational microorganisms live in vivo) are significant for undeveloped cell self-renewal and separation. Surprising changes quite often join the movement from undifferentiated organism to separated descendants in cell morphology and capacity. To an enormous degree,

these progressions are resolved at each phase by unmistakable quality articulation designs. In particular, qualities related to self-reestablishment are quieted, while cell type-explicit qualities go through transcriptional initiation during separation. Developing proof proposes that the inception and support of changes in quality articulation that are related to undifferentiated organism separation include the activity of a one of a kind epigenetic program including covalent DNA and chromatin adjustments just as little noncoding RNA-intervened pre-and posttranscriptional quality guidelines.

## EPIGENETIC MECHANISMS

Epigenetic systems allude to biologic cycles that direct mitotically or meiotically, heritable changes in quality articulation without adjusting the DNA arrangement. Major epigenetic components incorporate DNA cytosine methylation, histone alterations, for





example, acetylation and methylation of histone tails, and little noncoding RNA controlled pre-and posttranscriptional guideline of quality articulation.

### **Methylation of DNA**

Mammalian DNA can be covalently changed through methylation of the carbon at the fifth position on the pyrimidine ring of the cytosine buildup. In warm-blooded animals, DNA methylation happens basically at balanced CpG dinucleotides. All over again cytosine methylation, catalyzed by two all over again DNA methyltransferases, Dnmt3a and Dnmt3b, includes methyl-bunches onto unmethylated DNA, which is significant for the foundation of DNA methylation designs. Upon cell division, the current methylation designs should be kept up by maybe a more effective DNA methyltransferase, the upkeep methyltransferase Dnmt1, which inclines toward hemimethylated substrates. DNA methylation is essentially engaged with setting up parental-explicit engraving during gametogenesis just as quieting of retrotransposons and qualities on the inactivated X-chromosome (1,2).

### **Histone alterations**

Post-translational adjustments of histones, including acetylation and methylation of saved lysine buildups on the amino-terminal tail, are likewise progressively controlled by chromatin changing compounds with restricting exercises. The possibility of two contradicting practices, Prompting contradicting states on the chromatin underlies the "histone code" speculation (3). By and large, lysine acetylation interceded by histone acetyltransferases (HATs) stamps transcriptionally capable locales. Interestingly, histone deacetylases (HDACs) catalyze lysine deacetylation, and the subsequent hypoacetylated histones are generally connected with transcriptionally latent chromatin structures. Histone methylation of lysine four on histone (H3-K4) is commonly present inside transcriptionally able advertiser areas.

Moreover, the lysine deposits can be mono-, di-, or tri-methylated to give extra layers of the guideline. For example, the Histone methyltransferase (HMT) Set7/9 is confined to mono-methylation of H3-K4 (4), while the *Drosophila trithorax* (trx) and its mammalian homolog, blended ancestry leukemia (MLL) encode a tri-methylase that is explicit for H3-K4 (5). A recently discovered demethylase, LSD1 (otherwise called BHC110), has been appeared to eliminate a methyl bunch from di-or monomethylated H3-K4 (6), which further exhibits the dynamic idea of this epigenetic guideline. Methylation of either lysine nine or lysine 27 on histone (H3-K9 or H3-K27) is a sign of quiet chromatin districts and is transcendently related to

heterochromatic communities or potentially inert advertisers. H3-K9 HMTs, G9a, and Suv39h are limited to euchromatic and heterochromatic locales separately (7–9). Suv39h can methylate H3-K9 when the H3 tail is unmethylated at K4, while G9a can methylate H3-K9 paying little mind to the methylation status of H3-K4 (10). What's more, developmentally moderated multiprotein edifices, including polycomb severe complex 2 (PRC2), are found to contain both HDAC what's more, HMT exercises, which connect hypoacetylation and H3-K9/K27 methylation (11). The presence of restricting chromatin adjusting catalysts and cross-talk between various epigenetic frameworks exhibit the characteristic multifaceted nature in the dynamic quality guideline by epigenetic changes.

### **Pre-and posttranscriptional guidelines - little noncoding RNAs**

Noncoding administrative RNA interceded guideline of quality articulation is a recently developing epigenetic instrument. A gathering of these little RNAs, particularly from, however, identified with, siRNA (short obstruction RNA), are called microRNAs (miRNAs). MiRNAs are interpreted as parts of more elongate RNA particles by RNA polymerase II, and afterward prepared in the core into clip RNAs of 70 – 100nts by the twofold abandoned (ds) RNA explicit ribonuclease, Droscha. The clip RNAs are moved to the cytoplasm through exportin-5 ward systems where they are processed by a second, dsRNA-explicit ribonuclease called Dicer. The subsequent 19 – 23 mer miRNA is limited by a perplexing that is comparative to the RNA-Induced Silencing Complex (RISC) that partakes in the siRNA pathway. In creatures, the mind-boggling bound, single-abandoned miRNA ties to explicit mRNAs through arrangements that are all together, even though not totally, correlative to the mRNA. Utilizing a system that is still not wholly described, yet which doesn't include mRNA debasement, the bound mRNA doesn't get interpreted, bringing about the diminished articulation of the relating quality (12,13). As of late, endogenous, little noncoding RNAs have been indicated not exclusively to control the security and interpretation of mRNAs yet additionally to incite the arrangement of dormant chromatin structures of focused genomic groupings (14,15)

DNA methylation and histone alteration in stem cell self-renewal also, differentiation. In both the undifferentiated immature microorganism and their separated offspring, the epigenetic state is viewed as moderately steady because of its heritable nature and encouraging feedback between the different epigenetic systems. Significantly, stable suppression of qualities



identified with terminal separation is wholly required for support of the foundational microorganism pool. Be that as it may, late advances have proposed that steady and heritable epigenetic marks are reversible and progressively controlled by restricting chromatin adjusting exercises, which are invigorated by extracellular separation inciting signs during undifferentiated organism separation.

### **Worldwide epigenetic reinventing during early embryogenesis**

In separated cells, DNA methylation designs are thought to be steady and heritable. Such a DNA methylation design is set up slowly during a few primary stages in early embryogenesis. Upon preparation, the fatherly genome is effectively demethylated before the first round of cell division happens. Be that as it may, the personality of the DNA demethylase(s) fundamental this dynamic demethylation measure stays slippery. After the zygote begins to partition, the aloof demethylation of both fatherly and maternal genomes happens because support DNA methyltransferase Dnmt1 is barred from the core (16). In the creating pre-implantation incipient organisms de novo DNA methyltransferases start to restore DNA methylation designs during implantation and ensuing germ layer and cell type separation (17). This epigenetic reconstructing measure guarantees the eradication of gained epigenetic data during gametogenesis. It additionally resets the epigenome of the pluripotent foundational microorganisms in the internal cell mass (ICM) to give broad formative potential (16). Undoubtedly, many cloned incipient organisms neglect to create because of inadequate epigenetic reconstructing (18). Besides, the inadequacy of Dnmt1 or Dnmt3 in the mouse prompts genome-wide DNA hypomethylation and early undeveloped lethality (2). This proposes that DNA methyltransferase-intervened epigenetic reinventing is required for the typical improvement of the creature. It has been indicated that Dnmt3a is fundamental for building up parental-explicit methylation of engraving qualities during gametogenesis (19,20). Moreover, transformations in DNMT3B, bring about human ICF (immunodeficiency, centromeric flimsiness, facial inconsistencies) condition (17). In any case, little is thought about how Dnmt3a and Dnmt3b are engaged with building up the epigenetic marks that represent substantial cell heredity separation during early embryogenesis.

### **DNA methylation and histone changes - ESC self-restoration**

Mouse or human ESCs can be separated from the internal cell mass (ICM) of creating blastocysts and

refined in vitro. Separation of undifferentiated cells is firmly controlled by collaborations between extraneous separation signals and natural pathways. Since immature microorganisms have a broad self-recharging limit, the constraint of separation qualities in undeveloped undifferentiated cells must be steady and heritable during cell division. Pluripotent ESCs contain elevated levels of epigenetic reinventing exercises, for example anew methyltransferases and histone methyltransferases (HMTs), making ESCs outstanding possibility for investigation of epigenetic reconstructing during in vitro ancestry explicit separation. Shockingly, both Dnmt1/ and Dnmt3a/; Dnmt3b/ twofold freak mouse ESCs can multiply at the point when kept up as undifferentiated immature microorganisms, showing self-renewal capacity is protected in ESCs with hypomethylated genomes. In any case, these freak ESCs neglect to go through in vitro separation because of either broad apoptosis upon separation because of Dnmt1 insufficiency or inability to stifle pluripotent qualities, for example, Oct4 and Nanog due to lack in both Dnmt3a and Dnmt3b (21). Almost certainly, while DNA methylation could be associated with hushing elective genealogy separation qualities in tissue-explicit undifferentiated organisms as well as separated cells, histone alteration intervened quality inactivation are primarily engaged with the upkeep of the self-restoration property and quieting of genealogy separation qualities in ESCs through pluripotency-related record factors, for example, the Oct4- Nanog-Sox2 complex (22). PcG buildings are a class of histone change proteins, which are profoundly moderated all through advancement (11). Multiprotein polycomb severe complex 2 (PRC2), contains both HDAC and HMT exercises and is engaged with the inception of quality quieting. PRC1, then again, perceives the H3-K27 methylation mark built up by PRC2 through its moderated chromodomain and is ensnared in regular upkeep of PcG buildings intervened quality hushing impacts. Bmi1 encodes a subunit of the PRC1 complex, and Bmi1-inadequate mice show an imperfection in postnatal self-recharging of both hematopoietic and neural undeveloped cells (23,24). Quite, Bmi1 is directed by the Sonic hedgehog (Shh) flagging pathway in the cerebellum, giving a connection among PcG and a flagging pathway that has been appeared to be significant for the expansion of grown-up neural foundational microorganisms (25). Bmi1-related PRC1 edifices direct grown-up undifferentiated organism self-restoration through the constraint of the Ink4a/ Arf locus in vivo (11).

Epigenetic control interceded through PcG repressor edifices is likewise dependent upon dynamic



guidelines from restricting chromatin altering exercises. As of late, testis explicit TAF (TBP-related factor) related trithorax (trx) activity (tri-methylation of H3-K4) was appeared to balance PcG-mediated constraint to permit terminal separation of *Drosophila* male germ cell forerunners. DNA methylation and histone alterations in foundational microorganism separation along with the neural genealogy. The dynamic and facilitated epigenetic guideline is best shown by the successive neural genealogy separation in which neurogenesis consistently goes before gliogenesis during mental health. As multipotent neural stem/ancestor cells (NPCs) first go through a neuronal separation, early neuronal heredity qualities are actuated, while qualities required for elective glial destinies are hushed. At the point when NPCs enter the glyogenic stage, glial genealogy qualities are de-subdued in reaction to outward signs or potential changes in the natural properties of stem/better cells. Numerous neuronal qualities (for example Mash1, Bdnf, Calbindin) contain the RE1 site inside their advertisers and are repressed by REST (RE1 hushing record factor, or NRSF) in stem/better cells and non-neuroectodermal ancestries. It stays to be resolved how low degrees of REST protein capacity to quietness neuronal ancestry qualities in undifferentiated neurogenic NPCs. It has been recommended that the constraint of neuronal qualities in non-neuroectodermal genealogy cells is intervened by the REST-related HDAC/mSin3A/MeCP2 complex, which prompts a hypoacetylated and consequently H3K9 Diol tri-methylated chromatin structure with significant levels of DNA methylation. Not at all like in non-neural heredity cells, where the advertisers of neuronal qualities are for all time quieted, the dormant neuronal advertisers inside stem/forebear cells are in a poised state. In this state, they are not related to DNA methylation and histone h3-k9 methylation. As soon as NPCs are centered on a neuronal destiny and go through a terminal separation, the declaration of REST close off, and the REST repressor complex is excused from the RE1 destinations inside neuronal quality advertisers, bringing about record initiation. As of late, an inhibitor of BRAF35 (RAF) was found to enact REST controlled neuronal qualities by selecting the H3-K4 tri-methylase MLL during the neuronal separation of P19 cells. Along these lines, it is conceivable that REST may likewise cooperate with the CoREST/ LSD1 complex, which has histone H3-K4 demethylation movement equipped for quelling neuronal quality advertisers in the stem/ ancestor cells before neurogenesis. Ongoing advancement of mouse and human ESC culture innovation makes it

conceivable to determine almost homogeneous populaces of multipotent tissue-explicit stem/forebear cells from ESCs. This empowers scientists to break down the epigenetic guidelines of ESC separation utilizing freak mouse ESCs lacking in different epigenetic apparatuses. Our late investigations examined the relationship of DNA methyltransferases and DNA methylation designs inside neuronal and glial advertisers in wild-type, Dnmt3a/, and Dnmt3b/ mouse ESCs and ESC-determined NPCs. Anew methyltransferases were found to connect with and methylate glial steadily, yet not early neuronal heredity quality advertisers in mouse ESCs just as during the change of ESCs to NPCs. As a result, glyogenic qualities became hypermethylated and related to an inert chromatin structure. In contrast, early neurogenic qualities remained hypomethylated and ready for record previously and during the separation of ESCs along with the neural ancestry (Wu and Sun, unpublished perceptions). The diverse epigenetic states in ahead of schedule (neuronal) versus late (glial) neural genealogy qualities may underlie the underlying changes happening at the chromatin level that are required for pluripotent ESC separation toward the neural genealogy and which direct that neurogenesis goes before gliogenesis.

Strikingly, albeit both Dnmt3a and Dnmt3b are exceptionally communicated in mouse and human ESCs, we discovered Dnmt3a is the prevalent once more DNA methyltransferase in NPCs determined either from ESCs or the creating mouse cerebrum. Loss of Dnmt3a in NPCs explicitly brings about dysregulation of abusive epigenetic marks, including DNA methylation and histone adjustments, on glial advertisers, and bright gliogenesis both in vitro and in vivo (Wu and Sun, unpublished perceptions). Together, these discoveries propose that once more DNA methyltransferases are engaged with building up substantial, cell-type explicit DNA methylation designs during early embryogenesis. Besides, particular focusing of ancestry specific qualities by the once more DNA methylation hardware is necessary for appropriate epigenetic reinventing, which takes into consideration the transiently requested initiation of explicit heredity separation programs. Since multipotent NPCs, in the end, become glaciogenic, the harsh epigenetic marks on glial quality advertisers must not be causing lasting quality hushing. At the point when multipotent NPCs become glaciogenic, an extracellular glaciogenic factor, leukemia inhibitory factor (LIF), prompts transcriptional initiation and nearby epigenetic modifications of the proximal advertiser of an astroglial quality, Gfap. These



epigenetic modifications incorporate DNA demethylation just as corresponding chromatin rebuilding comprising of a decline in di-methylation of H3-K9 and an expansion in histone acetylation. This advertiser explicit epigenetic reconstructing is interceded by separation of the Dnmt3a with the histone change compound complex and enlistment of the STAT3/ CBP record activator complex that contains HAT action upon LIF incitement. It was recently announced that cytosine methylation of the CpG site inside the STAT1/3 official site of the Gfap advertiser restrained STAT1/3 affiliation and like this repressed glial separation. Be that as it may, huge numbers of the astroglial break related qualities including S100 and rates in the JAK-STAT pathway, don't have STAT1/3 official components containing implanted CpG destinations. Like this, direct hindrance of STAT1/3 restricting through methylation of the Detail restricting cis-component is certainly not a significant instrument interceding DNA methylation-related quieting of the astroglial separation program.

#### **Guideline OF STEM/PROGENITOR CELL Separation - NONCODING RNAs**

Noncoding administrative RNA intervened epigenetic guideline of quality articulation is developing as another concentration in undifferentiated organism science. Endogenous little administrative RNAs can either direct the statement of integral mRNAs or prompt arrangement of inert chromatin structures of focused qualities. Articulation profiling distinguished a subset of miRNAs that are explicitly communicated in pluripotent mouse and human ESCs, proposing a function for miRNAs to keep up undifferentiated conditions of foundational microorganisms. Affirmation of the immediate inclusion of a microRNA pathway in the guideline of undifferentiated cell division originated from the investigation of germline immature microorganism (GSC) division in a *Drosophila* freak for *dicer-1*, the RNase III essential for microRNA biogenesis. In mammalian cells, two c-Myc controlled microRNAs miR-17-5p and miR-20a were appeared to control E2F1 articulation, proposing a part in the guideline of cell multiplication. Numerous microRNAs are communicated in a profoundly tissue-explicit way at various formative stages. Late advances suggest that tissue-explicit microRNAs play an essential function in controlling cell-type definitive destiny decision and creature advancement. For instance, a Notch flagging initiated microRNA miR-61 controls the destiny decisions of vulval forerunner cells in *C. elegans*. In warm-blooded creatures, overexpression of miR-181 in bone-marrow hematopoietic forebear cells explicitly

expands the number of B cells. All the more as of late, miR-1 was discovered to be expressly communicated in heart and skeletal muscle antecedent cells. It was found that the record factor Hand2 is an immediate objective of miR-1 interceded translational constraint and that abundance miR-1 prompts a diminished pool of multiplying ventricular cardiomyocytes.

Notwithstanding translational restraint, formatively directed microRNA can likewise subdue their objectives through mRNA cleavage. The miR-196 microRNA successions show ideal complementation to locales in the 3' UTRs of the HOXB8 quality. It was as of late detailed that miR-196 intervened restraint of HOXB8 assumes a part in appendage advancement. The bounty of microRNAs in the postnatal cerebrum recommends a significant aspect for them in neuronal capacity. As of late, a CREB-incited microRNA miR-132 was appeared to manage neuronal morphogenesis in cultured cortical neurons. Shockingly, a change in the 3' UTR of SLITRK1, a quality engaged with neurite outgrowth and embroiled in Tourette's condition, bothers the regular collaboration between miR-189 and the 3' UTR groupings. This information proposes a job that misregulation of miR189 might be engaged with this weakening formative neuropsychiatric issue.

#### **CONCLUSION**

The epigenetic premise of undeveloped cell separation emerges from the need to keep up quality articulation designs in both stem/ begetter cells and their separated descendants. As a stem cell divides, qualities related to self-restoration are down-directed, while explicit heredity markers are actuated. It at that point follows that the acquired epigenetic marks saved on those qualities must be reversible. Chromatin altering chemicals with contradicting exercises assume a crucial function in the dynamic guideline of epigenetic marks. Characterizing the flagging pathways of these compounds instigated by separation inciting signals is necessary to understanding the components hidden undifferentiated organism separation. Besides, noncoding RNAs, particularly microRNAs, give extra layers to the guideline of quality articulation during cell destiny particular. These numerous layers of approach consider the quick progress of multiplying immature microorganisms into their separated descendants.

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# THE DEVELOPMENT OF WOMEN'S LITERATURE IN CHINA IN THE FIRST HALF OF THE XX CENTURY

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## ABSTRACT

*This research is about the development of an important part of Chinese literature -women's literature in XX century. In the beginning of XX century the number of women writers who wrote fiction works increased rapidly. The uneasy situations of the country such as revolutionary movements in the beginning of XX century, China-Japan war, monopole government of Mao Zedong, persecuting the democratic movements, deporting intelligent people to the "re-educating" camps and other conditions were not able to obstacle the women to enter the literature world. On the contrary, interfering of women in social-politic life of the country got stronger in the second part of the XX century. The various movements of women, journals and newspapers and societies of women were organized. The role of women in social life became more noticeable and women literature developed more. Women writers such as Bin Sin, Lin Shukhua, Lu In, Din Lin, Syao Khun, Shi Pinmey, Dzao Min, Lyui Bichen, Chjan Aylin got an important place in social-politic and moral-cultural life of the country with their works. Many of these women participated actively in literary processes and public events. In this article some of the mentioned women writers' life and work will be discussed in detail. The women writers mentioned in this article are confessed not only in China, but also in the world's literature. The problems risen in women's works, the real events described by them play a significant role in gaining more knowledge about the history of China in the first half of XX century and enriching our imaginations regarding to literature processes.*

**KEY WORDS:** *Literary ideology of Mao Zedong, women's literature, Bin Sin, children literature, Diaries "Letters for little pupils", Chzan Aylin.*

## INTRODUCTION

The purpose of the research is to study the development of women's literature in the first half of the twentieth century, its peculiarities, the work of the greatest representatives of Chinese literature, which is a unique literary phenomenon. Women's creativity is an integral part of the Chinese literary process. The emergence of women's literature in China dates back to very ancient times and covers a large period in terms of development. The state of China, the hearth of ancient civilization, has undergone many dangerous, conflicting political processes throughout its historical development. In particular, the twentieth century was a period of various revolutions and political upheavals. Women's literature also developed in tandem with the times.

Today, China has become a country with a female literary environment that is radically different from the ancient times when the names of women artists were used anonymously. "Women's Literature" 女性文学 is officially used as a literary term in China. Women's creativity constitutes a huge literary heritage, and to this day its various aspects are being studied by world synologists. The work of such scientists as Yu.A. Kupriyanova, L.Li, Zhu Tszyn, Hong Jichen about the period in which we intend to think in the framework of this research makes our work a little easier. However, the monographic study of "women's literature" as a separate source of research in this period is extremely rare.



## METHODS

The works of writers whose names are scientifically recorded have been studied on the basis of sociological analysis and biographical analysis methods. The method of sociological analysis, which is one of the methods of contextual analysis, is useful in studying issues such as the relationship between the reality of the work of art and real reality, its level of historical authenticity, the relationship of artistic reality with the reality of life. It also reveals the nature of the issues raised by the writers, the close connection of the works of the writers of the period with the committed ideology of that period, the analysis of the ideological aspects of the works, the character traits of the protagonists, the nature of conflicts and the social roots of such artistic elements. The biographical method involves the study of a work of art in the context of the author's way of life.

## RESULTS AND DISCUSSION

Scientists estimate that the 50s and 70s of the twentieth century marked the beginning of a new era in Chinese literature. There were several root reasons for this. To understand this correctly requires a little step back, a look at the history of the Chinese people in the early twentieth century. Two major socio-political events in the country's history in the early twentieth century: the Xinjiang Revolution (辛亥革命) and the "May 4 Movement" (五四运动) intensified the influence of Western liberal views and philosophical thinking on Chinese public opinion. The main goal of the members of these movements was to create a New Culture by combining the traditional culture of China and the most positive advanced practices of Western science and culture. In the late 1920s, Mao Zedong's literary ideology became the leading ideology.

The development of "women's literature" as a separate phenomenon in modern Chinese literature dates back to this period and is directly related to the work of Bin Sin 冰心 and Din Lin 丁玲. The socio-political events that took place in the country in the early twentieth century led to an intensification of women's movements in the feminist spirit. As a result, many women turned to literature. Another important feature of this period is that if poetry had a high status in ancient Chinese literature, now by this time women were observed to begin to practice writing in prose.

The war that began with Japan in 1937 caused China to be divided territorially into several parts. As a result, different management systems had been formed in different regions, and writers living and working in these regions had different approaches to the same problems. War became the leading theme of the literature of this period.

In the 20s and 30s of the twentieth century, Bin Xin, Lin Shu Hua<sup>1</sup>, Lu Ying<sup>2</sup>, Ding Lin<sup>3</sup>, Xiao Hong<sup>4</sup>, Shi Pinmei<sup>5</sup> entered the literary scene. Indeed, the work of each of these writers deserves to be studied as a separate object of study. The names of such writers can be cited many more. Their work has become the cornerstone of modern Chinese "women's literature." In this article, we will talk about some of them. If we look at their life and work, the influence of the social environment of that period on their way of life is clearly visible. All of them had higher education; most of them were children of educated and wealthy families, studied abroad and took an active part in the life of the country. But as victims of politics, they also served their sentences in "re-education camps." In short, they experienced all the hardships of the period in their own destiny.

Bin Sin 冰心 (1900-1999) was a writer who left her mark on women's literature in the first half of the twentieth century. The author's real name was Se Vanin 谢婉莹 (her pseudonym was "Ice Heart"), who

<sup>1</sup> Lin Shu Hua (1900-1999) was a very famous master of prose, who at the same time taught Chinese language and literature at prestigious universities in China and London. (See: Хун Чзыцэн. Творчество писательниц/ в книге: История современной китайской литературы. – Пекин, 1999. – P.355-365)

<sup>2</sup> Lu Ying (1898-1934) - better known as Juan Ying and Juan Shui, is listed as one of the 18 most powerful female writers of modern Chinese literature due to her achievements in prose and journalism. (See: Хун Чзыцэн. Творчество писательниц/ в книге: История современной китайской литературы. – Пекин, 1999. – P.355-365)

<sup>3</sup> Din Lin (1904-1986) - real name Jiang Bingji - author of the novels "Mother", "Sun on the Sangan River", a collection of about ten stories and short stories. (Сюй Хуабинь. Дин Лин Сяошо яньцзю. – Шанхай, 1990; Эйдлин Л.З. О китайской литературе наших дней. – Москва, 1955; Насимова С. Психологизм личности героини произведения Дин Лин "Коровник"/"Хитойшуносликнинг долзарб масалалари: филология, фалсафа, тарих, иктисод ва сиёсат" XII Proceedings of the scientific-practical conference. – Тошкент, 2015 P.137-143; Насимова С. Проблематика и поэтика рассказа Дин Лин "Мэнкэ"/"Шарқшуносликнинг долзарб масалалари илмий тўплами. – ТошДШИ, 2005.)

<sup>4</sup> Xiao Hong (1911-1942) is a great representative of the realist literature of the original name Zhang Nayinghita. She is the author of several books, including "Abandoned", "Life and Death Field". (See: Го Юйбин. Сяо Хун пинчуань (Сяо Хуннинг танкидий биографияси). - Пекин, 2009; Лебедева Н.А. Сяо Хун. Жизнь. Творчество. Судьба. Дальнаука, 1998)

<sup>5</sup> Shi Pinmei (1902-1928) is one of the four most talented women artists of the 20th century, despite her short life. (See:

<https://www.abirus.ru/content/564/623/625/645/654/13222/13297.html>)



has been engaged in art since the age of 7. She studied at the American Christian Girls School in Beijing and later at Yangtze University. Due to the May 4 movement, she was forced to write under the pseudonym of Bin Sin. After graduating from university, she studied for a bachelor's degree in English literature in America. Bin Sin was not only a master of prose, but also translated works of world writers (such as R. Tagore, H. Jubron) into Chinese<sup>6</sup>. She also taught at various universities. Bin Sin began her career by writing short poems. Impressions of nature, life and death, happiness formed the thematic range of Bin Sin's poems, which later became the subject of her stories as well<sup>7</sup>. Bin Sin was also a major figure in Chinese children's literature. In her series of "Letters to Little Readers", she tells the story of a combination of the classic Chinese genre - bitsi (short notes) and the traveler's diary style typical of European literature. The writer strives for an in-depth and comprehensive analysis of children's inner world, their thoughts, their views of the reality around them, and the happiness of motherhood. These aspects of her work have also led to critical views. A number of Chinese critics, in particular Wang Zhefu, Xuan Ying, and Mao Dun, were critical of her work. In his book, "A New Style of Literary Movement in China", Wang Zhefu criticized Bin Sin's work, saying, "Her work is old-fashioned and outdated for a progressive society." The critic believed that the writer was entangled in the whirlpool of problems of family, domestic, school life, and considered the works to have no critical approach to social reality. Critic Xuan Ying, in his book "Modern Chinese Writers", he wrote: "she (Bin Sin) is undoubtedly one of the typical representatives of the first famous writers and the new literary movement ... but what she understands are: a) motherly love; b) Ocean; c) only childhood memories"<sup>8</sup>. X. In also concluded that there was no in-depth analysis of social problems in the writer's work and criticized that the writer's style had traces of literature in the spirit of decadence left in the past<sup>9</sup>. Mao Dun noted on Bin Sin saying that "reality" was idealized and that a person with a "hungry stomach" could not find peace when reading her works. Mao Dun argued that there was no deep social context in the writer's work, and that the propensity for

mysticism was strong. She also believed that her protagonists were interpreted as weak, people who could not solve their own problems<sup>10</sup>. It is clear that all three critics had blamed the lack of social criticism in the writer's works as a shortcoming. Bin Sin remained true to her ideals and views for the rest of her life. The writer herself said: My heroes are little florists and I am an old florist. We cannot agree with the above critics. Bin Sin was a contemporary writer. In her 75-year career, she had always remained true to her views, she was not a fan of class interests. She was able to create realistic views about the lifestyles of ordinary people by raising topics such as little people (children), small problems in the family, the anxieties of mothers, school life.

World War II and the Civil War in China in the 1940s led to a systemic change in the country. Naturally, the ideology of the ruling system has a profound effect on culture, art, and literature in the first place. Literature became a political weapon of the government. Various literary movements and trends developed. This, in turn, reflected the landscape of the literary environment of that period. Issues such as the tragedy of the people, the suffering of intellectuals during the war, the impact of the war on the fate of ordinary people, led to the creation of works of high artistic level. By the 1950s, Mao Zedong's literary ideology had become a decisive force throughout the country. At the heart of this ideology was the need to increase the socio-political effectiveness of literature. In a word, literature had to serve, subordinate, to serve class, political interests. This ideology forbade any creative freedom. As a result, many artists who opposed and did not support this policy went abroad. Most writers began to engage in translation. It was during these years that women's literature did not stop developing. On the contrary, many poets and writers entered the literary scene. Tsao Min<sup>11</sup>, Liu Bichen<sup>12</sup>, Zhang Aylin and dozens of other artists are among them. Zhang Aylin 张爱玲 (1920-1995) was one of the four most creative women (Liu Bichen, Shi Pinmei, Xiao Hong) recognized as the "most talented" in 20th century Chinese literature. Some aspects of Zhang Aylin's work have been studied by sinologists.

<sup>6</sup> Воробьева А. Творчество Бин Синь // Путь Востока. Общество. Политика. Религия. Материалы XI и XII молодежной научной конференции по проблемам философии, религии и культуры Востока – СПб: Санкт-Петербургское философское общество, 2009. - P. 277-283.

<sup>7</sup> Захарова Н. Бин Син и детская литература современного Китая.

<sup>8</sup> Ин Х. Сяндай чжунго нюцзоцзя. – Шанхай, 1930 в

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<sup>10</sup> <https://sanwen.ru/2012/05/10/bin-sin-zhizn-tvorchestvo-sudba/> (As of 29.09.2019)

<sup>11</sup> Tsao Min (1913) - her real name was Wu Xuanwen - author of novels, essays and short stories such as "Dangerous Place", "Moving Force", "Locomotive", "Against the Wind and Waves" (See: Литературный энциклопедический словарь / [https://literary\\_encyclopedia.academic.ru/5333/ЦАО\\_МИН](https://literary_encyclopedia.academic.ru/5333/ЦАО_МИН))

<sup>12</sup> Liu Bichen (1883-1943) was the first female editor in Chinese history, a public figure who fought for women's rights in China, and a poet.



Including Leo Li<sup>13</sup>, Li Oufan<sup>14</sup>, Nicole Juan<sup>15</sup>, Van Ani<sup>16</sup>, Yu.A. Kupriyanova<sup>17</sup>'s works were some of them.

Although Zhang Aylin began her career at the age of 11, the writer's true popularity came from the work she did during her time in Shanghai. Due to the political situation, the writer's life was spent in Hong Kong and Shanghai. Her novels "Love in an Abandoned City" 傾城之戀, "Golden Chains" 金鎖記, "Love on a Burnt Land", 赤地之戀, "Gossip" 流言 brought her unprecedented popularity. In 1955, Aylin was forced to leave the country for the United States. During her time in exile, Aylin translated famous examples of Chinese literature into English. She is known not only as a writer, educator, translator, but also as a film director. Films based on her works have also been made.

All the above-mentioned writers made an invaluable contribution to the formation of modern Chinese literature in the first half of the twentieth century. The study of the significant literary heritage created by them is one of the important tasks facing Uzbek sinologists.

## CONCLUSION

In the first half of the twentieth century, various socio-political changes took place in China, and literature became an important front that reflected these changes.

Two different directions had emerged in the approach to literature. While one group of writers turned literature into a weapon of ideology based on class interests, the second group of writers demonstrated the function of literature as a mirror of the period, a powerful force that could realistically reflect reality. But an important aspect of the writers of both groups was that they adhered to the criteria of fiction as much as possible, adhering to the principles of not over-documenting the literature.

The role and importance of women artists in the literary environment of this period was incomparable. Writers who kept pace with the times

were not indifferent to the most important events in social life, on the contrary, all the hardships had a serious impact on their lives as well.

Representatives of "Women's Literature" created works on various topics, in different genres, reflecting the current issues of the time, especially in the field of storytelling and novels. Translation literature evolved.

In most of the works created during this period, the writers wrote about their own experiences, which they witnessed firsthand. The feminist spirit was strongly manifested not only in socio-political life but also in literature. WOMAN became the main protagonist of the works of art. The image of problems such as her destiny, her thoughts, her place in the family, her rights and position came to the fore.

The style of the writers combined the traditions of traditional literature and the experience of Western writers who came in thanks to translations from world literature which led the way in a realistic depiction of reality.

The literature of the first half of the twentieth century laid an important foundation and ground for the literature of the period after it.

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## **COVID-19 AWARENESS AMONG PEOPLE: A KNOWLEDGE QUESTIONNAIRE BASED SURVEY**

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### **ABSTRACT**

*Government's Activities Success Depends on Community Participation.*

*At present in India around 9,07,883 active cases of covid-19 and 57,44,693 recovered and discharged from hospital and more than 1 lakh people died because of this disease. By doing this survey researcher came to know about covid-19 awareness level among Indian population. Available data may be helpful get feedback of strategies as implemented by Govt at central, state, district level to fight against this Covid-19 and also will be helpful to reduce mortality and morbidity rate due to this pandemic disease.*

*It is a descriptive study based on survey approach, Total 5600 People participated in this study, out of these mostly 60.7% belongs to Uttar Pradesh, 47.1% belongs to medical profession, 55.4 % Participants belongs to 15-25 years age group, 65.2% were female, 52.7% were graduate. The mean score was 15.71 shows people had good awareness level about covid-19.*

### **INTRODUCTION**

COVID-19 is a pandemic disease. Recently cases have seen all over the world. Daily cases are increasing all over the world. This disease was started from the Wuhan city of China in the month of December 2019. At present there is no particular treatment as well as vaccine for this disease. Various scientists in world are trying to develop vaccine against this virus, some of them even develop this vaccine but still they have to undergo various stages of vaccine testing after that only this will be available for public use as we know it is a long process. But we can't sit quietly till it develops we should take efforts at our level to prevent spread of this disease among people. How we can do so?? By keeping ourselves alert and aware about precautionary measures by following guidelines as provided by Indian government.

By comparing Globally developed cases, in

India cases were controlled in initial stage of this disease it was possible because of good decision taken by our Honorable P.M Mr. Narendra Modi i.e. Lockdown in 4 phases. But during this lockdown period economy of our nation is also affected very badly, in order to cover up that now from 8 June 2020 Govt. of India has given permission to unlock the activities of states with certain guidelines. This is the time for action of common people. Any plan / policy/ program at national level will be successful only when there is full cooperation and participation of community that's why I had chosen this topic for study to find out awareness level of people regarding covid-19.

### **OBJECTIVES OF THE STUDY**

To assess awareness about Covid-19 among Indian population.



## METHODOLOGY

The study was aimed to assess the awareness of Indian population about covid-19. It is a descriptive study, Across-sectional survey approach was used. All the states of India were added in this study except union territories.

Research tools were consisting of demographic variables and 20 knowledge based close ended questionnaire. Questionnaire added in this study depends on guidelines of WHO and Ministry of health and family welfare, Government of India for the prevention and control of covid-19 among common population and also few questions were related to Arogya-setu app, a digital monitoring system for alerting people. With the help of web form data was generated. Convenient sampling technique was used, Knowledge based 20 questionnaires were used, for one-month data was collected through on line and offline mode. 10 questions were based on Awareness about Prevention and control of Covid -19, 7 questions related to Awareness about disease, and 3 questions based on Awareness about Arogya setu app.

## FINDINGS OF THE SURVEY

The mean score was 15.71, which shows people had good awareness level about covid-19.70% awareness about Prevention and control of Covid -19. 86.57 % Awareness about disease. 82.66% Awareness about Arogya-Setu app.

### Awareness about Prevention and control of Covid -19 :

1. 100% Participants have awareness about importance of Hand hygiene for prevention of spread of this disease.
2. 52.9% knows one-coin shaped amount of an alcohol-based hand sanitizer to be applied on hand.
3. 74.6% people aware of duration of hand-washing with soap and water.
4. 94.3% people knows how to wash and dry Homemade / reusable mask.
5. 79.1% knows about meaning of Social distancing.
6. 76.8% correct response found of proper Respiratory hygiene while sneezing and coughing.
7. 93.9% agree stay home while suffered with minor respiratory symptoms.
8. 76.8% people know about precautionary measures to be used Immediately after using alcohol-based hand sanitize.

9. 89.3% participants had given response in favour of yoga, meditation and nutritious diet is useful to boost immunity,
10. Only 13% people knows about the right way of removing the facemask.

### Awareness about disease: 86.57%

1. 85% people know that it is a Pandemic disease.
2. 92.7% knows Covid-19 is a viral disease.
3. 90.4% participants know which system is easily affected by this disease.
4. 96.6% given correct answer, how to diagnose Covid-19.
5. 60.9% aware about mode of Transmission.
6. 99% aware about Quarantine period for corona virus disease:
7. 81.8% had idea when they have to seek medical assistance.

### Awareness about Arogya-Setu app: 82.66%

1. Information about Arogya setu app-96.8%
2. 70.7% respondents Knows about Helpline No.
3. Arogya Setu app guide is available in various languages: 80.7%

## CONCLUSION

In this study it was found that, over all people had good awareness about this disease but still awareness to be increase with the use of mass media, news paper, internet etc till all the people have 100% awareness about this Pandemic. In this study found that information about how to remove mask is very low that is only 13% people, 29 % people don't know about helpline no. and 47% people need to know about one-coin shaped amount of sanitizer is to be used for maintaining hand hygiene etc.

**Recommendation:** This type of study can be done on large sample size. Knowledge, attitude and practice can also be assessed.

**Acknowledgment:** The authors express their sincere thanks to all the participants of this study.

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# ESTIMATION OF OIL AND GAS POTENTIALITY IN THE PART OF SOUTH-EASTERN OF BUKHARA-KHIVA REGION

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## ABSTRACT

*Among oil and gas regions occupies a special place drinko-Khiva, surpassing other by the number of open fields, sustained high performance of exploration, diversity of the model fields and several other characteristics. The South - Eastern component of the region, the Beshkent trough, is one of the most promising areas for oil and gas, where significant amounts of geological exploration are currently concentrated.*

**KEYWORDS:** *Oil, gas, deflection, tectonics, structure, fields, seismic exploration, location of wells, carbonate formation, reef, biogerm, swimming pool.*

## INTRODUCTION

Many publications have been devoted to the study of the geological structure of the deflection and the determination of the stratigraphic and facies structure [1; p. 29-50], [2; p. 132], [3; p. 53-61], [4; p. 10-12], [5; p. 13-16], [6; p. 23-26], [7; p. 10-13], [8; p. 8-10], [9; p. 24-27], [10; p. 8-10], [14; p. 2327-2331] etc. As a result of these works, a series of faults associated with salt tectonics and having a North-Western direction were identified near the Shurtan uplift, and a South - Eastern direction was found near the Hissar ridge. Oil and gas potential areas between Shurtan (sq. 40) and Severny Shurtan (sq. 7) - the Faizli structure, as well as between Shurtan (sq. 16,19) and the chatyrtepe parametric well - the Kodir structure associated with zone fragmentation caused by salt tectonics have been discovered. When processing seismic profiles mogt-

2D #19811279, 207779011 167820, 19N7816 taking into account the constructed geological profiles (Fig. 5. 4), test schemes, as well as GIS materials, it turned out that the exploration SLE. 41 Shurtan is located not on the Shurtan uplift, but on the Kumchuk syncline and drilled accordingly within the recommended structure of Faizli. According to the recommendation [9; c. 10-13,] a complex interpretation of GIS materials using the INTEF system was performed there (Yu. L. Barsukov, 2004), where in the range 3710-3738; (absolute mark minus 3208-3236m) the uncovered section (XV-HP horizon) is characterized as productive. Isolated by material; GIS reservoirs mainly have a low porosity (5.3-9.7%), which increases (10-11,3%) in the intervals of 3710.0-3710.8 and 3719.0 372-0.0 m, the coefficient of oil and gas content ranges from 49.2 to 71.5%.



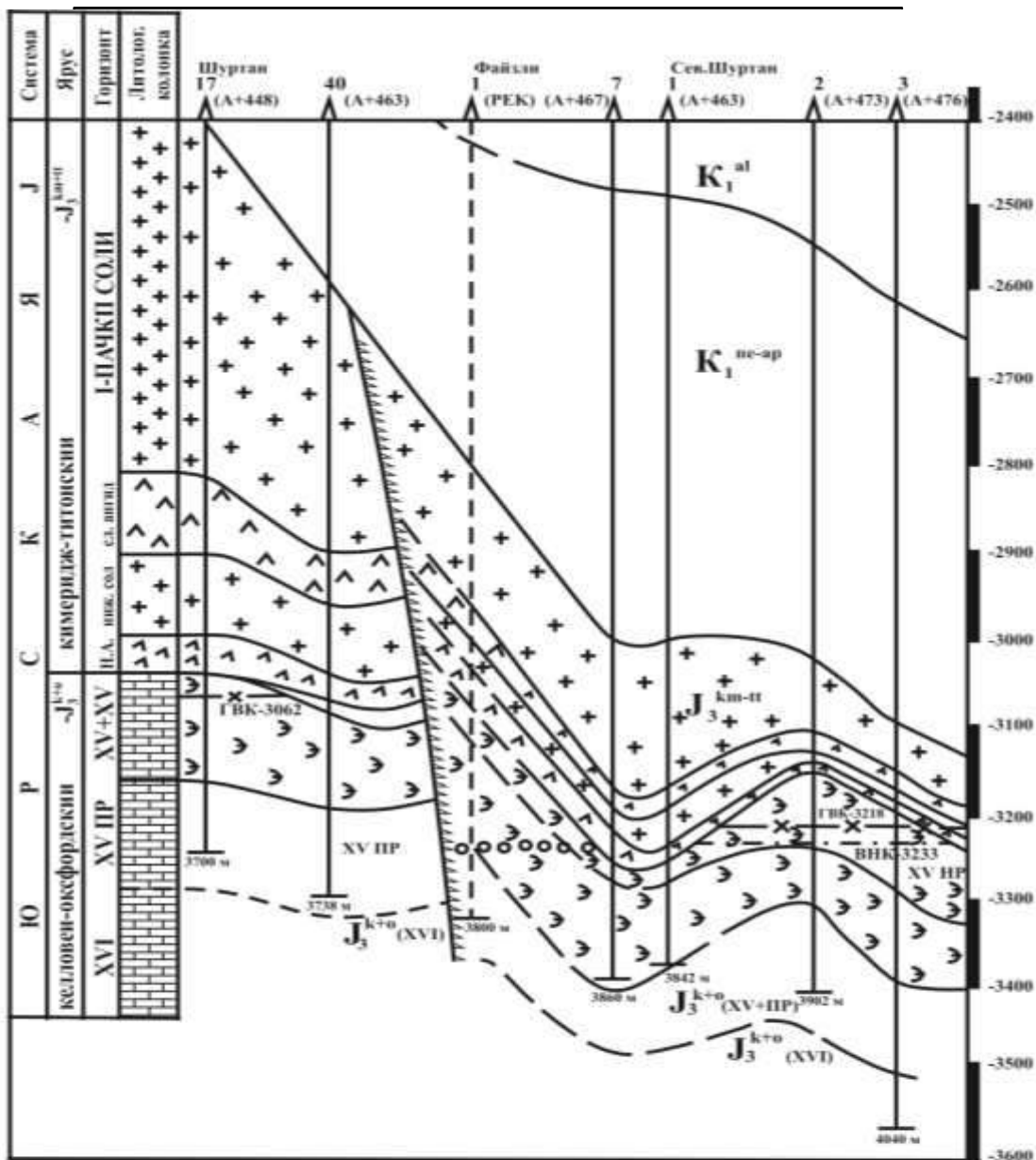
In the exploration SLE. 41 Shurtan 140 mm operational column was not lowered and the test was not carried out. According to the conclusion of GIS interpreters (from 26.11.1983 to 15.01.1984), the uncovered section in the range of 3710-3752 m was mistakenly considered an aquifer. At the same time, the position of the gas-water contact (GVK) on the SLE was taken as the basis. 40 Shurtan (at the absolute level of minus 3062). When preparing the conclusion with the use of ECM, it was not known that SLE. 41 Shurtan, according to our research, is located on a different tectonic block, that is, it has a deeper gas-water contact (absolute from the mark minus 3250 m) than SLE. 40. We are a structure between SLE. 40 Shurtan and 7 SEV. Shurtan, formed due to salt tectonics, is named Faizli (Fig.

5.4). [9; p. 10-13].

## II. MATERIAL AND METHODS

1. On the basis of the conducted research, the following features of the joint zone of the Beshkent trough and the South-Western spurs of the Hissar range were established: the Eastern part of the Beshkent trough in the centre of a deep synclinal (Kamchatskaya, Arabiska. Tarocca) HC deposits (of Kumchuk, Congar, North. Guzar, Buzakhur), including complex structures (Tashkent, Muminabad, Faizli, Kodir), regardless of their facies affiliation, were re-formed by the influence of salt tectonics between the Shurtan tectonics in the recent tectonic period (Alpine).





**УСЛОВНЫЕ ОБОЗНАЧЕНИЯ:**

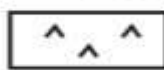
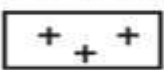


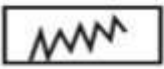




- |   |   |  |
|---|---|--|
|  1 |  2 |  3 |
|  4 |  5 |  6 |
|  7 |  8 |  9 |

Fig. 1. Geological profile along the line I-I. 1 - anhydrites; 2-salts; 3-rhipogenic limestone; 4-recommended well; 5 - salt tectonic line; 6-tectonic disturbances; 7 - NVK; 8 - GNK; 9-oil and gas content contour (Faizli structure).

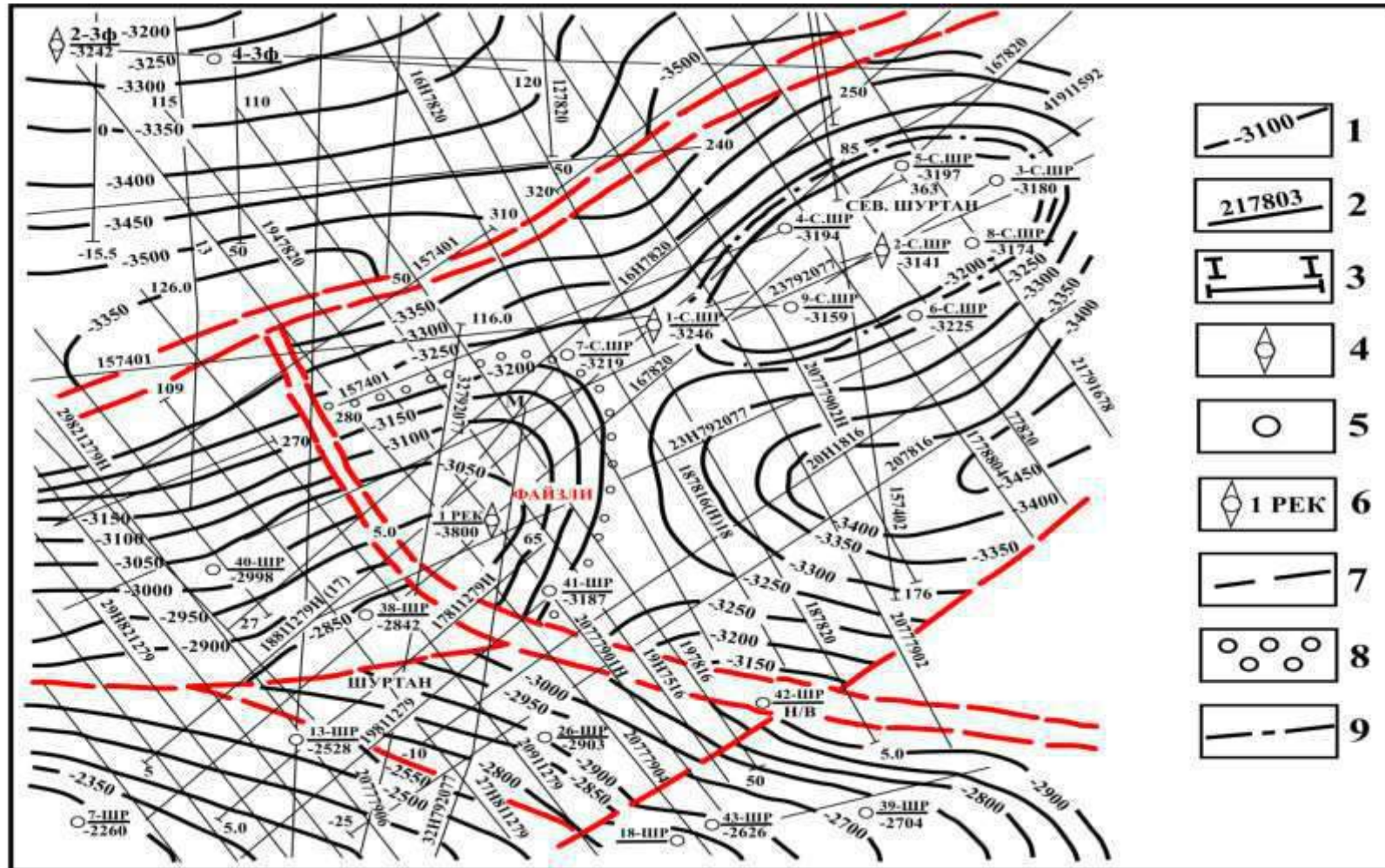


Fig. 2. Structural map on the roof of the lower intercalation chimeric-titenkova layer: 1 - isohypse on Croke lower intercalation; 2 - seismic profiles; 3- geological profile; 4 - exploration wells; 5 exploration; 6 - recommended search well; 7 -faults; loop count structure Fazli 9 - VNK.



The rise and South-Western spurs of the Hissar.

2. Structures associated with salt tectonics consist of two or more blocks that may have different GVCs and nves, and according to GIS are characterized by different filtration and capacitance properties (density, permeability, fluid saturation).

3. Analysis of seismic time sections and constructed regional geological profiles show that the roofs of the lower Cretaceous and upper j3km\*rt anhydrites lie deeper over the structures associated with salt tectonics, while the roof of the lower anhydrites rises. Therefore, on their vaults, the power of the salt layers is reduced, the middle pack of anhydrites and the lower pack of salts are fragmented. On the wings, the power of the salts increases, there are bundles of middle anhydrites and lower salts.

4. To identify complex oil and gas prospective structures within deep synclines (Kumchuk, Karabakh, Tarmok), taking into account the manifestation of salt tectonics in the Eastern part of the Beshkent trough, it is proposed to conduct seismic exploration of the ZD modification in conjunction with the construction of regional paleotectonic profiles.

In order to determine the structure of structures and prevent inefficiency of drilling and testing of unproductive wells ( 3, 4, 5, b Kumchuk, 2, 3. 4, 5 Garmistan, 3.4 Chunagar, 2, 3, 4 SEV. Guzar), as well as for more accurate determination of the occurrence of discontinuous faults, it is necessary to conduct seismic surveys of the ZD modification in conjunction with gravity survey.

5. To open new oil deposits, it is recommended to determine the location of the search SLE. 1 Faizli at the intersection of the mogt-2D seismic profiles: 20777901N, 167820 at a distance of 2700 m to the southwest of the exploration SQV. 7 SEV. Shurtan and 1300 m Northwest of 41 Shurtan. The design depth of the SLE. 1 Faizli set at the mark of 3800 m with the opening of the roof part of the XVI horizon.

6. Location of the search SLE. 1. determine the code At a distance of 1 km to the Northwest of the parametric SLE. 1 Chatyrtepe and 2, 3 km-to the North-East of 16 Shurtan after searching for detailed seismic surveys using the OGT-2D-ZD method to determine the spread of the tectonic fault.

In connection with the above, there is a need to continue prospecting to identify an oil Deposit in the section of the carbonate formation on the structures of Beshkuduk, Karakir and Kuruksay in combination with detailed seismic surveys by the ZD method and drilling of search SLE. 2 Beshkuduk, 3 Kuruksay, 3 Karakyr, located around the Shurtan rise [9; c. 10-13].

### **New possible hydrocarbon traps associated with bioherms in the Central part of the Chardzhou stage**

In the middle and early upper Jurassic period, paleogeological conditions in the Bukhara-Khiva region were favorable for the development of organogenic structures (reefs, bioherms, biostromes, etc.) [13;pp. 8-10]. To date, the regularities of the distribution of reef bodies and single reefs have been studied in detail, the barrier reef zone has been identified, and the method of searching for them by 2D seismic surveys has been developed. As a result, a number of large and medium-sized hydrocarbon deposits have been discovered, where the reservoirs are reef deposits with high filtration and reservoir properties (Kokdumalak, Urtabulak, Zevardy, Shurtan, etc.).

The biogerm is a massive, exclusively organogenic structure, rising above the adjacent synchronous deposits of a different lithological composition. Morphologically, this is an array or convex lens, peleogeographically-an underwater ledge, Bank, hill in the topography of the sea floor.

According to the structure, it is customary to distinguish simple and complex bioherms. The first are composed mainly by one organism-a rock-forming agent, the second by several. The shape of geological bodies can be dome-shaped, cone-and table-shaped, mushroom-and Crescent-shaped, ring-shaped, etc. According to the decision of the fourth paleoecologolithological session (Crimea, Moldova, 1966), it is recommended to allocate small (up to 5 m), medium (5-10) and large (more than 10) bioherms.

Bioherms of hydrocarbon deposits discovered in the Bukhara-Khiva region (Kultak, Chiston, Sardob, Podr. Kokdumalak, Aknazar, Novy Alan, Girsan, Beshkent, Kamashi, SEV. Nishan, Zafar, Berdecoder) can be related to the major. However, due to the variety of filtration and reservoir properties of rocks, the largest reserves of HC are found only in The Kultak (90 billion m<sup>3</sup> of gas) and SEV fields. Nishan (30), Beshkent (more than 5).

The authors of the works [13;p. 8-10] for the Central part of the Chardzhou step (the territory Kulturskole protrusion adjacent areas dengizkulskiye and Openly-CenterStage elevations in the West and Beshkent trough in the East) was completed seismostratigraphic re-interpretation of more than 800 temporary sections of seismic profiles completed in 1974-2002 gg, with reference to more than 500 deep wells, and structural map on the roof of the XV OL horizon in scale 1:50000. The basis was more than 30 seismogeological sections constructed in different directions of the studied territory. On the structural basis, the contours of the oil and gas content of open fields located within the barrier reef (Urtabulak, Umid,





SEV. Umid, Markovskaya, Pirnazar, Yangi Darbaza, Marjon, Jebe, Shoda, Pamuk, Yangi Pamuk), as well as confined to single reefs (Kokdumalak, SEV. Urtabulak, Zevardy, Alan, southern Pamuk) and organogenic buildings of the type of biogerm (Podr. Kokdumalak, Chiston, Berdecoder, Kultak, Alan New, Dripping. PWM. Kultak, Aknazar, Shim. Aknazar). The border of the barrier reef frames the area of work from the West and North (P. U. Akhmedov). It is clear from the structural structures that biogermic traps are satellites of deposits associated with reef massifs [13; p. 8-10].

### **Estimation of oil and gas potential of Paleozoic and Jurassic deposits.**

The assessment of the oil and gas potential of the Paleozoic deposits of the Bukhara-Khiva region (BHR) is given in the works of many researchers and from different genetic positions. Three variants of hydrocarbon sources are proposed: own genetic potential of the Paleozoic (Khaimov, 1963; Babadzhanov, 1991; Abdullaev et al., 2009), flow from the Mesozoic to the Paleozoic (Ibragimov A. G.) and inflow from the mantle through deep faults (Kudryavtsev, 1963; Krayushkin, 1984; Dmitrievsky, 1996; Sitdikov, 1998; etc.) [13; pp. 8-10].

Despite different theoretical positions from a practical point of view, all researchers agree on one thing: for the formation of deposits, it is necessary to have oil and gas traps with their collectors and tires.

In 1995, for the first time, the prospects of oil and gas content of Paleozoic deposits for the entire territory of Uzbekistan were evaluated. For the Bukhara-Khiva region, a structural map of the Paleozoic erosion surface on a scale of 1:500000 is given (Fig. 5. 4), compiled by H. U. Uzakov based on the materials of deep wells that uncovered Paleozoic deposits under the cover of Mesozoic-Cenozoic deposits. It identifies more than 40 local uplifts, which were considered as oil and gas potential objects - traps. Judging by the fact that almost all of these uplifts were detected at the sites of development of positive structures in the Mesozoic-Cenozoic cover, between them and the lower reaches there is a certain genetic or possibly paragenetic relationship between these structures. Apparently, the deformations of the pre-Jurassic dissonance surface and the Mesozoic-Cenozoic deposits occurred at the same time and under the influence of the same tectonic stresses. So, here we are dealing with the so-called parallel folding, when the deposits of the entire section of the plywood layer, including the intermediate structural floor, were crushed into the folds. This leads to an important conclusion for oil and gas exploration that there are traps favorable for oil and gas accumulation in the inner section of the Paleozoic. Local protrusions in the relief of the erosion surface are conformal with anticline folds inside the Paleozoic section. First, of course, you need to rank them and select the priority ones among them. Due to its large

size and the possibility of opening the most complete section of the Paleozoic oil and gas-perspective complex of rocks, the following local uplifts are among the priority objects of search and detailed seismic surveys and parametric drilling: Yangikazgan, Deterrence, Moskovskoe, Sutaraskoe, Angiozyme, Karaulbazar, Recylcable and Karachay-Tashlinskogo within Bukhara stage and West Bestensee, Kulbachinskii, Akkemscoe, Kandym, Alat, Urtabulak, Devalck-Malinetskii and Shurtan - in Chardzhou steps.

There is only one square on Shurtan square.7 at a depth of 3335-3452 m, the upper part of the middle-upper Carboniferous rocks is uncovered. Near tens of kilometers from Shurtan, the Paleozoic has not been discovered or studied anywhere. A new deep well in this area would make it possible to know the section of the Paleozoic and find out its prospects for oil and gas [13; p.8-10].

### **III. RESULTS**

Many papers have been devoted to the problem of classification of traps of this type [13; p. 8-10] and others. The typification is based on the classification scheme of reservoir shielded oil and gas traps by I. O. Brod and N. A. Eremenko, developed later by A. G. Alexin and A. M. Akramkhodzhaev.

Tectonically shielded traps are formed when local structural complications (anticline, hemianticline, monocline, etc.) are combined with discontinuous disturbances. Accumulations of oil and gas are located in both lowered and raised blocks. Studies of the role of discontinuous faults in the formation of oil and gas traps can be divided into several stages; dissection and correlation of lithic-stratigraphic and seismic sections; determination of reservoir properties; study of zones of formation of discontinuous dislocations; analysis of the current structure; formation of a working search hypothesis (creation of trap models); assessment of the possibilities of using seismic exploration in the study of various groups of deposits; identification of promising areas.

### **IV. DISCUSSIONS**

Complex application of various methods is rational in predicting tectonically shielded traps. These include lithological dissection of the section using materials from field Geophysics and detailed study of the core of wells, determining the relationship of reservoir placement and formation features with the type of sedimentation basin and its internal structure, studying the modern structure of horizons, and detailing violations. determining the nature of the interface of fault blocks in order to identify favorable screening conditions, developing possible models of traps and comparing the actual geological situation with them.



## V. CONCLUSIONS

All known deposits within the Beshkent trough are associated only with the Jurassic carbonate formation. Productive traps are represented here by two genetic types. The formation of the first one is caused primarily by tectonic factors (reservoir-vaulted deposits), the second - with riphogenic structures (this is mostly more massive deposits). Traps of the first type are located in the Eastern part of the deflection and are characterized by a wide development of discontinuous dislocations complicating the geological structure, of various scales, as well as increased capacities of the evaporite formation.

In the North-Eastern part of the Beshkent trough, a number of medium-sized gas condensate and oil fields have been discovered: Garmiston, Mezon, Northern Guzar, Kumchuk, Chunagar and Northern Shurtan. Within the study area of the region, deep drilling was carried out on 86 areas (including those under drilling): 31 - the carbonate formation was opened with one well, 14 - with two wells, and the rest - with three or more. 16 oil and gas fields have been discovered, including Mirmiron. Curtsey. Khanabad, meson and Feruza are at the exploration stage [13; p. 8-10].

## VI. ACKNOWLEDGEMENTS

There are five trained structures on this territory - Karakuz and oidin. Today, Namazi and Ermac with a total value of prospective resources C3 - 19,454 million here. There are also several promising traps that are of interest in the oil and gas field and have a complex geological structure.

It is methodically incorrect to draw an analogy based on the volume ratio data for known tectonically shielded deposits. It is only possible to predict approximately the expected upper limits of stock concentrations in traps of this type.

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# THE ROLE OF TASK-BASED APPROACH TO TEACHING EFL

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## ANNOTATION

*The article represents the practical application of Task-based approach (TBA) and its role in teaching English as a foreign language. In addition, the information regarding the implementation of TBA, the term “task” and its methodology is researched.*

**KEYWORDS:** *task-based approach, task, student-centered approach, communicative competence, target language.*

## DISCUSSION

Task-based approach (TBA) is regarded as an alternative method to traditional language teaching methods because it favors a methodology in which functional communicative language use is aimed at and strived for. Also, TBA is considered to be an effective approach that fosters a learning environment in which learners are free to choose and use the target language forms which they think are most likely to achieve the aim of accomplishing defined communicative goals. Task-based approach is a student-centered approach to second language instruction. The idea behind the implementation of this approach is that students will learn to communicate in the language by doing tasks in the classroom which approximate those in the outside world. Students do tasks in small groups and practice using language necessary for doing the particular task. The focus is completely on task completion and therefore students are free to use whatever language they have at their disposal to accomplish this.

It is an off shoot of the communicative approach, wherein activities focus on having students use authentic target language in order to complete meaningful tasks, i.e. situations they might encounter in the real world and other project-based assignments. These projects could include visiting the doctor, making a phone call, conducting an interview in order to find answers to specific questions or gathering information to make a poster or advertisement.

The implementation of TBA tasks makes successful results while communicating in the target

language and interacting with others simultaneously. The tasks done during the lesson can create the real English environment which is why students desire to communicate face to face in the class not feeling shy and worried about mistakes. This can demonstrate the practical use of English language with the teacher and their peers. On the other hand, students can develop their socio linguistic skills as well leading appropriate manners and behavior in the society. Also, the tasks boost students' interactive ability to express their own ideas in the target language enabling them to speak in English language in different situations and cases.

Though frequently misunderstood, TBA is not a fixed method but rather constitutes an approach to language teaching. TBA has evolved out of Communicative Language Teaching (CLT) and is generally considered a strong form of CLT, which uses tasks to create contexts for natural language use and as central units to form the basis of daily and long-term lesson planning. Task-based teaching approach is a method that enables the learner to complete real life task through using the accumulated words and grammar that have been learned.

The term “task”, which is one of the key concepts in task-based learning and teaching, is defined in different ways in the literature and instructional tasks are used for different purposes. In everyday usage, tasks are seen as the commonplace goal-directed activities of everyday life such as cooking dinner, writing a letter, building a model. Tasks became more formalized as part of various



kinds of vocational training in the 1950's and came into widespread use in school education in the 1970s.

Tasks as organized sets of activities play essential roles in classroom learning processes. Task-based approach is an approach that emphasizes the significance of the role of tasks in these processes. As learners in EFL contexts have fewer opportunities to practice language outside school, classroom activities become more important. Teachers and syllabus designers turn to the role of tasks and task-based approach in order to have a more effective teaching-learning environment. There are some important studies examining the use of task-based instruction and its focus on communicative competence. In Task-based approach, the center of the learning process moves to the students themselves and allows them to come to the realization that language is a tool to tackle and (re)solve real-world problems. The process of task-based learning itself teaches important skills. Students learn how to ask questions, how to negotiate meaning and how to interact in and work within groups. Within this group work, they are able to observe different approaches to problem solving as well as to learn how others think and make decisions. These are all skills that our students will need in order to be successful in the real world, regardless of which language(s) they use there.

In addition, task-based teaching provides students with the linguistic components they will need to accomplish these real-world tasks. These include: How to introduce themselves, how to talk about themselves, their families, their interests, their likes and dislikes, their needs, etc. in the right socio-cultural context. By moving the focus away from mechanical drills although such drills do still have their place even today in language teaching, especially when teaching highly inflected languages task-based teaching focuses on communication and interaction, using appropriate language at the correct time.

The topic of the research is to fulfill the improvement in communicative competence and writing skill of the students with the application of Task-based approach. The main purpose is to explore the nature and content of the L2 discourse that arises from doing tasks, both from the teacher and from interaction among students, as it might relate to language development and related attitudes toward the use of such tasks. Its focus is on how tasks could promote oral and written peer interaction in the EFL classroom, which in turn might promote more effective target language learning. A further related purpose of the study is to describe student attitudes toward and perceptions of the use of tasks over time as these might affect their language development.

Applying different methods and techniques into the teaching process makes each lesson unique and special. For teachers of traditional methods, the

lesson is considered to be always in a strictly plan, structure and manner of students. However, TBA designs much freer forms of lesson procedure in which mainly the students play the important role to react to the teacher's instructions and activities.

The research is based on the real situations and events which every teacher can come across whenever a new method is used. In the beginning, adjusting to the framework of the lesson and student-centered lesson form was not easy to accept for a few students. Thus, the setback is owing to the student's core knowledge in English or the very uncommon teaching method. However, the chief reason was students' role which was changed to the teachers' role as a presenter, creator and in some cases instructor. On the other hand, task-based language approach application seemed as not learning but acting and representing a specific task completion. Interacting with students always explaining a task sequences and duration I could find the answers to the research questions. In practice, once created a sample lesson plans and task procedure the teacher does not come across any problems. However, each student is a whole world, full of different interests and intentions. Thereby, it is essential to get to know their passion before the lesson by surveying.

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# THE USE OF PRACTICAL AND MEANINGFUL PROBLEMS IN THE PROCESS OF TEACHING MATHEMATICS

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## ANNOTATION

*This article discusses the need to use practical issues in the development of knowledge, skills, interests and abilities of students in the teaching of mathematics in secondary schools, its application and equipping students with mathematical knowledge on this basis, the application of mathematical knowledge in real life situations. Many examples are given on the formation of acquisition skills and practical problems.*

**KEYWORDS:** *math, practice, problem, knowledge, skill, application, competence, function, percentage, comprehension, topic, combination.*

## DISCUSSION

In school education, students should be taught not only the system of knowledge in the field of science, but also the practical aspects of the subject. Because the ability to apply it in real life situations is assessed by the fact that they are able to bring the knowledge they have acquired to the level of competence. The student may have certain knowledge on a topic given by the teacher, but there is a second aspect in how they acquire new knowledge, i.e., through memorization or comprehension. It is known that memorization can be forgotten if it is not repeated for some time. However, the study of the subject in the case of comprehension, and the acquisition of knowledge, develops their ability to apply it in real life situations. In this regard, it is important that the knowledge given to the student on the topic is brought to the level of developing their ability to apply it in real life situations. In addition to giving students mathematical examples and problems in math classes, they also develop the skills to relate and apply the knowledge they have acquired to the life processes of the topic in the student's mind by giving them practical problems. This, in turn, ensures that knowledge of the subject is learned through understanding, not by memorization. In general, one of the requirements for the lesson is that the lesson should be connected with life and practice. In particular: a) the scientific basis of mathematics, physics, chemistry, biology, geometry and other sciences, its application in practice; b) the importance of science in the development of industry and agriculture. Therefore, it is necessary to reveal the practical importance of science in the teaching process. In mathematics, they reinforce their knowledge by studying theoretical knowledge and giving examples and problems. In the course of the lesson, the process of transfer of knowledge by the teacher and the acquisition of new mathematical knowledge by students in the acquisition of new material, the process of formation and generalization of scientific concepts, their ability to comprehend mathematical concepts, students examples and issues should be given in reinforcement and improvement, and then students should be given practical issues to enable them to apply their knowledge, skills and competencies in an appropriate situation. Especially in this process, examples and problems should be selected in a practical way, which should allow them to apply the theories in practice. At the same time, practical issues should be



clear to students within the framework of the program. The following are practical questions about a function that are of practical significance.

**Issue 1.** The price of fittings on the commodity exchange since the beginning of the month

$$y = \frac{1}{2}x^2 - 2x + 4$$

began to decline with legitimacy. But if it goes back to the starting price on the 4th day, then on which day did the price go down?

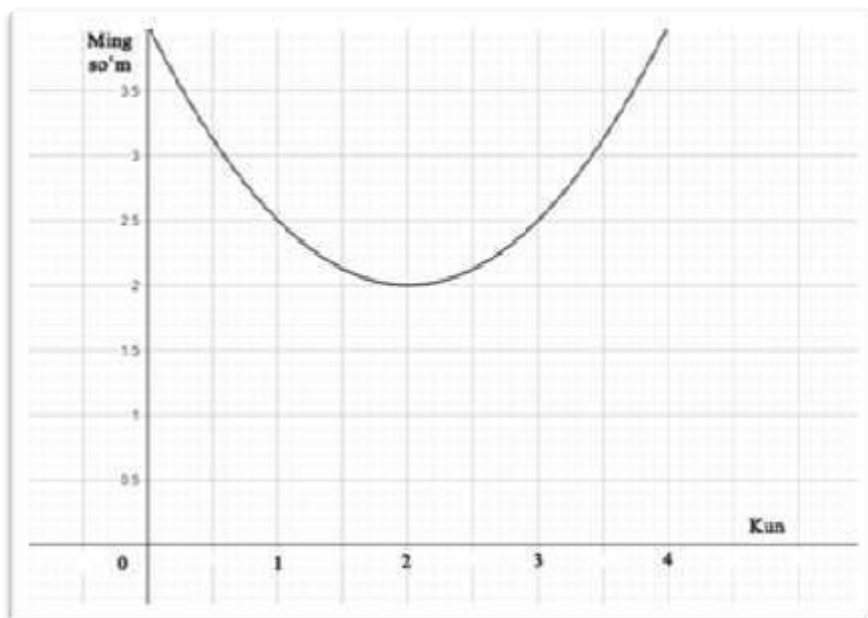
(x-day, y-price)

**Solution.** y-price, x- day, and the graph of the function  $y = ax^2 + bx + c$  determine the end of the parabola using the formulas  $x_0 = -\frac{b}{2a}$ ,

$$y_0 = ax_0^2 + bx_0 + c \text{ and } a = \frac{1}{2}; b = -2; c = 4 \Rightarrow x_0 = -\frac{-2}{2 \cdot \frac{1}{2}} = 2;$$

$$y_0 = \frac{1}{2} \cdot 2^2 - 2 \cdot 2 + 4 = 2$$

**Result:**  $x_0 = 2$ ;  $y_0 = 2$  and the graph of the function is as follows: Figure 1



**Answer.** Day 2 was valued at 2,000 soums, which was the lowest value.

**Issue 2.** The artist wants to depict the trajectory of a shot spear. If the trajectory of the spear obeys the law  $y = -x^2 + 4x$ , determine its maximum height. (x-second; y-meter)

**Solution.**  $y = -x^2 + 4x \Rightarrow a < 0; D > 0$  means that the tip of the parabola is facing down and intersects the Ox axis at two points. Using the formula for finding the coordinates of the end of a parabola  $x_0 = -\frac{b}{2a} = 2$ ; We find that  $y_0 = -4 + 8 = 4$ . Answer. The highest elevation is 4 m.

**Issue 3.** The businessman initially bought 50 rabbits to breed. The total number of rabbits increased by more than 4% per week. How many rabbits does the entrepreneur have in 13 weeks?

**Solution.** We use the exponential function  $y = a^x$ .

At week 1.  $y_1 = 50 \cdot 1,04 = 52$

Week 2  $y_2 = y_1 \cdot 1,04 = 50 \cdot (1,04)^2 = 54,08$  At week 2.

And at the 13-week,  $y_{13} = 50 \cdot (1,04)^{13} = 83,2$

So, this means that the number of entrepreneurial rabbits will be 83 in 13 weeks.

**Issue 4.** The depositor wants to deposit money in the bank. If a bank offers a 19% annual deposit rate, then no matter how much the depositor puts in, how many years will it take for the deposit to double?

**Solution.** We denote the depositor's money by a, in which case an increase of 19% is a  $\cdot 1.19$  An arbitrary n is an increase from year to year  $a \cdot (1,19)^n$ .

$$2a = a \cdot (1,19)^n$$





$$2 = (1,19)^n \Rightarrow n = \log_{1,19}2 = 3,98$$

This means that the amount that the depositor wants to deposit will double in about 4 years. Optional.  $\log_{1,19}2$  can be done using Excel. To do this, use the program's LOG - logarithm calculation function. It is written as LOG(2;1,19). There are also issues of practical significance like this. That is, there are several examples and issues that can be covered in a lesson, not just in one direction, but in general.

**Issue 5.** The programmer forgot the security number of his computer device. If it is clear that the security system consists of 4 digits, then how many number combinations does the user need to create to unlock the protection? *Solution.*

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We describe the position of the 4 numbers in the following cells Since the numbers are from 0 to 9, you can put one of the 10 numbers in cell 1. So it's just one of 10 chances. You can also place one of the 10 numbers from 0-9 in cell 2. In that case, the number of combinations is  $10^2$ . Only one of the 10 digits can be placed in the third and fourth cells. So a total of  $10^4$  combinations. Answer. The programmer will need to type 10,000 combinations to unlock the security code.

**Issue 6.** A stamp duty of 15 percent of the minimum wage is charged for issuing stamped certificates. If the basic calculation amount (minimum salary) is 223,000 soums, how many soums will be charged for the stamp duty?

*Solution.* To find the p% of the number a, divide the number a by 100 and multiply by p%.

$$\frac{a}{100} \cdot p \Rightarrow p=15\% \wedge a=223000 \Rightarrow \frac{a}{100} \cdot p = \frac{223000}{100} \cdot 15 = 2230 \cdot 15 = 33450$$

Answer. The coat of arms fee is 33,450 soums.

**Issue 7.** Two types of equipment are to be delivered from Tashkent to Jizzakh: 95 from the first type and 100 from the second type. The delivery service provided 2 types of vehicles. According to him, the vehicle can accommodate the following table sizes.

Device type	1-vehicle	2- vehicle
Type I	3	2
Type II	4	1

How many orders does the factory have to bring to bring all the equipment from each vehicle

*Solution.* We denote the first vehicle by x and the second vehicle by y, and solve the problem by constructing the following system of equations. Solve  $\begin{cases} 3x + 2y = 95 \\ 4x + y = 100 \end{cases} \Rightarrow y = 100 - 4x$  by the first equation.

$$3x + 2(100 - 4x) = 95 \Rightarrow 3x + 200 - 8x = 95 \Rightarrow 5x = 105 \Rightarrow x = 21 \Rightarrow y = 16$$

Answer.  $y = 16$

The use of such practical problems in mathematics lessons, on the one hand, increases the student's interest in science, on the other hand, helps them to understand the relationship between mathematical laws between science and life and develop skills to apply their knowledge in real life situations. will give. This, in turn, will increase the effectiveness of the lesson.

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# **EFFECT OF E-FILING SYSTEM IMPLEMENTATION AND TAX KNOWLEDGE ON TAXPAYER COMPLIANCE WITH ACCOUNT REPRESENTATIVE SERVICES AS MEDIATION VARIABLE (Case Study on Personal Taxpayers at KPP Pratama, East Tangerang)**

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## **ABSTRACT**

*The purpose of this study is as follows: 1) Finding empirical evidence regarding the effect of the application of e-filing systems to account representative services; 2) Finding empirical evidence regarding the effect of tax knowledge on account representative services; 3) Finding empirical evidence regarding the effect of applying the e-filing system to taxpayer compliance; 4) Finding empirical evidence regarding the influence of tax knowledge on taxpayer compliance; and 5) Finding empirical evidence regarding the effect of account representative services on taxpayer compliance. This type of research used in this study is causal which will test the hypothesis about the effect of one or several independent variables on the dependent variable. The population in this study were all Individual Taxpayers registered at East Tangerang KPP. Sample selection with purposive sampling method. The analytical method used to test hypotheses is the path analysis test and multiple test. The results showed that: 1) The application of e-Filing system had a direct effect on the Account Representative service; 2) Knowledge of taxation directly affects the service of Account Representatives; 3) The application of the e-Filing system has a direct effect on the compliance of taxpayers; 4) Tax knowledge directly affects the compliance of taxpayers; and 5) Account Representative services directly affect the compliance of taxpayers.*

**KEYWORDS:** *Application of E-Filing System, Account Representative Services, Taxpayer Compliance*

## **INTRODUCTION**

Taxes are obtained from community contributions (taxpayers) using the self assessment system. The self assessment system is a system of reform carried out by the Directorate General of Taxes. This system replaces the previous official assessment system. The self assessment system is a system where the Taxpayer is given the trust to calculate and self-report the tax owed by the Taxpayer, while the tax officer himself has the duty to monitor it. That means the success or failure of this system is largely determined by the voluntary compliance of the taxpayers and optimal supervision of the tax authorities themselves. This system is very dependent on the awareness of taxpayers in fulfilling their tax obligations there are still many taxpayers who are not compliant to report and pay taxes.

The Directorate General of Taxes seeks to increase tax revenue revenue by making changes to tax regulations. The Directorate General of Tax also tries to provide excellent service to taxpayers and to innovate their services. One of the innovations made by the Directorate General of Taxes is to make changes to the administration of tax reporting to overcome various tax problems regarding the existence of an Individual Taxpayer who lacks the awareness to comply in terms of submitting Annual Tax Returns.

Therefore, to improve taxpayer compliance, the Directorate General of Tax always seeks to optimize services so that it is expected to increase public awareness and desire to be orderly as a taxpayer, one of them by carrying out tax reforms. Tax reform covers two areas, namely tax policy reform in the



form of tax regulations or regulations such as tax laws and tax administration reforms.

Tax administration reform has several purposes. First, providing services to the public in fulfilling their tax obligations. Second, to administer tax revenue so that the transparency and accountability of revenues as well as the expenditure of funds from tax payments can be known at any time. Third, provide an oversight of the implementation of tax collection, especially for tax collectors, taxpayers, or the taxpayers. In order to achieve these objectives, the tax administration reform program needs to be designed and implemented in a comprehensive and comprehensive manner through changes in the areas of organizational structure, business processes and information and communication technology, human resource management, and implementation of good governance.

One of the changes made is to improve business processes by utilizing information and communication technology by implementing an e-filing system. Through Decree of the Director General of Tax No. Kep-88/PJ/2004 in May 2004 the e-filing product was officially launched. Precisely in January 2005 at the Presidential Office, the President of the Republic of Indonesia together with the Directorate General of Taxes launched an e-filing or electronic filling system product.

E-filing is a service for filling and submitting Taxpayer Tax Returns electronically through a real-time online system to the Directorate General of Taxes via the internet on the website of the Directorate General of Taxes or through Application Service Providers that have been designated by the Directorate General of Taxes. With the implementation of the e-filing system, it is expected to provide comfort and convenience for taxpayers in preparing and submitting tax returns as they can be sent anytime and anywhere so as to minimize the costs and time spent by taxpayers for calculating, filling and submitting tax returns.

E-filing can minimize costs and time because only by using an internet-connected computer, submission of tax returns can be done anytime, namely 24 hours a day and 7 days a week (including holidays) and anywhere without the need to come to the tax office to give it to Revenue officer. The implementation of the e-Filing system is expected to facilitate taxpayers in submitting tax returns. But in reality, there are still many taxpayers who have not used the facility.

Various studies on the application of the e-Filing system to taxpayer compliance have been carried out such as research by Putra et al, (2015); Widilestariningtyas, (2014); Gustiyani, (2015); and Astutu, (2015) showed that the application of e-Filing had a significant effect on taxpayer compliance. This is in line with research by Awaloedin & Maulana (2018), which states that the application of e-Filing

has a significant effect on taxpayer compliance. While research conducted by Handayani and Tambun (2016) shows that the application of the e-Filing system has no significant effect on taxpayer compliance.

Knowledge taxation is the process of changing attitudes and behavior of taxpayers or taxpayer groups in an effort to mature humans through training efforts (Anwar, 2015). Having good tax knowledge can help improve taxpayer compliance with the importance of paying taxes and taxpayers can do it according to tax legislation. If taxpayers do not have knowledge about the regulations and taxation processes, then taxpayers cannot determine their behavior correctly (Tabun, 2016). This is according to Tambun's research (2016) which states that taxpayer knowledge has a significant effect on taxpayer compliance. In contrast to research Hardiningsih et al (2011) and Susanto (2013) which states the knowledge of tax regulations does not affect the willingness to pay taxes.

The inconsistency of the results of previous studies has encouraged the writer to add Account Representative service variables as intervening or mediating variables. Because according to Richard Burton (in the Official, 2011), Account Representative is a tax officer specifically monitors the compliance of tax payments for each taxpayer he supervises (such as Tax Payer Profile/company profile), helping to speed up the process of requesting documents required by taxpayers, monitoring settlement tax audit and objection process and answer taxpayer questions on tax issues and inform the latest tax provisions. So the better the services provided by the Account Representative will increase taxpayer compliance to pay taxes.

Based on the background description above, the authors are interested in conducting a study entitled: "The Effect of E-Filing Systems and Taxation Knowledge on Taxpayer Compliance with Account Representative Services as Mediation Variables (Case Study on Personal Taxpayers at KPP Pratama, East Tangerang)".

## LITERATURE REVIEW

### Compliance Theory

The theory of compliance according to the science of sociology and psychology is a theory that emphasizes a process of socialization in influencing one's compliance behavior (Saleh, 2004 in Rusmadi, 2017). In the field of taxation, compliance tends to be due to a necessity to pay taxes because the notion of taxation itself is a contribution to the forced state. The legitimacy commitment has not yet been fully implemented because the current tax regulations are still many gaps that become gray areas. Taxpayers realize they have to pay taxes, but through tax management striving to pay taxes to a minimum by



utilizing the loopholes in tax law leeway. Compliance with taxes can be interpreted that taxpayers are obliged to obey tax laws. According to Priantara (2016), with the promulgation of all tax laws in the State Gazette and Provisions on Taxation Regulations in the State Gazette means that the public (Taxpayers) must be aware and active in finding out the contents and purpose of the provisions of the taxation laws.

According to Nasucha (2004 in Rusmadi, 2017), compliance of taxpayers can be identified from the compliance of taxpayers in registering themselves, compliance to remit returns (SPT), compliance in calculating and paying tax payable, and compliance in arrears payments.

### **E-Filing System**

The definition of e-Filing has a difference between one definition with another, one definition is "The use of internet technology, the World Wide Web and tax software for a wide range of tax administration and compliance purposes" (Lai, et al in Ricky et al., 2014). E-Filing is an information system application where citizens interact with complex IT systems. In terms of service to the public, e-Filing provides an important dimension to e-Government services in the field of tax administration, namely services that utilize the speed and effectiveness of costs through the internet. (Sharma & Yurcik, in Ricky, et al, 2014).

In simple terms e-Filing is an implementation of e-Government application in tax administration especially in SPT reporting, e-Filing has been used in several countries to support the existing taxation system. There are 2 methods of approaching the e-Filing system, namely Interactive Filing and Batch Filing (Sharma & Yurcik in Ricky, et al, 2014). In Interactive Filing, taxpayers interact directly with web-based applications to complete tax reporting online.

In this interactive method there are 2 alternative technologies used, namely: 1). Taxpayers interact directly with the web server hosted by the tax authority or by a third party who is a partner of the tax authority. 2). Taxpayers download software that contains electronic forms for charging tax payable, taxpayers fill out files offline then connect to the e-Filing website to send the information files that have been filled.

Reform and modernization of tax administration is expected to increase the taxpayer's trust in the Directorate General of Tax institutions, which in turn will increase taxpayer compliance in carrying out its tax obligations so that it is expected that the tax gap is the difference between the level of actual tax revenue and potential tax revenue getting smaller. This is in accordance with the main objective of the tax collection institution, namely achieving tax revenue with optimal tax effort. Some determinants that affect the willingness of taxpayers to make tax payments

voluntarily, viz:

- a. Effectiveness of tax administration.
- b. Macroeconomic considerations such as interest rates and inflation rates.
- c. The low cost of compliance with the existing taxation system.
- d. Fairness and fairness felt by taxpayers.
- e. Simplicity of provisions, procedures and procedures.
- f. The quality of tax administration services to the taxpayer community.
- g. Can be accounted for money from the taxpayer community.

Demands for services that are fast, easy, cheap and accurate are the expectations of the community, by the Directorate General of Taxes these service demands are responded to with the modernization of tax administration, tax administration modernization done by DGT basically includes (Pandiangan, 2008 in Ricky. Et al, 2014): ( 1). Organizational restructuring, (2). Improving business processes through the use of communication and information technology, (3). Improving human resource management.

Improving services to taxpayers in submitting notification (SPT), the Directorate General of Taxes has developed the SPT reporting system with e-Filing. The e-Filing system is a continuation of the submission of SPT in electronic form SPT or known as e-SPT. E-Filing was built at the end of 2004 and was inaugurated in 2005 by President Susilo Bambang Yudhoyono. After the inauguration of the e-Filing, the Directorate General of Taxes held a socialization to the Taxpayers in all Regional Offices. The continued development of e-Filing was carried out in 2009. From the action plan of the Directorate General of Taxes there was no plan for further development and socialization of e-Filing in the future.

### **Taxation Knowledge**

Knowledge is the result of human knowing about something, or all human actions to understand a certain object that can be either tangible goods through reason, can also be understood as an ideal object of human form, or concerned with psychological problems. Taxes are people's contributions to the state treasury based on the law (which can be forced) by not getting lead services that can be directly shown and which are used to pay public expenses (Mardiasmo, 2016). So in conclusion, tax knowledge is the ability of taxpayers to know tax regulations both about tax rates based on the laws they will pay and tax benefits that will be useful for their lives (Utomo, 2011).

Knowledge of tax regulations is very important to foster compliance. Because how can taxpayers comply if they do not know how the tax regulations. With the knowledge of taxpayers about good tax will be able to minimize the existence of tax evasion





(Witono, 2008 in Nurulita, 2017). With the knowledge of taxation will help taxpayer compliance in paying taxes, so the level of compliance will increase. Taxpayers who are knowledgeable about taxes, will self-consciously be obedient to pay taxes. They already know how the tax revenue flow will work, until finally the benefits of paying the tax are felt. A taxpayer will obey pay taxes if the taxpayer has knowledge of taxation well. If the taxpayer knows the tax regulations, then the taxpayer will obey his tax obligations and will increase taxpayer compliance.

### **Taxpayer Compliance**

According to the Big Indonesian Dictionary, the term obedience means obedience, obedience. Compliance is the motivation of a person, group or organization to act according to established rules (Fajriyan, 2015). In tax, the rule that applies is taxation law. Tax compliance is a person's compliance, in this case is a taxpayer, to tax regulations or laws (Tiraada, 2013).

Based on the Regulation of the Minister of Finance of the Republic of Indonesia No. 74/PMK.03/2012 concerning the procedure for determining taxpayers with certain criteria in the framework of returning the overpayment of tax overpayments Chapter II article 2, compliant taxpayers are those who meet four criteria, namely: (1) timely submitting a notice for all types of taxes, (2) have no tax arrears, except tax arrears that have obtained permission to pay in installments or postpone tax payments, (3) financial statements audited by a public accountant or government financial oversight body with a reasonable opinion without exception for 3 (three) years and (4) has never been convicted of a criminal offense in the taxation field based on a court decision which has had permanent legal force in the last 5 (five) years.

The issue of compliance becomes important because non-compliance together will lead to efforts to avoid taxes which results in reduced depositing of tax funds into the state treasury. So the higher the truth count and calculate. the accuracy of depositing, and filling and submitting taxpayers' notification, it is expected that the higher level of taxpayer compliance in implementing and fulfilling their tax obligations.

### **Account Representative**

Menururt KMK No. 98/KMK.01/2006 concerning Account Representatives at Tax Service Offices that Have Implemented Modern Organizations, article 1 paragraph 2 reads, what is meant by Account Representatives are employees appointed to each Supervision and Consultation Section at the Tax Service Office that has implemented the Modern Organization. In article 2 paragraph 1 explained, the Account Representative has a duty; supervise taxpayers' tax compliance,

guidance/appeal and tax technical consultation to taxpayers, compile taxpayer profiles, analyze taxpayer performance, reconcile taxpayer data in the context of intensification and evaluate the results of appeals based on applicable regulations. From the explanation of this function, the first thing to underline is the word "Supervision" and the second is the word "Consultation" which is done by the same person.

Account Representative (AR) has a duty:

- a. Supervise tax compliance for taxpayers;
- b. Tax guidance/appeal and technical consultation to taxpayers;
- c. Compilation of taxpayer profiles;
- d. Analysis of taxpayer performance, reconciliation of taxpayer data in the context of intensification; and Evaluate the results of appeals based on applicable regulations.

Minister of Finance Bambang P.S. Brodjonegoro on April 30 2015 signed the Minister of Finance Regulation Number: 79/PMK.01/2015 concerning Account Representatives at the Tax Service Office. The Minister of Finance Regulation number 79/PMK.01/2015 also simultaneously revokes the Minister of Finance Regulation number 68/PMK.01/2008 concerning Amendments to the Decree of the Minister of Finance Number: 98/KMK.01/2006 concerning Account Representatives at the Tax Office implementing Modern Organizations. In PMK number: 79/PMK.01/2015 concerning Account Representatives at the Tax Service Office (KPP) making a separation in the Account Representative position so that now the Account Representative consists of:

- a. Account Representative who carries out Taxpayer's service and consultation functions, which is located in Waskon I Section;

Account Representatives who carry out taxpayer service and consulting functions have the task:

- 1) Carrying out the process of completing the Taxpayer's application;
- 2) Carrying out the process of settling the proposed correction of tax assessments;
- 3) Conducting technical guidance and tax consulting to taxpayers; and
- 4) Carry out the process of completing the proposed reduction in Land and Building Tax.

- b. Account Representative who carries out the functions of Supervising and Excavating Potential Taxpayers, located in Waskon II, Waskon III and Waskon IV Sections.

Account Representatives who carry out the function of supervision and excavation of potential Taxpayers have the task:

- 1) Monitor the taxpayer's compliance with tax obligations;
- 2) Compiling taxpayer profiles;



- 3) Analysis of the performance of taxpayers; and
- 4) Reconciliation of Taxpayer data in the context of intensification and appeal to Taxpayers.

Increasing the trust of taxpayers towards Account Representatives will make taxpayers more open in consultation with Account Representatives. If taxpayers are more open, Account Representatives can guide taxpayers in fulfilling their tax obligations. For example, when there is a new format, the Account Representative can guide taxpayers in the procedure for filling out the form. With the guidance of the Account Representative, taxpayers will be easier to meet their tax obligations.

**Previous Research Review**

Previous studies that can support this research are as follows: Ricky, et al (2014) in his research entitled "Analysis of Factors Affecting Taxpayer Behavior to Use E-Filing". The results of this study indicate that the perception of experience has a significant effect, the perception of security and confidentiality has a significant effect, and the perception of speed does not significantly influence the behavior of e-Filing usage on corporate taxpayers in Manado.

Amalia (2016) in her study entitled "The Effect of E-Filing Implementation on the Compliance Level of Annual Tax Returns for Personal Taxpayers Income Tax with Account Representative Services as Intervening Variables in Palembang City". The results showed that the Account Representative service was able to mediate the e-Filing implementation variable to the compliance of individual taxpayers in submitting SPT. Account

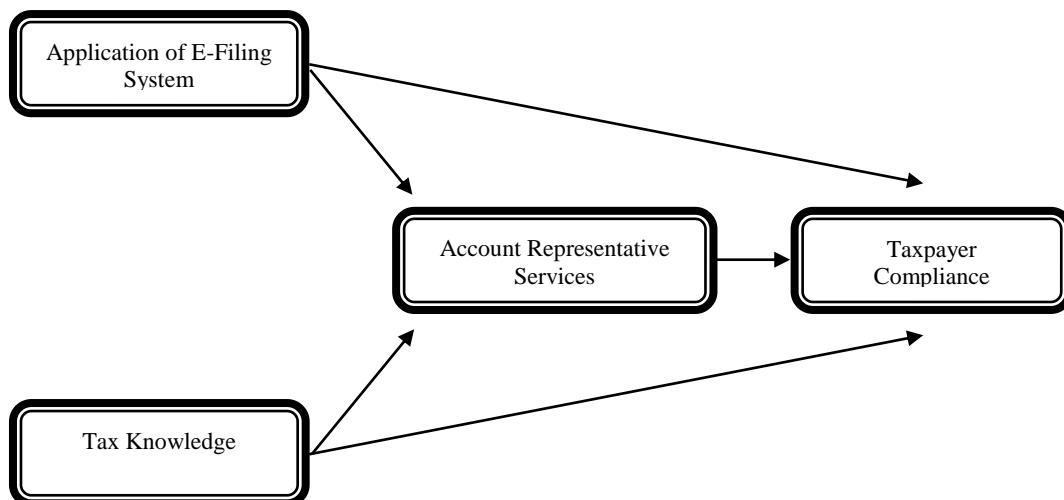
Representative services in serving and providing an important role for the ease of reporting taxation affect tax revenue and taxpayer compliance.

Suprayoga and Hasymi (2018) in their study entitled "The Effect of E-Filing System Implementation on the Compliance of Individual Taxpayers with Internet Understanding as Moderation Variables at the Jakarta Jatinegara Primary Tax Service Office". The results of the study showed that the adoption of the e-filing system had a positive and significant effect on the compliance of individual taxpayers. Understanding the internet is a pure moderator and has a positive influence on the relationship between the adoption of the e-filing system with individual taxpayer compliance.

Erwanda, et al. (2019) in his research entitled "The Effect of E-Filing and Tax Knowledge Knowledge on Taxpayer Compliance with Compliance Costs as a Moderation Variable". The results obtained are the application of e-filing has a significant positive effect on taxpayer compliance, tax knowledge does not affect taxpayer compliance, compliance costs are proven to moderate the relationship between e-filing application and taxpayer compliance, and compliance costs are not proven to moderate the relationship between tax knowledge and compliance taxpayer.

**Theoretical Thought Framework**

Based on the theoretical basis and some previous research, the framework in this study can be shown by the following picture:



**Figure 1.1 Research Model**

**Research Hypothesis**

From the above thought framework, the researcher draws a hypothesis as follows:

Ha1 = Application of e-filing system has a positive effect on account representative services

Ha2 = Knowledge of taxation has a positive effect on account representative services

Ha3 = Application of e-filing system has a positive effect on tax compliance



Ha4 = Tax knowledge has a positive effect on taxpayer compliance

Ha5 = Account representative service has a positive effect on tax compliance

relationships between variables. Causal research is aimed at knowing which variables function as causes (independent variables) and which variables function as results (dependent variables).

## RESEARCH METHODOLOGY

### Types of research

This research is causal which will test the hypothesis about the effect of one or several independent variables on the dependent variable. According to Sarwono and Suhayati (2010) causal research is research conducted to identify causal

### Operational Definition and Variable Measurement

The variables used in this study consisted of the dependent variable and the independent variable. Operational research variables can be summarized in table 1.1.

**Table 1.1 Operationalization of Variables**

Type Variable	Dimension	Indicator	Skala
Independent			
Implementation of e-filing system (Lai, Obid dan Meera, 2004)	- <i>Performance expectancy,</i>	- I always use e-Filing whenever I report taxes	Interval
	- <i>Effort expectancy,</i>	- I will always use e-Filing to report taxes because it has features that help my work	
	- <i>Social expectancy.</i>	- I intend to continue using e-Filing in the future	
Tax Knowledge	The process by which taxpayers know about taxation and apply that knowledge to pay taxes	- Taxpayer knowledge of the tax function - Taxpayer knowledge of tax regulations - Taxpayer knowledge of registration as taxpayer - Taxpayer Knowledge of Tax Payment Procedures - Taxpayer knowledge of tax rates	Interval
Dependent			
Taxpayer compliance (Suryadi, 2006)	- Tax audits	- With the changes made by the Directorate General of Taxes, registration of Taxpayers to obtain NPWP can now be done easily, making it easier for Taxpayers to carry out their obligations.	Interval
	- Law enforcement	- The application of strict sanctions for violations by taxpayers increases the compliance of taxpayers to substantively meet all material tax provisions.	
	- Tax compensation	- Administrative reforms undertaken by the Directorate General of Taxes with the use of information technology facilitate reporting of tax returns, thus encouraging taxpayers to report before the deadline ends - Tax obligations that can be paid easily, increase taxpayer compliance to carry out obligations before the deadline expires. - Increasing the quality and integrity of the tax apparatus, encourages taxpayers to fill SPT honestly.	
Intervening			
Account Representative services	Account representative tasks related to taxpayers	- Oversight	Interval
		- Guidance	
		- Create and update WP profiles	
		- Analyzing SPT	

### Variable Measurement

The research instrument was in the form of a questionnaire compiled based on the research indicators of each variable so that there were 4 (four) questionnaires in this study, namely the e-filing system questionnaire, tax knowledge knowledge questionnaire, account representative service questionnaire, and taxpayer compliance

questionnaire. The questionnaire was arranged using an interval scale using five answer choices as follows:  
Strongly Agree = given a score of 5  
Agree = given a score of 4  
Hesitation = given a score of 3  
Disagree = given a score of 2  
Strongly Disagree = given a score of 1



**Population and Research Samples**

The population of this research is all individual taxpayers who are registered at KPP Pratama, East Tangerang.

Sampling in this study was conducted using purposive sampling method. The data obtained by researchers from KPP Pratama, East Tangerang, researchers obtained the number of individual taxpayers as much as 158,563 taxpayers. From a population that is clearly known, the calculation of sampling using the Slovin formula is as follows:

$$n = \frac{N}{1 + N e^2}$$

$$n = \frac{158.563}{1 + 158.563(10\%)^2}$$

$$n = \frac{158.563}{1.586,63}$$

$$n = 99,937, \text{rounded to } 100$$

Based on these calculations the number of samples in this study were 100 Individual Taxpayers registered at KPP Pratama, East Tangerang.

**Data Types and Sources**

The type of data in this study is primary data obtained from respondents' responses to the questionnaire sent, while the source of the data comes from individual taxpayer answers registered at KPP Pratama, East Tangerang.

**Data collection technique**

The method of data collection in this study was carried out by the sampling method, which is a method of investigation conducted to obtain facts or symptoms that exist and look for information factually. Data collection was carried out through a questionnaire given to individual taxpayers registered at the KPP Pratama, East Tangerang. The

questionnaire contains questions that represent each variable in this study.

**Analysis Method**

**Descriptive statistics**

Descriptive statistics in this study are used to provide a description of the character of the research variable using a frequency distribution table that shows the mode number, the range of scores and the standard deviation.

**Data Quality Test**

According to Hair et. al (1996, in Sandjojo, 2011), the quality of data generated from the use of research instruments can be evaluated through reliability and validity tests. The tests are each to determine the consistency and accuracy of data collected from the use of the instrument.

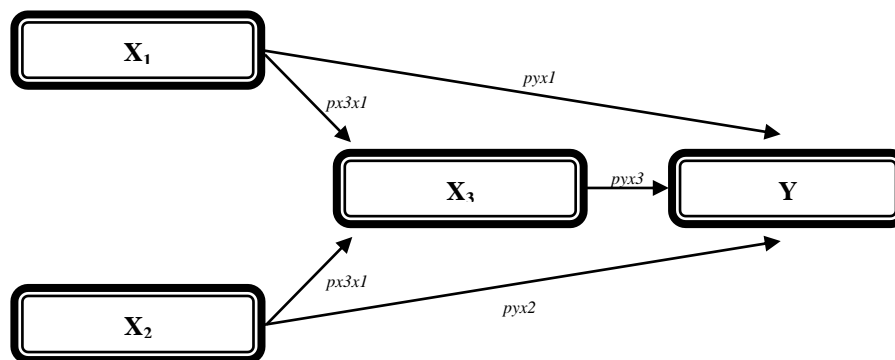
**Test Prerequisite Analysis**

To be able to use path analysis in hypothesis testing, it is necessary to first test statistical prerequisites for the data. The analysis prerequisite tests include tests of normality, homogeneity, and significance and linearity.

**Hypothesis testing**

The design of hypothesis testing used in this study is to use path analysis and Sobel Test. According to Imam Ghozali (2013) to calculate the path coefficient through the following work steps: 1). Draw a path diagram that explains the relationship between variables that reflect the proposed conceptual hypothesis, 2). Calculate the amount of influence (structural parameters) between a cause variable and an effect variable.

The path analysis method used in this study is explained in the figure as follows:



**Figure 1.2 Path Diagram Structure**

The regression model in this research is:

$$X_3 = \alpha + \rho_{x_3x_1}X_1 + \rho_{x_3x_2}X_2 + \epsilon_1 \dots\dots\dots \text{(Substruktural 1)}$$

$$Y = \alpha + \rho_{yx1}X_1 + \rho_{yx2}X_2 + \rho_{yx3}X_3 + \epsilon_2 \dots\dots\dots \text{(Substruktural 2)}$$

Dimana :

- Y = Taxpayer Compliance
- X<sub>1</sub> = Implementation of e-filing system
- X<sub>2</sub> = Tax Knowledge



$X_3$  = Account representative services

$p$  = Path coefficient

$\varepsilon$  = Error

In this study the significance level ( $\alpha$ ) of 0.05 or 5% was used. This multiple regression analysis is carried out with the help of the SPSS (Statistical Package For Social Sciences) Release 25.0 for Windows program so that the coefficient of determination, the statistical F value and the t statistical value used in hypothesis testing can be obtained..

### Sobel test and Bootstrapping test.

Sobel test is done by testing the strength of the indirect effect of the independent variable (X) to the dependent variable (Y) through the intervening variable (Z).

An alternative approach to test the significance of mediation using bootstrapping techniques. Bootstrapping is a non-parametric approach that does not assume the shape of the variable distribution and can be applied to a small sample size. Heyes and Preacher (2004) in Ghozali (2013) have developed a sobel and bootstrapping test in the form of SPSS

script 25. The hypothesis is that exogenous variables individually influence indirectly on endogenous variables. Basis of Decision Making:

- 1) If the probability is  $t > t_{table}$ , then the hypothesis is accepted.
- 2) If the probability is  $t_{count} < t_{table}$ , then the hypothesis is rejected. (Ghozali, 2013)

## RESEARCH RESULTS AND DISCUSSION

### Research Data Description

Descriptive analysis is calculated based on the percentage of respondents' answers to the research questions by using the mean value of each indicator proposed to describe the perceptions of all respondents. Based on the mean (mean), then the respondents' perceptions are interpreted using the three-box method criteria (Ferdinand, 2006), which are: 10.00 - 40 = low, 40.01 - 70 = moderate, and 70.01 - 100 = high.

**Table 1.2 Descriptive Statistics Results**

Variabel	Indeks Value	Minimum	Maksimum	Mean	Std. Deviation
Implementation of e-filing system	68,47	40	60	51,36	5,262
Tax Knowledge	77,33	12	25	19,33	3,362
Account Representative services	82,29	24	33	28,80	2,423
Taxpayer compliance	83,94	30	44	37,59	3,451

Source: Primary data processed

The following are descriptive statistical results about the research variables as follows: The e-Filing system implementation variable has a minimum value of 40 and a maximum value of 60. The average e-Filing system implementation variable is 51.36 with a standard deviation of 5.262. While the frequency index value of 68.47. With a frequency index value of 68.47, it can be concluded that the perception of respondents' answers to the variable implementation of the e-Filing system is in the moderate category, because it is in the range of values between 40.01 - 70.

The tax knowledge variable has a minimum value of 12 and a maximum value of 25. The average tax knowledge variable is 19.33 with a standard deviation of 3.362. While the frequency index value of 77.33. With a frequency index value of 77.33, it can be concluded that the perception of respondents' answers to the tax knowledge variable is in the high category, because it is in the range of values between 70.01 - 100.

The Account Representative service variable has a minimum value of 24 and a maximum value of 33. The average Account Representative service variable

is 28.80 with a standard deviation of 2.423. While the frequency index value of 82.29. With a frequency index value of 82.29, it can be concluded that the perception of respondents' answers to the Account Representative service variable is in the high category, because it is in the range of values between 70.01 - 100.

The taxpayer compliance variable has a minimum value of 30 and a maximum value of 44. The average taxpayer compliance variable is 37.59 with a standard deviation of 3.451. While the frequency index value of 83.94. With a frequency index value of 83.94, it can be concluded that the perception of respondents' answers to taxpayer compliance variables is in the high category, because it is in the range of values between 70.01 - 100.

### Data Quality Test

#### Validity test

This test is intended to measure the validity of a questionnaire in measuring a contract. And at the same time strengthen the results of previous calculations that all variables measured using the Likert scale can be used for further data processing.





Validation Test Results for each variable can be seen in the following table:

**Table 1.3 Validity Test Results**

Variable	No. Item	Correlation Value	Status
Implementation of e-filing system	Q1	0,638	Valid
	Q2	0,690	Valid
	Q3	0,613	Valid
	Q4	0,652	Valid
	Q5	0,608	Valid
	Q6	0,745	Valid
	Q7	0,631	Valid
	Q8	0,608	Valid
	Q9	0,717	Valid
	Q10	0,625	Valid
	Q11	0,642	Valid
	Q12	0,660	Valid
	Q13	0,619	Valid
	Q14	0,540	Valid
	Q15	0,553	Valid
Tax Knowledge	Q16	0,784	Valid
	Q17	0,726	Valid
	Q18	0,838	Valid
	Q19	0,760	Valid
	Q20	0,607	Valid
Account Representative services	Q21	0,635	Valid
	Q22	0,753	Valid
	Q23	0,651	Valid
	Q24	0,640	Valid
	Q25	0,658	Valid
	Q26	0,674	Valid
	Q27	0,635	Valid
Taxpayer compliance	Q28	0,541	Valid
	Q29	0,621	Valid
	Q30	0,699	Valid
	Q31	0,761	Valid
	Q32	0,736	Valid
	Q33	0,678	Valid
	Q34	0,676	Valid
	Q35	0,588	Valid
	Q36	0,677	Valid

Source: Primary data processed

### Reliability test

The reliability test is carried out with reference to Cronbach Alpha 0.60. Table 1.4 shows that all instruments of the tested variables have Cronbach alpha above 0.60, so the test results are quite

satisfactory because all instruments have a high level of reliability, so they can be used for further data processing. The reliability test results of each variable can be seen in the following table:

**Table 1.4 Reliability test results**

No	Variable	Koefisien Cronbach Alpha	Number of Instruments
1	Implementation of e-filing system	0,893	15
2	Tax Knowledge	0,797	5
3	Account Representative services	0,719	7
4	Taxpayer compliance	0,933	9

Source: Primary data processed

**Test Prerequisite Analysis****Normality test**

Testing for normality using the Lilliefors test. Provisions in the error test are if the statistic  $L_{count} < L_{table}$  ( $\alpha = 0.05$ ), then the error data is normally

distributed. But if  $L_{count} > L_{table}$  ( $\alpha = 0.05$ ), then the data is not normally distributed.

Thus the overall results of the normality test calculation using the Lilliefors test can be seen in the summary in Table 1.5.

**Table 1.5 Test summary normality**

No	Error estimated	n	L Count	L Table		Decision
				$\alpha = 0.05$	$\alpha = 0.01$	
1	X3 atas X1	90	-0,0653	0,0934	0,1087	Normal
2	X3 atas X2	90	-0,1052	0,0934	0,1087	Normal
3	Y atas X1	90	-0,0892	0,0934	0,1087	Normal
4	Y atas X2	90	-0,1046	0,0934	0,1087	Normal
5	Y atas X3	90	-0,1022	0,0934	0,1087	Normal

Source: Primary data processed

**Homogeneity Test**

Another requirement for using path analysis is that the verifiable variance bound to the independent variable must be homogeneous. Homogeneity variance testing is done through SPSS and Excel

using the Barlett test. A homogeneous variance if produced when  $count2 \text{ count} < \chi^2 \text{ table}$ . Thus the overall results of the homogeneity test percoutan can be seen in the summary in the following table:

**Table 1.6 test summaries of homogeneity**

No	Error estimated	$X^2_h$	df	$X^2_t$	Decision
1	X3 atas X1	11,470	71	91,670	Homogen
2	X3 atas X2	9,628	76	97,351	Homogen
3	Y atas X1	12,146	71	91,670	Homogen
4	Y atas X2	17,109	76	97,351	Homogen
5	Y atas X3	11,157	80	101,879	Homogen

Source: Primary data processed

**Test Path Analysis**

Path analysis is used to analyze the pattern of relationships between variables with the aim of finding out the direct and indirect effects of a set of

independent (exogenous) variables on the dependent variable (endogenous). From the data processing through the SPSS program the following results were obtained:

**Table 1.7 Path Analysis Results**

Description	$\rho$	T <sub>count</sub>	Sig	T <sub>Table</sub>	R <sup>2</sup>	F <sub>count</sub>	Sig
Sub-Struktur 1				1,663	0,613	68,880	0,000
Implementation of e-filing system	0,421	5,553	0,000				
Tax Knowledge	0,490	6,466	0,000				
Sub-Struktur 2				1,663	0,816	126,847	0,000
Implementation of e-filing system	0,427	6,974	0,000				
Tax Knowledge	0,166	2,590	0,011				
Account Representative services	0,439	5,905	0,000				

Source: Primary data processed

Based on the results of the path analysis in Sub-Structure 1, the path coefficients X1 and X2 to X3 are obtained  $\rho_{x3x1} = 0.421$  and  $\rho_{x3x2} = 0.490$ . While the coefficient of determination or contribution of X1 and X2 to X3 is (Rsquare) = 0.613 as in Table 1.7, which means that 61.3% of Account

Representative services can be explained by variations in the variables of e-Filing system implementation and tax knowledge. The amount of residual coefficient ( $\rho_{x3E1} = \sqrt{1 - 0.613} = 0.622$ ) is the influence of other variables beyond the application of e-Filing systems and tax knowledge.



While the results of the path analysis in Sub-Structure 2 obtained path coefficients  $X_1$ ,  $X_2$  and  $X_3$  against  $Y$  of  $\rho_{yx1} = 0.427$ ,  $\rho_{yx2} = 0.166$  and  $\rho_{yx3} = 0.439$ . While the coefficient of determination or contribution of  $X_1$ ,  $X_2$  and  $X_3$  to  $Y$  is (Rsquare) = 0.816 as in Table 1.7, which means that 81.6% of taxpayer compliance can be explained by the implementation of e-filing system, tax knowledge, and account representative services. The amount of residual coefficient ( $\rho_{\epsilon 2}$ ) =  $\sqrt{1-0.816} = 0.429$  is the influence of other variables beyond the implementation of e-filing system, taxation knowledge, and account representative services. The results of the path coefficients in sub-structure 1 and sub-structure 2 produce the structural equation, as follows:

$$X_3 = 0,421X_1 + 0,490X_2 + 0,622\epsilon_1 \text{ dan } R^2_{x_3x_2x_1} = 0,613$$

$$Y = 0,427X_1 + 0,166X_2 + 0,439X_3 + 0,429\epsilon_2 \text{ dan } R^2_{yx_3x_2x_1} = 0,816$$

### Hypothesis test

After testing the model, then testing the hypothesis to determine the direct and indirect effects between variables. The hypothesis proposed will be concluded by counting the value of the path coefficient and the significance of each path studied. The results of the decision on the proposed hypothesis are explained as follows:

#### 1. The implementation of e-filing system has a direct effect on the account representative service

Based on the calculation results, it can be seen that the path coefficient ( $\rho_{x_3x_1}$ ) is 0.421 with  $t_{count} = 5.553$ , at  $\alpha = 0.05$ , it is obtained  $t_{table} = 1.663$ . Because the value of  $t_{count} = 5.553$  is greater than  $t_{table} = 1.663$ , the path coefficient is significant. The results showed that the implementation of e-filing system had a direct effect on the account representative service of  $(0.421 \times 0.421 \times 100\%) = 17.72\%$ . Thus  $H_{a1}$  received.

#### 2. Tax knowledge has a direct effect on the account representative service

Based on the accounting results it can be seen that the value of the path coefficient ( $\rho_{x_3x_2}$ ) of 0.490 with  $t_{count} = 6.466$ , at  $\alpha = 0.05$ , obtained  $t_{table} = 1.663$ . Because the value of  $t_{count} = 6.466$  is greater than  $t_{table} = 1.663$ , the

path coefficient is significant. The results showed that tax knowledge directly affected the account representative service for  $(0.490 \times 0.490 \times 100\%) = 24.01\%$ . Thus  $H_{a2}$  received.

#### 3. The implementation of e-filing system has a direct effect on the compliance of taxpayers

Based on the accounting results it can be seen that the path coefficient value ( $\rho_{yx1}$ ) of 0.427 with  $t_{count} = 6.974$ , at  $\alpha = 0.05$ , obtained  $t_{table} = 1.663$ . Because the value of  $t_{count} = 6.974$  is greater than  $t_{table} = 1.663$ , the path coefficient is significant. The results showed that the implementation of e-filing system had a direct effect on taxpayer compliance by  $(0.427 \times 0.427 \times 100\%) = 18.23\%$ . Thus  $H_{a3}$  received.

#### 4. Tax knowledge directly affects the compliance of taxpayers

Based on the accounting results it can be seen that the path coefficient value ( $\rho_{yx2}$ ) of 0.166 with  $t_{count} = 2.590$ , at  $\alpha = 0.05$ , obtained  $t_{table} = 1.663$ . Because  $t_{count} = 2.590$  is greater than  $t_{table} = 1.663$ , the path coefficient is significant. The results showed that tax knowledge has a direct effect on taxpayer compliance by  $(0.166 \times 0.166 \times 100\%) = 2.76\%$ . Thus  $H_{a4}$  received.

#### 5. Account representative services directly affect the compliance of taxpayers

Based on the accounting results it can be seen that the path coefficient value ( $\rho_{yx3}$ ) of 0.439 with  $t_{count} = 5.905$ , at  $\alpha = 0.05$ , obtained  $t_{table} = 1.663$ . Because the value of  $t_{count} = 5.905$  is greater than  $t_{table} = 1.663$ , the path coefficient is significant. The results showed that the account representative service had a direct effect on taxpayer compliance by  $(0.439 \times 0.439 \times 100\%) = 19.27\%$ . Thus  $H_{a5}$  was accepted.

### Mediation Factor Testing

To test the significance of the indirect effect, it can be done by comparing the  $Z$  value of the calculated ab coefficient with the  $Z_{table}$  value of 1.96. If the  $Z_{count}$  value is greater than the  $Z_{table}$  value, it can be concluded that there is a mediating effect (Ghozali, 2013). The calculation of mediation factor testing will be explained as follows:

**1. The effect of account representative services in mediating the relationship between the adoption of the e-filing system and taxpayer compliance****Table 1.8 Mediation Test Results with the Sobel Test**

DIRECT AND TOTAL EFFECTS				
	Coeff	se	t	Sig (two)
b(YX)	0,5198	0,0426	12,1988	0,0000
b(MX)	0,3008	0,0372	8,0968	0,0000
b(YM.X)	0,7823	0,0899	8,7001	0,0000
b(YX.M)	0,2845	0,0414	6,8718	0,0000
INDIRECT EFFECT And SIGNIFICANCE USING NORMAL DISTRIBUTION				
	Value	se	z	Sig (two)
Effect	0,2353	0,0398	5,9062	0,0000

*Source: Primary data processed*

Testing the significance of indirect effects with the Sobel test obtained  $z = 5.9062$  and  $p = 0.0000$ . Because  $z$ -value in absolute price  $> 1.96$  and the level of statistical significance  $z$  ( $p$ -value)  $< 0.05$ , it means that there is a mediating effect of account representative services on the relationship between the implementation of the e-Filing system with taxpayer compliance.

**2. The effect of account representative services in mediating the relationship between tax knowledge and taxpayer compliance****Table 1.9 Mediation Test Results with the Sobel Test**

DIRECT AND TOTAL EFFECTS				
	Coeff	se	t	Sig (two)
b(YX)	0,6892	0,0811	8,5005	0,0000
b(MX)	0,4970	0,0556	8,9356	0,0000
b(YM.X)	1,0041	0,1133	8,8627	0,0000
b(YX.M)	0,1902	0,0816	2,3294	0,0222
INDIRECT EFFECT And SIGNIFICANCE USING NORMAL DISTRIBUTION				
	Value	se	z	Sig (two)
Effect	0,4990	0,0796	6,2727	0,0000

*Source: Primary data processed*

Testing the significance of indirect effects with the Sobel test obtained values of  $z = 6.2727$  and  $p = 0.0000$ . Because  $z$ -value in absolute price  $> 1.96$  and the level of statistical significance  $z$  ( $p$ -value)  $< 0.05$ , it means that there is a mediating effect of account representative services on the relationship between tax knowledge and taxpayer compliance.

**DISCUSSION****The implementation of e-Filing system has a direct effect on account representative services**

Hypothesis testing 1 proves that the application of the e-Filing system has a direct effect on the service of account representatives. The better implementation of the e-Filing system, the better the quality of account representative services felt by taxpayers. This shows that the application of e-Filing system can make taxpayers satisfied with the quality of account representative services provided because it can simplify and save time.

According to Richard Burton (in Official, 2011), an account representative is a tax officer specifically monitors the tax compliance compliance of each taxpayer he supervises (such as the Tax Payer Profile / company profile), helps speed up the process of requesting the information required by the taxpayer, monitors the completion of audits tax and the objection process and answer taxpayer questions on tax issues and inform the latest tax provisions.

This is in line with research conducted by Erawati & Ratnasari (2018) which states that the application of e-filing has a positive effect on service quality satisfaction.

**Knowledge of taxation directly affects the account representative service**

Hypothesis testing 2 proves that tax knowledge has a direct effect on the service of Account Representatives. The higher the level of taxation knowledge, the better the service of Account Representatives. This is expected to occur because the information provided by the Representative



Account about tax knowledge to taxpayers is already good. In addition, taxpayers know clearly about the duties of the Account Representative, so that taxpayers can make full use of the facilities of the Account Representative. So that tax knowledge affects the Account Representative service.

Account Representative at the Tax Service Office is regulated in the Decree of the Minister of Indonesia Number: 79/PMK.01/2015 explaining that Account Representative is one of the spearheads of exploring the potential of state revenue in the field of taxation which carries out the task of tax intensification through providing guidance/appeal, consultation, analysis and supervision against taxpayers (Widomoko, 2017). Another task of Account Representatives is to provide intensive supervision to taxpayers. To sustain the application of the self assessment system in Indonesia, it is very necessary the role of Account Representative (Irawan, 2013).

### **The implementation of e-Filing system has a direct effect on the compliance of taxpayers**

Hypothesis testing 3 proves that the application of the e-Filing system has a direct effect on taxpayer compliance. This shows that the better the application of e-filing system, the Taxpayer Compliance will also be good. E-filing is part of tax administration reform that aims to facilitate taxpayers in making and submitting SPT reports to the Directorate General of Taxes. The application of the e-filing system is expected to provide comfort and satisfaction for taxpayers in fulfilling their tax obligations so that the e-filing system is expected to increase taxpayer compliance.

Rahayu (2010) states that the modernization of the taxation system within the DGT by utilizing a reliable and up-to-date information system (e-filing) is one of the strategies adopted to achieve high levels of tax compliance.

The results of this study support the findings of Tresno, et al. (2013), Suprayoga and Hasymi (2018), and Erwanda, et al. (2019), which states that the application of e-filing has a positive effect on the level of compliance of taxpayers.

### **Knowledge of taxation directly affects the compliance of taxpayers**

Testing hypothesis 4 proves that tax knowledge directly influences taxpayer compliance. This is in accordance with the taxation system in Indonesia which adopts a self assessment system that requires taxpayers to have knowledge related to taxation regulations. Because how is it possible that taxpayers can carry out their obligations if they do not have knowledge about the rules, how to count, count to report taxes. By having adequate tax knowledge, taxpayers can know and easily carry out the

obligations that must be done in terms of taxation. The higher level of knowledge possessed by taxpayers will increase taxpayer compliance because taxpayers already know the function of taxes and the importance of taxes in state development. Lack of tax knowledge possessed is the cause of the low compliance of taxpayers. Tax counseling and information dissemination can be done by tax officials to provide updated information regarding changes in tax regulations.

The results of this study support the research conducted by Viega & Fidiana (2017); Siti, et al (2017); and Beny, et al (2018), showed that there is a positive effect of tax knowledge on taxpayer compliance.

### **Account Representative services directly affect the compliance of taxpayers**

Hypothesis testing 5 proves that the Account Representative service has a direct effect on taxpayer compliance. This means that taxpayer compliance can be improved by the performance of an Account Representative. The services provided by the Account Representative must be excellent and in line with the expectations of the Taxpayer. Good service will provide satisfaction to taxpayers and will increase taxpayer compliance, services provided by Account Representatives will provide an encouragement to taxpayers to establish dynamic relationships with the East Tangerang Pratama Tax Office.

With the issuance of new regulations on the modernization of the taxation system, he added that the duty of tax employees as an Account Representative (AR) is one of the innovations carried out by the Directorate General of Taxes so that Taxpayers increase tax reporting. Supported by increasingly advanced taxation services, to direct taxpayers by means of counseling and make Taxpayers satisfied of the maximum service performance provided by the tax authority. Tax employees with positions as Account Representatives (AR) provide services in reporting annual tax returns in tax consultations if they experience difficulties in reporting. Account Representative services as a support for the existence of electronic system services, in addition to being a companion for taxpayers who report tax returns so that taxpayers do not feel distressed in reporting. Satisfaction felt by taxpayers in using e-Filing will form a positive attitude and further make the tax image will also get better.

### **CONCLUSION**

Based on the analysis results, the following conclusions can be drawn: 1) The application of the e-Filing system has a direct effect on the service of Account Representatives; 2) Knowledge of taxation directly affects the service of Account Representatives; 3) The application of the e-Filing





system has a direct effect on the compliance of taxpayers; 4) Tax knowledge directly affects the compliance of taxpayers; and 5) Account Representative services directly affect the compliance of taxpayers.

### LIMITATION

This research cannot be separated from limitations and is expected to be a source of ideas for further research. Some limitations in this study include: First, the results of this study are only based on the answers of respondents to the questionnaire distributed, and are not supported by interviews. Second, in filling out the questionnaire it is possible that the answer does not match the actual situation. This can happen when the respondent is not focused when answering the questionnaire, because there are several respondents when filling out the questionnaire while doing other activities simultaneously and some are in a hurry when filling out the questionnaire.

### SUGGESTIONS

By considering the existing limitations, it is expected that future studies will improve the following factors: 1) For the East Tangerang KPP Parties, based on the results of tests conducted on each variable there are results indicated by respondents that the taxation socialization has an effect on taxpayer compliance. Actions that can be taken by the East Tangerang KPP to further improve taxpayer compliance are to expand tax socialization to taxpayers so that taxpayers are more aware of their tax rights and obligations; 2) For Further Research, based on the conclusions and limitations of the results of this study, the suggestion that can be given to future researchers is that future research can replace this research model by changing the intervening variable to another variable. This research model can also be developed by adding other variables outside this study that can affect taxpayer compliance such as tax sanction assertiveness and tax service quality. And can add other methods, such as using the interview model.

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# **THE EFFECT OF COMPANY SIZE AND PROFITABILITY ON TAX AVOIDANCE WITH LEVERAGE AS INTERVENING VARIABLES**

## **(Empirical Study of Property, Real Estate and Building Construction Companies that Go Public in Kompas 100 Index 2013-2018)**

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### **ABSTRACT**

*The purpose of this study is as follows: 1) Finding empirical evidence regarding the effect of company size on leverage; 2) Finding empirical evidence regarding the effect of profitability on leverage; 3) Finding empirical evidence regarding the effect of company size on tax avoidance; 4) Finding empirical evidence regarding the effect of profitability on tax avoidance; and 5) Finding empirical evidence regarding the effect of leverage on tax avoidance. The type of research used in this study is casual associative research. The population in this study are property, real estate, and building construction companies that are included in the Kompas 100 index which are listed on the Indonesia Stock Exchange (IDX) during 2013-2018. Sample selection with purposive sampling method. The analytical method used to test hypotheses is the path analysis test and multiple test. The results showed that: 1) Firm size directly affects Leverage in a positive direction, 2) Profitability does not directly affect leverage in a negative direction; 3) Company size has a direct effect on Tax Avoidance in a negative direction; and 4) Profitability has no direct effect on Tax Avoidance in the negative direction, and 5) Leverage has a direct effect on Tax Avoidance in a positive direction.*

**KEYWORDS:** COMPANY SIZE, PROFITABILITY, LEVERAGE, TAX AVOIDANCE

### **INTRODUCTION**

Tax is the biggest source of state revenue. The tax collected by the State functions as a source of funds intended for financing government expenditure and functions as a tool to regulate and implement policies in the social and economic fields and is used for the greatest prosperity of the people. Therefore, corporate and individual taxpayers are expected to be obedient in carrying out their tax obligations voluntarily and in compliance with tax regulations. Non-compliance of taxpayers can cause disruption of State finances. One way of disobedience is done by tax avoidance. Tax avoidance is an act of avoiding taxes, methods and techniques which are carried out by utilizing the weaknesses in the tax provisions, so that they do not violate and oppose the applicable provisions (Pohan, 2017). Tax avoidance is not against the law, but in general all parties agree that tax avoidance is something that is practically

unacceptable. This is because tax avoidance directly impacts the erosion of the tax base, which results in reduced tax revenue needed by the state (Cahyanti, et al., 2017)

In 2014, PT Toyota Manufacturing Indonesia practiced tax avoidance by exporting thousands of cars with an export value less than the cost of sales. Meanwhile, the same product is sold in Indonesia at different prices. To export Toyota has a policy with its business unit in Singapore, namely Toyota Motor Asia Pacific Pte., Ltd, because Singapore has the lowest corporate tax rate in Southeast Asia. To reduce the amount of tax that must be paid in Indonesia, PT Toyota carried out transfer pricing beyond the reasonable business limits. The Ministry of Finance's Directorate General of Taxes has suspected TMMIN of using transactions between affiliated companies at home and abroad to avoid tax payments by transfer pricing (Murwaningtyas, 2019).



There are several factors that are indicated to affect the Tax Avoidance action including company size, company age, profitability, leverage, and sales growth. This variable has indeed been taken a lot in several studies by previous researchers, but it still shows variations in research results or inconsistencies. Companies that are classified as large in general will be more transparent in carrying out their operational activities because the company will be paid more attention by external parties, such as the government; investor; and creditors, so as to minimize tax avoidance.

According to Ngadiman & Puspitasari (2014), the size of the company as measured by total assets will affect the tax avoidance measures of the company, the greater the size of the company making company managers tend to choose accounting methods that suspend reported earnings from the current period to the future period in order minimize reported profits. Large companies have more and more complex corporate operational activities so that there are gaps to be used in tax avoidance decisions. While small companies that have limited company operations and few will find it difficult to take tax avoidance measures because of the small gaps that can be exploited by companies in carrying out tax avoidance. In a study conducted by Dewinta & Setiawan (2016), Oktamawati (2017) and Pratiwi (2019) which stated that company size influences tax avoidance. The statement is different from the results of research belonging to Cahyono, et al (2016) and research by Nengsih, et al (2018) which states that company size has no effect on tax avoidance.

Profitability is a measurement of a company's performance. The profitability of a company shows the ability of a company to generate profits for a certain period at the level of sales, assets and certain share capital. Profitability ratio aims as a measure of the level of effectiveness of management and can determine the ability of a company to earn profits for a certain period (Hery, 2016). The greater the profit, the greater the profitability of the company. Taxes are calculated based on profits owned by the company. The large amount of profits owned by the company, making the greater the amount of tax to be paid by the company. The large amount of tax that must be paid, will make the company do tax avoidance engineering. In a study conducted by Dewinta & Setiawan (2016), Oktamawati (2017), Cahyanti, et al (2017) and Nengsih, et al (2018) who stated that profitability affected tax avoidance. This statement is different from the results of research belonging to Permata, et al (2018), and Murwaningtyas (2019) which states that profitability has no significant effect on tax avoidance.

Leverage is a ratio used to measure the extent to which a company's assets are financed with debt (Fadila, 2017). That is, how much debt burden borne by the company compared to its assets. It is possible

for a company to use debt to fulfill its operational and investment needs. However, debt will cause a fixed rate of return called interest. Interest expense borne by the company can be used as a deduction from the company's taxable income to reduce the tax burden. That way, the higher the value of the leverage ratio, means the higher the amount of funding from third party debt used by the company and the higher the interest costs arising from the debt. The higher interest costs will have the effect of reducing the company's tax burden. The greater the debt, the taxable profit will be smaller because the tax incentives for debt interest are greater (Darmawan & Sukartha, 2014).

In a study conducted by Oktamawati (2017), Nugraha & Mulyani (2019) which stated that leverage affects tax avoidance. This statement is different from the results of research by Dewinta & Setiawan (2016), Cahyono, et al (2016), and Permata, et al (2018) which states that leverage does not have a significant effect on tax avoidance.

Researchers are motivated to conduct research on Property, Real Estate, and Building Construction Companies, because Property, Real Estate and Building Construction Companies play an important role in the field of economy and development in Indonesia. This sector is also one indicator to assess a country's economic development.

For reasons like the above, this study intends to examine the company's size, profitability, leverage, and tax avoidance in property, real estate and building construction companies that go public in the Compass 100 index in 2013-2018 with the title: "The Effect of Company Size and Profitability on Tax Avoidance with Leverage as Intervening Variables (Empirical Study of Property, Real Estate, and Building Construction Companies that Go Public in Compass 100 Index in 2013-2018)".

## LITERATURE REVIEW

### Agency Theory

Jensen and Meckling (1976) state that an agency relationship is a contract between a manager (agent) and an investor (principal). There is a conflict of interest between the owner and agent because the possibility of the agent acting is not in accordance with the interests of the principal, thereby triggering agency costs. Conflict in agency theory is usually caused by decision makers who do not participate in taking risks as a result of decision making mistakes. According to decision makers, the risk should be borne by the shareholders. This is what causes the asynchronous between the decision maker (manager) with the shareholders. Conflicts between shareholders and company management can be minimized in a way, managers must run the company in accordance with the interests of shareholders as well as in making decisions by managers must be adjusted to the interests of shareholders (Wahyuni, 2013).





### Stakeholders Theory

According to Clarkson (1995) in Fauzan (2013), stakeholders are divided into two groups, namely primary and secondary. Primary stakeholders are groups of stakeholders who do not take part or participate in the operations of a company. Secondary stakeholders are groups of stakeholders who influence and are influenced by the company, but are not involved and are not so important for the survival of the company.

Stakeholder theory is a theory which states that a company is an entity that not only operates for its own interests, but must provide benefits to all its stakeholders, because the survival of a company is supported by stakeholders (Ghazali and Chariri, 2007). Shareholders, creditors, consumers, suppliers, the government, the public, analysts, and other parties are stakeholder groups that are considered by the company to disclose or not reveal information in the company's financial statements. All stakeholders have the right to obtain information about company activities.

### Company size

The size of the company is the size of the company, a large established company will have easy access to the capital market (Purnamasari & Fitria, 2015). Large companies are given more attention by the public so that they will be more careful in financial reporting, so that the impact of these companies is reporting conditions more accurately. Peasnell, et. all (1998 in Bintara, 2019) shows a negative relationship between company size and earnings management in the United Kingdom. With this it is concluded that managers who lead larger companies have smaller opportunities to manipulate profits compared to managers in smaller companies.

Song and Windram (2000 in Bintara, 2019) also investigated the relationship between company size and the quality of financial reporting in the United Kingdom. The results found that company size has a significant relationship to the quality of financial reporting. This is supported by the tendency for large companies to be able to hire better external auditors and be able to implement internal controls in their accounting departments better.

Chtourou, et. all (2001 in Bintara, 2019) examines the impact of company size on earnings management in the United States. By grouping earnings management into three parts: high, medium, and low earnings management, they found that firm size negatively affected earnings management in all testing groups. Larger companies have less opportunity to do earnings management than smaller companies.

The size of the company will be symbolized by SIZE, and measured using the natural logarithm (ln)

of the book value of total assets owned by the company.

### Profitability

In general, every company aims to make a profit. The company's management is required to be able to achieve the planned targets. According to Sartono (2010) the definition of profitability is the ability of companies to earn profits in relation to sales, total assets, and own capital. Thus, long-term investors will be very interested in this profitability analysis. Meanwhile, according to Munawir (2010) understanding of profitability ratios is a ratio that shows the ability of companies to print profits. For shareholders, this ratio shows their level of income in investing.

From the definitions above, it can be concluded that profitability ratios are ratios used to measure the ability and success of a company in obtaining profits related to sales, assets or investment. In this study, profitability is proxied by ROA (Return On Assets). According to Hery (2016), ROA is a ratio to measure the amount of net profit generated from each rupiah in total assets. Profitability can be calculated as follows:

$$ROA = \frac{\text{Earning after Tax}}{\text{Total Asset}}$$

### Tax avoidance

Tax Avoidance is a business transaction scheme aimed at minimizing the tax burden by utilizing the weaknesses (loophole) of a country's taxation provisions. According to Lim (2011) defines tax avoidance as tax savings that arise by utilizing tax provisions that are done legally to minimize tax obligations.

Tax avoidance (tax avoidance) is an effort to avoid tax that is done legally and safely for taxpayers because it does not conflict with taxation provisions, where the methods and techniques used tend to exploit the weaknesses (gray areas) contained in the laws and regulations taxation itself, to reduce the amount of tax owed (Pohan, 2017).

According to Dyreng et al. (2010) this variable is calculated using the cash effective tax rate (CETR), which is the payment of income tax divided by profit before tax.

### Leverage

Leverage is the use of fixed costs in an effort to increase profitability. When a lever (level) is used appropriately, then the pressure applied to a point will be formed or enlarged into pressure or movement at another point. Leverage affects the level and variability of income after tax which in turn affects the level of risk and overall corporate returns. The greater the level of leverage means the high level of uncertainty of returns, but on the other hand the amount of return given will be even greater (Van Horne et al., 2007).





According to Sari (2012), leverage is a tool to measure how much a company depends on creditors in financing company assets. According to Brigham and Houston (2006) financing with leverage or debt has three important implications, namely:

- a. Obtaining funds from debt allows shareholders to maintain control of the company with limited investment.
- b. The creditor sees the equity or the owner's deposit to provide a safety margin so that if the shareholders only provide a small portion of the total financing, then the company's risk is largely on the creditor.
- c. If the company gets a greater return on investment financed with loan funds than interest payments, the return on owner's capital will be greater.

According to Brigham and Joel (2010) the procedure used by analysts to review corporate debt is that they examine the balance sheet to determine the proportion of the total funds represented by debt, and they review the income statement to see the extent to which fixed expenses can be covered by operating income. The measurement of leverage used in this study is the ratio of total debt to total assets (debt ratio). The ratio of total debt to total assets, which is generally called the debt ratio. Formulated as follows:

$$\text{Leverage} = \frac{\text{Total liabilities}}{\text{Total assets}}$$

### Previous Research Review

Previous research that can support this research is Christopher, et al. (2015) in his study entitled "Corporate governance, incentives, and tax avoidance" provides empirical evidence that a positive relationship between board independence and financial sophistication is for a low level of tax avoidance, but a negative relationship for a high level of tax avoidance. These results indicate that these governance attributes have a stronger relationship with more extreme levels of tax avoidance, which are more likely to be symptoms of over-investment and under-investment by managers.

Dewinta & Setiawan (2016) in their research entitled "Effect of Company Size, Company Age, Profitability, Leverage, and Sales Growth on Tax

Avoidance". Against Tax Avoidance ". The results of his research show that the higher the size of the company, the age of the company, profitability, and sales growth will lead to increased tax avoidance. Leverage has no effect on tax avoidance. This means that the higher the leverage will not affect the increase in tax avoidance ..

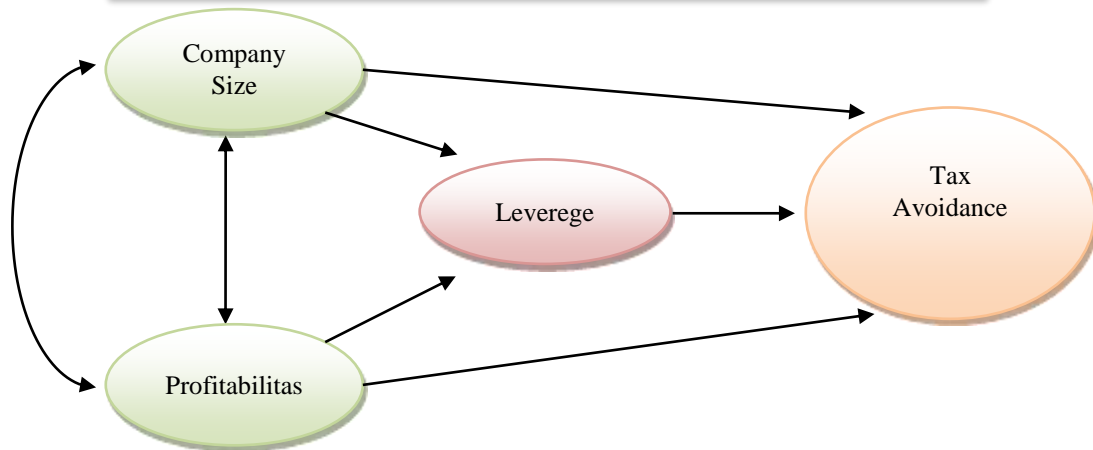
Permata, et al (2018) in his research entitled "Effect of Size, Age, Profitability, Leverage and Sales Growth on Tax Avoidance". The results of his research showed that company size, company age, profitability, leverage, and sales growth had no effect on tax avoidance.

Nugraha & Mulyani (2019) in his research entitled "The Role of Leverage as Mediating the Effects of Executive Character, Executive Compensation, Capital Intensity, and Sales Growth on Tax Avoidance". The results showed that executive character has no effect on leverage. Executive compensation has a positive effect on leverage. Capital intensity has a positive effect on leverage. Sales growth has a positive effect on leverage. Leverage has a positive effect on tax avoidance. Executive character has a positive effect on tax avoidance. Executive compensation has a positive effect on tax avoidance. Capital intensity has a positive effect on tax avoidance. Sales growth has a positive effect on tax avoidance. Leverage is able to mediate the effect of executive compensation on tax avoidance, but leverage is not able to mediate the effect of executive character capital, the intensity of tax avoidance, and sales growth on tax avoidance.

Murwaningtyas (2019) in his study entitled "Factors Affecting Tax Avoidance" provides empirical evidence that corporate social responsibility, corporate age, fiscal loss compensation has a significant positive effect on tax avoidance, and profitability has no significant effect on tax avoidance.

### Theoretical Thought Framework

Based on the theoretical basis and some previous research, the framework in this study can be shown by the following picture:



**Figure 1.1 Research Model**

**Research Hypothesis**

From the above thought framework, the researcher draws a hypothesis as follows:

- Ha<sub>1</sub> = Company size has a direct effect on leverage
- Ha<sub>2</sub> = Profitability directly affects Leverage
- Ha<sub>3</sub> = Leverage has a direct effect on Tax Avoidance
- Ha<sub>4</sub> = Company size has a direct effect on Tax Avoidance
- Ha<sub>5</sub> = Profitability has a direct effect on Tax Avoidance

**RESEARCH METHODOLOGY**

**Types of research**

This type of research used in this study is casual associative research. According to Sanusi (2011), associative-causal research is research that looks for relationships between two or more variables. The purpose of associative research is to look for relationships between one variable and another.

**Operational Definition and Variable Measurement**

The variables used in this study consisted of the dependent variable, independent variable and intervening variable. Operational research variables can be summarized in table 1.1.

**Tabel 1.1 Operasionalisasi Variabel**

Variables	Concept Variables	Indicator	Scale
<b>Dependent</b>			
Tax Avoidance	Tax avoidance efforts are carried out legally and safely for taxpayers because they do not conflict with taxation provisions, where the methods and techniques used tend to exploit the weaknesses (gray area) contained in the laws and tax regulations themselves, to reduce the amount tax payable	Cash Effective Tax Rate (CETR)	Rasio
<b>Independent</b>			
Company Size	Large-scale small companies, an established large company will have easy access to the capital market (Purnamasari, 2015)	Logaritma Natural Total Aset	Rasio
Profitabilitas	Ratio that shows the ability of a company to make a profit (Munawir, 2010)	ROA	Rasio
<b>Intervening</b>			
Leverage	Tool to measure how much a company depends on creditors in financing company assets (Sari, 2012)	Total debt to total assets	Rasio

**Data Types and Sources**

The data used in conducting this research is secondary data, that is data obtained through intermediaries from both parties and certain media that support this research. The data used in this study are secondary data in the form of financial statements

of property companies, real estate, and building construction which are included in the Kompas 100 index listed on the Indonesia Stock Exchange during 2013-2018 obtained from the Indonesia Stock Exchange website (www.idx.co.id) and the official website of each bank.



### Population and Research Samples

The population in this study are property, real estate, and building construction companies which are included in the Kompas 100 index which are listed on the Indonesia Stock Exchange (IDX) during 2013-2018. The sample is part of the population used to estimate population characteristics. The sampling technique is using purposive sampling technique. According to Widyani (2010) the purposive sampling method is the selection of samples on the basis of the suitability of the characteristics of the sample with the specified sample selection criteria. The sample criteria used in this study are:

1. Property, Real Estate, and Building Construction Companies included in the Kompas 100 index and listed on the Indonesia Stock Exchange (IDX) within 2013-2018.
2. Publish audited financial statements for the period 2013-2018
3. The company did not experience a loss during the study year.
4. Data owned by the company are complete and in accordance with the variables studied.

According to the criteria above, the number of samples used were 13 companies during the 6 periods namely 2013, 2014, 2015, 2016, and 2018. Then the number of samples obtained was 13 companies x 6 periods = 78 data to be used in this study.

### Data collection technique

Data collection methods in this study are library study methods and documentation methods. Literature study method by studying literature and

reviewing various literature literatures such as various journals, articles and other literature books that support this research process. While the documentation method is the process of collecting data by recording documents related to this study.

### Analysis Method Descriptive statistics

Descriptive statistics in this study are used to provide a description of the character of the research variable using a frequency distribution table that shows the mode number, the range of scores and the standard of division

### Test Prerequisite Analysis

To be able to use path analysis in hypothesis testing, it is necessary to first test statistical prerequisites for the data. The analysis prerequisite tests include tests for normality, homogeneity, and significance and linearity.

### Hypothesis testing

The design of hypothesis testing used in this study is to use path analysis and Sobel Test. According to Ghozali (2013) to calculate the path coefficient through the following work steps: 1). Draw a path diagram that explains the relationship between variables that reflect the proposed conceptual hypothesis, 2). Calculate the amount of influence (structural parameters) between a cause variable and an effect variable.

The path analysis method used in this study is explained in the figure as follows:

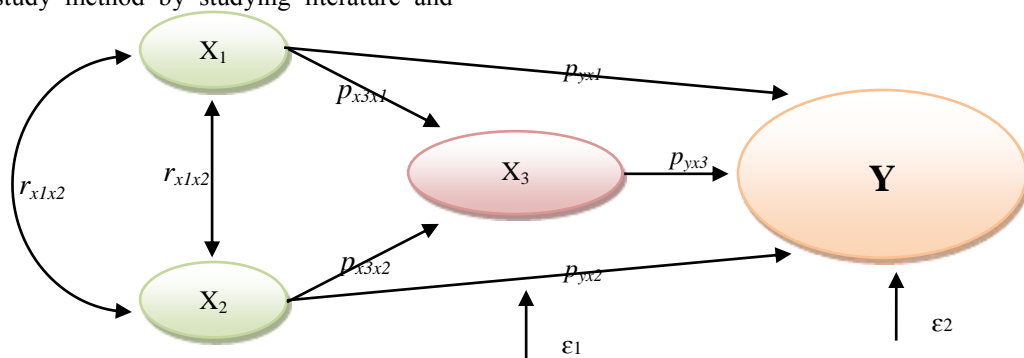


Figure 1.2 Structure of a Path Diagram

Regression models in this study are:

$$X_3 = \alpha + \rho_{x3x1}X_1 + \rho_{x3x2}X_2 + \epsilon_1 \dots\dots\dots \text{(Substruktural 1)}$$

$$Y = \alpha + \rho_{yx1}X_1 + \rho_{yx2}X_2 + \rho_{yx3}X_3 + \epsilon_2 \dots\dots\dots \text{(Substruktural 2)}$$

Dimana :

- Y = Tax Avoidance
- X<sub>1</sub> = Company Size
- X<sub>2</sub> = Profitabilitas
- X<sub>3</sub> = Leverage



$\rho$  = Path coefficient

$\epsilon_1$  = Error

$\alpha$  = Konstanta

In this study, the significance level ( $\alpha$ ) of 0.05 or 5% was used. This multiple regression analysis was carried out with the help of the SPSS (Statistical Package For Social Sciences) Release 25.0 for Windows program so that the coefficient of determination, the statistical value of F and the statistical value of t were used in hypothesis testing.

### Sobel test and Bootstrapping test.

Sobel test is done by testing the strength of the indirect effect of the independent variable (X) to the dependent variable (Y) through the intervening variable (Z). An alternative approach to test the significance of mediation using bootstrapping techniques. Bootstrapping is a non-parametric approach that does not assume the shape of the variable distribution and can be applied to a small

sample size. Heyes and Preacher (2004) in Ghozali (2013) have developed a sobel and bootstrapping test in the form of SPSS script 25. The hypothesis is that exogenous variables individually influence indirectly on endogenous variables. Basis for Decision Making: 1) If the probability counts > t table then the hypothesis is accepted; 2) If the probability is tcount < ttable, the hypothesis is rejected. (Ghozali, 2013)

## RESEARCH RESULTS AND DISCUSSION

### Research Data Description

Descriptive statistical results about the research variables are presented in table 1.2. From this table we can find information about the average, maximum value, minimum value and standard deviation.

**Table 1.2 Descriptive Statistics Results**

Variabel	Min	Max	Mean	Std. Deviation
Company Size	28,84	32,45	30,58	0,749
Profitability	0,01	0,24	0,07	0,042
Leverage	0,22	0,84	0,56	0,155
Tax Avoidance	0,00	0,49	0,15	0,145

Source: Data processed (2019)

Based on table 1.2 above, it can be presented descriptive statistical results about the research variables as follows: Firm size variables have an average value of 30.58 trillion with a standard deviation value of 0.749 trillion, which shows the level of variation in the distribution of data. Company size variables range from the lowest value of 28.84 trillion, the Bekasi Fajar Industrial Estate company in 2013 to the highest value of 32.45 trillion, namely the Waskita Karya (Persero) Tbk company. in 2018.

The profitability variable proxied by ROA has an average value of 0.07 (7%) with a standard deviation value of 0.042 (4.2%), which indicates the level of variation in the data distribution. The profitability variable ranges from the lowest value of 0.01 (1%), namely the company Sentul City Tbk. in 2015 up to the highest value of 0.24 (24%), the Bekasi Fajar Industrial Estate company in 2013. The average value of ROA of 0.07 indicates that the return on corporate profits to investors is 7%.

The leverage variable has an average value of 0.56 (56%) with a standard deviation of 0.155 (15.5%), which indicates the level of variation in the data distribution. The leverage variable ranges from

the lowest value of 0.22 (22%), the Bekasi Fajar Industrial Estate company in 2014 to the highest value of 0.84 (84%), namely the Adhi Karya (Persero) Tbk company. in 2014.

The average value of the Tax Avoidance variable which is proxied by cash effective tax rates (CETR) has an average of 0.15 (15%) with a standard deviation of 0.145 (14.5%) which shows the level of variation in the data distribution. Tax Avoidance variable ranges from the lowest value of 0 (0%), namely Sentul City Tbk company. in 2016 up to the highest value of 0.49 (49%), namely the Adhi Karya (Persero) Tbk company. in 2016.

### Classic assumption test

#### Normality test

Testing for normality using the Lilliefors test. Provisions in the error test are if the statistic L count < L table ( $\alpha = 0.05$ ), then the error data is normally distributed. But if L count > L table ( $\alpha = 0.05$ ), then the data is not normally distributed. The calculation results are as follows:



**Table 1.3 Summary of the Normality Test**

No	Taksiran	n	L Hitung	L Tabel		Keputusan
				$\alpha = 0,05$	$\alpha = 0.01$	
1	X3 atas X1	78	-0,0686	0,1003	0,1167	Normal
2	X3 atas X2	78	-0,0686	0,1003	0,1167	Normal
3	Y atas X1	78	0,0269	0,1003	0,1167	Normal
4	Y atas X2	78	0,0119	0,1003	0,1167	Normal
5	Y atas X3	78	-0,1048	0,1003	0,1167	Normal

Source: Data processed (2019)

**Homogeneity Test**

Another requirement for using path analysis is that the verifiable variance bound to the independent variable must be homogeneous. Homogeneity variance testing is done through SPSS and Excel

using the Barlett test. A homogeneous variance is produced when  $\chi^2$  arithmetic  $< \chi^2$  tables. Thus overall the homogeneity test calculation results can be seen in the summary in the following table:

**Table 1.4 Summary of Homogeneity Tests**

No	Galat Taksiran	X <sup>2</sup> <sub>h</sub>	df	X <sup>2</sup> <sub>t</sub>	Keputusan
1	X3 atas X1	22,282	49	66,339	Homogen
2	X3 atas X2	8,559	60	79,082	Homogen
3	Y atas X1	38,673	49	66,339	Homogen
4	Y atas X2	11,767	60	79,082	Homogen
5	Y atas X3	35,846	39	54,572	Homogen

Source: Data processed (2019)

**Test Path Analysis**

Path analysis is used to analyze the pattern of relationships between variables with the aim of finding out the direct and indirect effects of a set of

independent (exogenous) variables on the dependent variable (endogenous). From the data processing through the SPSS program the following results are obtained:

**Tabel 1.5 Hasil Analisis Jalur**

Information	$\rho$	T <sub>hitung</sub> <sub>g</sub>	Sig	T <sub>tabel</sub>	R <sup>2</sup>	F <sub>hitung</sub>	Sig
Sub-Structure 1				1,665	0,132	5,684	0,005
Company Size	0,250	2,165	0,034				
Profitability	-0,188	-1,630	0,107				
Sub-structure 2				1,665	0,425	18,257	0,000
Company Size	-0,272	-2,798	0,007				
Profitability	-0,007	-0,072	0,942				
Leverage	0,684	7,236	0,000				

Source: Data processed (2019)

Based on the results of the path analysis in Sub-Structure 1, the path coefficient of firm size and profitability to leverage is 0,250, and -0,188 with the coefficient reflected or the contribution of company size and profitability to leverage is (Rsquare) = 0.132, which means that 13.2% Leverage can be explained by company size and profitability variables. The amount of residual coefficient ( $\rho_{\epsilon 1} = \sqrt{1-0.132}$ ) = 0.932 or 93.2% is the influence of other variables beyond company size and profitability. While the

path analysis results in Sub-Structure 2 obtained the path coefficient of firm size variables, profitability and leverage on Tax Avoidance of -0.272, -0.007, and 0.684, with the coefficient reflected or the contribution of company size variables, profitability and leverage to Tax Avoidance are (Rsquare) = 0.425, which means that 42.5% Tax Avoidance can be explained by variables of company size, profitability and leverage. The amount of residual coefficient ( $\rho_{\epsilon 2} = \sqrt{1-0.425}$ ) = 0.758 or 75.8% is the





influence of other variables outside the company size, profitability and leverage variables. The results of the path coefficients in sub-structure 1 and sub-structure 2 produce structural equations, as follows:

$$X_3 = 0,250X_1 - 0,188X_2 + 0,932E_1 \text{ dan } R^2_{x_3x_2x_1} = 0,132$$

$$Y = -0,272X_1 - 0,007X_2 + 0,684X_3 + 0,758E_2 \text{ dan } R^2_{yx_3x_2x_1} = 0,425$$

### Hypothesis test

#### Company size has a direct effect on leverage

Based on the calculation results it can be seen that the value of the path coefficient ( $px_{3x1}$ ) of 0.250 with  $t_{count} = 2.165$ , at  $\alpha = 0.05$  obtained  $t_{table} = 1.665$ . Because the value of  $t = 2.165$  is greater than  $t_{table} = 1.665$ , the path coefficient is significant. The results showed that company size had a direct effect on leverage by  $(0,250 \times 0,250 \times 100\% = 6.25\%$ . Thus  $Ha_1$  was accepted.

#### Profitability has a direct effect on leverage

Based on the calculation results, it can be seen that the value of the path coefficient ( $px_{3x2}$ ) of -0.188 with  $t_{count} = -1.630$ , at  $\alpha = 0.05$  obtained  $t_{table} = 1.665$ . Because the value of  $t = -1.630$  is smaller than  $t_{table} = 1.665$ , the path coefficient is not significant. The results showed that profitability had no direct effect on leverage. Thus  $Ha_2$  rejected.

#### Company size has a direct effect on Tax Avoidance

Based on the calculation results it can be seen that the value of the path coefficient ( $pyx_1$ ) of -0.272 with  $t_{count} = -2.798$ , at  $\alpha = 0.05$  obtained  $t_{table} =$

1.665. Because the  $t$ -value = -2.798 is greater than  $t_{table} = 1.665$ , the path coefficient is significant. The results showed that company size had a direct effect on Tax Avoidance of  $(-0,272 \times -0,272 \times 100\% = 7.40\%$ . Thus  $Ha_3$  was accepted.

#### Profitability has a direct effect on Tax Avoidance

Based on the calculation results it can be seen that the value of the path coefficient ( $pyx_2$ ) of -0.007 with  $t_{count} = -0.072$ , at  $\alpha = 0.05$ , obtained  $t_{table} = 1.665$ . Because the  $t$ -count = -0.072 is smaller than  $t_{table} = 1.665$ , the path coefficient is not significant. The results showed that profitability had no direct effect on tax avoidance. Thus  $Ha_4$  was rejected.

#### Leverage has a direct effect on Tax Avoidance

Based on the calculation results it can be seen that the value of the path coefficient ( $pyx_3$ ) of 0.684 with  $t_{count} = 7.236$ , at  $\alpha = 0.05$  obtained  $t_{table} = 1.665$ . Because the value of  $t = 7.236$  is greater than  $t_{table} = 1.665$ , the path coefficient is significant. The results showed that Leverage directly influenced Tax Avoidance by  $(0.684 \times 0.684 \times 100\% = 46.79\%$ . Thus  $Ha_5$  was accepted.

### Mediation Factor Testing

To test the significance of the indirect effect, it can be done by comparing the  $Z$  value of the calculated  $ab$  coefficient with the  $Z_{table}$  value of 1.96. If the value of  $Z_{hitung}$  is greater than the value of  $Z_{table}$ , it can be concluded that there is a mediating effect (Ghozali, 2013). The calculation of mediation factor testing will be explained as follows:

### 1. The influence of leverage in mediating the relationship between company size and tax avoidance

**Table 1.6 Results of Mediation Test with Sobel Test**

DIRECT AND TOTAL EFFECTS				
	Coeff	se	t	Sig (two)
b(YX)	-0,0102	0,0222	-0,4596	0,6471
b(MX)	0,0656	0,0225	2,9197	0,0046
b(YM.X)	0,6440	0,0867	7,4257	0,0000
b(YX.M)	-0,0524	0,0170	-2,9285	0,0045
INDIRECT EFFECT And SIGNIFICANCE USING NORMAL DISTRIBUTION				
	Value	se	z	Sig (two)
Effect	0,0422	0,0157	2,6961	0,0070

Source: Data processed (2019)

Testing the significance of indirect effects with the Sobel test obtained  $z$  values = 2.6961 and  $p = 0.0070$ . Because  $z$ -value in absolute price > 1.96 and the level of statistical significance  $z$  ( $p$ -

value) < 0.05, it means that there is an effect of leverage mediation on the relationship between company size and Tax Avoidance.

**2. The effect of leverage in mediating the relationship between profitability and tax avoidance****Table 1.7 Results of Mediation Test with Sobel Test**

DIRECT AND TOTAL EFFECTS				
	Coeff	se	t	Sig (two)
b(YX)	-0,3444	0,3969	-0,8676	0,3884
b(MX)	-1,0295	0,4078	-2,5242	0,0137
b(YM.X)	0,5825	0,0900	6,4707	0,0000
b(YX.M)	0,2553	0,3332	0,7662	0,4459
INDIRECT EFFECT And SIGNIFICANCE USING NORMAL DISTRIBUTION				
	Value	se	z	Sig (two)
Effect	-0,5997	0,2576	-2,3276	0,0199

*Source: Data processed (2019)*

Testing the significance of indirect effects with the Sobel test obtained z values = 2.3276 and p = 0.0199. Because z-value in absolute price > 1.96 and level of statistical significance z (p-value) < 0.05, it means that there is an effect of leverage mediation on the relationship between profitability and Tax Avoidance.

**DISCUSSION****Company size has a direct effect on leverage**

Testing hypothesis 1 proves that firm size has a direct effect on leverage in a positive direction. This means that the larger the size of the company, the higher the level of debt use, and the larger the size of the company, the greater the funding needs and the company can do debt to fund it. So, debt will increase as company size increases. Larger companies have more facilities in entering the market to get external financing.

According to Angelina & Mustanda (2016), company size is one of the factors that considers companies in determining how large a funding decision policy is in meeting the size or size of a company's assets. The larger a company, the greater the funds that will be issued by the company, both in the form of debt policy or own capital in order to maintain or develop the company. So it can be said that large companies are more likely to use larger loans than smaller companies. Therefore, the larger the company, the greater the debt it has.

This research is in line with research conducted by Dewi & Sulismiyati (2018), and Kadim & Sunardi (2019) which states that company size has a positive effect on leverage.

**Profitability has a direct effect on leverage**

Hypothesis testing 2 proves that profitability has no direct effect on leverage in a negative direction.

This means that with the company's profitability getting smaller cannot increase the company's leverage. Profitability does not affect leverage because companies that have a high level of profit will use retained earnings or their own capital to meet the needs of company funds on the grounds that the level of debt used by the company has reached the maximum limit so that the company cannot withdraw the source of funds anymore from debt. This is in accordance with the pecking order theory that the company in a state of need of funds and the main priority is to use internal funding. The results of this study support the research conducted by Dewi & Sulismiyati (2018) which states that profitability does not have a significant effect on leverage proxied by DER. But not in line with research conducted by Kadim & Sunardi (2019) which states that profitability has a positive effect on leverage.

**Company size has a direct effect on Tax Avoidance**

Testing hypothesis 3 proves that firm size has a direct effect on Tax Avoidance in a negative direction. This means that the smaller the size of the company, the Tax Avoidance will be lower. The results of this study are in line with the results of research conducted by Dewinta & Setiawan (2016), Oktamawati (2017) and Pratiwi (2019) which states that company size has a significant effect on Tax Avoidance. According to Ngadiman & Puspitasari (2014), the larger the size of the company, the lower the CETR it has because large companies are better able to use their resources to make a good tax planning (political power theory). Managers of large companies tend to choose accounting methods that defer reported profits from the present period to future periods in order to minimize reported profits. Large companies have more and more complex corporate operating activities so that there are gaps to be utilized in tax avoidance decisions. While small companies that have limited activities and are a bit



difficult to do Tax Avoidance. However, the results of this study contradict the results of research conducted by Cahyono, et al (2016) and Nengsih, et al (2018) which states that company size does not have a significant effect on Tax Avoidance.

### **Profitability has a direct effect on Tax Avoidance**

Testing hypothesis 4 proves that profitability does not directly influence the Tax Avoidance in a negative direction. This means that the low or high profitability of the company does not affect the high or low Tax Avoidance. Profitability has an effect on Tax Avoidance because a company that has high ROA means being able to carry out its operations efficiently and by the government this will be rewarded by providing a lower effective tax rate compared to companies that operate less efficiently (tax subsidy). In other words, companies that have high ROA will be obliged to pay higher taxes so that company management has a tendency to do Tax Avoidance, even reducing the possibility of doing Tax Avoidance.

In addition, the higher the profitability, the lower the tax avoidance company means the company can pay taxes according to regulations, high-income companies so to issue or pay taxes there is no problem because it has sufficient cash flow to pay taxes. So, companies do not have to hide to avoid tax avoidance, the sample used by public companies means that every manager's actions can be monitored by shareholders and shareholders are happy with high profits so that the price of share earnings is high. There may be efforts by managers to avoid taxes that can damage the reputation of the company if the tax authorities find out, if the reputation decreases the share price will also decrease. So companies do not avoid taxes even though high profitability.

The results of this study are in line with the results of research conducted by Dewinta & Setiawan (2016), Oktamawati (2017), Cahyanti, et al (2017) and Nengsih, et al (2018) which states that profitability has an effect on Tax Avoidance. However, the results of this study contradict the results of research conducted by Permata, et al (2018), and Murwaningtyas (2019) which states that profitability has no significant effect on tax avoidance.

### **Leverage has a direct effect on Tax Avoidance**

Testing hypothesis 5 proves that leverage has a direct effect on Tax Avoidance in a positive direction. This means that the higher the leverage, the higher the Tax Avoidance. Leverage has a positive effect on

Tax Avoidance because debt that results in the emergence of interest expense can be a deduction from taxable profit, while dividends derived from retained earnings cannot be a deduction from profit. Interest expense that can be used as a deduction for taxable profit is the interest expense arising from loans to third parties or creditors who have no relationship with the company (Oktamawati, 2017).

The results of this study are in line with the results of research conducted by Oktamawati (2017), Nugraha & Mulyani (2019), which states that Leverage affects Tax Avoidance. However, the results of this study contradict the results of research conducted by Dewinta & Setiawan (2016), Cahyono, et al (2016), and Permata, et al (2018) which states that leverage does not have a significant effect on tax avoidance.

### **CONCLUSIONS**

Based on the results of the analysis conclusions can be drawn as follows: 1) Firm size directly affects Leverage in a positive direction, 2) Profitability does not directly affect leverage in a negative direction; 3) Company size has a direct effect on Tax Avoidance in a negative direction; and 4) Profitability has no direct effect on Tax Avoidance in the negative direction, and 5) Leverage has a direct effect on Tax Avoidance in a positive direction.

### **SUGGESTIONS**

Considering the existing limitations, it is expected that future research will improve the following factors: 1) For the Directorate General of Taxes, the results of this study are expected to be used as a reference for evaluation and input for the improvement of the General Taxation Provisions Act in various aspect. Specifically so that corporate taxpayers do not practice tax avoidance; 2) For investors, the results of this study are expected to provide input for practitioners in making decisions and be taken into consideration when investing capital in a company; and 3) For practitioners, the results of this study are expected to provide input for the government in making policies in the field of taxation so as to minimize the practice of tax avoidance on manufacturing companies listed on the Indonesia Stock Exchange.

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## **ANALYSIS OF AML/ CFT RISKS ASSESSMENT REVEALED BY OFFICE CONTROL**

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### **ABSTRACT**

*Tax evasion takes various forms, such as hiding objects of taxation, reducing the tax base. As a rule, such manipulations are carried out through distortions of tax and financial reporting data. Such concealments and distortions, in addition to the above risks, lead to the lack of an adequate picture of the state of the economy in the state as a regulator and the business environment, which in turn negatively affects the effectiveness of socio-economic policies of various kinds and levels;*

**KEYWORDS:** *cameral control, models, false, reporting, risk.*

### **INTRODUCTION**

Tributes are the main source of replenishment of the state budget and an important tool for regulating social and economic processes. However, they have also a significant impact on the economic activities of enterprises. Since taxes are an integral part of the financial and economic life of enterprises, often managers and other beneficiaries of economic activities seek to minimize tax payments. This is expressed in the desire to organize their financial and economic activities in such a way that tax liabilities do not arise or are minimal. Such aspirations are expressed not only in tax planning, but also often in distorted information about the results of the economic activity of the enterprise.

### **PURPOSE OF THE STUDY**

Study of methods of conducting desk control using a risk-based approach in order to identify and suppress tax violations as predicate crimes in the framework of combating money laundering, terrorist financing and financing the proliferation of weapons of mass destruction.

### **RESEARCH METHODOLOGY**

To study and analyze methods of checking tax and financial statements in the framework of combating money laundering, financing of terrorism and financing the proliferation of weapons of mass destruction, methods of economic group analysis, observation, analysis, synthesis and others are used.

### **STUDY ANALYSIS**

Their works of A.G. Titizyan, J.M. Korzovantkykh, L.G. Lopasteyskaya, Y.Petrova, M.D. Benish, S. Lee, D.S. Nichols, B.I. Isroilov, Z.N. Kurbanov and B.B. Ibragimov showed the procedure and ways of analyzing tax and financial reporting in order to combat money laundering and tax control.

### **ANALYSIS AND RESULTS**

Despite a relatively wide range of forms of imposition control, tax audits are the main ones. The latter are divided into visiting and service. Such their importance is primarily due to the fact that other forms of control are most often directly related to the activities carried out as a result of field and office tax audits.

The main types of tax control are in-house control and on-site tax audits. On-site inspections are the most effective way to achieve tax control objectives, but this form of tax control is extremely time consuming and resource intensive. First of all, man-hours. The risk of corruption is also increased by direct contact of tax authorities with taxpayers in a poorly controlled situation. Another drawback of this form of tax control is the strong impact on the business activities of economic entities for a fairly long time, caused by such an audit. This, in turn, leads to a deterioration in the business environment and puts pressure on private initiative.

In the context of on-site inspections, coverage is reduced due to the complexity and length



of inspections. On the contrary, cameral control is able to cover all business entities that submit tax reports.

In this regard, the most important task is to create and organize such a tax control system that will increase the effectiveness of cameral control, and resort to field inspections only in cases of extreme necessity, thereby saving the resources of the tax authorities and increasing the efficiency of the tax control measures in general.

The outcome of most actions cannot be accurately predicted. This may be due to ignorance of possible outcomes, which is an extreme case of uncertainty about future events. As knowledge expands, uncertainty about future outcomes can be expressed in terms of the likelihood of their occurrence. In this case, uncertainty turns into risk. Uncertainty is largely determined by the factor of chance. Randomness is something that does not happen in the same way under similar conditions and therefore cannot be foreseen or predicted in advance. However, with a large number of observations of accidents, certain patterns can be found. Due to the fact that random events during the observation process can be repeated with a certain frequency, this frequency can be measured as the ratio of the number of occurrences of an event and a similar result to the total number of observations. This frequency usually has statistical stability of appearance in the sense that with a large number of observations, its value does not change much. The repeatability options for a random event are, as it were, grouped around a certain number. To study these patterns, the mathematical apparatus uses probability theory and econometric methods.

The concept of risk in the theory of applying a risk-based approach is considered in connection with concepts such as threat, vulnerability and consequences.

A threat is something (a person, a group of people, an action or a phenomenon) that has the potential to harm something (a state, a company or individuals) [1].

Vulnerability - areas in which a threat can be realized or that facilitate and facilitate the realization of a threat [1].

Consequences - damage, harm or negative impact arising from the implementation of the threat and the emergence of risks [1].

Risk is the likelihood of a threat being realized and the number of potential consequences. Risk can be also expressed as the product of the probability of occurrence of damage and the quantitative expression of the sum of the consequences [1].

In the modern socio-economic system with widespread globalization, the risks of money laundering and economic crime are becoming an

increasingly urgent problem. The development of economic relations contributes to an increase in demand and the development of investment instruments [2]. Considering all of the above, there is a need to study the issues of identifying, analyzing and assessing AML / CFT risks in investment projects.

Modern trends in the development of both the economic relations themselves, and the development of methods and ways of committing illegal transactions and methods of concealing them, as well as legalization of income received from them.

In this regard, it is worth noting and highlighting certain signs of identifying taxpayers that are risky in terms of ML / FT.

Taxes are inherently the main source of the state budget. Concealing and / or evading taxes is a tax and, in some cases, a criminal offense.

For the full application of the risk-based approach in office control, it is necessary to define specific narrow areas of office control. They are associated primarily with the assessment of the level of risk of tax violations by taxpayers.

It is necessary to determine the criteria and signs of suspicious taxpayers and the level of likelihood of tax violations.

These signs include:

1. Systematic tax arrears;
2. Systematic filing of recalculations in tax reporting;
3. Systematic change of legal address;
4. Use of payment terminals owned by other persons;
5. Results of previous inspections of the enterprise;
6. Complaints of individuals and legal entities about violations of the law;
7. Continuous reflection of losses in financial statements;
8. The tax burden differs from the industry average;
9. Sale of export goods at discounted prices;
10. Transfer of large amounts of funds to the accounts of organizations that do not operate or within the framework of a criminal case;
11. Suspicion of a manipulation report.

Based on these criteria, it is possible to assess the level of risk of both each taxpayer and individual industries and regions.

These criteria can be used to compose various systems for assessing the level of risk of evasion of various taxpayers.

First of all, you can compose the nominal values for each of the criteria to give them different quantitative estimates, for example:

- Systematic tax arrears - 4;
- Systematic submission of recalculations in tax reporting – 1;



- Systematic change of legal address – 2;
  - Use of payment terminals owned by others – 5;
  - Results of previous inspections of the enterprise; cases of detected violations during inspections – 5;
  - Results of previous inspections of the enterprise; cases of revealed violations during inspections – 2;
  - Continuous reflection of losses in financial statements – 2;
  - Tax burden differs from the industry average – 2;
  - Sale of export goods at reduced prices – 3;
  - - Transfer of large amounts of funds to the accounts of organizations that are inactive or are within the framework of a criminal case – 3;
  - Suspicion of a manipulation report – 1;
- After that, you can summarize the assessments and, according to the final assessment, rank taxpayers according to the degree of risk.

- 1). Low - 0-3 points;
- 2). Medium - 4-15 points;

- 3). High - 16 and above.
- You can also apply the risk matrix method. Signs of high risk include signs such as:
1. Use of payment terminals owned by other persons;
  2. Negative results of previous inspections of the enterprise;
  3. Sale of exported goods at reduced prices.

- Medium risk characteristics can be defined as:
1. Systematic tax arrears;
  2. Systematic change of legal address;
  3. Systematic filing of recalculations in tax reporting;
  4. Transfer of large amounts of funds to the accounts of organizations that do not operate or within the framework of a criminal case.

- There are signs with a low level of risk:
1. Complaints of individuals and legal entities about violations of the law;
  2. Reflection of losses in financial statements;
  3. The tax burden differs from the industry average;
  4. Suspicion of a manipulation report.

**Table 1 - Risk matrix**

Feature / Detection frequency	Signs from the high-risk group	Signs from the medium risk group	Low-risk signs
Higher frequency	HF	HF	AF
Average frequency	HF	AF	LF
Low frequency	AF	LF	LF

You can also use the following formula:

$$Trc = (ND + NS + NT + NCha + NNch + NC + NRi + NrR + NSrBR) / (SDTb + SEp + MTo + ATS + OT), \tag{1}$$

Where:

- Trc – Tax risk coefficient;
- ND – The number of facts of debt for each tax in each period;
- NS– The number of cases of application of tax sanctions for each tax for each period (Additional charges, fines and penalties)
- NT – The number of revealed facts of the use of payment terminals owned by other persons;
- NCha – Number of legal address changes;
- NNch – The number of negative results of all types of checks;
- NC– The number of complaints from individuals and legal entities about violations;
- NRi – Number of reporting with losses;
- NrR – Number of refusals for VAT refunds;
- NSrBR – Number of submission of reports found to be suspicious by the Benisha and Roxas model;
- SDTb – The sum of the difference in the tax burden from the industry average (in absolute terms)
- SEp– The amount of the sale of exported goods at reduced prices;
- MTo – The amount of money transfers to the accounts of organizations that are inactive or within the framework of a criminal case;
- ATS – The amount of applied tax sanctions for all taxes for all periods;
- OT – The amount owed for all taxes for all periods.

You can also use the following formulas to assess risk:

$$Ko = NSrBR / NoT,$$

Where:

- Rr – Reporting ratio;
- NSrBR – Number of submission of reports found to be suspicious by the Benisha and Roxas model;



NoT – Number of reporting total.

$$Ir = \text{NNch} / \text{Nch},$$

Where:

Ir – Inspection rate;

NNch - The number of negative results of all types of checks;

Nch– The number of checks of all types of everything.

Then the calculated coefficients must be included in the following formula:

$$\text{Tax risk} = Ir * AO + Nch * \text{ATS},$$

Where:

AO – The amount owed;

ATS – The amount of tax sanctions.

You can also use the following formula to evaluate the performance of the Benish and Roxas model:

$$\text{FmBR} = \text{NSrBR} / \text{NIvHI},$$

Where:

FmBR – Benish and Roxas model efficiency factor;

NSrBR - Number of submission of reports found to be suspicious by the Benicha and Roxas model;

NIvHI – The number of in-house inspections with identified and admitted violations.

(3)

(4)

(5)

## CONCLUSION

The proposed methods for assessing the effectiveness of internal control will assess the risk from the point of view of assessing taxpayers for the likelihood of committing tax offenses.

It will also allow assessing, based on the results of tax audits and the results of tax control, the effectiveness of both desk and tax control in general in identifying and suppressing tax offenses.

Due to the simplicity and as a consequence of the flexibility of the proposed methods, by changing the variables, it will be possible to adjust the models to the current applied goals and conditions.

Also, the flexibility and simplicity of the models will allow, by changing the variables, to analyze and evaluate the effectiveness of cameral and tax control by regions and individual industries, depending on the selected data.

The developed models for assessing the riskiness of taxpayers will simplify the cameral control mechanism. It makes also possible to analyze and evaluate the effectiveness of the measures taken for office and tax control, which will allow, based on the analyzed information, to form appropriate conclusions based on the results. Thus, by optimizing the processes of office and tax control, increasing the potential for their development.

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# THE MAIN ISSUES OF KARAKALPAK LANGUAGE MORPHONOLOGY

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## ABSTRACT

*This article is devoted to important problems of morphonology of Karakalpak language. In these morphological phenomena researched differences of phonetic and morphological phenomena and morphonological unities.*

**KEYWORDS:** *phonology, phonetics, morphology, morphonology, morphological, phenomena, morphonemy, submorph.*

## DISCUSSION

The transformation of the Karakalpak language into an object of scientific research began later than other Turkic languages. It should be noted that scientific works on the Karakalpak language have been written since the 30s of the 20th century. Nevertheless, today the Karakalpak language has a well-known origin in Turkology. In achieving this result in the rapid development of Karakalpak linguistics N.A.Baskakov, S.E.Malov, E.D.Polivanov, S.Majidov, N.Davkarayev, Q.Ayimbetov, A.Kidirbayev, K.Ubaydullayev, A.Esemuratov, K.Berdimuratov, D.Nasirov, J.Aralbayev. As well as being the founders of Karakalpak linguistics, they also paid special attention to the training of future specialists in the Karakalpak language. As a result, E.Berdimuratov, G.Esemuratova, M.Davletov, E. Davenov, B.Kutlimuratov, H.Hamidov, A.Davletov, A.Najimov, who has been searching for the Karakalpak language since the 60s of the 20th century. A.Dospanov, M.Bekpergenov, O.Qalenderov, R.Embergenov, Sh.Abdinazimov, M.Ayimbetov and other scientists. Accordingly, the phonetics, lexicology, morphology, syntax, dialectology, history of language, and other fields of linguistics have been studied in detail. In addition to these achievements, there are many unorganized issues in linguistics. One of these is the issue of morphology. Morphonology is a small field of linguistics that began to take shape in the 1930s. The first work on the morphology of the Turkic languages began in the 70s of the 20th century.

According to T. Sadikov, who conducted research on the morphonology of the Kyrgyz language, the morphology of the Turkic languages is now in the process of formation. Even then, the subject and tasks of research in morphology, the interrelationship of phonology and morphology, the unity of morphology and other issues have not yet been sufficiently defined. V.N.Yarseva's idea that morphology is left to phonetists and grammarians in the organization of morphology has been left to phonetists (2.10). For example, elysium is studied in both phonetics and morphology. Turkic languages, including it, are agglutinative languages. In agglutinative languages, when morphemes are joined together, they do not have a different sound change, which is accepted in linguistics as one of their characteristic features. However, this sign is a puzzle arising from the comparison of agglutinative languages, including Turkic languages, with inflected languages. Research on the morphology of the Chuvash language conducted by I.P.Pavlov in Turkic linguistics. emphasizes the possibility of the emergence of new phonemes and gives examples of evidence for it. In fact, in the structure of morphemes in the language, when affixes are added to primitive morphemes other than the exchange of phonemes, which are historical developments (in all), there are phonetic changes that are difficult to explain for phonetic reasons, as well as phonetic changes[3,3].

For example: s-sh, g-k similarity in wind and wind gelle and kelle and other words; the appearance of the phoneme t in the suffix when the possessive suffix is added to the word dos (dos-





dosti); the reduction of base vowels when the possessive suffix is added to murin, belly, and other words; the appearance of n in the suffix when some horses and diamonds are seplengend: bu + da = bunda and other. In addition, in the process of word formation in the language qq, various phonetic changes occur in morphemes. For example: jila + yk = jilauyk and others. When suffixes are added to some base morpheme, various changes occur in the base: kizil + gish = kyzgysh and others. This means that when morphemes are added in Turkic languages, other changes appear in the syngormanian changes. Until recently, such changes were organized in the phonetics and morphology departments of the Turkic languages. However, they did not fully describe the types of changes in these sections. To date, several articles, monographs and dissertations on the morphology of Turkic languages have been written. However, the unity of research objects of morphology, the nature of morphological structures, the role of morphology in linguistics and other issues have not been clearly agreed upon by many.

According to N.S.Trubetskoy, morphology means the morphological use of phonological tools. Morphology Morphology, as a link in phonology, has a special place in the grammar of any language. Only languages with morphology may not have morphology. The founder of morphology, N.S.Trubetskoy. The term morphology, its objects also describe the goals and objectives of Used and marked by N.S.Trubetskoy himself [4,115].

N.S.Trubetskoy developed a theory of morphology. They are: 1) about the phonological structure of morphemes; 2) The theory of combinatorial sound change that occurs when morphemes are joined; 3) The theory of the exchange of sounds as a morphological function.

The morphemes of each language have phonological changes The phonological structure of morphemes has been studied as an important issue in morphology in written works on morphology.

The second theory According to N.S.Trubetskoy, it is an important part of the morphology of agglutinative languages. However, some scholars consider this issue to be phonetics. Later, N.S.Trubetskoy's theory gives rise to all sorts of ideas and views. The third theory is related to the morphological function and the exchange of sounds has been endorsed by most scholars in both Russian and Turkish morphology.

Another novelty N.S.Trubetskoy added to morphology was his theory of morphonema. The term morphonema was first introduced to linguistics by the Polish scholar P.Ulashin, who wrote: the term sound means the sound of nature; phoneme means the sounds of speech; the term morphonema means the service sound that separates me[5,58].

Thoughts of scientists on the concept of morphonema Aydirim scientists (A.A. Reformatsky) means a morpheme. Some consider the phoneme to be a unit of morpheme morphology of phonology. Morphoneme is a complex of interchangeable sounds in the construction of a morpheme. In the Uzbek language department, according to A.Abduezizov, many scientific articles show that it is convenient to use the term "morphoneme" instead of a word sequence for the exchange or change of phonemes in a morpheme. A morpheme is a formal concept higher than a phoneme[6,69,70].

Morphology has a submorphemic together with morphonema. In the construction of some words, there is an element that has little or no main meaning, but only an additional meaning. In Karakalpak linguistics such elements are called submorphemic terms We agree. The term submorphemic means two words sub higher than the Greek morph form bb above the morpheme bb. If one form of some phonemes is a morph in speech, it undergoes changes in historical developments for various reasons. It is expedient to call children, which occur in the construction of some words equivalent to a morpheme, in the form higher than the morpheme in terms of meaning and function. However, it is used as a submorphemic when the red book is called an interesting book. Thus, morphology-phonology between morphology and its devices can be used to learn language perfectly. It studies the exchanges of sounds in morphemes, the change of place, the re-emergence of sounds, and the decline of sounds. Morphology is the study of the phonological changes of morphemes, such changes cannot be explained only by phonetics or by the morphological order alone.

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# EFFECTIVE TECHNIQUES FOR CREATING EMOTIONALLY POSITIVE THE ATMOSPHERE IN TEACHING A FOREIGN LANGUAGE

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## ANNOTATION

*This article discusses about objectives of teaching a foreign language at the present stage of development of society, the concept of the educational process, moral culture, the reasons for the low efficiency of training, play - as a method of creating an atmosphere of goodwill in the classroom, developing imagination and creativity and the use of group and pair work promotes student cooperation and is an important positive factor.*

*What is teaching a foreign language at the present stage of development of society?*

*The goal category is one of the most important in philosophy. The goal is considered as one of the elements of human activity, transformation of the surrounding world, as an ideal anticipation of the result of activity.*

**KEY WORDS:** *Culture, technique, moral culture, foreign language, equal distribution, training, student, qualified personnel, pedagogy.*

## DISCUSSION

In teaching, the goal is a kind of intermediate link between the social and the methodological. Teaching foreign languages pursues a comprehensive implementation of practical, educational, educational and developmental goals: at the same time, educational, educational and developmental goals are achieved in the process of practical mastering of a foreign language. "A truly comprehensive approach to learning goals, as EI Passov notes, requires the introduction of all aspects as components of the goal on equal terms (education, cognition, development)."

Only in this case should the training system include special means to achieve these components of the goal. "Equal rights" means an equal distribution of time for all aspects, and their equality only in terms of significance for the formation of the student's personality. Let's consider in more detail the concept of the educational process. In the modern

process of humanization of society, understanding a person as an intrinsic value, which cannot act as a means for someone, but can only be a goal, and for society - an end in itself of social development, there is an acute problem of educating a person as a person capable not only of mastering the values of culture, and who knows how to navigate in the system of social values, but also to be the subject of his life, the strategist of his own destiny, and therefore to be responsible, including for personal safety. Education - purposeful organization of the student's interaction with the outside world at the level of the achievements of modern culture.

The fundamental procedurality of upbringing is that upbringing appears as an independently related system of activities of the educator and the pupil, based on a dynamically changing system of relations, selectively established by the participants in the educational process; as a fundamentally unfinished process of ascent of a pupil and a teacher to the highest levels of being, the



development of their socio - cultural intellectual potential, moral improvement. What is this interaction?

Actually, subject-object relations are a condensed invariant formula of the integral pedagogical process (educator and student).

What principles formed the basis of the educational process?

1. Taking into account the social situation of the child's development;
2. Transformation of education into a continuous innovation process;
3. Abandoning the idea that you can change a child's life. The only thing that a teacher can help a little person make a choice in a particular situation at the cultural level.

The goal of the process of value interaction organized by the teacher is to move towards an unrecorded result. The "measure of movement", the comprehension of cultural values will be different for each student. The only thing that a student is not allowed to do is stop, lack of development. Constant comprehension of Goodness, Beauty, Truth. The result of the school's activity is the upbringing of a person who is ready for constant change, the development of human culture, capable, on the basis of assimilating modern culture, to continue the relay race of generations.

In this regard, the following system of measures can be proposed. In this regard, the following system of measures can be proposed.

During the school year at school, it is necessary to conduct a micro-survey to study the level of education of students. It often shows that the level of education of students is low: students lack the skills of cultural behavior, and they do not always behave correctly in relation to teachers and each other, do not know the basics of life safety. Therefore, it is necessary to develop an algorithm for extracurricular work: a cyclogram of excursions, school-wide activities, class hours (situational, thematic class hours "Get away from trouble", "What is self-control?" "Behavior has consequences", meetings with a traffic police inspector, to correct student behavior, including in emergency situations), planning the life of the classroom for a month with subsequent assessment and analysis. Forms of events can be individual and different for the whole class, group. Collaboration with scientific and methodological centers is required. If these conditions are met, it is possible to achieve the education of the morality of the growing person.

A didactic game in a foreign language lesson helps the child to realize important moral signs of communication, such as kindness, love for one's neighbor, mutual assistance. Play is an effective educational tool. She is one of the ways children

learn about the world, reality. In play, the child comprehends and experiences important social events. In the game, the emotions of children are especially clearly manifested and formed, useful skills, skills and habits, new knowledge are acquired. The child is able to memorize linguistic material in whole blocks, as if "imprinting" it into memory. ... But this happens only when he has created the appropriate setting and it is very important for him to master this or that material. This happens most easily in the game. If in order to achieve success in a game, a child needs to perform some kind of speech action, then it is mastered almost without effort. Play creates a wonderful natural environment for language acquisition at any age, but it is especially productive in early school years. At this age, play is a way of introducing adults to the world, a way of knowing. Games for teaching a foreign language are widely used. Classes are structured so that the atmosphere of the game reigns on them from the first to the last minute. What games and at what stages of the lesson is it advisable to conduct? Competition games, travel games, training games, game situations, association games, games that develop certain mental processes: memory, observation, attention, reaction speed. In the game, the child learns to use the knowledge gained in new conditions that activate him as much as possible, thereby helping him to better consolidate the learned material. This form of work supports children's interest in learning and develops it. The group and pair form of work in the lessons of a foreign language is no less effective in educational and educational terms. The use of this type of activity as a means of developing students' independence contributes to their meaningful cooperation with each other in the lesson, which is undoubtedly of interest. In this case, having a communication partner is an important positive factor. Working in pairs contributes to the formation of automated language skills. The teacher stimulates the work of students with positive evaluative remarks. Pair and group work contributes to the development of the ability to conduct a conversation, listen and speak oneself, recalling the studied structures and vocabulary, evaluate their achievements, comparing them with the activities of comrades, and exercise self-control. The group can include students on the basis of common interests, personal relationships. Pair work is usually preceded by a sample showing: the teacher conducts a conversation with one of the students, then invites the children to start completing the assignment. After a short period of time, the teacher asks one pair from each group for assessment. Exercises with keys for self-control can be used for independent work in pairs and individual work in the classroom. Or one of the students of each pair receives the text of the exercise (stimuli and patterns of reactions to them,



that is, keys) and acts in the role of a teacher, the second in the role of a student. After completing half of the exercise, they switch roles. In independent work in the classroom, the student himself reads the stimuli one by one and, without looking into the text, reacts to them, and then checks his answer with the key. When studying a foreign language, good results are given by the following forms of work:[8,217] a) competition between two teams, including various tasks, including staging a dialogue;

b) thematic conferences on the development of conversational skills using ICT, visual aids, additional literature;

c) thematic conferences, the purpose of which is to summarize the results of the frontal reading.

Pedagogical contact is inextricably linked with such a component of the modern methodological and pedagogical norms as the successful interaction of the teacher and students in educational work. The age-related needs of adolescents in the development of generalized methods of mental activity are met by all those forms of work that imply hierarchy and causal dependences of information elements, highlighting the main thing, etc. Schoolchildren are characterized by such a state of mind as expectation of communication, the search for communication. They see it as evidence of their social and human worth. In such conditions of personality self-expression, a real speech task arises, as well as communicative motivation, which ensures a person's proactive participation in communication. Thus, the choice of rational forms of organizing the educational process is of paramount importance. Often the teacher sees two aspects: how is the assimilation of the program going and what the child's behavior is. An unequal substitution of education and training took place. Valeologists, physiologists, hygienists, believe that the child should be seen as a whole; his mental, physical and functional state.[7,305] It is necessary to take into account the influence of the whole complex of factors.

External - social conditions of life, ecology, school impact, pedagogical impact. Internal - health, changes at each age stage; the load with which schooling is associated must correspond to the capabilities of the growing organism.

The educational process itself is often built without taking into account physiology and hygiene. It is necessary to outline a framework within which the educational process is effective and coincides with the capabilities and characteristics of the student. The reasons for the low effectiveness of training should be sought in the fact that teaching methods, tactics, training programs do not always correspond to the physiology of the age for which they are designed. It is impossible to identify homogeneous groups of

students; there are as many classes as there are children. The division of children into groups (strong and weak) generates social disaffection. The creation of a situation of "joy", "success", emotional and psychological support in school, classroom is a requirement of the time. It is important to implement health-preserving technologies in the upbringing and educational process: lessons must be built taking into account the age-related physiological characteristics of children with frequent changes in activities and physical culture minutes, dynamic pauses. In order to strengthen and preserve the health of students and form them the necessary skills for a healthy lifestyle, sanitary and hygienic requirements should be systematically fulfilled (airing the office, observing the light regime, etc.); take into account the hygienic conditions of the office, pay attention to the correct seating of students during the lesson, take into account the recommendations of the medical worker of the educational institution. Lessons should be structured optimally comfortably for students, so that the study load does not contradict regulatory and legal requirements, teaching methods are selected taking into account the preservation of the psycho-emotional and physical health of students, a high level of general performance. We must remember that there is no ideal technique. Children are so different, their individual characteristics are so obvious and essential that one must always remember that only an idea can be one, and the tactics and methods of teaching must be different.

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# BALANCED SCORE CARD AND ORGANISATIONAL SUCCESS OF SMES IN RIVERS STATE

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## ABSTRACT

*The impact of the balance scorecard on the success of small and medium-sized enterprises in Port Harcourt, Rivers State, was examined in this study. Ex Post Facto research design was adopted and data was collected in Port Harcourt, Rivers State, from annual reports and accounts of small and medium-sized enterprises. To test the hypotheses formulated with the assistance of SPSS version 25.0.0, simple regression analysis was used. On this basis, the research revealed that the company's Growth and Learning perspective, consumer perspective and business process outlook had an impact on the return on small and medium-sized businesses' assets in Port Harcourt, Rivers State. At the same time, criterion variables (after tax profits) and predictor variables (growth and learning, clients and perspectives on business processes) have a statistically significant effect on organizational success. The study therefore suggested, among other things, that; small and medium scale firms should consider the issue of production costs and must improve their cost minimization strategy. Also, consumers should be more involved in decision-making to make them feel valued and continue to provide the firm with business rather than competition.*

**KEYWORDS:** *Balanced Scorecard, financial performance and small and medium scale firms.*

## 1. INTRODUCTION

In recent years, the Balance Score Card (BSC) has acquired considerable importance as a strategic management tool that allows firms to align their business activities with the vision and strategy of the firm and improve their overall performance (Kaplan & Norton, 2005). In 1992, Robert Kaplan and David Norton introduced the BSC concept for the first time. Since the last few years, Saudi businesses have been implementing this instrument, although little information is available about its impact on their business success (Bassioni, Price, & Hassan, 2004). The BSC provides a logical link, according to Kaplan and Norton, between the Vision, Mission and Strategic Objectives and the desired results in terms of consumer

and stakeholder needs, financial, internal processes and capacity building (Growth and Learning) linked through relationships of cause and effect (Kaplan & Norton, 2015).

A carefully chosen set of quantifiable measures derived from the strategy of the firm, the Balanced Score Card (BSC) is a management tool with three main components: the measurement system, the strategic management system and the communication system (Bremser & Barsky 2004). For this reason, in modern times, the focus on measuring non-financial success is gaining ground and the business community is increasing its support. A balanced scorecard is a success measurement tool that has become more popular in practice and in literature. Arben, Skender,





Arbana and Muhamet (2016) argued that to determine the success level of corporations, this model considers financial indices and non-financial indices necessary. Success measurements from these perspectives are included in the Balanced Scorecard: financial, client, internal business processes, Growth and Learning.

Supporters of the balanced scorecard argue that, in order to achieve success in financial measurement, the first non-financial measures have to be taken (Davis & Albright 2004). Therefore, to determine whether the focus on non-financial measures actually leads to better profit margins and better firm's success using a balanced scorecard, empirical research is necessary.

Researchers claim that a paradigm shift has occurred from a traditional approach to measurement of financial success to an approach that integrates both financial and non-financial measures (Atkinson & Kaplan, 2003). Firms have a variety of objectives and objectives and it is therefore more likely that firm's progress towards all of these objectives and objectives will be effectively assessed by a single measure or even a number of measures of the same type.

In the meantime, virtually all businesses use some measure of revenue to assess success. In relation to consumer satisfaction rates, product defect rates, market time and environmental social responsibility, firms have set targets. Such goals are not measured by revenue directly. Firms that produce inferior products, deliver late, abuse the environment or clients that are generally dissatisfied will lose market share and be forced out of business (Spraakman, 2005).

Research has shown that intangibles are the strongest drivers of competitive achievement, especially intellectual property, innovation and quality. They should be measured, since what is measured is done and these variables are important (Kairu, Wafula, Okaka, Odera & Akerele, 2013).

Studies comparing the financial success of the two sister concerns of the UK-based electric wholesale chain have shown that with respect to its sister concern that BSC has not implemented, the company implementing BSC has demonstrated better financial success (Neely, 2008). BSC's impact on the alignment of strategic goals and success reporting was studied by Iselin, Mia, & Sands (2008). The use and problems of BSC as a success measurement tool were discussed by Muhammad (Muhammad, 2010). Results show that managers involved in the selection of strategic initiatives see these initiatives as more effective than managers who do not participate in the selection process of the strategy. As a result, BSC indirectly affects corporate strategies' implementation and success (Tayler, 2007).

Strategic plans have been developed in the light of these firms, particularly in small and medium scale firms, but are not put to use because they seem to have more urgent problems to deal with in the day-to-day running of the organisation. Therefore, this situation justifies the use of the Balanced Scorecard (BSC) as a critical step in the strategic process being implemented.

This situation calls for the implementation of more policies that would increase the manufacturing company's success. The aim of this study is therefore to assess the effect of the balance-sheet scorecard on the firm's success of small and medium scale firms in Nigeria with specific reference to: Growth and Learning Perspective, Customers Perspective, Internal Business Process of small and medium-sized enterprises quoted on the Nigerian stock exchange with a view to providing solutions to its bar success.

The aim of this study was to assess the impact of small and medium-sized enterprises' firm's success on the balance scorecard in Port Harcourt, Rivers State. The specific objectives are set out below:

1. To ascertain the implication of Growth and Learning Perspective on after tax profits of small and medium scale enterprises in Port Harcourt, Rivers State.
2. To determine the implication of Consumer Perspective on after tax profits of small and medium scale enterprises in Port Harcourt, Rivers State.
3. To evaluate the company's Business Process Perspective on after tax profits of small and medium scale enterprises in Port Harcourt, Rivers State.

## **2. REVIEW OF RELATED LITERATURE**

### **Conceptual Framework**

#### **Balanced Scorecards**

A balanced scorecard provides a collection of balanced success management measurements and links these measurements to a strategic success improvement initiative. Some studies have been carried out on the impact on enhanced success of the use of a balanced scorecard. As a tool for measuring business success, there is an increasing trend in the implementation of the Balance Scorecard Strategy (Davis & Albright, 2004). It is estimated that the balance scorecard is used by some 44 percent of US firms. In general, it is perceived that in developed economies where competition is high, the balanced scorecard is mostly used. The Balanced Scorecard can be defined as a tool for success management that facilitates the translation into a tangible set of measurements of the company's vision and strategy (Arben, et al, 2016). In other words, the Balanced Scorecard (BSC) is a success measurement



conceptualization that translates the strategy of the firm into clear goals, measures, goals and initiatives organized under four perspectives: financial, client, business processes and human resources or innovation and learning (Kassahun, 2010). In order to operate at an optimum capacity, each area perspective represents a different aspect of the business firm.

Chaudron (2003) argued that BSC is a means of: measuring firm's, business or departmental success; balancing long-term and short-term actions; balancing success measures; financial; client; internal operations; development and development of human resources systems (Growth and Learning); linking the strategy of the company to action measures. Much of the scorecard's success depends on how the measures are agreed upon, how they are implemented and how they are implemented (Bourne, 2002).

As a result, because of its business efficiency resulting from the four significant balanced perspectives, the BSC adopts the specific approach structure and components of the success measurement system, thus ensuring more profits for the company's activities (Christesen, 2008). Kaplan and Norton (2015) suggest that firms should articulate the objectives of time, quality, success and service while remaining sensitive to the cost of their products in order to build consumer confidence and loyalty..

## **Perspectives of Balanced Scorecard**

### **Consumer perspective**

This perspective captures the ability of the firm to deliver quality goods and services, the effectiveness of their delivery, and overall satisfaction and consumer service. This will result from proposals for prices, quality, availability, selection, functionality, service, partnership and brand value, leading to increased consumer acquisition and retention (Gekonge, 2005). The BSC asks executives to translate their general mission statement of consumer service into specific measures reflecting the factors that really matter to consumers (Kaplan & Norton, 1992).

Consumer concerns tend to fall into four categories: time, quality, service and success, and cost. Satisfied consumers buy a product again, talk about the product favorably to others, pay less attention to competing brands and advertising, and purchase other business products (Kotler & Armstrong, 2004). A growing awareness of the significance of consumer focus and consumer satisfaction in any business has been shown by recent management philosophy (Chabrow, 2002; Needleman, 2003).

This perspective takes into account a company's ability to provide its consumers with quality goods and services, the effectiveness of providing those services,

and addresses its consumers' concerns with a view to developing ongoing support (Zairi & Jarrar, 2000). Here, the focus is on the clients and how to give them value. This is because the drive to monitor and retain clients loses credibility when a company loses. And, as such, without a strong client base, no company can thrive...

### **Internal processes perspective**

The perspective of internal processes focuses, according to Gekonge (2005), on internal business outcomes that lead to financial success and satisfied consumers. Firms must identify the key business processes in which they must excel in order to meet the firm's goals and expectations of clients. To ensure that the results are always satisfactory, these key business processes are monitored. Internal processes report on the efficacy of internal procedures and processes. Consumer-based measures are important, but must be translated into measures of what the firm must do internally to meet its clients' expectations (Kaplan & Norton, 1992). The premise behind this perception is that

Business Process Perspective focuses, according to Gekonge (2005), on internal business results that lead to financial success and satisfied consumers. It consists of measures relating to business processes such as cost and quality.

### **Growth and Learning Perspective**

The innovative capacity, Growth and Learning perspective of a company examines the capacity of employees (skills, talent, knowledge and training), the quality of information systems (systems, databases and networks) and the implication of firm's alignment (culture, leadership, alignment and teamwork) to promote the achievement of firm's goals, according to Kaplan and Norton (1992).

In order to create long-term, sustainable growth and continuous improvement, this includes identifying the infrastructure that a company needs to develop. In order to meet the environmental challenges facing competition and to give value to its consumers, management is required to continually improve its firm's skills. Three business sources for Growth and Learning were identified by Kaplan and Norton (2000): individuals, the information system, and firm's processes. Through existing skills and potential for enhanced success, financial perspective, client and internal business processes often identify gaps in firm's structure. Through management initiatives such as investment in staff training and IT (Chytas, 2011), these gaps can be addressed. Businesses can take as



much as their staff, so real efforts should be made to retain staff with the knowledge and information that the Growth and Learning perspective seeks to determine.

### **Success and the Balanced Scorecard**

According to Abernathy (2000), the typical employee does not understand the strategy of the firm and, as a result, does not focus on the right things; does not know his or her personal role in the implementation of the strategy and, as a result, does what is needed, not what is needed. Firm's sub-optimization is the result of sub-firm's optimization in such a corporate environment. Frigo and Krumwiede (2000) suggested that the BSC could help to remedy this situation by requiring firms to engage in a number of beneficial activities. These activities outline the main strengths of the BSC.

Success measurements incorporating non-financial measures have been a subject of great interest throughout most of the 1990s. This is because non-financial measures overcome the limitations of financial success measures. "Soft" measures, such as employee satisfaction and commitment, are coming to the fore as protagonists of the business success measurement revolution, urging firms to complement their traditional financial focus with softer data. Kaplan & Norton (1992) suggested that "a balanced presentation of both financial and operational measures is needed. Meanwhile, BSC translates the mission and strategy of the firm into a comprehensive set of success measures that provide a framework for a strategic measurement and management system (Kumari, 2011).

### **Review of Previous Studies**

In and around the world, various studies have been carried out on the Balance Scorecard. The impact of the Balanced Scorecard (BSC) on the success of Kenyan firms in the service sector was determined by Kairu, Wafula, Okaka, Odera and Akerele (2013). A survey research design of 200 firms providing services was used. In order to collect primary data, semi-structured questionnaires were used that were analyzed through descriptive statistics. The study found that in measurement systems, non-financial criteria are as important as financial criteria and lead to superior results when both measures are integrated into the system.

Braam and Nijssen (2004) examined how to use the Balanced Scorecard (BSC) using regression analysis to regress over business success over the past three years and a subjective non-financial measure effectively adopted step-model. Dutch firms' empirical evidence suggests that the use of BSC will not

automatically improve the success of the company, but that the manner of its use matters.

In their study on Balanced Scorecard Success of Hotels, Kala and Bagr (2014) were conducted in different accommodation facilities in some selected tourist towns in the mountainous state of Uttarakh and India. The study results indicate that the study area's hospitality managers need to identify and incorporate the right set of financial and non-financial success measures and link them to the goals of their firm.

The use of BSC characteristics among firms listed on the Stock Exchange of Thailand (SET) was determined by Wasatoin (2013). To test the proposed hypotheses, a simple regression analysis was employed. The results of the regression analysis showed that top management support was a key influence factor for each BSC attribute to be implemented.

The implication of the predictor variables (Balanced Scorecard Dimensions) on the criterion variables (ATP and ROE) was investigated by Noor, Msedn and Mohammad (2015) using Jordanian industrial firms listed on the Amman Stock Exchange for a period of five years (2008-2012). The results showed that each of the dimensions of the balanced scorecards (internal business processes, innovation and growth and consumer) had a significant positive impact on the ATP and ROE financial success drivers. The implication of the balanced scorecard on improving the success and profitability of the implementing firms was assessed by Arben, Skender Arbana and Muhamet (2016). Using secondary data, research was carried out; narrative analysis for this study was adopted. This research showed that the balanced scorecard helped improve the success and profitability of the firms that adopted the model. Hoque and James (2000) examined the connection between firm's success improvement and a balanced scorecard. In Australia, a survey of 66 small and medium scale firms was carried out. Their results indicate that larger firms, as opposed to small ones, use the model more. In addition, the findings show a very positive link between the use of measurements and superior success. Malina and Selto (2001) identified large divisions of a large manufacturing company with the objective of evaluating the effectiveness of the model in order to communicate strategic objectives and as a management control tool. It was found that there were appropriate opportunities for the model to develop and communicate the business strategy. They have also identified evidence between the operation of balanced scorecard control and the level of success enhancement.

The degree to which the use of the model improves the financial success of bank branches in the USA has been studied by Davis and Albright (2004).



Their study offers the opportunity to suggest that the model can be used to enhance financial success after the results show that branches that have used the model have surpassed those that have not been measured on a standard basis. The relationship between relational capabilities and a balanced scorecard in Nigerian small and medium scale firms was determined by Lasisi, Olajide, Hasan and Shodiya (2014). The result of the study confirms that in Nigerian small and medium scale firms there is a statistically significant relationship between relational capabilities and a balanced scorecard.

As a success evaluation tool, Akram and Tariq (2014) examined the extent of BSC adoption and implementation among Palestinian listed corporations. Financial and other non-financial (consumer, internal business process, and Growth and Learning) perspectives were used. One sample t-test method has been used to test hypotheses and findings have shown that most Palestinian firms use BSC either fully or partially in their assessment process.

Ibrahim and Upendra (2016 ) discuss the impact on the financial success of listed firms in the Kingdom of Saudi Arabia of the implementation of the Balanced Scorecard (BSC). For this study, a sample of 57 firms from various business sectors was taken. For this comparison, annual success data for key financial parameters were taken over a five-year period and the average success for these parameters was compared using t-statistics. The study found that BSC's adoption significantly improves revenue growth, while other financial parameters such as Net Margin, Current Ratio and Operating Cash Flow / Net income do not have much impact.

Ondieki (2017 ) performed on Popo Road off Mombasa Road in South C at the Kenya Bureau of Standards (KEBS), a state corporation located in the southern part of Nairobi County . The study used a cross-sectional descriptive design. Using a self-administered questionnaire, data for the study was collected. Before the questionnaire was administered, informed consent was sought. To analyze data, IBM SPSS ® version 23 was used. Tables and bar charts were used to present the results of the analysis. In order to establish the relationship between criterion variable, success and predictor variables, bi-variate analysis and Pearson's product-moment correlation co-efficient (r) were used. The results of this study showed that the four perspectives under study, namely finance, internal business, innovation and consumer, have an impact on the firm's success and, despite the lack of profitability, there has been good firm's success overall at KEBS.

Studies such as; Edwin (2004); Kairu, Wafula, Okaka, Odera and Akerele (2013); Braam & Nijssen

(2008); Kala and Bagr (2014; Wasatoin (2013); Noor, Msedem & Mohammad (2015); Zuriekat, Salameh and Nrawasdeh (2015); Arben, Skender Arbana and Muhamet (2016); Hoque and James ( 2000); Ibrahim and Upendra (2016) etc. have carried out most of the studies of this nature in foreign countries. Few of those conducted in Nigeria were not in financial success; Lasisi, Olajide, Hasan, & Shodiya (2014 ) examined the relationship between relational capabilities and balanced scorecard in Nigerian small and medium scale firms in their study. As such, this study was set up to assess the impact of the firm's success of the Balanced Score card on small and medium-sized businesses in Port Harcourt, Rivers State.

### 3.METHODOLOGY

#### Research Design

Ex-post-fact research design has been adopted for this study. Ex-post facto determine the factors associated with certain occurrences, conditions, events or behaviors by analyzing past events or existing data for possible incidental factors (Orji, 1996). This is appropriate because the objective of the study is to measure the relationship between one variable and another, in which the variables involved are not manipulated by the researcher..

This study used twenty small and medium scale enterprises quoted on the Nigerian Stock Exchange for seven years study periods.

#### Method of Data Analysis

To test the formulated hypotheses, the study used simple regression analysis to test the balanced score cards (BSC) perspectives firms. Independents variables include Growth and Learning perspective, consumers' perspective and internal perspective while criterion variable is after tax profits.

#### Model Specification

The following logistic regression model will be used to test the following hypotheses:

In order to determine the implication of the firm's success of the balanced scorecard, the functional model formulated for this study is expressed as;

$$ATP = \beta_0 + \beta_1 LNG + \beta_2 CSG + \beta_3 BPP + et.....i$$

$$ATP = \beta_0 + \beta_1 LNG + et.....ii$$

$$ATP = \beta_0 + \beta_2 CSG + et.....iii$$

$$ATP = \beta_0 + \beta_3 BPP + et.....iv$$



Where:

ATP = After tax profits

LNG = Growth and Learning Perspective

CUSP = Consumer perspective

BPP = Business process perspective

et = Error Term

**Description of Variables**

Criterion variable: Financial success proxy by After tax profits (ATP).

Predictor variables: Growth and Learning Perspective = Measured as Employee Capital Revenue/Cost, Consumer Perspective = Measured as Percentage in Consumers sales growth, Internal Business Perspective = Measured as (inventories + Trade Receivables)/Total Assets.

**DATA PRESENTATION AND ANALYSIS**

**Data Presentation (See appendix)**

**Test of Hypotheses**

**Hypothesis one**

Ho: Growth and Learning perspective does not affect after tax profits of small and medium scale enterprises in Port Harcourt, Rivers State.

**Table 1: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 <sup>a</sup>	.769	.723	21.78662

a. Predictors: (Constant), LNG

**Table 2: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7898.538	1	7898.538	16.641	.010 <sup>b</sup>
	Residual	2373.283	5	474.657		
	Total	10271.822	6			

a. Criterion variable: ATP

b. Predictors: (Constant), LNG



**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-263.937	59.901		-4.406	.007
LNG	72.977	17.890	.877	4.079	.010

a. Criterion variable: ATP

Table 1 above shows that the value of R<sup>2</sup> = 0.769 was revealed by the model and the adjusted R<sup>2</sup> value is 0.723, suggesting that the model explains about 77 percent of the criterion variable's systemic variations. This implies that 77 per cent of the variance in the data is explained by regression.

Table 2 shows that the F-stat (16.641) and p-value (0.010) indicate that the hypothesis is statistically significant and that the implication of the alternative hypothesis between dependent and predictor variables can not be rejected at the level of 5 percent.

In table 3, the result of the regressed correlation coefficient shows that an evaluation of the predictor variable's financial success (Beta Column) shows that the perspective of Growth and Learning is positive and

significant (Sig.= .007). Therefore, the perspective of Growth and Learning has a major impact on firm's success using the after tax profits of small and medium-sized enterprises in Port Harcourt, Rivers State. In this context, we reject alternative hypotheses and accept null hypotheses stating that the perspective of Growth and Learning does not affect the after tax profits of small and medium-sized enterprises in Port Harcourt, Rivers State.

**Hypothesis Two**

Ho: Consumer Perspective does not affect after tax profits of small and medium scale enterprises in Port Harcourt, Rivers State.

**Table 4: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.867 <sup>a</sup>	.752	.702	22.57424

a. Predictors: (Constant), CUSPERS

**Table 5: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7723.841	1	7723.841	15.157	.011 <sup>b</sup>
	Residual	2547.981	5	509.596		
	Total	10271.822	6			

a. Criterion variable: ATP



b. Predictors: (Constant), CUSPERS

**Table 6: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	153.729	45.913		3.348	.020
BPPERS	-1.935E-007	.000	-.867	-3.893	.011

a. Criterion variable: ATP

Table 4 above shows that the value of R<sup>2</sup> = 0.752 was revealed by the model and the adjusted R<sup>2</sup> value is .702, suggesting that the model explains about 75 percent of the criterion variable's systemic variations. This implies that 75 per cent of the variance in the data is explained by regression.

Table 5 shows that the F-stat (15.157) and p-value (0.011) indicate that the hypothesis is statistically significant and that the implication between dependent and predictor variables cannot be rejected at the 5 % level of the alternative hypothesis.

In table 6, the result of the regressed correlation coefficient shows that an evaluation of the predictor variable's financial success (Beta Column) shows that the consumer perspective is positive and significant

(Sig. = 0.020). Therefore, the consumer perspective has a significant implication on the firm's success of small and medium-sized businesses in Port Harcourt, Rivers State, using after tax profits. In this context, we reject the null hypothesis and accept the alternative hypothesis that states that the consumer perspective affects the return on small and medium-sized business assets in Port Harcourt, Rivers State.

### Hypothesis Three

Ho: Company's Business Process Perspective does not affect after tax profits of small and medium scale enterprises in Port Harcourt, Rivers State.

**Table 7: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.448 <sup>a</sup>	.201	.041	40.51312

a. Predictors: (Constant), BPPERS

**Table 8: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2065.259	1	2065.259	1.258	.313 <sup>b</sup>
	Residual	8206.563	5	1641.313		
	Total	10271.822	6			

a. Criterion variable: ATP

b. Predictors: (Constant), BPPERS

**Table 9: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-135.394	102.326		-1.323	.243
	BPPERS	7.080	6.312	.448	1.122	.313

a. Criterion variable: ATP

Table 7 above shows that the value of  $R^2 = 0.201$  was revealed by the model and the adjusted  $R^2$  value is .041, which indicates that the model explains about 20 percent of the criterion variable's systemic variations. This implies that 20 per cent of the variance in the data is explained by regression.

Table 8 shows that the F-stat (1.258) and p-value (0.313) indicate that the hypothesis is statistically significant and that the implication between dependent and predictor variables can not be rejected at the 5 % level of the alternative hypothesis.

In table 9, the result of the regressed correlation coefficient shows that an assessment of the financial success of the predictor variable (Beta Column) shows that the perspective of the business process is positive and significant (Sig. = 0.448). Therefore, consumer perspective has a major impact on the firm's success of the Business Process Perspective goods small and medium scale firms in Nigeria using after tax profits. In this context, we reject the null hypothesis and accept

the alternative hypothesis that Business Process Perspective affects the after tax profits of small and medium-sized firms in Port Harcourt, Rivers State..

### Discussion of Findings

The study found that the perspective of Growth and Learning affects the after tax profits of small and medium-sized enterprises in Port Harcourt, Rivers State, while the view of consumers and the business process perspective of firms affects the after tax profits of small and medium-sized enterprises in Port Harcourt, Rivers State. In the meantime, the dependent (after tax profits) and predictor variables (learning, consumer and business process perspectives) are significantly significant.

This outcome is in line with the following studies; evidence from Dutch firms by Braam and Nijssen (2008 ) suggests that the use of BSC will not automatically improve the success of the company, but that it matters how it is used. The results of Noor, Msedem and Mohammad (2015) stipulate that each of



the balanced dimensions of the scorecards (internal business processes, innovation and growth and consumer) has a significant positive impact on the ATP and ROE financial success drivers. Research by Arben, Skender Arbana and Muhamet (2016) concludes that a balanced scorecard has helped improve the efficiency and profitability of the firms that have adopted the model. The study results from Lasisi, Olajide, Hasan, & Shodiya (2014) confirm that there is a statistically significant relationship in Nigerian small and medium scale firms between relational capabilities and balanced scorecard.

## 5. CONCLUSION AND RECOMMENDATIONS

The study found that in Port Harcourt, Rivers State, the financial perspective does not affect the after tax profits of small and medium-sized enterprises, while the consumer perspective and the business process perspective of the company affect the after tax profits of small and medium-sized enterprises in Port Harcourt, Rivers State. In the meantime, the dependent (after tax profits) and predictor variables (Growth and Learning, consumer and business process perspectives) have a statistically significant effect. This shows that firms fulfill the expectations of their shareholders, delight their consumers, or at least satisfy them, and that firms do the right things.

Despite the opposing views of supporters and critics of the use of the balance scorecard, it is important to note that the model is a generally acceptable success measurement framework, as it points out that the two financial and non-financial success measurements translate a business strategy into operational terms. On the basis of the results of the empirical studies and the analysis carried out, the balanced scorecard has conclusively contributed to improving the success of firms that have adopted the model.

### Recommendations

The study made the following recommendations, based on the findings:

1. In order to make it profitable, small and medium scale firms in Nigeria should consider the issue of production costs and must improve their cost minimization strategy.
2. In order to make them feel cherished, consumers need to be more involved in decision-making and continue to provide the firm with business instead of competition.
3. In order to aim for financial sustainability and see how to improve human resource management, the strategic plan must be reviewed.

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# THEOREM ON DISPROOF OF HAWKING RADIATION WITH THE HELP OF QUANTUM TUNNELING

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## ABSTRACT

*In this present paper/theorem, I am trying to explain disproof of hawking radiation with the help of quantum tunneling. Quantum tunneling transmission probability of zero for any particle through an event horizon particle tunnelling from the interior of a black hole impossible.*

**KEYWORDS :** *Hawking Radiation, Quantum Tunneling.*

## INTRODUCTION

Hawking radiation is black-body radiation that is predicted to be released by black holes, due to quantum effects near the black hole event horizon. It is named after the physicist Stephen Hawking, who provided a theoretical argument for its existence in 1974. According to theory, any black hole will create and emit particles such as neutrinos or photons at the rate that of a body with a temperature.

## DISPROOF OF HAWKING RADIATION

Inside the event horizon,  $r < r_s$ , the Schwarzschild equation describing a stationary black hole is:

$$ds^2 = (1 - r_s/r) \cdot c^2 \cdot dt^2 - (1 - r_s/r)^{-1} dr^2 + r^2(d\theta^2 + \sin^2\theta \cdot d\phi^2) \quad \text{----- (1)}$$

For particles within the event horizon attempting to cross the Schwarzschild radius,  $r_s$  :

$$r \rightarrow r_s, \text{ and } - (1 - r_s/r) \rightarrow 0 \text{ and } - (1 - r_s/r)^{-1} \rightarrow \infty \text{ and so } ds^2 \rightarrow \infty$$

The line element  $ds^2$  ( $c^2 dt^2$ ) tends to infinity as  $r \rightarrow r_s$ ,  $ds^2$

$$\rightarrow \infty, \text{ and so the are length, } ds \rightarrow \infty \quad \text{-----(2)}$$

The transmission coefficient or probability, T, for quantum tunnelling through a potential energy barrier, U of width L:

$$T = (16 / (4 + (k_2/k_1)^2)) \cdot e^{-2k_2 L} \approx e^{-2k_2 L} \quad \text{------(3)}$$

$$\text{Where } k_2 = \sqrt{(2m(U - E)) / \hbar}, k_1 = \sqrt{(2mE) / \hbar},$$

L is the width of the barrier, m is the mass of the particle, (U - E) is the difference between the particle's kinetic energy and the potential barrier. E, kinetic energy

The width, L, of an event horizon:

As  $r \rightarrow r_s$  the are length,  $ds \rightarrow \infty$  from (2) and  $ds = L$  and so  $L \rightarrow \infty$ .

As  $L \rightarrow \infty$  then  $T \rightarrow 0$  from (3).

A photon and a particle of finite mass both subject to an infinite width would be precluded from quantum tunnelling and escaping an event horizon.



The probability of transmission,  $T$ , of any particle through an event horizon with infinite width,  $L$ , is zero.

### CONCLUSION

It can be concluded that forbids quantum tunnelling of particles also applies to the Kerr solution for rotating black holes. Hence, Hawking radiation via quantum tunnelling from an event horizon is rendered impossible.

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## **DEVELOPMENT OF THE MAIN DIRECTIONS OF THE HEALTHCARE SYSTEM OF UZBEKISTAN IN THE PROCESS OF MODERNIZATION**

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### **DISCUSSION**

Events of medical training medical personnel as a result of the years of independence the number of qualified medical personnel and increases the share opened on the basis of archival materials. In particular, on the eve of independence, despite the large number of doctors in the country, the results of their work did not correspond to these numbers.[1] has been reported. In addition, training of medical personnel and the shortcomings in the system of material stimulation of their work, carried a lot of the lower qualified medical personnel because they will come, including the 1987 - years in the medical institutions of higher education in 1992, only 13.8 percent of the teachers improve their skills was first reported.

It is called "Development of medical science", which analyzes the process of reforms in this area during the years of independence and the results obtained from it on the basis of archival and periodical materials. It is also worth noting that due to the work done on the development of medical science, a number of achievements have been made in this area, the peculiarities of this period. In particular, in 1991-1999, for the first time in the world, scientists developed a method of liver transplantation in people with severe fatal liver disease.[2]. However, the introduction of this method took place a little later. In 2018, the practice of liver transplantation was launched in our country. For the first time in the history of our medicine, a similar operation was performed on a patient with kidney transplantation (kidney transplantation) and later with diabetes mellitus.[3]. At the same time, another human blood transfusion was developed. This innovation has increased the effectiveness of treatment of

patients with breast cancer. A new intraoperative balloon tissue stretching method has been developed to eliminate scars on the body. This method has been highly effective in eliminating post-burn scars on the face. In the field of traumatology, endoprosthesis of large joints and artificial devices for primary strengthening of bone fractures have been introduced.

Republican scientists have also mastered the most advanced direction of world medicine - stem cell transplantation. Until now, due to necessity, some patients had traveled abroad to undergo such surgeries at prices ranging from \$ 40,000 to \$ 150,000 to \$ 200,000. The treatment of leukemia has also been mastered. New methods have been developed to treat esophageal cancer in patients with malnutrition, bladder cancer, and brain tumors. In women with cervical cancer, the uterus has been preserved to date as a result of a new treatment method applied to the practice, while the uterus has been removed to date. After gastric removal, gastric bypass surgery was performed to restore the function of this organ[4]. Endoscopic (knife-free) surgical procedures have been widely used in surgical practice.

The drug "Pustan", developed by scientists of the country, is recommended for use in disorders of the gastrointestinal microflora and diarrhea. [5]. However, probiotics (beneficial bacteria in the gastrointestinal tract) have been found to be able to easily overcome diarrhea (diarrhea) caused by antibiotics and treat stomach and 12-finger ulcers. The new drug "Lactopropolis", which contains bee products - propolis and lactic acid, can prevent the formation of ulcers, treat existing wounds[6]. Under the influence of a new drug called "Rutan" it was found that interferons are formed in the body and they effectively fight the virus.



It is entitled "Maternity and Child Protection Measures and Activities of Perinatal Centers" and describes the process of reforms in this area during the years of independence. This section provides a step-by-step analysis of the results of the work done to protect motherhood and childhood. In particular, new screening centers have been set up throughout the country to eliminate non-pregnancy-related diseases in pregnant women and prevent the birth of children with disabilities and birth defects. New methods (perinatal centers, regionalization of perinatal care, neonatologists (for newborns) specialists) that differ from traditional methods of maternal and child health have been introduced in practice in our country. Due to these and other factors, a number of important and vital results have been achieved during the years of independence. In particular, children under the age of 1 and patronage due to the expansion of the scale of immunizations and other important events related to infant mortality cases in 2004 to 7.4% in 2005, compared to cases of maternal deaths decreased by 6.8%, independent of 'Save the Children' According to the international organization, by 2006 Uzbekistan was ranked 19th among 125 countries in the world in terms of creating favorable conditions for women and 27th in terms of protection of motherhood.

The fourth section, entitled "Rural health centers and emergency medical services", deals with the construction of rural medical stations in the country, the establishment of SHTYOX, mistakes and shortcomings in this regard and the work done to eliminate them. In particular, by 2013, about 3,200 rural medical centers equipped with modern equipment were established. As a result of the establishment and operation of these institutions, the villagers have a modern medical facility. However, despite the reforms that have taken place, a number of problems remain in the years of independence. Timely inspections by the Ministry of Health showed that in recent years in the Republic of Karakalpakstan, Surkhandarya and Jizzakh regions the quality of treatment, lack of preventive work, improper use of physiotherapy equipment, even laboratory tests and inability of some doctors to read the electrocardiogram staff had a low level of knowledge. As a result, oncology, dermatovenereology and tuberculosis among the population have been increasing year by year due to the poor performance of the primary health care system in the QVP. In particular, the incidence of late detection of tuberculosis and oncological diseases had

increased [7]. Also, due to the insufficient level of knowledge of doctors working in rural health centers, the lack of timely practical assistance from the chief specialists, physiotherapy equipment provided only 4-5 patients a day, and in some regions - 1-2 patients.

In addition, there are problems with the lack of educational and methodological and information resources for the organization of special areas of QVP, the need to improve the coordinating role of training programs for general practitioners in maintaining and strengthening the health of the population, clinical control over medical care standards. One of the most painful points was the lack of qualified specialists needed in this field. Therefore, an action plan has been set for 2017 to further develop the activities in this area. According to him, in 2017-2018, the existing rural medical centers in the country were optimized, reducing their number from 2,895 to 819. In addition, 793 rural family clinics with a social pharmacy, day care centers and an ambulance station operating around the clock were established and the activities of specialists in 5 areas were provided. [8].

At the same time, significant results have been achieved as a result of the work on the development of emergency medical services. In particular, Parties to provide free emergency medical care guaranteed by the new system. However, despite the large-scale reforms, a number of problems and issues that need to be addressed urgently in the sector by 2017 remained. In order to address these problems, the Decree of the President of the Republic of Uzbekistan dated March 16, 2017 "On measures to further improve emergency medical care" identified the most important areas for improving this system.

The fifth section, entitled "Measures to eradicate infectious diseases", analyzes the implementation of vaccinations against various infectious diseases and, as a result, the complete elimination of a number of dangerous and highly dangerous infectious diseases on the basis of archival and periodical publications. In particular, during the years of independence, 99.8% of children were vaccinated against 12 types of infectious diseases included in the national vaccination calendar. As a result, no cases of polio have been reported since 1997, infantile tetanus since 2000, diphtheria since 2001, and measles and rubella since 2012. Almost 100 percent of children under the age of 14 underwent in-depth medical examinations twice a year, and women of childbearing age underwent in-depth



medical examinations each year.[9]. The comprehensive measures taken in the country in the field of infectious diseases have played a major role in the overall positive performance in this area. In particular, maternal and infant mortality has more than tripled over the past period in the country[10]. This section describes the role and place of measures to combat infectious diseases in the effectiveness of public health.

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[1] *State Archive of Uzbekistan fund-M-372, 1, 87 - Volume , sheet 36 .*

[2] *State Archive of Uzbekistan Fund-M-372, List 1, Volume 528 , Sheet 143.*

[3] *Ministry of Health Data Service. The first time, patients with diabetes , patients*

*with kidney transplant operation // http :*

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[4] *Navruzov S., Yusupbekov A., Boboqulov Sh. Innovative technologies in oncology // http :*

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# MEMOIRS AS A SOURCE ON THE HISTORY OF UZBEKISTAN IN THE SECOND HALF OF THE 19<sup>th</sup> – EARLY 20<sup>th</sup> CENTURIES

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## ABSTRACT

*The colonial period in the history of Central Asia is reflected in many written sources, including memoirs. Memoir works are diverse in their genre and content. These are travel records of Russian and foreign ambassadors and travelers who visited Central Asia, and memoirs by local authors. The article examines the memoir works of Central Asian authors of the late 19th - early 20th centuries. They are divided into groups such as autobiographies, travel records, memoirs, and oral history. On the example of specific works of specific authors, the significance of each of the above groups of memoir literature is analyzed, their significant sides and their inherent shortcomings are revealed. It is concluded that methods such as critical approach and comparative analysis allow researchers to effectively use the memoirs of local authors to study the history of the colonial period.*

**KEYWORDS:** *Memoirs, autobiographies, travel records, recollections, oral history, critical approach, comparative analysis, reliability.*

## 1. INTRODUCTION

In the 60-70s of the 19th century, Central Asia was finally conquered by the Russian Empire. The Kokand Khanate was liquidated. The Bukhara Emirate and the Khiva Khanate were forced to conclude unequal treaties with Russia, to cede a significant part of their territories to it and go under its protectorate. A colonial period began in the history of Central Asia, which lasted until 1917.

The history of this period is reflected in a variety of written sources. These are legislative acts, clerical documentation, statistical sources, film and photo documents, periodicals, journalism, etc. Among these sources, memoirs also occupy an important place.

## 2. MATERIAL AND METHODS

Memoirs of the colonial period can be conditionally divided into two groups: 1) travel records and memoirs of Russian, European and Eastern ambassadors and travelers; 2) memoirs of

local authors. Since in our previous publications we had to talk about the source study value of the memoirs of Russian and foreign ambassadors and travelers [3, 4, 5], this time we would like to dwell on the memoir literature belonging to the pen of Central Asian authors.

Memoir works of local authors can be divided into the following subgroups: a) autobiographical works; c) travel records; c) the actual memoirs, or memories; e) oral history.

## 3. RESULTS

The first autobiographical works related to this period appeared in the 90s of the XIX century. As a rule, they belonged to the pen of representatives of the Uzbek intelligentsia – poets and journalists, united around the newspaper “Turkiston Viloyatining Gazeti” (“Newspapers of the Turkestan Valley”), on the pages of which their works were published. So, in 1890 the newspaper published a series of autobiographical articles by Sattarkhan



Abdulgaffarov, in 1891 – by the poet Zakirdzhan Furkat (№№ 2-23), in 1893 the youngest son of Khudayar Khan – Ibn Yaminbek (№№ 22-28, 32), etc. These works are interesting not only in terms of acquaintance with the main milestones in the biographies of their authors, but also in that along the way they provide a lot of information related to the socio-political and cultural life of the Turkestan region.

Take, for example, "Autobiography" ("Ahvolot") by the famous poet- enlightener Zakirdzhan Halmuhammad oğlu Furkat (1859-1909), which describes the author's life from childhood to 1891, when he went on a trip abroad and left his homeland forever [12]. Furkat talks about his studies in the old Muslim school (maktab), then in madrasah, political unrest in Fergana in the last years of the existence of the Kokand Khanate. From the poet's autobiography, we learn that he was engaged in commercial affairs in New and Old Margilan. The author pays great attention to the description of the cultural and literary environment of Margilan, Kokand and Tashkent, gives interesting materials about his contemporaries – the poets Mukhyi, Mukimi, Zavki, Roji, Umidi-Khavoï, Asiri, Ibrat, etc. A new historical situation is revealed in "Akhvolot" developed in Turkestan after the conquest of the region by tsarist Russia, when elements of European culture began to penetrate into the life of the region's population.

Of no small scientific and ethnographic significance are such works of Furkat as "On the wedding" ("Tuy khususida"), "On mourning" ("Aza khususida") and "On gape" ("Gap khususida") ["Gap" (in translated from Uzbek means "conversation") – this is a regularly held joint meal, during which conversations are held on various topics. The Uzbeks and Tajiks still have gap. – RA]. It is impossible to call these articles memoirs in the strict sense of the word, although in them the author talks about the phenomena that he saw and observed personally. Furkat's articles mentioned above contain valuable information about the wedding ceremonies of Uzbeks, their customs associated with the burial of the deceased and the following mourning, as well as the procedure for holding joint meals and conversations between the participants of the "gap". In his works the author has included samples from traditional wedding songs ("yor-yor") and memorial poems ("marsia"). The mentioned historical and ethnographic articles of Furkat are small in volume, but it is noteworthy that they have come down to us in lists written by the author himself.

It should be noted that some autobiographical works that illuminated the pre-revolutionary period of the activity of their creators were written after the October Revolution of 1917, in the Soviet era. This, naturally, left its mark both on the content and on

their ideological orientation. Let us cite as an example the "Autobiography" ("Ahvolot") of a prominent figure of Jadidism in Turkestan Abdulla Avlani [1]. It is known that the ideological paradigm of the Jadids had nothing to do with communism and atheism. But Avlani, who wrote his autobiography in Soviet times in order to somehow "justify" Jadidism, argues that the Jadids, like the Bolsheviks, were almost consistent fighters against the capitalists (bays) and religious leaders (mullahs), as evidenced by the following fragment: "We [the Jadids] began a decisive struggle against the mullahs, bays and the old way of life. An organization directed against the bays arose in our midst. Thus, we continued the class struggle until 1905. The bays and mullahs fought against the Jadids, and the Jadids fought against bays and mullahs, and even against the old order and prejudices. The Russo-Japanese war that began in 1904 opened the eyes of both the Russian workers and us [the Jadids]. The waves of the 1905 revolution had a great influence on us. Having clearly realized the political goals, our organization began, first of all, to enlighten the downtrodden people in order to open their eyes "[6, 15]. Such a statement, apparently, was dictated by the desire to somehow protect the Jadids from possible repression by the Soviet regime. However, as subsequent events showed, these attempts were in vain: later the Bolsheviks, who always looked at the Jadids as their political opponents, physically dealt with them, including Avlani.

Another type of memoir literature, created during the period under review by local authors, is travel records ("*sayohatnoma*"). At this time, some poets in verse form expressed their impressions of their travels around the country. As a historical source, these poetic works are interesting in that they contain a description of the characteristic features of those settlements visited by the authors, and the distinctive features of the way of life of the population living here. As an example, let us dwell on the travel records of the poets Jani and Mukimi.

In the 70s of the XIX century. Janmukhammad Jani (1839-1881), based on the materials of his journey along the Bukhara-Nurata route, wrote his essay "Travel Records" ("*Sayohatnoma*") in the Tajik language. In it, the author provides valuable information about the nature, landscape and inhabitants of more than 50 villages located on the territory of modern Bukhara, Navoi, Samarkand, Syrdarya and South Kazakhstan regions.

The "Records of Travels" ("*Sayohatnoma*") of the famous Uzbek poet Muhammad Aminhodja Mukimi (1850-1903) is also widely known. "Records" consist of descriptions of villages and towns where the author was able to visit during his travels in the Fergana Valley. The poet clearly notices the natural conditions and the characteristic



features of the life of the inhabitants of such settlements as Ultarma, Durmancha, Bourbalik, Akyer, Roshidon, Zohidon, Alty-Aryk, Chimyon, Vuadil, Kudash, Yaipan, Nursukh, Rapkon, Besharik, Kanibadam, etc. [10].

In terms of information, the aforementioned poetic "travel records" may not be very valuable, but nevertheless, in our opinion, the historian should not discount them.

The memoirs written in prose, or actually memoirs, which contain quite a wealth of information about the political, socio-economic and cultural life of Central Asia at the end of the 19th – beginning of the 20th centuries, are fundamentally different from poetic "travel records". However, there are not very many "pure" memoirs on this period, like "Memoirs" of the famous writer Sadridin Ayni. But there are many historical works containing memoir plots. These include the work of Muhammad Aziz Margilani "Azizov's history" ("Tarikh-i Aziz-i") [8], Muhammad Ali Baljuvani "Useful history" ("Tarikh-i nofe'i") [9] and others.

It is one of such works – this is the work of Mirza Salimbek "Salim's history" ("Tarikh-i Salim-i"), written in 1917-1920 [7]. It is dedicated to the history of Central Asia, in particular the Bukhara Emirate. When writing it, the author used the sources available to him, including the works of previous historians. But the events of the second half of the 19th and the beginning of the 20th centuries were covered exclusively on the basis of memoirs.

Mirza Salimbek ibn Muhammad Rahim (1850-1930) was born in Bukhara to a wealthy and influential family. In one of his works, he writes that his "father and ancestors sincerely served the high court." Having received a good education, he began his career as a clerk of the ruler (khokim) of the Ziyauddin bekdomb. With the establishment of a Russian protectorate over Bukhara, Mirza Salimbek was sent to Tashkent as a trade agent and carried out the emir's secret orders. Here he lived for 12 years. In 1885 he was appointed tax collector (amlakdar) of Tumen Somjin. In 1888-1893 served as chief of police (mirshab) in Bukhara. From 1893 to 1920 he was a ruler in Yakkabag, Nurata, Baysun, Sherabad and Shakhrisabz vilayets. During the March events of 1918, Mirza Salimbek commanded the emir's army opposing the detachments of Kolesov and the Young Bukharians. A little later, he visited the Trans-Caspian region to establish contacts with the British. In March 1920, he was appointed ruler of the Chardzhou vilayet. On August 29, 1920, on the first day of the Bukhara "people's revolution", Mirza Salimbek was arrested, but a year later he was released. In subsequent years, he worked in Soviet bodies and the Society of Historians (Anjumani Ta'rih) created in Bukhara.

Being a wealthy man, Mirza Salimbek was engaged in charitable activities: he built a madrasah, transferred part of his land and property to a vakuf, repaired mosques and tombs, and built canals. In addition to all this, he was actively engaged in literary activity: a number of historical, literary and theological works belong to him.

Mirza Salimbek was an eyewitness and participant in many events described in the last part of his work "Tarikh-i Salim-i". Since Mirza Salimbek belonged to the political elite of the emirate, he had enough complete information about the events that took place in the country, so his book is extremely informative in terms of information. Of course, Salimbek's assessment of the essence of certain events is largely subjective, but the facts in his memoirs are presented correctly, since, as already noted, many events took place before his eyes, and sometimes with his participation.

The "Salim History" describes in detail the time of the reign of the last three emirs of the Mangyt dynasty: Muzaffar, Abdulahad and Sayyid Alim Khan. An official devoted to the throne, Mirza Salimbek in relation to them uses such epithets as "the just and victorious sovereign", "the ruler of all believers", "refuge of mercy", "fighter for the faith", etc. The author served all three emirs and was with them in a fairly close relationship. "Tarikh-i Salim-i" contains a lot of information that is not found in the works of the author's contemporaries. These are not only data on the political and socio-economic history of the emirate, but also on historical geography, ethnography, cultural history, as well as on the history of individual beks of the Bukhara Emirate of the late 19th – early 20th centuries. Toponyms and hydronyms found in this source are also very valuable. It should be noted that the author is very lively, and sometimes artistically presents the material, as a result of which the book is read easily and with unremitting interest.

There are many handwritten lists of "Tarikh-i Salim-i". The original part of this work was translated into Russian and published by N.K. Norkulov in Tashkent in 2009.

A major memoir, giving versatile information on many aspects of the life of the Bukhara Emirate in the second half of the 19th – early 20th centuries, are the memoirs of an outstanding writer and scientist, public figure Sadridin Saidmurod-zade Aini. The Russian translation of his memoirs was published under the title "Old Bukhara". [2]. Ayni's memoirs are in four parts, which were published as they were completed from 1948 to 1954. "Old Bukhara" was written in Tajik, and then translated and published in Uzbek, Russian, English, French, Polish, Czech and Uyghur.

Ayni spent her childhood in the villages of Sektare and Mahallai Bolo of the Shafrikan tumen,



and her youth in the city of Bukhara. Therefore, the inquisitive and inquisitive Sadridin from a young age was well acquainted with the life of the Bukhara village and the capital. In his memoirs, he described his childhood and youth against a wide background of political, socio-economic and cultural processes taking place in the Bukhara Emirate. Therefore, it can be said without exaggeration that "Old Bukhara" is a unique source, with which no other work of this type can be compared. Ayni's memories help to deeper imagine many facets of the life of the Bukhara Emirate, which was in vassal dependence on the Russian Empire. Many of the stories described by the author take place before his eyes, with his direct participation, and when describing some events and phenomena, he relies on the stories of his friends and acquaintances who were their participants or eyewitnesses. Such are, for example, the stories about Ahmad Donish, with whom Ayni was not closely acquainted, but wrote them down from the words of Sadri Ziyoyev and other people who knew him well. All this gives grounds to assert that the degree of reliability of the information given in Ayni's memoirs is quite high.

At the same time, it should be recalled that "Old Bukhara" was written in the post-war years, when the communist ideology prevailing in society demanded that the past (especially the near-term) be covered mainly in black colors. Let us also recall that Sadridin Ayni, as an enlightener and participant in the Jadid movement, was disgraceful to the official circles of the emirate, and after the February Revolution, he was executed and thrown into prison (*zindan*). All this involuntarily pushes the researcher to the thought: could the author, under such circumstances, exaggerate when describing the order in the Bukhara Emirate? But upon careful study of the text of the memoirs, we feel the sincerity of the author, a well-known master who cannot write lies. However, the comparison of the plots of the memoirs with other numerous written sources, including the Russian pre-revolutionary memoirs, also confirm that the events of the late 19th – early 20th centuries are adequately reflected in the memoirs of Ayni in the Bukhara Emirate.

A special group of memoir sources is the so-called "oral history", in particular, memoirs recorded from the words of participants in certain events. It should be noted that this methodological direction has developed in Uzbekistan only in recent decades. However, even in Soviet times, individual researchers tested this method in the study of some aspects of the history of the early twentieth century. So, the famous historian Hamid Ziyoyev in 1956, in connection with the 40th anniversary of the 1916 uprising in Turkestan, wrote down the memoirs of its participants, and 20 years later published them as a separate book [11], which significantly expanded the

source base of the study of the problem. The informants were mainly elderly men – residents of Margilan and Andijan, eyewitnesses and participants in the uprising.

It should be noted that the recording of oral history is associated with a number of points that should be taken into account when clarifying the reliability of the information provided by the respondents. First, the recollections of respondents tend to be recorded over the years, as a result of which they may forget or confuse the details of the events in which they had to take part. Second, the content of memories will inevitably be influenced by the political environment in which they were recorded or published. And, thirdly, during the recording of oral history, a third person stands between the respondent and the information provided by him, on whose professionalism and conscientiousness the adequate fixation of the plot of the events being recalled depends.

If these approaches are applied to the memories of participants in the 1916 uprising, the reader has some doubts about their reliability. However, this was recognized by Kh.Ziyoyev himself. So, in the notes to their second edition, he wrote: "Since these memories were recorded in the Soviet period, the words of the participants in the uprising that they fought to secede from [the composition of] Russia and restore independence were omitted. Allowed the conditions of that time. Instead, it became customary to cover movements against local officials and bays. But this will not be able to negate the main goal of the uprising – the restoration of the independence of the Motherland" (13, 390).

The above quote confirms that when recording the memoirs of the participants in the 1916 uprising, a distortion was made, i.e. partially omitted what the participants said ("fought to secede from Russia and restore independence"), and vice versa, recorded what they did not say ("movement against local officials and bays").

Indeed, reading the memoirs of the participants in the uprising, the reader involuntarily draws attention to an interesting detail: almost all of them unanimously claim that they suffered from unbearable taxes, the oppression of colonial officials and local beys. In principle, we do not deny that the bays and officials made their "contribution" to the worsening of the situation of the masses, shifting all the hardships of the First World War (inflation, high prices, etc.) onto the shoulders of ordinary workers. However, the almost unanimous opinion of the participants in the uprising about the "incredible oppression of beys and bureaucrats" involuntarily leads the reader to the idea that while writing down the memoirs, someone tried to fit them into the Procrustean bed of the Marxist-Leninist concept of class struggle.





The statement of the informants, allegedly omitted from the memoirs, that they fought for the "restoration of independence" does not inspire confidence either. The fact that the uprising of 1916 had a national liberation character is unambiguous. However, it is generally known that the uprising was elemental, spontaneous and did not have a clear political program. In the memoirs of the participants, there are exclamations and cries made by the rebels during the performances ("We will not go to mardikery", "Let the bai go to mardikery", "Down with the mingbashi", "Let the houses of the tsarist government and mingbashes burn", "We will eliminate the oppressors", "Death is better than such a life", etc.), but among them we do not find clear calls for "restoration of independence". If we bear in mind that the participants in the uprising were mainly representatives of the lower classes, illiterate or semi-literate people with a low level of political consciousness, it will become clear that they simply could not put forward demands for the "restoration of independence" at that time. And the "omitted fragments" about the rebels' struggle for the "restoration of independence" were, apparently, connected with the fact that the second edition of the memoirs of the participants in the uprising was carried out when Uzbekistan turned into an independent state. From this it follows that a critical approach is required to the materials of oral history, as to all historical sources.

#### 4. CONCLUSIONS

Summing up, we can conclude that for the colonial period of the history of Central Asia, along with other sources, there is a variety of memoir literature, to one degree or another reflecting the political and socio-economic processes in the region. The value of this group of sources lies in the fact that they often contain completely original information that helps researchers to understand many aspects of the life of the population during the period under review. At the same time, one should not forget that any memoir literature is not devoid of a certain amount of subjectivity, some tendentious assessments, which must be taken into account in the process of using them as historical sources. Comparative analysis of materials of memoirs with other sources, verification of their reliability is a necessary condition for their use for scientific purposes.

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# THE HISTORY OF EMERGENCE OF SUGHD CITIES

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## ABSTRACT

*The article examines the history of the emergence of Sughd cities on the basis of archeological sources. In particular, based on the results of recent research on Kuktepa, Uzunqir, Yerkurghan and Afrosiab, their emergence is discussed.*

**KEY WORDS:** *Sughd, Afrosiab, Yerkurghan, Uzunqir, Yaz-depe.*

## 1. INTRODUCTION

When an archeologist was to be asked the question of "How many years has it been since the first emergence of a city in the place of Yerkurghan in the oasis of Karshi?" ten to fifteen years ago, his answer would probably be like «The city was established 2500 years ago». Indeed, when the defense walls of Yerkurghan was first studied in the late 70s and early 80s of the last century by M.Turebekov, the same result was obtained. Not only the defense walls of Yerkurghan, but all cities of Sughd's defense walls were also studied specifically [10. p. 108]. A number of PhD dissertations have been done on their history. We are not going to say anything bad about the doctorates of the period, but their mistakes are "forgivable", the main reason for their mistakes was not so advancement of periodization of archeological material - cultural findings and methods of studying ancient sites in the science of archeology.

## 2. MATERIAL AND METHODS

S.P. Tolstov was the first to raise the issue of periodization of the history of Central Asia on the basis of Khorezm materials [8; 9]. In parallel with the same work in Samarkand G.V. Grigorev conducted excavations in the southern part of Samarkand, at the monument of Tali-Barzu. He was very successful in conducting layered excavations for the first time on a monument left over from the soil-related architecture of Central Asia. Indeed, the difference between pottery from different layers was obvious [1; 2].

In connection with the chronology of the history of Samarkand by Terenojkin in the 50s of the

last century, M.E. Masson also expressed his attitude to this chronology [4]. It was in the 50-60s of the last century that M. Pachos, based on the study of the defensive walls of Afrosiab, wrote that "the city of Samarkand was founded in the VIII century AD" [11].

M. Turebekov, who studied the defensive walls of Sughd, came to the conclusion that "the oldest defensive walls of Yerkurghan are made of big blocks of mud in the shape of brick, the thickness of which is 3 m, it was built in the VI-V centuries BC." Such a solution leads to the conclusion that the cities in the main regions of Central Asia were formed during the Achaemenid Empire. A.I. Terenojkin [6; 7], and G.V. Shishkina [12. p. 20; 13. p. 221-246] who studied the ancient layers and defensive walls of Afrosiab a while ago came to the same conclusion.

Therefore, it was not in vain and spontaneously that a number of great experts came to an agreement. What were the main arguments that "affirmed" their views? We know that the part of the defensive walls found in Afrosiab, which can be called the "defensive walls of the Achaemenid period", was opened in a much larger area. Part of it has also been restored and is still visible on the right side of the road from the city to the airport, on the high bank of the Siyab River and the cliff. These defensive walls were indeed Achaemenid-era defensive walls, and right-angled bricks were used to restore the wall, which was built in the form of a corridor-gallery. In the northern part of Afrosiab, the same wall is made of big blocks of mud in the shape of brick, and its general shape is also restored in the form of a corridor-gallery. That is, the soldiers



involved in the defense of the city stood inside the corridor-like defensive wall on the inside of the wall and fired at the enemy outside at right angles to the city defense.

Another major reason why the first defensive walls in Afrosiyab date back to the Achaemenid period is that cylindrical-conical pottery was found in the area of this monument. In the 50s and 70s of the last century, cylindrical-conical pottery was also found in the stratigraphic excavation discovered by V.M. Masson at the Yaz-depe monument in the territory of southern Turkmenistan [5]. These successive archeological complexes have been recognized by many archaeologists as the main base monuments almost to the present day, and when similar pottery were found, they were periodized as they date back to the VI-IV centuries BC. Of course, the Yaz-depe monument consists of three successive archeological complexes, the lowest layers of which belong to the Early Iron Age, the other two layers date back to the VIII-VII centuries BC, and the upper layer to the VI-IV centuries BC. Since Afrosiyab also had such pottery, the period of the city's emergence was also periodized as to date back to this period.

We are convinced that if such problems in the emergence of ancient cities had not been achieved in 1990-91 by the joint Uzbek-French expedition to Afrosiyab, our idea of the emergence of Sughd cities of Koktepa, Uzunqir, Erkurgan, including Afrosiyab itself, would have been completely different. The fact is that in the process of excavating the first defensive wall of Afrosiyab in 1990-91, a monolithic raised defensive wall was found in the lower layers of the above-mentioned corridor-gallery-type defensive wall, i.e., under the round shaped bricks. This wall differed from the previously known walls not only in the brick used for it, but also in the shape of the wall, in other words, it was built in a monolithic style with thickness of 7-8 meters. During the construction of the wall, it was raised as separate blocks (parts). A 220-hectare area of the city was surrounded by a similar wall. In addition, the acropolis part of the city, in other words, the arched part, was also separated. The bottom of the city governor's castle also rose with the same rounded bricks. So, these newly discovered defensive walls were radically and fundamentally different from the defensive walls that were previously considered to be the "defensive walls of the Achaemenid period". Because the bricks are not rectangular, but rounded, the shape of the wall is not in the form of a corridor-gallery, but in a monolithic style, with a thickness of 7-8 meters [3].

After the discovery of these defensive walls in Afrosiyab, archaeologists remembered that there was a similar monument in Koktepa, 35 km north of Samarkand, made of rounded bricks, and visited the monument. However, not all members of the

expedition believed that Koktepa was a very ancient monument. As a result, international expeditions were conducted here only after the author of these lines spent two years clearing various sections of Koktepa and determined that the monument belonged to the Early Iron Age through precise facts. As a result of the research, 2-3-meter layers were discovered in Koktepa in the Zarafshan oasis, indicating that the first Iron Age peasant communities lived, which was not known for anybody up until then, in basements and semi-basements. In everyday life, these people used stone knives, sickles and handmade pottery with a red pattern on it.

It was known that the population with such a culture was widespread in the main agricultural oases of Central Asia in the XII-VIII centuries BC.

In Koktepa it is possible to see that the owners of the above culture learned to build monumental buildings from rounded bricks from the VIII century BC. Two of these monumental buildings were erected in the Koktepa area. One was in the center of Koktepa and was surrounded by a separate wall with the thickness of 2.5 meters. We called the remains of this building a «temple». In the second stage of the development of the monument, a platform made of round bricks of 40x40 were rose above the ancient temple.

In the south-eastern part of Koktepa there was a "governor's residence" built of the same rounded bricks as above, and it was surrounded by a separate wall about 5 meters thick. In the corner of the palace there was also a "fortress" with a platform measuring 40x40. When erecting the walls of various buildings, they used a method that was so characteristic that it was suitable for all the cities of Sughd at that time.

This means that both buildings in the Koktepa area were surrounded by separate walls. The outer defensive wall of the monument was also preserved on the west side, and was built of straight rectangular bricks. We think that the time when the outer wall was built must date back to the VII-VI centuries BC, because only one or two round-shaped bricks were found in the section. This external defensive wall surrounded an area of about 100 hectares.

Thus, it was possible to observe the main stages of the process of emergence of the first cities in Koktepa, the structure of the first cities, the main elements of interest to archaeologists, such as construction techniques.

Well, just like the above, the main elements of the city were observed in which cities of Sughd. The earliest was in Afrosiyab, where the ruins of this city were erected along with a 'governor's residence', a defensive wall built of the first monolithic rounded bricks occupying an area of 220 hectares. Prior to the construction of this wall, Afrosiyab was surrounded



by a oval-shaped wall that rose in the style of a "lomboz".

The Uzunkir monument is located near the city of Kitab, only a part of its defensive wall, with the length of 70 meters from the ruins of the ancient city survived. Expert scholars who have studied this wall have noted that it was a defensive structure built on the basis of ancient oriental traditions in the VII century BC. Sh. Rakhmonov, who visited the section of the Uzunqir wall 5-6 years ago, told us that there were rounded bricks under this defensive structure.

So, since the earliest development of the major cities in Koktepa, Afrosiab, and Kitab district continued in the same way, why should Yerkurgan's emergence and its development be different?

We have already mentioned that the city was built in the VI-V centuries BC according to the research of various scholars. The fact is that when we excavated in the potter's neighborhood of Yerkurgan in the late 70s of the last century, it was discovered that only one or two places had layers belonged to the X-VIII centuries BC. Because undergroundwater rose around Yerkurgan which made excavation of the lower layers one of the most difficult issues.

In 1998-1999, in connection with the preparations for the anniversary of the city of Karshi, there was another opportunity to conduct excavations. The first excavations were carried out 20 years ago, and when it was expanded and renovated by another meter, a previously unknown castle wall dating back to the 7th century BC, around 3 meters thick, was found. Since this wall was inside the main defensive wall of the city, it was considered to be the "first internal defensive wall" and this served as one of the main proofs to celebrate the 2700th anniversary of the city of Karshi. This is because the tradition of building cities that surrounded the city and did not have a single defensive wall was typical of the countries of the Ancient East. For example, the Bronze Age monuments of Jarkutan in Surkhandarya, Oltintepa in Turkmenistan, and the Koktepa which belong to the Early Iron Age also had temples and governor's quarters surrounded by separate walls in their early development. In our opinion, Yerkurgan also developed in its early revolution in accordance with the traditions of the Ancient East.

On the occasion of the anniversary of the city of Karshi, the city administration allocated funds for the study of Yerkurgan. As a result, there was an opportunity to conduct additional, new archeological excavations here. In two places of excavations we found the oldest and main defensive wall of the city even under the defensive wall, which was previously unknown to anyone and was previously recognized as "built during the Achaemenid period". This wall was raised to a thickness of about 3 meters with the help of building the construction in the form of a tape

with big blocks of mud, and later repaired and strengthened with additional mud on the inside, bringing the thickness of the wall to 7-8 meters.

### 3. RESULTS

The technique of building the fortress wall and the first defensive wall in Yerkurgan is also reminiscent of the technique of building a wall of round bricks of the Sughd cities mentioned above. Although Yerkorgan's wall is tape-like big blocks of mud, its "tapes" are a series of pieces of clay embossed over brown clay, and the next row of "tape" is of course thicker than the mud taken from under the ditch that surrounds the city. . As far as we know, in both Koktepa and Afrosiab, the color of the clay laid on it with round bricks was more of a muddy color.

A little later, in the VI-V centuries BC, when a new wall was built in Yerkurgan, the old wall served as a foundation for it, that is, the new wall rose above the old, repaired wall. Thus, the oldest wall of Karshi was found.

### 4. CONCLUSIONS

In our opinion, the people who restored the above-mentioned cities of Sughd are the Kayans, one of the first ruling dynasties, whose names are mentioned in the "Shohnoma" and preserved in the memory of the people for many years.

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## METHODS OF TEACHING ARABIC TO NON-NATIVE ARABIC SPEAKERS IN UZBEKISTAN

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### DISCUSSION

The method of teaching in its broad sense means a set of methods that organize external field of the learner through it. In order to achieve specific educational goals (1). According to this definition, it is more than just a meaning of conveying knowledge, because that means one side active "the teacher", and it imposes the learner's negativity in most of times, and it's limiting the objectives of education to imparting information and knowledge as well, which violates the broad and comprehensive concept of education.

The successes of teaching Arabic as a foreign language in Uzbekistan, is related to the teacher's ability to solve the problem of what he teaches to students, then how to teach them, and what methods that he will use in the teaching process.

The methods of teaching foreign languages have diverse and multiple due to the developments and changes brought about by the sciences of language and linguistics in the field of learning and teaching foreign languages, but with this diversity and plurality, there is no suitable method for all educational conditions and learners. Each method has its own characteristics and what distinguishes it from other methods, and the difference in the methods of teaching languages is the result of differing opinions about the nature of language, its learning and teaching, the role of teachers and learners, educational materials, teaching objectives and others related to the educational process (Richards) (2).

The methods of teaching second languages are many and multiple, and the Arabic language teacher has to choose what suits him best. Nevertheless, it can be said that there is no ideal way of teaching languages that is suitable for all circumstances.

(1) Taaima, p. 26, 2002.

(2) Richards, p. 422, 2007

Language education is one of the most important branches of applied linguistics, if it's not the most important one at all. This has led many of the linguists sincerest to use the term applied

linguistics synonymous with teaching foreign languages in particular. And this branch.

He is interested in all related to teaching languages in terms of (psychological, social, and educational, matters) including the different directions and methods, and the auxiliary means of: Preparation for institutes and universities, curricula, educational materials, and supervision.

(2) The methods of teaching foreign languages have gone through multiple stages, and they have varied and developed as a result of the increase in the number of those wishing to learn these languages, and we also note the diversity and multiplicity of their goals and purposes of learning those languages in light of the development and scientific progress, whose results led to show up new learning styles that did not exist before, and from these methods referred to by 'Prof. Mahmud Kamel Al-Naqa', and 'Prof. Dr. Rushdi Ahmad Taaima', in their books (3)

1 - Grammar and translation method.

2 - The direct method.

3 - Reading method.

4 - The audio-oral method.

1) Sanford, p. 33, 1979.

2) Chinese, p. 70, 1978.

3) The Camel, Taaima, Methods of Teaching Arabic to Non-Speakers, Publications of the Islamic Organization for Education, Science and Culture 1424 AH / 2003AD, pp. 70-80.

5 - The communicative functional method.

We will present each method, as well as presenting professors and their opinions on these methods, and then draw a conclusion in light of that.

First: Grammar and Translation Method:

This method is known as the traditional method, and it is one of the oldest methods used in teaching foreign languages, and it's used in widespread in the world in the absence of a clear method for teaching a foreign language, that is based on scientific educational, and takes into based on psychological theories of learning in the absence of



theories of sociolinguistics. that are concerned with the role What language performs in life, as well as in the absence of linguistic theories that establish a scientific description of the linguistic, phonemic, morphological, syntactic and semantic systems (1).

This method begins with teaching grammatical rules and explaining them with a long explanation using the original language of the student, which is also used to explain the meanings of the new linguistic elements, and compare them with the target language, and this is followed by the translation of some texts, phrases and structures, and this method is concerned with the skills of reading and writing in the foreign language, without any interest Methodical by listening and speaking; In this method, no attempt is made to enable the student to speak in the foreign language, and it is only used when the teacher asks some questions about what the students have read in order to answer them in the foreign language in phrases that move directly from the read text (2). We note that the most common training here is translation from the Uzbek language into The foreign language, as well as translation from Arabic into the Uzbek language with emphasis on morphological and grammatical formulas, dividing speech into noun, verb, letter, adjective, adverb and so on, and exaggeration in teaching grammar, definitions and formulas to the extent that teaching a foreign language appears with it as if it were limited To teach these patterns as an end in itself, and not to use them as a means of communication and communication. The words were not presented to the student in.

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1) Kharma and Hajjaj, 1988, p. 165.

2) The Camel, 1985, p.68.

Useful sentences, or in a general context, but in lists in both the foreign languages and the original language of the learner, and the study must memorize them verbatim, and the sentences that are used were not selected from real life or practical, but rather were drawn up and written to clarify the rule or grammatical formula (1).

We notice that this method is widespread in many places in Uzbekistan, and through my teaching of the Arabic language, I found many Uzbek colleagues and professors apply this method when teaching them the Arabic language, especially in the Imam Center Al-Bukhari in Samarkand, the Imam Al-Bukhari Institute, the Khadija Al-Kubra School, the Kukaldash School in Tashkent and the Mir Arab Bukhara School, as well as some centers and universities that teach Arabic as a second language.

The disadvantages of this method:

A - It distracts learners from translation and is interested in reading, writing and translation skills,

and not interested in teaching other language skills, and the main goal is to educate the student and increase his knowledge of the language, and it's origins and rules, without any interest in teaching the language itself.

B - Teaching the second language is restricted to the teacher's activity with his students in the classroom only and through prescribed books and does not deviate from it. Which leads to the learner's alienation, fatigue and frustration for the large number of grammar and translation courses, and to asking him to master these rules and training to write accurately without error?

C - The learner's feeling bored during learning, due to the lack of educational means that renew educational attitudes and attract the attention of students and learners.

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1) Kharma and Hajjaj, previous reference, 1988, p. 165.

Second: the direct method:

This method is called direct. Because it assumes the existence of a direct relationship between the word and the thing, or between the phrase and the idea without the need for the intervention of the mother tongue (1). It adopts the principle of automaticity, which means receiving phrases, and then expressing them in the foreign language that they learn without passing through the mother tongue (2).

This method was the first real reaction to the grammar and translation method. There has been a change in both the content of teaching a foreign language, and the methods of teaching it, and teaching foreign languages has turned to the language he speaks .

People in them daily lives, and focus on mastering oral skills, while banishing the idea of translation and rejecting it in the classroom. And education is made by linking things and their connotations and expressions in the foreign language, and direct coupling between the word and what it indicates, and between the sentence and the position in which it is used.

Listening has also become taught by listening to the language as its people speak it, and the grammar is no longer studied by analysis and direct focus on it, but in an inferential manner through training on useful sentences and phrases (3). This method requires to innovate in presenting the educational material from the teacher, and to innovate in explaining the vocabulary, and the composition without the need for an intermediate language. The learner tends to develop his linguistic fluency without accuracy, and tends to include many foreign vocabularies in the composition of his national language (4)



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- 1) Al-Osaili, 2002, p.62.
  - 2) Al-Homsi, 2003, p.8.
  - 3) Rivers, 1981, p18, 19
  - 4) The Camel, 1985, p. 75.

In addition to the problems that the teacher himself faces when using this method; Not every teacher can use it, and he must have a great linguistic wealth in the new language so that he can think of new meanings when he is asked to re-explain a word or clarify a concept without resorting at any time to the use of the students' national language.

He must also have an innovative personality that is always renewed from the methods of presenting the informational material.

Third: How to read:

This method was devised to feel dissatisfaction with the grammar and translation method, and in an attempt to teach the foreign language live in situations that directly benefit the learners, and a desire to provide a greater opportunity for learners to get acquainted with the foreign language, especially from its written sources.

This method usually begins with a period in which students train in some phonemic skills, then they listen to some easy sentences, and train to pronounce some sounds and sentences, until they become accustomed to the phonemic system, due to the background that the image that a person creates about the phonemic system of a language will participate in developing his communication skills With their symbols on the printed page.

After the student is trained to pronounce certain sentences, he reads them in a text, and the teacher works to develop some students' silent reading skills, then the students read this text aloud, followed by questions about the text to ensure its understanding.

Among the advantages of this method:

1. Its focus on the skills of reading and writing, and this is one of the basics of working in teaching methods that work in this way.
2. Acceptance of this method for the use of the intermediate language or the translation between languages.
3. This method is interest in setting controls to preserve the educational material; this method also took care of controlling vocabulary and hence the emergence of vocabulary lists.
4. This method was not created in response to changes in linguistic concepts or theories of psychology. Rather, the need for it emerged from a practical standpoint. The students' need to learn to read in the second language was greater than their need for other skills,

and it was based on a practical utility and not a philosophical basis. Theoretical.

This method has provided the field of second language education with a pioneering experience in terms of the possibility of preparing programs to teach the language for special purposes, which is here teaching reading (1).

As for the disadvantages of this method, we can summarize it as follows:

1. This method neglecting the oral aspect despite the need for it by non-Arabic speakers, as the oral side plays a major role in learning the second language, especially after the increased interest in learning the skills of listening and speaking to achieve actual communication and communication between people.
2. Focusing on the skill of reading as a basic skill around which teaching the Arabic language revolves, and this may lead to the opposite result, as we find some students lack reading in their native languages.
3. Not preparing for extended reading, whether in terms of choosing topics of interest to students, or in terms of controlling vocabulary, or controlling structures.
4. Not taking into account the individual differences between students, some students feel embarrassed they embarrassed when you ask them to read, especially reading aloud, so the teacher should realize this problem by gradual reading among students, starting with the best, then the average, then the weak, or by using graded reading books.

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1) Al-Marashda, p. 46, 2008.

Fourth: the audio-oral method:

It was named by this name because it combines listening to the language first, and giving an oral response with or without a visual component after that.

This method is based on a perception of the language, which is that it's a set of phonemic symbols whose connotations are agreed by community members with the aim of achieving communication between each other, such as if the primary goal in teaching the Arabic language is to enable non-Arabic speakers to have real and useful communication with speakers of it, with the different skills needed by this communication. , And the positions going on around it.

In teaching language skills, the teacher follows the natural order for individuals to acquire them in his first language, by listening to them first, then imitating those around him with words, then uttering some of their words, then reading these words and finally writing them, then we find that the



order of the four skills in this way begins with listening Then speak, read, write.

The use of assistive devices and educational activities is necessary in this method, and it is known that teaching aids convey to the learner the experience in a form that compensates him for his lack of direct contact with it.

Success in teaching a language according to this method requires that the teacher be highly innovative, but teaching grammar does not receive much attention within the framework of this method. The rule is explained through a linguistic arrangement mentioned in the dialogue that the student studies, and it has been noticed that some basic rules are often neglected, and they are not naturally and logically presented in the dialogue until the combinations of the rules to be explained are entered.

Fifth: the communicative functional method:

This method is one of the most important methods of teaching foreign languages, as communication is the basis for learning any language, and the learner's acquisition

The communicative ability enables him to master the foreign language, and to use it in life situations in which he cannot use his mother tongue (Uzbek). The functional communicative method has appeared with the emergence of a fundamental change in the perception of the language itself, the way we describe it, the methods and content of learning and education; As a result of the emergence of new linguistic theories, theories of learning and their implications for learning foreign languages, theories of sociolinguistics that focus on the rules and methods of using language in society, and the linguistic functions that achieve this.

We notice the increasing feeling of the need to learn second languages after the communication revolution and technical progress, and the emergence of the latest technologies, ease of use and speed of circulation.

In light of the foregoing, we conclude that: All of this made a review of the methods of teaching foreign languages necessary, and paved the way for the emergence of other methods, such as the functional, applied method that took another dimension based on the value and role of language in society first, and on learning theories concerned with the learner as a person with his own abilities that are not subject to For external stimuli.

Among the advantages of this method are the following:

1. Having the ability to perform the main function of language learning, which is the process of communication between members of society, and this method emphasizes the importance of the semantic

and communicative dimension instead of the importance of the grammatical dimension.

2. The interest of this method in the four language skills (listening, reading, writing, and speaking (speaking), and working on developing them simultaneously in an integrated way, so that one skill is not preceded by another.
3. Finding out the needs of learners in learning Arabic or the second language.
4. The interest of this method in activities that create real realistic situations for using language, such as asking questions, recording and retrieving information, exchanging ideas and information, developing instructions, and participating in various activities related to reality.
5. Looking at language as a basic means of communication, based on the basic needs of the learners, according to which the learning objectives are determined.
6. Use the language in practical use, and learn from the language what is necessary for learners to communicate in different life situations. Communication is a great feature and an important factor that is one of the most important factors for the success of acquiring and teaching a foreign language.
7. The interest of this method for the learner, and it allows him to play the different roles that the previous methods did not give him, so it allows and allows him to take the opportunity to learn according to his effort, activity and capabilities, and this method recognizes the individual differences between the learners (1).
8. Paying attention to audio-visual educational aids, with careful selection of the method, and ensuring its suitability And its necessity for the prescribed material and its relationship with it.
9. Distinguishing between linguistic and communicative ability. It is not sufficient for the learner to master the rules of the foreign language, but rather to master the rules for communicating with it in different cases so that its use is realistic and real.
10. Paying attention to classroom activities, transforming the classroom into an environment similar to and similar to the general educated environment, and directing students to benefit from activities, works and partnerships outside the classroom.

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1) Hajjaj and Khorma, previous reference, pp. 173, 1988 AD.





## THE ESSENCE OF THE TEXT UNITS

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### ABSTRACT

*This article discusses the essence of the text concept in today's Uzbek linguistics. It also provides an overview of the text in the world linguistic and different approaches to this event.*

**KEYWORDS:** *the theory of the text, linguistic of the text, the ontological and functional signs of the text, the semantic structure of the text, the syntactic integrity, the syntactic structure, paragraph, maximum text, minimal text.*

### INTRODUCTION

In physics, the discovery of the atom was considered a great success, and shortly after it was announced as the smallest particle, it became known to the world of science that the atom, in turn, would also be divided into fragments. We are confident that scientific research in this area will reveal that even the smallest fractions can be divided. Because an objective being is a collection of particles that can be divided into infinite parts.

XX century scientific thought, Hegelian dialectics and dialectical categories proved that the most important concepts of existence and social life are inextricably linked. This, in turn, had a profound effect on the development of all the humanitarian sciences. Now it is necessary to imagine and investigate each event in a general connection, that is, in a certain chain. The most important and complex linguistic relationship between human society since its inception. It is of great practical and theoretical importance to study them, or rather to study the texts that reflect the essence of those relations, to analyze the rules of their formation. The reforms taking place in our lives are reflected in every field, including linguistics, which today has made great strides in all areas of language. The emergence of a number of new directions in language (computer linguistics, psycholinguistics, mathematical linguistics, sociolinguistics) and the scale of scientific research

created in connection with their study is also evidence of this.

In particular, text linguistics is one of the new directions in the field of linguistics. Philology and other humanitarian sciences can be considered as a set of knowledge about the text, which includes examples of culture, language and literature of the peoples. Nevertheless, when interpreting the concept of the text, linguists express different opinions.

### LITERATURE REVIEW

Studies devoted to the study of the text and its nature appeared at the end of the twentieth century. Text linguistics is one of the issues that has attracted the attention of many linguists. In particular, in world linguistics V. Matezius, I. Galperin, L. Loseva, O. Moskalskaya, K. Abdullaev, in Uzbek linguistics in this regard R. Kungurov, I. Kochkortoyev, Q. Samadov, N. Mahmudov, M. Yoldoshev, X. Doniyorov, E. Kılıchev, S. Karimov, B. Umarkulov expressed their opinion about the text. In the general development of text theory, text linguistics, the services of representatives of the Prague Linguistic Circle, German, French, English, American, Dutch, Polish and other schools of linguistics are recognized in world linguistics, while in Russian linguistics the works of V.V. Odinson, I. R. Galperin, O. I. Moskalskaya, L. M. Loseva, Z.Y. Turaeva, N. S. Valgina, N. D. Zarubina deserve special attention.





Academician G. Abdurahmanov was one of the first in Uzbek linguistics to deliver a speech on the theory of text at the third Conference of Turkologists of the former Soviet Union in Tashkent in 1980, expressed his views on the essence and solutions of the problem, distinguished a number of types of text. Linguist A. Gulamov also expressed his views on the essence of the text.

In the later period of Uzbek linguistics, it is possible to note the works of such scholars as A. Mamajonov, M. Tukhsenov, M. Abdupattoyev, N. Turniyozov, M. Khakimov in this field [1]. Text linguistics has been formed as a separate branch of linguistics, is constantly developing, and new theoretical generalizations are being made. First of all, it should be noted that there are different opinions among experts in the definition of the concept of text.

## RESULTS AND DISCUSSION

Some linguists consider only a written whole or a piece of speech to be text. For example, the Russian linguist L.M. Loseva emphasizes that the definition of "text" should be based on the characteristics of all texts [2]. I. R. Galperin, who studied the text as an object of linguistic research, emphasizes that "completion is realized in the form of a written document as one of the leading aspects of the text that reflects its ontological and functional features". In his view, a text is a speech work in the form of writing. However, most linguists who deal with the problems of text linguistics point out that text can be both written and oral [3].

Indeed, the same idea has a scientific and logical basis, and it accurately reflects the essence of the text. Z.Y. Turaeva states that according to the general theory of textual linguistics, it is possible to take a text that is the product of oral or written speech as its subject, but it is expedient to interpret the text in a narrow sense, that is, only as a product of written speech. R.A. Karimova, who studied the semantic-structural structure of the text on the example of oral and written speech in Russian, noted that the text is a work of speech not only graphically, but also orally, in which the oral form is the genetic basis and the analysis of the facts leads to the theoretical conclusion that "at first glance the text seems to be located at opposite points of space, the verbal emergency (spontaneous) text and the written text (literary text) have a common feature - a certain structure." [4]. In linguistics, in almost all of the many and varied definitions given to a text, the sign of coherence and integrity is expressed in one way or another.

A. Gulamov emphasizes that the completeness of the idea is relative, the completeness of the content of the work can be understood from the whole text, citing the example of a unified text

consisting of three paragraphs, and based on this, he mentioned:

- "Expression is not limited to the sentence (simple sentence and compound sentence). A complete idea is usually given by a syntactic integrity that is larger than the sentence. Speech is a component of this integrity.
- This component is connected with other components of the same integrity in various ways (content, grammar) by various means. It has its own composition and stylistic features.
- A simple sentence can be a paragraph in its integrity under certain conditions.
- Such a syntactic integrity is a syntactic construction text. Some sentences express a relatively complete idea, while the text expresses the content of an entire complex.
- Because the text is a whole, it may have some headings that match its content. The text is divided into separate segments - parts, paragraphs, sentences. Thus, the text makes it even clearer that language is a means of communication. Speech is reflected in the composition of the text.

A text is a large piece of speech, and a paragraph is a piece of text. All versions of the text (maximum text and minimum text) completely represent a particular topic (content). So it is a high-level syntactic unit. [5] Given these features of the text, some researchers consider it necessary to distinguish it as an independent branch of linguistics (with names such as grammar of a text r, text linguistics). Some call it text syntax (such as phrase syntax, simple sentence syntax) as a continuation of sentence syntax, thereby expanding the meaning of the syntax term to a larger syntactic integrity than the sentence as the basic syntactic unit. In this case, the upper limit of the syntax is the text syntax, not the compound sentence syntax. M. Tukhsenov studied the system of means connecting elements in the Uzbek language with the difference of macrotext and mikrotext in his dissertation[6].

One of the first generalized, educational works on text linguistics in Uzbek linguistics was created by A. Mamajonov. His special course for students of philology "Text Linguistics" analyzes scientific views on the text. Issues such as the essence, types and units of the concept of text, the connection and means of connection of these units, synonymy between text units, syntactic and stylistic figures are described. [7] Later, in the book "Syntax of Text", published in collaboration with his student M. Abdupattoev, the structural-semantic and stylistic aspects of the text, the thematic-rhetorical



relationship in the text units were analyzed in detail, the relevant conclusions were summarized [8].

N.Turniyozov's book "Text Linguistics" is one of such educational works, which includes general information about the text in accordance with the relevant curriculum, the concepts of micro and macrotext [9]. M. Khakimov is another Uzbek linguist who is concerned with text problems. In his dissertation, "Contribute to the work aimed at identifying the specific links and functions of the scientific text and its units, the definition of the author's personal relationship and its types in the scientific text", he studied in detail the syntagmatic and pragmatic features of the Uzbek scientific text on the basis of rich factual materials [10].

A number of scientific articles have been published in Uzbek linguistics related to the study of this or that aspect of the text. To date, more than twenty methods of studying the text have been developed and are widely used in linguistics. One of them is the statistical study of Uzbek texts. This method of studying the text is consistently expressed in M. Yuldashev's paper "Linguopoetic study of literary text", which includes methods, views, frequency vocabulary of studying texts of different functional styles on the basis of statistical methods [11].

The analysis and application of linguistic-statistical methods of text study is also one of the current problems of text linguistics. The researches of Samarkand scientists S. Karimov, M. Yuldashev, D. Urinbaeva are noteworthy in this regard. In linguistics, the psycholinguistic study of the text also has a specific history. Especially researches of linguists I. Lisakova, A.A. Leontyev, N.S. Evchik, A. Shtern, T.A. Drozdova are remarkable. The work in this area deals with the processes involved in the creation and comprehension (perception) of text, the relationship between human psychology and the ability to create text [12].

Works in the psycholinguistic study are also emerging in Uzbek linguistics. In particular, I. Azimova's dissertation provides an overview of the general views on the semantic perception of the text in psycholinguistics, studies the linguistic and extralinguistic factors influencing the comprehension of the text on the basis of psycholinguistic experiments, shows the levels of the text comprehension process [13].

Another important branch of text linguistics, the "direction of the study of literary text", can be said to be highly developed in Uzbek linguistics. In this direction, M. Yuldashev defended his doctoral dissertation on the "Linguopoetic study of literary text". In this doctoral dissertation, the expression of the aesthetic function of language in the literary text is analyzed on the example of the best works of

Uzbek literature. The semantic types of the literary text and the problem of intertextuality are classified and described on the basis of factual materials, the principles of linguopoetic analysis of the literary text are developed. The style of formation of the literary text and the linguistic factors involved in it are studied, as well as the mechanisms of poetic actualization of phonographic, lexical, morphological and syntactic means in the literary text [11]. S. Boymirzayeva's doctoral dissertation is devoted to the monographic study of the cognitive nature of the semantic structure of the text phenomenon. The work explores the communicative-pragmatic features of the text phenomenon, shows the integral connection of the categories of modality and temporality with the essence of the text, which serve to form its content. It is also revealed that the formation of the content of the text is a social phenomenon, it is a product of linguistic cognitive activity with the participation of the author and the recipient [14].

Sh.Turniyazova's dissertation is devoted to the study of derivational features of text formation, which discusses the microtext and its types, proving that even a simple grapheme (sound in speech), words and phrases can come in the form of text. This paper provides a scientific interpretation of the derivational properties of micro and macro texts, and describes the derivational properties of text components and general text structure. It also discusses the semantic factor as a derivation operator, as well as lexical devices and the hierarchical relationship of text components [15].

## CONCLUSION

The reforms taking place in our lives are reflected in every field, including linguistics, which today has made great strides in all areas of language. The emergence of a number of new directions in language (computer linguistics, psycholinguistics, mathematical linguistics, sociolinguistics) and the scale of scientific research created in connection with their study is also evidence of this. In particular, text linguistics is one of the new directions in the field of linguistics. Philology and other humanitarian sciences can be considered as a set of knowledge about the text, which includes examples of culture, language and literature of the peoples. Nevertheless, when interpreting the concept of the text, linguists express different opinions. Nowadays, a classification of particle constructions according to their occurrence has also been developed, and particle constructions have been described grammatically and linguo-poetically. Given this, it can be said that research in the field of text linguistics is being conducted in various directions and aspects. There is no doubt that new areas of text research will be discovered in the future.



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# **BOLL FORMATION, NUMBER OF BOLLS AND PERCENTAGE OF FULL SEEDS IN THE BOLLS OF F<sub>0</sub>-F<sub>1</sub> HYBRIDS OBTAINED ON THE BASIS OF CROSSBREEDING OF THE LINES AND VARIETIES BELONGING TO *G. BARBADENSE* L. SPECIES**

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## **ABSTRACT**

*This article presents the analysis data on main indicators of cotton plant such as, formation of hybrid boll, percentage of formation of whole seeds in hybrid boll in F<sub>0</sub>-combinations obtained on the basis of crossbreeding of lines and varieties belonging to fine-fiber *G. barbadense* L. species of cotton, as well as productivity indicators of F<sub>1</sub> plants such as, number of developing bolls in one plant, percentage of whole seeds formed in one boll, and also they were proven to have high productivity indicators.*

**KEY WORDS:** *hybrid, intraspecific, fine-fiber, boll, productivity, hybridization, line, variety, coefficient of variation, formation of full seeds in the boll, combination.*

## **INTRODUCTION**

It is known that the hybridization of intraspecific specimens is one of the main factors determining the possibility of their use in practical selection as beneficial donors in the creation of promising lines and varieties of cotton. The high and low rates of the formation of bolls and seeds in the bolls during the hybridization process depend on the primary sources used in crossbreeding. Moreover, the

results of hybridization are closely related to the most important biological traits of cotton species – the biology of flowering and external environmental factors.

In cotton hybrids obtained by crossbreeding, a long-term separation process takes place in farm-valuable traits as a result of re-combination of genes (depending on the method of hybridization 8-10; 15-20 years and more). In hybrid generations, the scale



of variability and variation of traits gradually decreases, with a certain amount of relative stabilization. In addition, in the process of short-term stabilization of hybrid sources, the breeding-genetic methods of bringing them to the level of the selection family, lines and varieties have been developed. One of the developed methods is targeted selection, but in this case only phenotypic stabilization is achieved [1].

A. Seyitmusaev, A.I. Tishyn [6] have observed in their studies that in most cases, inheritance is intermittent or heterozygous in intraspecific  $F_1$ -plants by the components that make up the yield (number of bolls per plant and weight of one boll).

In the researches of H.A. Muminov [4] it was found that in intraspecific and interspecific crossbreeding of *G. herbaceum* L. and *G. arboreum* L. subspecies, the percentage of the formation of  $F_0$  hybrid boll is mainly low, and percentage of seed formation in the boll is high. This case, in turn, indicates the presence of genetic preclusion that serve to maintain the purity of species and forms in natural condition.

In the research conducted by B.A. Sirojiddinov [5], in  $F_0$  hybrids of Australian and Indo-Chinese diploid cotton species, the rate of the formation of bolls and seeds, the difficulty in hybridization with each other and phylogenetically relative distances were determined.

It is known that the main productivity indicators of cotton are determined by the number of open bolls and the number of full seeds formed in a single opened boll, as well as the weight of fiber, an important raw material [2, 3].

In the research work of Ya.A. Boboev, R.G. Kim, A.B. Amanturdiyev [2], the correlation among the farm traits of cotton such as weight of cotton in one boll, the size of the boll, fiber yield and fiber length has been manifested in low rate. Cotton productivity, the number and size of bolls are inherited regardless of other farm-valuable traits.

O.L. May [7] emphasized in his studies that the traits of cotton productivity and fiber quality in cotton are controlled by several genes.

According to O.J. Jalilov, S. Odilov, A.P. Abukhovskaya [3], the effect of modification variability on farm traits of regionalized varieties of cotton Kyrgyz-3, Namangan-77, C-6524, C-9070 was studied. It was found that the average variability coefficient of the weight of cotton in one boll varies from 10,1 to 17,4%, fiber yield from 3,9-6,6%, and fiber length 2,2-5,9%.

In our study,  $F_0$ -boll formation, the percentage of complete seeds in the bolls, and the number of bolls in one hybrid plant in  $F_1$  plants and the percentage of full-formed seeds in a single open boll were analyzed.

## THE OBJECT AND METHODS OF RESEARCH

Fine-fiber cotton varieties Termez-31, Surkhon-14, Surkhon-18, Iloton and the lines T-1926, T-2270, T-2694, T-2697, T-3150 were taken as an object.

The following methods were used to conduct research: laboratory and mathematical analysis.

## RESEARCH RESULTS

As a result of crossbreeding of the lines and varieties belonging to the fine-fiber of cotton species, 14 hybrid combinations were obtained and analyzed in the laboratory. The results of the hybridization showed that the lines and varieties belonging to the studied *G. barbadense* L. species were well intertwined. It was determined that the rate of hybrid boll formation was slightly lower at 70,0–86,6% and the percentage of full seed formation in the bolls was high, 81,2–94,3% (Table 1).





**Table-1**  
Percentage of formation of hybrid bolls and full seeds in the bolls

Intraspecific hybrid combinations	Number of crossbreedings, times	Number of formed bolls, pcs	Percentage of boll formation, %	Percentage of full seeds formation, %		
				$\bar{x} \pm S\bar{x}$	limit	V %
F <sub>1</sub> T-1926 x Surkhon-14	12	9	75,0	88,1 ± 0,45	85,0-90,0	1,8
F <sub>1</sub> Surkhon -14 x T-1926	15	13	86,6	90,1 ± 0,56	89,0-94,0	2,1
F <sub>1</sub> Surkhon -14 x Iloton	10	8	80,0	83,6 ± 0,28	81,0-85,0	1,2
F <sub>1</sub> Termez-31 x T-1926	12	10	83,3	85,7 ± 0,59	83,0-89,0	2,1
F <sub>1</sub> T-2270 x Surkhon -14	14	11	78,5	82,3 ± 0,57	77,0-85,0	2,0
F <sub>1</sub> T-2694 x Iloton	10	7	70,0	81,2 ± 0,61	77,0-83,0	2,3
F <sub>1</sub> T-2697 x Surkhon -18	14	12	85,7	94,3 ± 0,53	91,0-97,0	1,8
F <sub>1</sub> Iloton x Surkhon -14	15	12	80,0	94,1 ± 0,50	92,0-96,0	1,7
F <sub>1</sub> T-1926 x Iloton	12	10	83,3	89,3 ± 0,52	87,0-92,0	1,8
F <sub>1</sub> T-3150 x Iloton	10	8	80,0	82,4 ± 0,49	79,0-84,0	2,0
F <sub>1</sub> T-3150 x Surkhon -18	15	11	73,3	86,5 ± 0,48	85,0-89,0	1,7
F <sub>1</sub> T-2694 x Surkhon -14	14	12	85,7	86,1 ± 0,59	81,-89,0	2,3
F <sub>1</sub> T-2270 x Iloton	10	8	80,0	90,2 ± 0,63	86,0-94,0	2,6
F <sub>1</sub> T-1926 x Iloton	15	12	80,0	83,4 ± 0,25	82,0-85,0	1,1

In fine-fiber hybrids obtained by crossbreeding, the highest indication on boll formation was observed in the combination Surkhan-14 x T-1926, 86,6%, while the lowest rate was observed in hybrid combination T-2694 x Iloton, 70,0% relative to other hybrids (Table 1).

In fine-fiber hybrid combinations studied, the formation of full seeds in the bolls was found to be 81,2–94,3%. The highest indication on the formation of full seeds in hybrid boll was noted in the combination T-2697 x Surkhan-18, 94,3% and the coefficient of variation was 1,8%, while the slightly lower indication was in T-2694 x Iloton combination,

81,2% and the coefficient of variation was 2,3%, respectively (Table 1).

One of the most important traits of cotton is to determine the number of bolls per plant. The results of observations on this trait showed that the number of bolls formed in one bush in F<sub>1</sub> plants obtained by crossbreeding of lines and varieties belonging to *G. barbadense* L. species made 19,6-26,7 pieces. The highest rate recorded in F<sub>1</sub> Surkhan-18 x Iloton hybrid combination averaged 26,7±1,09 pieces, and the coefficient of variation was 12,9%, while the lowest indication noted in F<sub>1</sub> T-2006 x Iloton averaged 19,6±0,84 pieces, and the coefficient of variation was 13,6% (Table 2).

**Table-2**  
Number of bolls and percentage of the formation of full seeds in the boll in F<sub>1</sub>-plants

F <sub>1</sub> hybrid combinations	Number of bolls in one plant			Percentage of the formation of full seeds in the boll		
	$\bar{x} \pm S\bar{x}$	Limit	V %	$\bar{x} \pm S\bar{x}$	Limit	V %
F <sub>1</sub> T-1926 x Surkhan-14	21,6±0,96	16-27	14,1	88,5 ± 2,6	74,0-100,0	9,8
F <sub>1</sub> Surkhan -14 x T-1926	20,4±0,67	17-24	10,4	90,3 ± 1,4	81,0-95,0	4,7
F <sub>1</sub> Surkhan -14 x Iloton	23,2±1,00	19-27	13,5	89,7 ± 2,1	74,0-100,0	7,5
F <sub>1</sub> Termez-31 x T-1926	22,4±0,76	19-25	10,7	90,7 ± 2,1	77,0-100,0	7,3
F <sub>1</sub> T-2270 x Surkhan -14	19,8±0,70	15-23	11,2	85,4 ± 1,7	74,0-91,0	6,1
F <sub>1</sub> T-2694 x Iloton	23,4±1,06	17-26	14,3	89,7 ± 2,2	80,0-100,0	7,6
F <sub>1</sub> 2697 x Surkhan -18	25,2±0,89	20-29	11,0	91,3 ± 1,8	80,0-100,0	6,7
F <sub>1</sub> Iloton x Surkhan -14	26,7±1,09	19-31	12,9	91,7 ± 1,4	86,0-100,0	4,9
F <sub>1</sub> T-1926 x Iloton	21,8±0,96	18-26	13,8	92,7 ± 1,9	85,0-100,0	6,9



F <sub>1</sub> T-3150 x Iloton	25,4±0,91	21-29	11,3	90,2 ± 2,6	76,0-100,0	9,3
F <sub>1</sub> T-3150 x Surkhan -18	20,2±0,86	16-25	13,5	85,8 ± 2,6	72,0-100,0	9,7
F <sub>1</sub> T-2694 x Surkhan -14	22,8±0,80	20-26	11,0	82,6 ± 2,0	75,0-95,0	7,9
F <sub>1</sub> T-2270 x Iloton	19,6±0,84	15-23	13,6	86,8 ± 2,0	76,0-100,0	7,3
F <sub>1</sub> T-1926 x Iloton	23,5±0,76	20-27	10,2	91,8 ± 2,0	79,0-100,0	6,4

The results of the analysis on the percentage of full seeds formed in a single boll in F<sub>1</sub> plants obtained by crossbreeding of lines and varieties belonging to *G. barbadense* L. species were 82,6-92,7%. The highest indication on this trait was in F<sub>1</sub> T-1926 x Iloton hybrid combination with an average of 92,7±1,9, and the coefficient of variation was 6,9%, while the lowest indication on the above trait was in F<sub>1</sub> T-2694 x Surkhan-14 hybrid combination with an average of 82,6±2,0 pieces, and the coefficient of variation was 7,9% (Table 2).

## CONCLUSION

According to the analysis results of most important traits of cotton, such as formation of hybrid boll, percentage of formation of full seeds in hybrid boll in F<sub>0</sub> hybrid combinations obtained as a result of crossbreeding of lines and varieties of *G. barbadense* L. cotton species, and the most important productivity traits of cotton in F<sub>1</sub> plants, such as the number of bolls formed in one plant and the percentage of full seeds formed in one boll, it can be concluded that they had high yield indicators.

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# COURIER MANAGEMENT SYSTEM USING CLOUD COMPUTING

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## ABSTRACT

*Courier Management Softwares of various types are widely used by Courier Companies to efficiently track and process their delivery orders. This goal of this project is to develop a courier management software to help businesses and its customers to locate the movement of couriers. This aims to make efficient the pickup, delivery and transit of goods. Automation will be a key feature of it. This reduces any delays in delivery without causing any losses due to follow ups. Rapid repair of damaged equipment and optimizing the utilization of them along with improved parcel security has been the focus. As a result of this, losses will be lowered and costs can be cut, thereby making the operations as efficient as possible. Cloud Computing will serve as a cost effective solution to deploy this. Global Positioning System (GPS) technology has been the pillar of the system which is responsible for sharing the exact geographical location. This information can improve quality of the service. GPS also leaves a trail of the package and helps the customer get alerts and track it.*

**KEYWORDS** - Courier management system, Package, GPS, Tracking, Cloud Computing, Elastic Beanstalk, Automation.

## I. INTRODUCTION

With the advent of e-commerce, the scope of logistics grew exponentially. With the arrival of the pandemic, the world realised the potential of this as personal movement was restricted and work from homes were encouraged. However these operations are not immune from the consequences of the pandemic. It caused severe disruptions on the supply chains and logistics. This therefore affected businesses in their B2B operations and reduced productivity. Delays and losses were the two primary troubles which both – the businesses and customers faced.

This is where an efficient model of courier management system comes into play. Following the model followed by the Austrian parcel delivery service [1]; this project developed a system to implement an effective solution. Cloud computing i.e. Amazon Web Services was used to deploy the application into. The application would have a front end with PHP and HTML while the backend would be SQL to support the database function. It would be deployed on the Elastic Beanstalk service of

AWS [2] [3] [4]. The other option available is to host it on IIS of an EC2 instance [5].

Cloud based applications enjoy many benefits than the traditional systems. This will be an application which is fully hosted on the cloud i.e. following the public cloud deployment model. As an Elastic cloud application, it will be scalable and hosted in a specific environment designed especially for it [4] [6].

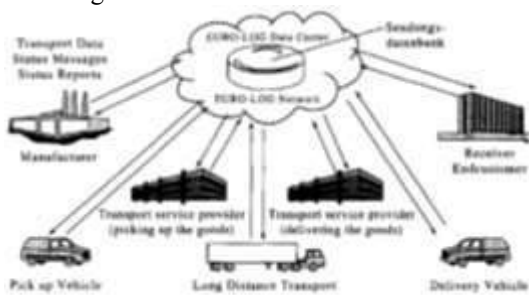
## II. PROBLEM STATEMENT

The courier management system is supposed to be effective and utilise the resources in an optimum manner to ensure timely service with least cost. Every aspect of the operation from pickup/receipt must be logged properly. The movement of goods between hubs or zones will have a time limit set under which it must be completed. The last mile delivery will also be important as a lot of delays happen here due to time taken to locate the receiver. Any packages which remain undelivered or unclaimed will be notified to the receiver first and then the sender. The receiver will be sent a tracking ID by the courier service company through

SMS/email. This can be used to track its movement. The design and implementation of this system will be the goal of this project [7].

### III. EXISTING SYSTEM

The traditional courier management system relies on a single centralized database and system to operate [8]. This has many disadvantages such as higher rate of failure, corruption of data, single point of failure etc. These factors can cause severe damages in showing the right picture which is used for taking correct decisions.



**Figure 1: Traditional Courier Management System**

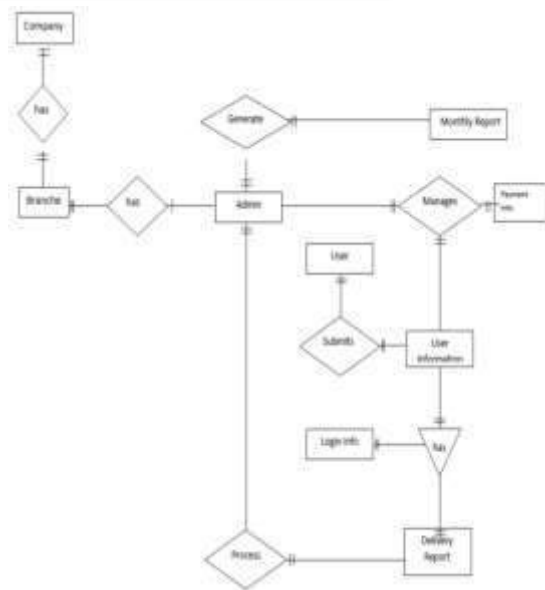
The other drawback of it was the need to manually update the progress of an order. This sometimes caused delays and confusions in case of a dispute.

### IV. PROPOSED SYSTEM

The proposed system will ensure that the application will be decentralized with proper checks and balances to give the right picture. Due to its automated nature, there won't be any loss due to manual intervention [1] [7].

Once the application is developed and tested, it would be deployed on the cloud thereby eliminating all chances for any failures or disruptions which maybe caused in normal course of business.

Auto scaling and load balancing would ensure Fault Tolerance and High Availability. This will make the application more resilient to ensure business continuity [9].



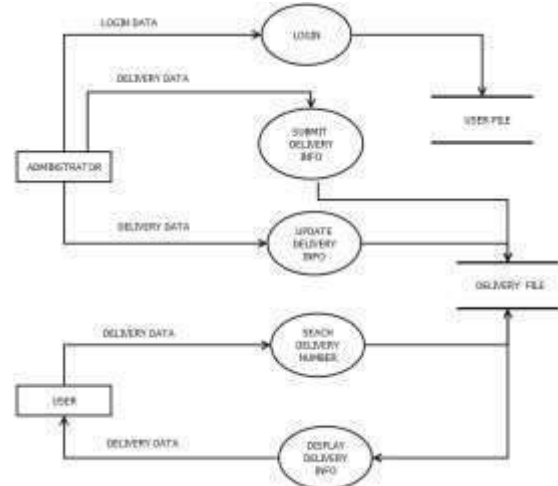
**Figure 2: ER Diagram of the Proposed System**

As the ER diagram shows, there will be the option for the business to generate data for measuring the performance and visualizing it using tools. [10] [7]

### V. DATAFLOW DIAGRAM

The dataflow diagram gives a rough idea of the proposed system. There are three main parties in this transaction:

- Administrator and his agents
- Customer or users.



**Figure 3: Data flow Diagram**

The administrator or the other business IDs can be used to book a courier request that generates a unique ID for tracking till delivery. The user is also notified of all the movements by the package along the system.

On the scheduled delivery time the user is notified and put in touch with the last mile delivery agent to

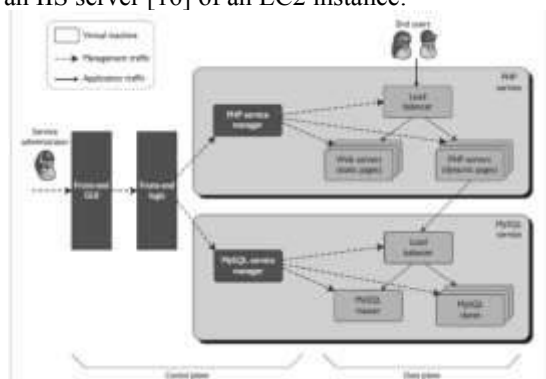


ease the delivery. They have also been given an opportunity to raise complaints [11] [12].

## VI. SYSTEM ANALYSIS AND DESIGN

The application will rely on the frontend developed by PHP and HTML. These are the two suitable scripting languages for making the interface of the application. The backend of it will be SQL [13] [14]. This is to maintain and process the databases used for various purposes. PHP's compatibility with the SQL database is an added advantage here [15].

This will be hosted on an Elastic Beanstalk [2] or in an IIS server [16] of an EC2 instance.



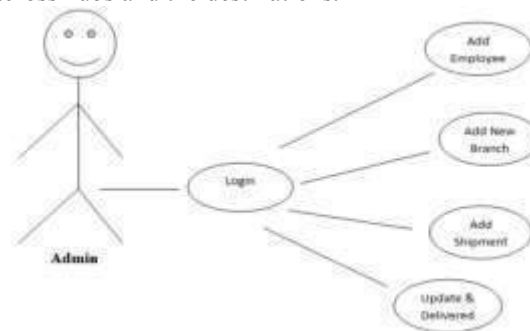
**Figure 4: System Architecture and Design**

The customers will be able to access the information from the application while the administrator will be able to control and segregate the information fed to the servers [1]. The updates made are always by administration authorisation. This is to ensure that the customer gets access only to the right information [17]. The end users consist of both, senders and receivers. The updates in transit will be made available to the customer on a provisional basis thereby reducing any scope for error.

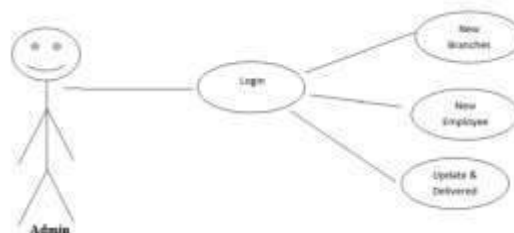
Since this will be hosted on a Cloud, there will be provisions for auto-scaling and load balancing. This is to ensure that the application performs without any hiccups depending upon the fluctuations in loads [6].

The use of Elastic Block Storage will create a separate environment for the application to run. It can also be run on containers like Docker to achieve the same results. In the case of an IIS deployment, it will require the creation of autoscaling groups and load balancers [2] [16] [6]. Though the application is decentralized and data is redundant, there must not be an issue of data corruption. This is taken care of by introducing strict checks. The primary such responsibility is that of the administrator to approve all changes

which occur along the passage of the shipment across hubs and the destinations.



**Figure 5: Admin Roles**



**Figure 6: Admin Roles**

Some changes to the application are restricted only to the administrator. They are as follows:

1. Adding new employee
2. Deleting or updating existing employee
3. Adding new branches
4. Deleting or updating new branches

These are functions which alter the structure and shape of the organisation and come after major approvals [18]. Therefore this cannot be done without the knowledge of the administrator [1].

In the case of the normal day to day operations the administrator does not need to keep an eye for every movement [8]. The other functions which can be updated on the website and need to be just notified to the administrator are:

1. Pickup or receipt of a package
2. Transit updates
3. Returned packages
4. Delivery confirmations

The information must be entered by authorised employees who are allotted the respective task and it must be ensured that they have done it from the specified ID and location. These transactions need to be verified by a supervisory authority [8].

The reports on these operations are constantly updated in a Power BI dashboard which is summarised and accessed by higher authorities who can check their business performance [10] [19].

There are other tools for data visualization as well. They can be implemented based on the features and requirements.





	Open Source	Integration with popular sources	Interactive Visualization	Desktop Client	Online Client
Tableau	N	Y	Y	Y	Y
Power BI	N	Y	Y	Y	Y
Plotly	Y	N	Y	N	Y
Gephi	Y	N	Y	Y	N
Excel 2016	N	Y	Y	Y	Y

**Figure 7: Comparison of Data Visualization Tools**

In this case Power BI stands out as an appropriate choice due to its interactive visualization and online client. Tableau is another viable choice which is more sophisticated [10] [19].

## VII. FUTURE SCOPE

This concept can be developed into an android mobile application [11] [12] and enable remote working with co-ordination. The mobile application can be devised in two ways –

- Customers
- Business

The business app will be restricted to the employees of the company and will be used to update the data on the application. There will be a separate API for this app and it will contain much more advanced features than the customers' API [12].

For the customers, a user friendly app can be developed to help them approach the business for their needs. The main features offered will be:

- Schedule pickups
- Get Transit alerts
- Raise complaints
- Mark delivery confirmation

Another aspect would be to take the best advantage of the cloud technology available. The organisation can opt for Hybrid Cloud deployment model so as to take the best advantages of Public and Private Deployment models. This can secure the business data by letting it remain on premise [20] [9].

## CONCLUSION

This project has solved the problems caused due to centralization and inefficient updating of a traditional courier management system and has additionally used the help of Cloud Computing to enable scaling and load balancing to enable High Availability and Fault Tolerance. Proper checks and balances have been incorporated into this and have reduced the scope of errors to near zero.

Deploying it in the cloud can be done through two services and the company can chose one which suits their purpose. The use of public cloud deployment has been made under the assumption that it will be used for a big scale.

The use of data visualization by taking data from the application can be used to measure performances and plan better approaches to achieving the target.

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# TRENDS OF DEVELOPMENT IN MACHINE LEARNING TECHNIQUES FOR SOCCER PREDICTION

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## ABSTRACT

*With the vast amounts of available data in the football industry researchers have applied several machine learning techniques towards predicting soccer outcomes. Feature engineering has been a major focus of these researches and yet the jury remains out for the best combination of data features and machine learning algorithms to be used for accurate predictive models.*

*This study presents a review of studies carried out in the intersection of machine learning and soccer prediction with a view to characterizing and presenting a trend of developments in this budding research area.*

**KEYWORDS:** *football industry, machine learning, algorithms, feature engineering, soccer prediction*

## INTRODUCTION

Data Science is presently on the forefront of the football industry with many possible uses and applications: Match strategy, tactics, and analysis, Identifying players' playing styles, Player acquisition, player valuation, and team spending, Training regimens and focus, Injury prediction and prevention using test results and workloads, Performance management and prediction, Match outcome and league table prediction, Tournament design and scheduling and Betting odds calculation. The focus of this research however is on the application of machine learning algorithms for the prediction of soccer matches.

Several researchers have proposed techniques for crunching soccer numbers in an attempt to predict games. The focus has been on identifying relevant factors to include in the predictive model, however results have been inconclusive and the jury is still out for improved methodologies for soccer prediction.

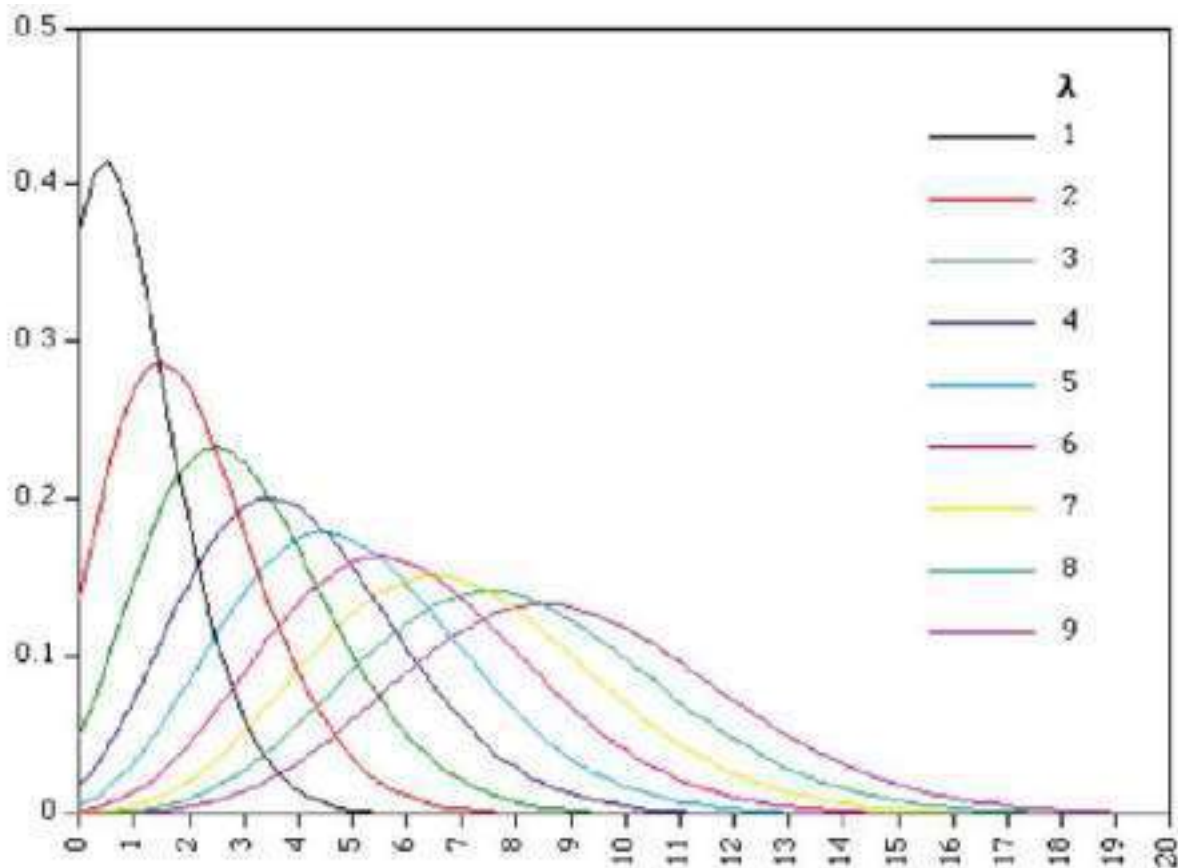
This study developed a soccer prediction framework that included individual player features and aggregated team features and implemented the developed framework by using an ensemble of support vector machines and logistic regression models on historical football data.

## FOOTBALL PREDICTION LANDSCAPE

Generating predictions for football scores has been an important research theme since the middle of the 20th century, with the first statistical modelling approaches and insights coming from Moroney (1956) and Reep (1971) who used both the Poisson distribution and negative binomial distribution to model the amount of goals scored in a football match, based on past team results. However, it was only in 1974 that Hill proved that match results are not solely based on chance, but can be modeled and predicted using past data .

The first breakthrough came from Maher in 1982 who used Poisson distributions to model home and away team attacking and defensive capabilities, and used this to predict the mean number of goals for each team. Following this, Dixon and Coles (1997) were the first to create a model capable of outputting probabilities for match results and scores, again following a Poisson distribution.

The Dixon and Coles model is still seen as a traditionally successful model, and we will use it as a benchmark against the models that we will be creating. The Dixon and Coles model is based on a Poisson regression model, which means that an expected number of goals for each team are transformed into goal probabilities following the Poisson distribution (illustrated in Fig 1.0):



**Figure 1: Poisson distribution for values of  $\lambda$  and  $k$**

The Dixon and Coles model is based on a Poisson regression model, which means that an expected number of goals for each team are transformed into goal probabilities following the Poisson distribution (illustrated in Fig.2.9):

$$P(k \text{ goals in match}) = \frac{e^{-\lambda} \lambda^k}{k!}$$

where  $\lambda$  represents the expected number of goals in the match.

The Poisson distribution enables the calculation of the probability of scoring a certain number of goals for each team, which can then be converted into score probabilities and finally into match outcome probabilities.

Based on past results, the Dixon and Coles model calculates an attacking and defensive rating for each team by computing Maximum Likelihood estimates of these ratings on past match results and uses a weighting function to exponentially downweight past results based on the length of time that separates a result from the actual prediction time.

Rue and Salvesson (2000) chose to make the offensive and defensive parameters vary over time as more results happen, then using Monte Carlo simulation to generate predictions. In 2002, Crowder et al. followed up on their work to create a more efficient update algorithm.

At the beginning of the 21st century, researchers started to model match results

(win/draw/loss) directly rather than predicting the match scores and using them to create match result probabilities. For example, Forrest and Simmons (2000) used a classifier model to directly predict the match result instead of predicting the goals scored by each team. This allowed them to avoid the challenge of interdependence between the two teams' scores.

During the same year, Kuypers used variables pulled from a season's match results to generate a model capable of predicting future match results. He was also one of the first to look at the betting market and who tried to generate profitable betting strategies following the model he developed. We have therefore seen that past research have tried to predict actual match scores as well as match results. It would be interesting in this project to look at the performance of generating a classification model for match outcome against a regression model for match scores.

We will now take a look at more recent research done on the subject, with the use of modern Machine Learning algorithms that will be interesting for us to investigate when trying different predictive models.

In 2005, Goddard tried to predict football match results using an ordered probit regression model, using 15 years of results data as well as a few other explanatory variables such as the match significance as well as the geographical distance



between the two teams. It was one of the first papers to look at other variables than actual match results. He compared the model predictions with the betting odds for the matches and found that there was the possibility of a positive betting return over time. Like Goddard, we will want to use other explanatory variables in our model than only match results, which will allow us to use different sets of features to try obtaining the best model possible.

It is also interesting to look at the algorithms used for predictions in other team sports: for example, in 2006, Hamadani compared Logistic Regression and SVM with different kernels when predicting the result of NFL matches (American Football). More recently, Adam (2016) used a simple Generalised Linear Model, trained using gradient descent, to obtain match predictions and simulate the outcome of a tournament. He obtained good results, even with a limited set of features, and recommends to add more features and to use a feature selection process, which is something that will be interesting for us to do in this project considering the number of different features that will be available to us.

Tavakol (2016) explored this idea even further: again using a Linear Model, he used historical player data as well as historical results between the two teams going head to head in order to generate predictions. Due to the large number of features available, he used feature extraction and aggregation techniques to reduce the number of features to an acceptable level to train a Linear Model.

There are multiple ways to reduce the number of features to train a Machine Learning model: for instance, Kampakis used a hierarchical feature design to predict the outcome of cricket matches. On the other hand, in 2015, Tax et al. combined dimensionality reduction techniques with Machine Learning algorithms to predict a Dutch football competition. They came to the conclusion that they obtained the best results for the PCA dimensionality reduction algorithm, coupled with a Naive Bayes or Multilayer Perceptron classifier. It will be interesting for us to try different dimensionality reduction techniques with our Machine Learning algorithms if we have a large number of features we choose to use. This also shows us that a large amount of data might not be required to build a Neural Network model and achieve interesting results.

Bayesian networks have been tested in multiple different recent research papers for predicting football results. In 2006, Joseph built a Bayesian Network built on expert judgement and compared it with other objective algorithms, namely Decision Tree, Naive Bayesian Network, Statistics-based Bayesian Network and K-nearest neighbours. He found that he obtained a better model performance for the Network built on expert

judgement, however expert knowledge is needed and the model quickly becomes out of date.

Another type of Machine Learning technique that has been used for a little longer is an Artificial Neural Network (ANN). One of the first studies on ANN was made by Purucker in 1996 to predict NFL games, who used backpropagation to train the network. One of the limitations of this study was the small amount of features used to train the network. In 2003, Kahn extended the work of Purucker by adding more features to train the network and achieved much better results, confirming the theory that Artificial Neural Networks could be a good choice of technique to build sports predictive models.

Hucaljuk et al. (2011) tested different Machine Learning techniques from multiple algorithm families to predict football scores: Naive Bayes (probabilistic classification), Bayesian Networks (probabilistic graphical model), LogitBoost (boosting algorithm), K-nearest-neighbours (lazy classification), Random Forest (decision tree), Artificial Neural Networks

They observed that they obtained the best results when using Artificial Neural Networks. This experiment is especially interesting to us as we will want to test different algorithms in the same manner, to obtain the one that works the best for our data and features.

## CONCLUSION

This study has presented a characterization and trends of development of machine learning techniques applied to prediction of soccer matches. Pitfalls to avoid while building predictive models have been highlighted and discussed.

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# MACHINE LEARNING BASED PREDICTIVE MODEL FOR SOCCER

**Ajayi Adebawale**

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## ABSTRACT

*Advancements in data crunching technologies have hugely impacted sports science especially soccer with most football teams having a data science department aimed at providing data driven solutions for various issues not limited to : Match strategy, tactics, and analysis, Identifying players' playing styles, Player acquisition, player valuation, and team spending. Identifying the right features to be incorporated in predictive models for soccer matches however remains a viable research area.*

*This study presents a machine learning based predictive model for soccer outcomes using historical data. Data preprocessing algorithms are presented as well as a framework for computing expected goals and incorporating individual player performance in predicting soccer outcomes.*

**KEYWORDS:** *Machine Learning, Predictive model, preprocessing, sports science, data driven.*

## MACHINE LEARNING BASED PREDICTIVE MODEL FOR SOCCER

Soccer is one of the most widely followed sports with hundreds of millions of soccer fans all over the world. The financial implications of the strong soccer fan base is clearly evidenced in the huge sums of money soccer clubs pay for recruiting players. Against the backdrop of huge financial influx into soccer, the need for predictive systems have never been higher in the soccer industry. Football clubs desire forecasts on player performance to enable them make informed decisions as to retention or procurement of player services. Soccer betting companies are also in need of predictive models to set appropriate betting odds based on past observations in order to stay in business.

Soccer fans who stake on the matches also demand informed suggestions to decide what odds to bet on. Everyone wants a piece of the action and informed decision making on soccer matters have not been more pertinent. Soccer pundits give their opinions as to the direction of soccer games or the expected performance of soccer teams through the course of a season. However, their predictions are more of a hit and miss as soccer proves to be quite difficult to predict using intuition and personal football knowledge alone. This limitation has led to

increased demand for statistical models of predicting soccer outcomes. Advancements in digital technology has led to the collation of vast amounts of vital soccer statistics requiring advanced techniques for processing and usage. This study presents a novel soccer prediction framework using an ensemble of machine learning algorithms and historical soccer data.

## METHODOLOGY

The quasi experimental research design was adopted for this research project as several experiments were carried out using machine learning algorithms in an attempt to get a baseline model for optimization.

### Dataset

We have obtained a dataset from the Kaggle Data Science website called the 'Kaggle European Soccer Database'. This database has been made publicly available and regroups data from three different sources, which have been scraped and collected in a usable database:

- Match scores, lineups, events: <http://football-data.mx-api.enetscores.com/>
- Betting odds: <http://www.football-data.co.uk/>



- Players and team attributes from EA Sports FIFA games: <http://sofifa.com/> It includes the following:
- Data from more than 25,000 men’s professional football games
- More than 10,000 players
- From the main football championships of 11 European countries
- From 2008 to 2016
- Betting odds from various popular bookmakers
- Team lineups and formations
- Detailed match events (goals, possession, corners, crosses, fouls, shots, etc.) with additional information to extract such as event location on the pitch (with coordinates) and event time during the match.

We used only 5 leagues over two seasons as they possess geographical data for match events that we needed to build our expected goals models:

English Premier League French Ligue 1 German Bundesliga ,Spanish Liga and Italian Serie A

We only used data from the 2016/2017 as well as 2017/2018 seasons as they are the most recent seasons available in the database and the only ones containing the data that we need.

This gives us usable dataset of:

- 3,800 matches from the top 5 European leagues
- 88,340 shots to analyse
- More than 100 different teams

### Data pre-processing

An important step before building our model is to analyse and pre-process the data to make sure that it is in a usable format for us to use when training and testing different models.

Three pre-processing steps were taken in order to achieve this:

- Part of the data that we needed, namely all match events such as goals, possession, corners, etc. was originally in XML format in the database. We therefore built a script in R to extract this data and store it in new tables, linked to the 'Matches' table thanks

$$D(lat, lon) = \sqrt{lat^2 + (lon - 23)^2}$$

The following formula was used to generate the angle of a shot:

$$A(lat, lon) = \tan^{-1}\left(\frac{lon-23}{lat}\right)$$

Data features

A simplified diagram of the database structure and features is presented in Fig.1.

to a foreign key mapping to the match ID. An extract of the XML for a goal in one match is presented below:

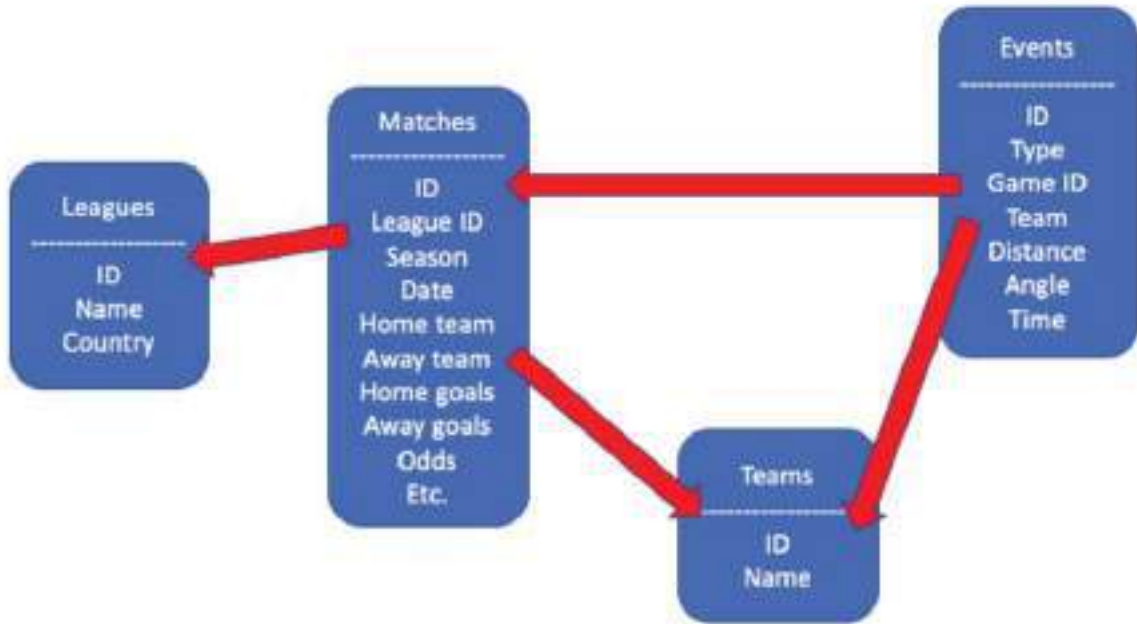
```
<goal>
<value>
<comment>n</comment>
<stats>
<goals>1</goals>
<shoton>1</shoton>
</stats>
<event_incident_typefk>406</event_incident_typefk>
<coordinates>
<value>18</value>
<value>67</value>
</coordinates>
<elapsed>35</elapsed>
<player2>35345</player2>
<subtype>header</subtype>
<player1>26777</player1>
<sortorder>1</sortorder>
<team>9826</team>
<id>3647567</id>
<n>200</n>
<type>goal</type>
<goal_type>n</goal_type>
</value>
</goal>
```

- Some data elements were set to NULL, which led to us deleting some unusable rows and in other cases to us imputing values to be able to use the maximum possible amount of data. For instance, the possession value was missing for some games, so we entered a balanced value of 50% possession for each team in this case.
- Finally, having extracted the geographical coordinates for each shot in the dataset, we generated distance and angle to goal values which we added to our goals and shots database tables. The following formula was used to generate the distance to goal of a shot, where the coordinates of the goal are (lat=0, lon=23):

We will now present the different tables and features that we have in our database and that we can use in our models:



- Matches table
  - ID
  - League ID
  - Season
  - Date
  - Home team ID
  - Away team ID



**Figure 1: Structure of the Database**

- Home team goals scored
- Away team goals scored
- Home team possession
- Away team possession
- Home win odds
- Draw odds
- Away win odds
- Events tables:
  - Subtype
  - Game ID
  - Team ID
  - Player ID
  - Distance to goal (only for goals and shots)
  - Angle to goal (only for goals and shots)
  - Time elapsed

Here is a list of the different match events tables that we have extracted:

- Goals
- Shots on target
- Shots off target
- Corners
- Crosses
- Cards
- Fouls

For each of these match event tables, we have the following features:

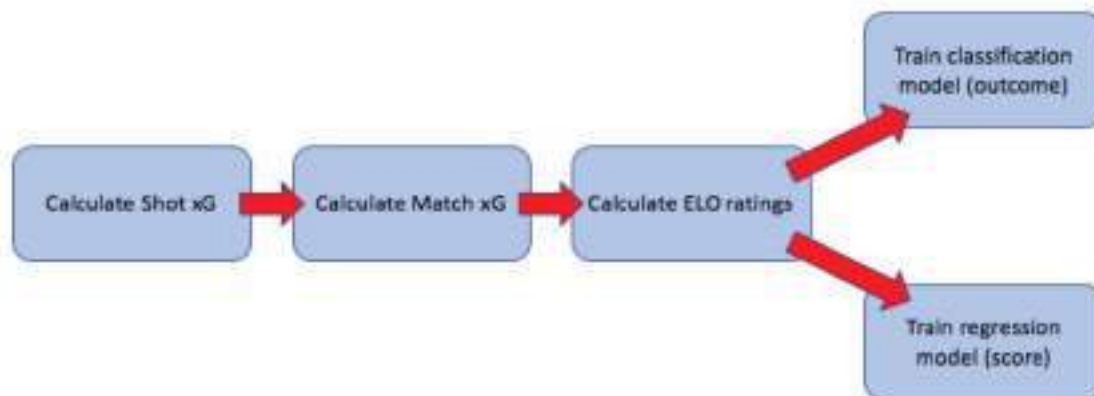
- ID
- Type

**SYSTEM DESIGN AND ANALYSIS**

This section presents the general design of our model and the choices we have made. Our model is a mixture of multiple regression and classification algorithms used to generate different metrics that are finally used as inputs for our classification model (for match outcomes) and regression model (for match scores).

**Model components**

In this section, we will introduce the different components of our model and explain their role. A diagram of our different components and how they are linked is presented in Fig 2.



**Figure 2 : Diagram of model components**

We have five main model components which we will present one by one:

### **Shot xG generation**

This component's objective is to generate an expected goal value for each shot representing the probability that the shot results in a goal, with some adjustments to reflect specific match situations.

### **Match xG generation**

This component's objective is to generate a shot-based expected goals value for each match by looking at the expected goals values for each shot during that match. In addition to this, a non-shot-based expected goals value is generated using match information other than shots.

### **ELO calculation**

This component's objective is to generate offensive and defensive team ELO ratings after each match using expected goals values and the actual performance. ELO ratings are recalculated after each match and the team ratings are stored for use in our predictive classification and regression models.

### **Classification model training**

This component's objective is to train and test a classification model capable of taking two teams' ELO ratings and generating a prediction for a match between these two teams between a home team win, a draw and an away team win.

### **Regression model training**

This component's objective is to train and test a regression model capable of taking two teams' ELO ratings and generating a prediction for the expected number of goals each team will score. These values are then used to generate a prediction for the match outcome.

## **CONCLUSION**

Our main objective of building an expected goals model by exploring different Machine Learning techniques has been accomplished. Indeed, we used

modern Machine Learning algorithms such as Neural Networks, Random Forest and Support Vector Machines techniques to generate match outcome and match score predictions. We managed to find and improve a database containing enough information to generate expected goals metrics, through both shots and other in-game statistics, and ELO team ratings.

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# IDEAS OF SYMMETRY AND HARMONY IN THE NATURAL SCIENCE WORK OF ABU ALI IBN SINA

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## ABSTRACT

*In the article, analyzing the role of the ideas of symmetry and harmony, we will see that these ideas were the methodological regulatory basis for the promotion of natural science creativity of Ibn Sina. The thinker paid special attention to the principles of symmetry as perfection, harmony, conservation, rhythm, and measure for achieving benefit and allowed to explore many traditional problems of the philosophical, natural, and medical Sciences from new positions, in the light of new conceptual approaches different from Greek, ancient science.*

**KEYWORDS:** *quantities, qualities, symmetry, harmony, matter, inertia, conservation, order, chaos, beauty, rhythm, conservation.*

## INTRODUCTION

In modern conditions of globalization, moral war and struggle for human consciousness, it is natural that adding to our national thinking the works of our ancestors and their unique ideas is a worthy shield against any social problems. From this point of view, we should be proud to say that the exemplary life and work of our great thinkers and thinkers, our outstanding scientific and creative discoveries have charmed the world community in the past and today, - said the President of Uzbekistan Sh.M. Mirziyoyev [1].

Central Asia played a significant role in connecting the two great civilizations – Western and Eastern, being a kind of guide for both sides. During the early middle ages (VII – XI centuries), the leading role in the development of science was played by thinkers of Uzbekistan, which is located in the center of Central Asia. The specifics of the revival of spirituality and the introduction of Uzbekistan to regional civilizational processes is that our country is located on the territories of the States of ancient Turan, Maverunnahr, and Turkestan. For this reason, the territory now called Uzbekistan is considered one of the cradles of civilization and science not only in the East, but also in the whole world, and this is recognized by the whole world. Indeed, the roots of

science and philosophy in our country, which created such a great work as “Avesta” three thousand years ago, there is no doubt that it is as ancient as the philosophy of China or Greece, Egypt and India. Not without reason, such recognitions as “the age of Avicenna”, “the age of Khorezm”, “the age of Beruni”, “the age of Ferghani” appeared in the history of science, and among the peoples of the East such expressions as “Samarkand – perfection on earth”, “Bukhara – the power of Islam”. Khorezm Academy of Mamun, Samarkand Academy of Ulugbek, at one time was not only the Academy of exact Sciences, but also the Academy of philosophy... In this sense, there is every reason to say that our national philosophy and science are as ancient as our history, as deep as our spirituality [2; 161-165].

In the synthesis of scientific, philosophical and cultural trends of the East and West during the middle ages, Central Asia was initially the Keeper of ancient traditions, then scientists in the centers of education and science assimilated and processed the ancient heritage, promoting further and more accurate representation of the world.

In Eastern medieval geometry, and astronomy, in arithmetic, and the science of music, and finally in medicine, the doctrine of symmetry and harmony allowed us to explore many of the traditional problems of these Sciences from new positions, in the light of new conceptual approaches that differ from Greek and ancient science. And



caused the science of this era to receive achievements of lasting world significance. The idea of harmony as having a universal character is Central to the aesthetics of the Muslim middle ages [3; 41]. It is associated not only with the structure of the Universe, but also with specific Sciences. In the art of architects, perfection (harmony, symmetry) was achieved by means of geometric ornaments, in harmony the most important elements of human life, the harmony of the plant world is revealed, etc. [4; 7].

The greatest influence on the formation of philosophical, natural – scientific creativity of Abu Ali Ibn Sina (Avicenna) was exerted by the works of al-Farabi, whom he called his second teacher after Aristotle.

The main philosophical work of Ibn Sina was the encyclopedic work “The book of healing”, consisting of four sections: logic, physics, mathematical Sciences (geometry, arithmetic, music, astronomy) and metaphysics. The book of knowledge (Danish-nameh), written in Farsi, echoes this work. Ibn Sina considered physics an essential part of his philosophical system. Logic is an extension of physics and is considered a method of cognition. The next element is metaphysics, which studies being.

We will give the place of the idea of symmetry and harmony in the scientific work of Abu Ali Ibn Sina and consider how important they are today.

#### DISCUSSION

Ibn Sina's scientific views (980 – 1037) were formed in Bukhara, the capital of the Samanid state, when this city was one of the largest cities in the "Muslim East". Bukhara at that time (X century) was important not only as a center of handicraft, trade, administrative and political life of Transoxiana, but also as a scientific and cultural center of the entire “Muslim East”. The scientist managed to learn the essence of Aristotle's “Metaphysics” through the works of Farabi. According to Ibn Sina himself, he read Aristotle's Metaphysics forty times, knew the text of the book by heart, but could not understand the essence of Aristotle's ideas, and this was only possible with the help of Abu Nasr Farabi's commentary on Aristotle's Metaphysics [5; 16].

Symmetry is a fundamental property of nature, the idea of which has been formed for tens, hundreds, thousands of generations. In ancient times, the word “symmetry” was used in the sense of “harmony”, “beauty”. Indeed, translated from Greek, this word means “proportionality, proportionality, sameness in the arrangement of parts.

For Abu Ali Ibn Sina, the principle of perfection is very important. Perfection is achieved through harmony, where preservation is important: “Perfection consists in the fact that everything necessary for its preservation exists to the extent that it is worthy of its essence” [6; 123]. Conservation is “not only necessary” to achieve perfection (harmony), but also (serves for ... good). Thus, for Ibn Sina, the principle of symmetry serves to achieve benefits.

Ibn Sina States that nature is harmonious in itself compared to man. He gives an anthropological interpretation of harmony, seeks to find its principles in the structure of the human body and in the spiritual appearance of man. He did not seek to establish a connection between

the state of the sky, the properties of the soul, and musical intervals, as the Pythagoreans did. He criticized the Pythagoreans for not “distinguishing one science from another” in their teaching [6; 126]

For Ibn Sina, symmetry is directly related to form, but form cannot exist without matter. Objecting to Aristotle's preference for form, he wrote: “Each form, being the sole cause of the existence of matter, if it disappeared, would lead to the fact that matter would not exist. Nor can it be that forms would not be real, and would not participate in bringing matter into the state of reality, otherwise matter could exist without form” [7; 5-9] concluding that “corporeal form does not exist without matter”, he rejected Plato's idealistic position on things as disembodied concepts as “useless”. Recognizing that numbers actually exist in things, he rejected the mysticism of the Pythagoreans' numbers.

Ibn Sina argued that in accordance with the “true philosophy” (i.e., the advanced view of his time), a plane that again exists in the form of a body located in matter [8; 75]. This rejected all mystical revelations based on the magic of numbers and affirmed the role and significance of methods of applied mathematics.

Beauty is inextricably linked to symmetry. It expresses the highest expediency of the world structure, confirms the universality of mathematical laws that work equally effectively in crystals and living organisms, in works of art and in scientific discoveries.

In aesthetics, the concept of symmetry is traditionally associated with harmony, beauty, and order. For this reason, the problem of beauty is Ibn Sina's main aesthetic category. It includes types of manifestation of such categories as “harmony”, “perfection”, “rhythm”, “measure”. The problem of beauty in music in Ibn Sina is consonant with the ideas of al-Farabi, set out in the “Great book of music” and other treatises. The harmony of the whole musical work is understood by Ibn Sina in connection with its artistic and aesthetic value. “Sound can be pleasant or unpleasant for the soul in other ways: either from the point of view of the mood it creates, or from the point of view of the composition. The pleasure or disgust caused by both is peculiar to the differing power of the animal soul, but not to the sense of hearing as such” [5; 23].

Music in Ibn Sina is the same object of love, since it was considered a perfect and beautiful phenomenon with qualities (harmony and proportionality), and he attributed it to the category of beautiful images in General. “Both the mind and the animal soul... always love what is harmonious, harmonious, and proportionate, such as harmonious sounds” [9; 58]. Harmony in music, as a certain abstract category, including a number of specific manifestations at various levels of a musical work, which were dictated by the aesthetic needs of musical practice. In no case should it be identified only with the ratio of two tones – the interval. Perhaps the interval is the initial level of harmony of a piece of music. Not every combination of two tones in height can be considered harmonious, but only what gives a person pleasure. At the same time, the harmony and proportionality of the two tones is adequately



conveyed by the musical term “consonance” (in Ibn Sina - Ittifak).

Time is the main element in the formation of musical reality, the basis of musical timing is rhythm, and rhythm is the basis of any of the temporal events. They can be found in the case of identifying specific factors that do not lie on the surface of asserting the relationship of music and temporal processes based on their inherent temporality, but are hidden in the ontological essence of musical laws that reflect any development processes. The musical rhythm, the sense of tact, gave rise to the human pulse of blood. “As the art of music, writes Ibn Sina, is accomplished by combining sounds in a certain ratio of sharpness and severity, and by the circle of rhythm, the size of the time intervals separating the strokes on the strings, so is the quality of the pulse beats. The ratio of the rapidity and frequency of their tempo is a rhythmic ratio, and the ratio of their quality in strength and weakness and in magnitude is a combination ratio. Just as the tempo, rhythm, and dignity of sounds are consonants, and there are dissonants, so the irregularities of the pulse are ordered, and there are disordered” [5; 17]. It can be logically assumed that time, which is related to the rate of rhythmized division, is subjective for each becoming system, which suggests a broken symmetry between time flows. And, for this reason, Ibn Sina also speaks about the presence of biological rhythms in the body, tissues, organs, that they are closely related to the rhythm of the environment, to learn to read the interaction of these rhythms through the pulse, to feel a single pattern in them, a certain music, which can be safely attributed to the highest achievements of medical thought.

And this is Biophysics, which is widely studied in modern therapy: sinus arrhythmia of the heart, for example, Ibn Sina distinguishing 48 types of pulse by ten parameters.

Ibn Sina’s Statement of the problem of the transition from rectilinear to curved motion within the framework of the natural scientific achievements of his time is admirable. Later, this idea will be developed by Galileo, Descartes, and Newton. And Galileo 600 years after Ibn Sina formulated the law of unity of rectilinear and curvilinear motion as two forms of the same mechanical motion.

Scientists of the world are still thinking about this problematic movement. According to the law of uniform rectilinear motion, an arrow flies, a spaceship, a bullet, a bird flies, blood flows in the veins, oil flows in the pipes, crystals and children grow, poems are arranged in musical harmonic compositions [10; 222-223]. Ibn Sina to say “if in the nature of rectilinear motion there is an admixture of the opposite in its nature, then the motion becomes less rectilinear”, that is, This turbulent motion gradually rounds off – the number one problem in modern physics. This movement is due to the chaotic displacement, decay, death and birth, of countless vortices – large and small, not amenable to any mathematical certainty.

Without mastering the laws of this movement, we will not be able to understand the flow of water in the ocean, winds in the atmosphere, helium and hydrogen in the bowels of the sun, the flow of oil in powerful continental

pipelines, calculate how the Earth's climate will change, radioactive radiation will spread, wind will RUB against seas and continents, and heat and moisture will be transferred from the Earth's surface to the atmosphere.

These movements were always considered completely disordered. However, they are also described by some very universal laws and are subject to strictly justified distributions. Knowing some initial characteristics of a statistical ensemble, you can make some predictions about the expected movement and calculate certain parameters of it. What if we don't know how a single particle of the ensemble moves, its movement, as a rule, doesn't interest us. Although something can be said about its movement in advance, for example, that between collisions with other particles it will move in a straight line and will not leave the specified volume, etc. Such a chaotic motion as turbulence also obeys certain laws, i.e. the Navier-Stokes equations, and turbulent flows arise from laminar flows when the Reynolds number increases, i.e. dynamically.

The discovery of Ibn Sina is also his teaching about “impulse”, “aspirations”, “violent movement”, i.e. the preservation of the movement of the moving body. “How”, thought the philosophers, “does the violent movement of the body continue after it has been detached from the source of motion?” Aristotle believed that the force of the hand that threw up, say, an Apple, is transmitted to the air, and the air pushes the Apple, and therefore it moves. 900 years after Aristotle, the Alexandrian scientist John Philoponus said: the environment does not help, but rather hinders movement! It is not the environment that makes the movement, but the driving force. Further development of the theory of the driving force was carried out by Ibn Sina, introducing the concept of “ASPIRATION” (IMPULSE). It supports the driving force until it completely disappears, until that instantaneous state of rest, instantaneous stop, after which the violent movement ends. Through the Western Arab scholars Ibn Badj, al-Bitruji is Ibn Sina’s teaching of ASPIRATION (IMPULSE) came in the THIRTEENTH century to the University of Paris, where Albert the Great directly refers to Avicenna in the presentation of this question. Finally, it was strictly formalized by J. Brudan[10;225].

Ibn Sina’s discovery was also His justification of INERTIA as a principle of motion. This idea was introduced into the law only 600 years later by Galileo. Studying the phenomena of inertia, physicists came to the conclusion that each physical body has the property of changing its speed in a certain way under the influence of this influence, which is expressed by a certain physical quantity called an inert mass. Careful research has shown that the inert and gravitational masses are numerically equal to each other and are, as it were, two manifestations of the same property of bodies. Ibn Sina says that life is an eternal circular movement, the only eternal movement on earth that is driven by the enmity of two opposites: change (asymmetry) and conservation (symmetry). Change is life. Saving is death. When a person dies, they will dissolve into the earth, which returns to the eternal preservation of matter, the eternal presence of material particles, of which



you were composed in nature. And life is a change in a new connection, a new body that has just been formed, and its development. Nothing in the world is destroyed. Even the universe itself is preserved. Giordano Bruno, Denis Diderot, and the 17th-century French mathematician and philosopher P. Gassendi also said this when developing this idea.

## CONCLUSION

In any science, Ibn Sina mastered not only all the achievements of his predecessors, but also made a significant contribution to their development, enriched them with personal observations and reflections; systematized them, corrected errors, eliminated gaps and ambiguities, excluded all unreliable, reduced and publicly stated.

Until the XVIII century the main universities in France, Italy, England, Germany and other countries more than 600 years studying Ibn Sina's "Book of healing", consisting of 22 volumes, "the knowledge Book", "Book of salvation", the "Canon of medical science", as the first translation from Arabic into Latin made by Gerard of Cremona in the XII century by order of Frederick Barbaros.

His greatness as one of the scholars-encyclopedists of the middle ages, is reflected in the immeasurable legacy, his contribution to the development of many Sciences, not only the era, but many millennia ahead.

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The first printed edition of Ibn Sina's books in 1473 – 1479 in Padua, in 1482 and 1500 – in Venice, in 1543 – in Rome in the Medici printing house, in Arabic, and in 1593 – in French. in the XV century, Kiev, Novgorod, and Moscow got acquainted with the "Ovsinev wisdom". Many of the information in this book is still used by doctors today.

Assessing Ibn Sina's contribution to the development of world science and culture, Giordano Bruno put Him on a par with the great philosopher of ancient Greece Aristotle and the healer Galen. The famous Dante in his "divine Comedy" equated Ibn Sina with Ptolemy, Euclid and Hippocrates. The German philosopher L. Feuerbach called him "A famous doctor and philosopher", and the outstanding statesman of India, J. Nehru in his book "the discovery of India", mentioning the scientists of Central Asia, separately focusing on the personality of Ibn Sina, said: "The most famous among them, who received the title of king of physicians, is Bukharian Ibn Sina (Avicenna)." Contemporaries called Ibn Sina as "Sigur-Rais" ("Commander of the sages, the chief of the scholars"), "Sharaf al-Mulk" ("Credibility, pride of the country") ....





## QUALITY OF WORK LIFE - AN OUTLINE

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#### ABSTRACT

*Quality of work-life (QWL) depicts the harmony and balance between an individual's professional and personal life. Quality of work-life of employees is of prime concern for any contemporary organisation as it is crucial to retain dedicated and talented human resource, its most valuable asset. With mounting enrolments in higher education, India is poised to reap the benefits of a large pool of skilled human resource as it continues its march towards becoming a full-fledged knowledge economy. This paper tries to deliver an exposition of the various aspects of quality of work-life of employees in general. Considering the significance of QWL in boosting productivity and the growing presence of women in the workplace, it is felt that human resource managers should pay attention to more gender-specific QWL measures.*

**KEYWORDS:** *Human Resource, Quality of work-life, Knowledge economy, Productivity.*

#### INTRODUCTION

The modern era is an epoch of knowledge employees and the present society is being transformed to be a knowledge society. The intellectual pursuits have surpassed physical efforts. Many employees work for sixty hours and above a week and hit upon balancing work and personal life. The age of Scientific Management emphasised on standardisation, specialisation, efficiency etc., with scanty focus on human values. The contribution of management scholars like Abraham Maslow, Frederick Herzberg, Mc Gregor towards the quality of work-life is worth mentioning. But now a sweeping transformation transpired which coerces the organisations to contemplate on human values and redesigning jobs. The organisations are intended to enhance the effectiveness of the organisation and quality of work-life of employees. It is the Human Resource Department and Human Resource Manager who carry out the screening, recruitment, selection

and placement of the new entrants. They get in touch with employees very often in matters related to pay, compensation, fringe benefits, welfare measures, grievance redressal etc. Human Capital is an important component of the economic growth of the nation. A well-educated and trained employee contributes to the productivity of the organisation. It is worth investing in higher education as it paves a way to national development through the diffusion of specialized knowledge and skill.

#### ENROLMENT IN HIGHER EDUCATION IN INDIA

Higher education in India is the world's third-largest in terms of students. It is a sign of empowerment and abets the knowledge, skill and attitude of people. It is a symbol of the strategic development of the society.

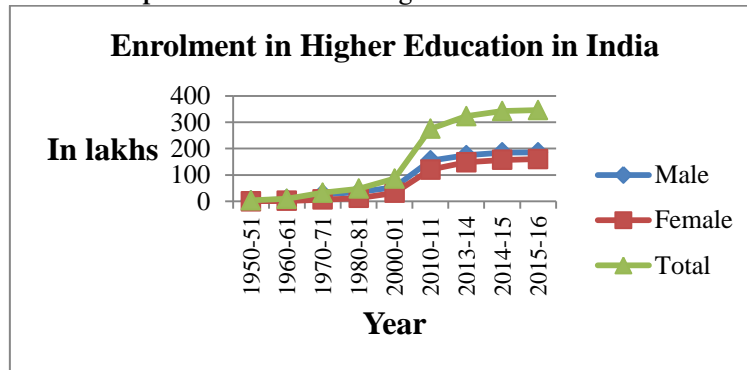
Graph 1 depicts a steady growth in enrolment in higher education in India. It is evident that in 1950-



51, the number of males enrolled in higher education was 4 lakhs and the number of female enrolment was nil. In 1960-61, it is doubled to 8 lakhs in case of men and women enrolment soared to 2 lakhs. After four decades in 2010-11, male enrolment in higher education mounted to 155 lakhs and female

enrolment to 120 lakhs. In 2015-16, male enrolment escalated to 186 lakhs and female enrolment to 160 lakhs. The enrolment of women in higher education displays a progressive trend when compared to males.

**Graph 1: Enrolment in higher education in India**



Source: ESAG 2018, Ministry of HRD, Government of India, National Institute of Educational Planning & Administration, New Delhi.

It is clear that females exhibit an interest in enrolling in higher education and they come out in flying colours. Education of women contributes positively to the betterment of the family, society and thereby the nation. Even though women show a progression in higher education, their career development appears to be often constrained by the low quality of work-life parameters.

### QUALITY OF WORK LIFE

Quality of work-life is the catchphrase in the contemporary period. It was initially conjured up in the 1960s in various parts of the world. It set off to gain impetus in India in the 1980s. Employees are referred to as Human Resource, Human Capital, Human Asset, Human Wealth, Knowledge Workers etc. The organisation has to maintain and protect its employees. The basic idea of enhancing the quality of work-life is to treat a human resource as a human being.

Work constitutes an imperative aspect of our lives. Quality refers to the yardstick or degree of excellence in comparison with others. Work-life elucidates the relation between work and life. The quality of work-life conveys the degree of satisfaction gained from work and personal life. A person who derives satisfaction from both work and personal lives surpasses in his/her endeavours. An employee expends his/her quality time at the workplace and the experience he obtains each day mirrors at home and vice versa. The significance of quality of work-life is explicit from various factors such as employer-employee relationship, increase in productivity, attracting and retaining talented and dedicated employees, reduction in absenteeism, turnover and training cost, job satisfaction, sense of

belongingness of the employees and reputation of the organisation.

### THE MAGNITUDE OF QUALITY OF WORK LIFE

An organisation which values the work-life of the employees garners the benefits of productivity, employee loyalty and goodwill.

#### 1. Rapport with Stakeholders

Organisations which intend to focus on the quality of work-life of employees improve the relationship and acquire interest among the employees and clients. It provides an opportunity for open discussion on policy measures and thereby develops a rapport. Open and clear communication is necessary to build a worthy relationship between the organisation and stakeholders.

#### 2. Boosts Productivity

Measures which aim at balancing the work and lives of employees boost productivity. Recognition, consideration and support by the superiors relieve the stress of the employees. A secure physical working environment is crucial with ergonomically designed furniture to motivate an employee. An employee needs to be motivated to be productive and thereby contribute to the growth of the organisation.

#### 3. Attracts New Talents

Job seekers and new entrants prefer flexible hours to protracted working hours. Flexible working hours helps an employee to concentrate on the job better. In addition to flexible working hours, compressed week, work from home options is also a need of



the hour as both job and family are indispensable to an employee.

#### 4. **Retains the Exceptional**

The outstanding talents can be retained by facilitating them with good quality of work life. It is achieved through a safe and secure work environment, adoption of welfare measures, training and career advancement etc. There should not be any compromise on the working environment, welfare measures, free and fair promotion, training programmes etc. A contented and motivated employee will remain loyal and sincere to the organisation.

#### 5. **Diminish Absenteeism**

Employees well treated and maintained by the organisation have an attachment to it. The bond can be created between employer and employees and between employees. Employees desire to be in the organisation than abstaining from duty. An employee with good quality of work-life never resorts to unplanned leave. He refrains from his job in case of necessity. He goes an extra mile to serve the organisation.

#### 6. **Reduces Training Cost**

The satisfied employees are an asset to the organisation. Costs of training the new entrants are condensed by retaining the existing efficient employees. Such costs could be spent on the existing employees for their career advancement. Employees are to be considered as assets of the organisation, any monetary and non-monetary benefits offered to the employees are to maintain them. They take the initiative to improve their knowledge, skill and ability.

#### 7. **Sense of Involvement**

The employees with good quality of work-life display a sense of competence. They have a high degree of job involvement. Their skills match the requirements of the job. They view their job as a constituent factor to satisfy the need for achievement, affiliation and satisfaction. A sense of belongingness is developed among the employees who are involved in the decision-making process.

#### 8. **Reduces Turnover**

Contented employees remain loyal to the organisation. Under no circumstances they look for green pastures. Motivation, guidance and support provided by the superiors to the employees generate a sense of belongingness on the part of employees. The needs of the employees are to be

matched with the facilities offered by the organisation.

#### 9. **Employee Satisfaction**

The employees whose interests are protected by employers tend to exhibit a high degree of satisfaction. This contributes to a sense of belongingness and productivity. A satisfied employee never ventures out in search of another job. Work-life balance reduces the stress and fatigue of the employees.

#### 10. **The Reputation of the Organisation**

Along with the investment decisions, it is high time, the organisations pay attention to the quality of work-life of employees. An organisation with employees displaying a high quality of work-life magnifies the goodwill of the organisation. Employees with a high degree of satisfaction are an advertisement for the organisation and the goodwill of the organisation rises spontaneously.

The above-mentioned factors depict the importance of quality of work-life to the field of human resource management and justify the numerous studies conducted in the area world over.

## **REVIEW OF RELATED STUDIES IN QUALITY OF WORK LIFE**

Review of related studies in quality of work-life gives an idea and reference to previous studies conducted in the field. A considerable quantity of research literature exists in quality of work life, majority of which are organisation specific.

In a study on quality of work-life of women employees in private sector banks in the Coimbatore region, **Naganandini. S, Subburethina Bharathi. P, Victor Seelan. D (2017)** found that less than 50% of the women employees who belong to the entry-level cadre have satisfactory work-life quality. The study concluded that there is a significant relationship between income and experience of the women employees in private sector banks.

In an attempt to find out the factors that facilitate and constrict women in managing twin roles, **Sidhu Kaur Amandeep and Saluja Rajni (2017)** established that satisfaction derived from personal life, work environment, job-related knowledge and support from colleagues, cordial relationship with co-workers, appreciation on the job, awareness of government policies, valuable time with family and friends contributed to a high quality of work-life among working women.

**Venkataraman Surendran and Anbazhagan Surekha (2018)** conducted a cross-sectional analytical study in a tertiary care hospital in Puducherry. The objective of the study was to assess



the quality of work-life among staff nurses. Bivariate analysis showed higher the age, female gender, absence of dependent individuals at home, higher income, more work experience, working in out-patient departments and no nightshifts were the significant factors contributing to a higher quality of work-life.

In a study, **Rahiman, M. H. U., Kodikal, R., 2018**, reiterates that good quality of work-life magnifies the organisational performance. Factors like pay, privileges, infrastructure, expectation and attitude of employees about work environment showed a highly significant relationship with the quality of work life. The study emphasised the need for employee involvement, participation in decision making, low job stress and motivation to maintain a high quality of work life.

In an attempt to review previous studies on the work-life balance of women employees **Vasumathi, A. (2018)** reviewed the significance, theories, determinants, facilitators, coping strategies, performance and consequences of work-life balance. The researcher has reviewed many studies concerning working women's stress and difficulties when it comes to sustaining a balance between work and family responsibilities. Women face different issues such as sexual and mental harassments at the workplace, safety issues while travelling especially after office hours.

To find out the impact of the quality of work-life on organisational performance, **Joao Leitao, Dina Pereira and Angela Goncalves, 2019**, proved that quality of work life is positively influenced by various factors such as listening to employees' problems by the superiors, good job environment, support for professional growth and appreciation by the superiors and respecting the employees both as professionals and as an individual.

In a specific study on the textile sector, **Vanishree Bloor, T S Nanjundeswaraswamy, Swamy D R, 2019**, expressed that various factors such as job security, work environment, relation and co-operation, training and development, compensation and facilities provided to the employees in the organisation are essential to retain the talented employees and maintain an adequate quality of work-life of employees.

It is apparent from the previous studies that various factors such as safe and secure job environment, adequate pay, welfare measures, flexible working conditions, appreciation by superiors, participation in decision making, job security and job satisfaction are some of the important components leading to the enhancement of quality of work life.

## CONSTITUENTS OF EFFECTIVE QUALITY OF WORK LIFE

### 1. Job Environment

The job environment should be safe, secure and free from any risks arising out of natural and man-made disasters. There should be reasonable hours of work, ergonomically working conditions, clear sanitation, infirmary and safest job atmosphere possible. The job environment can be improved by the support of management and colleagues, positive attitude and co-operation among the employees. A peaceful and sound mind, gained only from a supportive job environment enhances the commitment of employees. Flexible and compressed week work schedule helps the employees to perform better.

### 2. Perquisites and Welfare Measures

Employees must be provided with adequate and fair compensation. It has to be par with organisations of similar nature. Rewards should be in association with job performance and increase in responsibility. Salary is a prime concern and motivating factor for many employees. Fringe benefits offered by the organisation make the employees more valued. Grievance procedures lend a helping hand to the employees to represent the problems and get it redressed. Adequate transportation, canteen, medical facilities add to the welfare of the employees. The provision of welfare measures helps to motivate and retain the employees on the job.

### 3. Life Space

Flexible working conditions, recreation facilities, vacations help the employees to take an edge off the stress from the job. This invigorates the employees to perform with a clear mind set. The employees under no circumstances are encouraged to carry work home which perturbs the family atmosphere. Free and open communication between employer and employee improves the industrial relation among them. Adequate life space enables the employee to maintain a balance between personal and professional life. A stress-free environment is necessary for the employee to be productive on the job.

### 4. Job Autonomy and Trust of Superiors

A superior/supervisor need not necessarily intervene in the work of employees. They ought to receive enough freedom and responsibility to perform the tasks in their





way. Freedom of decision making augments the responsibility of the employees. Employees feel reliable and esteemed through additional responsibility, appreciation before others and acknowledgement of their quality of work. Employees tend to be more mechanical due to the monotonous and routine jobs. Sufficient autonomy given to the employees helps to expose their latent talents on the job.

#### 5. **Involvement in Decision Making**

Owing importance to be given to the opinion of employees in professional matters. They may perhaps be involved in the routine decision making process and support to be extended to indispensable suggestions which facilitate them to feel treasured in the organisation. Employees can be motivated to offer innovative and creative ideas and suggestions to the managers and supervisors. Constructive suggestions ought to be rewarded. This motivates the employees to contribute to the growth of the organisation.

#### 6. **Career Advancement**

The job has to be enriched with effective training and development programmes. Opportunity for growth both personally and professionally is to be extended by the organisation. Promotional policies need to be fair. It should be based on seniority, experience and merit. Employees are to be persuaded for skills enhancement, innovation, learning and self-development. An organisation which helps in the career advancement of the employees are generating motivated employees which lead to productivity and further adds to the reputation of the organisation.

#### 7. **Job Security and Satisfaction**

Each employee longs for the security and stability of their jobs. The policymakers need to initiate steps to enrich and redesign the job for the employees to remain contented. The latent talents and abilities of the employees need to be exercised and recognise the employees. Jobs should offer enough scope to realise the goals and aspirations of the employees. A strong employee association is necessary to protect the interests of the employees. A sense of accomplishment makes the employee secure and satisfied which further reflects on the job.

There is no complete agreement among the researchers regarding the components of effective quality of work-life; nevertheless, the above

mentioned factors are the most commonly identified constituents of quality of work-life.

### **RISKS OF POOR QUALITY OF WORK LIFE**

It is obvious that an organisation which fails to recognise the significance of quality of work-life of employees runs the risks of diminishing human capital. The direct outcomes of such a policy could be:

#### 1. **Low Productivity**

Low productivity is the outcome of poor performance due to inefficiency or any other valid reasons. It poses a threat in the individual and organisational performance. It brings down the morale of the employees. Employees deem to be devalued and expose their lackadaisical attitude in their work. It generates conflict in the minds of the employees.

#### 2. **Job Stress**

Job stress transpires when a person is incapable to retort effectively to the requirements of the job and personal life. Long working hours without an adequate break take a toll on employees' health. It is reflected in the employees' attitude towards the job. A stressed employee has a poor work-life balance. It leads to accidents at the workplace due to absent-mindedness of the employees. It reduces the competence of a person to think lucidly and work productively. Anxiety and depression are after-effects of stress.

#### 3. **Absenteeism and Turnover**

Absenteeism is the absence of a person on the job without any valid reason. It has a direct impact on individual productivity and thus the total output. Turnover refers to the number of employees leaving an organisation permanently for any reason and replaced by a new set of employees. The management has to spend an additional cost to train new employees as per the requirements of the organisation.

#### 4. **Disloyalty**

Disloyalty is a state of being unfaithful to oneself and the organisation. An employee with a poor quality of work-life might find reckless reasons to refrain from duty. It disturbs the entire team in the organisation and thus leads to low productivity. A disloyal employee tends to exhibit unethical behaviour in the organisation.





## CONCLUSION

Quality of work-life is an important determinant of productivity upholding the balance between the work and the family unit. It is the value of affiliation between employees and job environment and embodies the apprehension for human components of work and relates to job satisfaction and organisational development. An enormous social cost is to be borne if family life suffers. India's march towards the knowledge economy requires highly qualified human resources which is viable through higher education. The country can boast of gender equality in terms of enrolment in higher education. Even though the number of women pursuing career is on the rise, the percentage of women employees enduring their jobs is nominal. This poses a challenge for modern Human Resource Managers and it calls for more gender-specific research on the concept of quality of work-life. Employees with good quality of work-life contribute positively to the organisational goals and vice versa. Assured quality of work-life in any organisation tends to attract young and dynamic talents and retain the existing experienced and successful brains. Enhancement of quality of work life is not a single day affair; it has to be achieved coherently.

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## REALITIES: THE VIEWS OF SCIENTISTS

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### ABSTRACT

*This article defines the term “reality” as the functionality of words in this particular category as components necessary to convey the national identity of texts in different languages.*

*Summarizing the experience of foreign linguists, the authors come to the conclusion that realities are lexical units that name unique objects and phenomena characteristic of life, everyday life, culture, social and historical development of one people and alien to another people, that is, they are the verbal expression of specific features of national cultures. Realities do not have clear correspondence in another language and require a special approach in translation.*

*The authors of the article conclude that there is currently no single approach to classifying facts, as in the definition of the concept. The basic principle of all existing classifications of facts is the method of grouping realities according to a thematic principle.*

**KEYWORDS:** *reality, linguistic, non-equivalent vocabulary, Acquaintances (vocabulary), object, concept, phenomenon.*

### INTRODUCTION

In the process of translating a work of fiction, the translator must not only adequately convey the original text, preserving its content, emotional-expressive and aesthetic value, but also express the socio-cultural and national flavor. The translated work has its own special artistic value, which the translator must convey. Achieving this goal is hard work, one of the sides of which is the translation of realities. They are familiar and familiar to native speakers, but readers of a translated work may not understand what is at stake. This means that the translator must not only find and correctly understand the realities in the text, but also carry out the translation in such a way that the representative of the foreign language culture understands what the text is about.

The main task of a literary text translator is to create a work of artistic value equal to the original. The works of art have a lot of non-equivalent vocabulary that serves to create a national color, but in fact show semantic shadows that create a linguistic picture of the world of a particular nation, so the main task of the translator is to preserve the linguistic picture of the original work is to recreate the text.

### THE MAIN FINDINGS AND RESULTS

Thus, in various dictionaries, realities are considered either as words, or as an object, concept or phenomenon. The same inconsistency is observed in the use of this concept in the works of various linguistic scientists: researchers call reality either an object, a concept, a phenomenon characteristic of the history, culture, way of life, way of life of one or another people of the country, which is not found



among other peoples; or a word denoting such an object, concept, phenomenon, also a phrase (phraseological unit, proverb, proverb) that includes such words.

Subsequently, different linguists differently designated this phenomenon: the terms “barbarism” (A.A. Reformatsky), “exoticism” (V.P. Berkov), “exotic vocabulary” (A.E. Suprun, G.V. Chernov), “Non-equivalent vocabulary” (AV Fedorov, E.M Vereshchagin, V.G Kostomarov, Ya.I. Retsker, A.D Schweitzer etc.) At the same time, disagreements are observed not only in the definition of the concept, but also in the sense that various authors put into the concept. Before comparing some of the existing classifications of realities in Russian linguistics, we want to compare the definitions of the term “reality” given by researchers who have worked on this problem.

There is a huge variety of realities, each of which is characterized by a certain form, lexical, phonetic and morphological features. Naturally, linguists were faced with the question of their ordering, i.e. it became necessary to implement the classification of realities, which, firstly, would characterize this specific vocabulary, and secondly, would contribute to a more accurate translation of realities from one language to another.

N.A. Fenenko, while agreeing with the term “reality”, nevertheless speaks of its “terminological insufficiency, since it designates the phenomenon of extra-linguistic reality (subject), and its cultural equivalent (concept), and the means of nominating this concept in language” ... Realizing what difficulties are created by the constant need to clarify the semantic connotation of the term in each individual case, A. A. Kretov and N. A. Fenenko have developed a linguistic theory of reality. In continuation of the idea of the semantic triad “subject - concept – word”, a three-part system of terms was introduced: 1. Reality as an object of reality (natural fact, artifact) - R-reality. 2. Reality as an ideal equivalent of the environment of society (concept) - C-reality. 3. Reality as a means of nomination of a cultural concept - L-reality. Summarizing the above points of view, we can come to the conclusion that there is no unambiguous interpretation of the concept of “reality”. Some researchers give too broad interpretations, others - too concise, using different terms to denote realities. The approach of S. Vlahov and S. Florin (1980) is the closest to us in defining the concept of “reality”, which we will be guided by in our further research.

In order for such a division to acquire real content, the authors consider the following issues, conditioned by the factor of time: 1) the connection of realities in the subject and time; 2) by place and time; 3) the entry of foreign realities into the language; 4) one of the main ways of such admission

is through fiction and 5) the question of familiarity / unfamiliarity of realities, closely related to the use of realities in general and the development of other people's realities.

Depending on the degree of development, the realities are divided into:

1. **Acquaintances** (vocabulary);
2. **Unfamiliar** (non-dictionary);

**Fashionable and episodic realities** are closely connected with them. Fashionable ones capture the attention of wide circles of society, primarily young people, and are usually soon forgotten. Episodic realities are extra-dictionary realities. Authors and translators “enter them, depending on the requirements of the context, once or several times, in a word, episodically, but they do not receive distribution, are not fixed in the language, and, therefore, do not get into dictionaries”

So, the classification of S. Vlahov and S. Florin is based on several principles. The authors take into account both the thematic principle and the principle of local division (in the plane of one or several languages) and the principles of time division.

## CONCLUSION

In the definition of the term “reality”, summarizing the experience of linguists who considered realities, we emphasize the following features of this layer of vocabulary:

1. Realities are lexical units that name unique objects and phenomena characteristic of the life, everyday life, culture, social and historical development of one people and alien to another people, that is, they are a verbal expression of the specific features of national cultures.
2. Realities intersect with non-equivalent vocabulary: untapped realities are part of this layer of vocabulary, and mastered vocabulary realities are not included in it.
3. Realities do not have exact correspondences in another language and require a special approach in translation.
4. This group of vocabulary is characterized by flexibility: without losing their status, they can simultaneously belong to several lexical categories, that is, the same word can be both a term and a proper name, while remaining a reality.

Modern linguistics has not developed a single classification of realities. Some researchers do not use the term reality, preferring the term non-equivalent dictionary or background data, while others distinguish realities as a layer of non-equivalent vocabulary and suggest their own classifications.

The former include V.S. Vinogradov, A.V. Fedorov, G.D. Tomakhin, M.L. Vaysburg, A.D. Schweitzer and other researchers. Realities as a word



denoting an unfamiliar concept from the translated language were considered by L.N. Sobolev, V.I. Rossels, A.E. Suprun, L.S. Barkhudarov, Ya.I. Retsker.

V.S. Vinogradov calls realities all the specific facts of the history and state structure of a national community, the features of its geographical environment, typical household items of the past and present, ethnographic and folklore concepts, referring them to the class of non-equivalent vocabulary.

Just as in the definition of a concept, there is no single approach to the classification of realities. The main principle of all available classifications of realities is a way of grouping realities according to thematic principle. In our study, the classifications of realities proposed by G.D. Tomakhin, E.M. Vereshchagin and V.G. Kostomarov, L.S. Barkhudarov, V.S. Vinogradov, S. Vlahov and S. Florin.

G.D. Tomakhin identifies modern and historical realities, identifies 3 large groups: onomastic realities; realities indicated by appellative lexicon; realities of the aphoristic level.

E.M. Vereshchagin and V.G. Kostomarov singled out seven groups of words that have national and cultural semantics: Sovietisms, words of a new way of life, words of traditional life, historicism, phraseological units and words from folklore and words of non-Russian origin.

L.S. Barkhudarov distinguishes the following categories: proper names, geographical names, names of institutions, organizations, newspapers, etc. realities-words denoting objects, concepts and situations that do not exist in the practical experience of people speaking another language; random gaps - vocabulary units of one of the languages, which for some reason do not correspond in the lexical composition of the target language.

V.S. Vinogradov divides all words-realities into 6 groups, highlighting: vocabulary calling everyday realities; ethnographic and mythological realities; vocabulary calling the realities of the natural world; the realities of the state and administrative structure and social life; vocabulary calling onomastic realities; and, finally, vocabulary that reflects associative realities. The researcher examines and systematizes the stock of lexical units that deliver background information, and assumes that the classification given by him is apparently incomplete.

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# WOMEN EMPOWERMENT AS AGENCY EXPANSION

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## ABSTRACT

*Women empowerment as a truism has been furthered as the way to solving multiplicity of problems from poverty to other systemic disadvantages faced by women. This empowerment however lacks definitional clarity for people tend to project their own evaluative judgements on how they view empowerment. For some it is an outcome while for others it is a process culminating into a wholesome end. Capability approach also theorizes empowerment in terms of agency as it emphasizes on the active participation of the agent in their own empowerment. Amartya Sen in his formulation of capabilities as the freedom to pursue valued functionings, goes on to characterize the ways in which the freedom is achieved as agency freedom and well-being freedom.*

**KEYWORDS:** *Women empowerment; capability approach; poverty; freedom; agency*

## Women as the ‘other’

Thus humanity is male and man defines woman not in herself but as relative to him; she is not regarded as an autonomous being... She is defined and differentiated with reference to man and not he with reference to her; she is the incidental, the inessential as opposed to the essential. He is the Subject, he is the Absolute – she is the other.<sup>1</sup> (Simone de Beauvoir, 1997)

Women in a country like India have been historically and systemically oppressed by the larger society, one that is intrinsically patriarchal in its very weave. Such societies see women in relation to men and not as ‘absolute’ like men. The processes that render women powerless in the larger functioning and course of the society, eventually result in negative externalities like the othering of women. They are not seen as one of the two halves but the ‘other’ half, othered not just in their existence but their very being. The othering has not followed the identity formation of women but in reality the identity formation has been premised upon this othering. As rightly pointed by Spivak (1985) defining “the

other”<sup>2</sup> is a way of defining “the self”. The process of othering and eventual exclusion of women like all dynamic social processes is multidimensional and intersectional<sup>3</sup> in nature as this othering isn’t only an outside-in phenomenon but one that takes place even within groups.<sup>4</sup> The ‘otherness’ that women are subjected to isn’t one based on differences but one based on hierarchies. This identity formation renders

<sup>2</sup> The term was first introduced by Gayatri Spivak Chakravarty (1985) in her essay “The Rani of Sirmur”, in relation to the colonial process of ‘othering’ where the British colonizers by way of various means of power made sure to keep apart the subjects (Indians) from being anything like them.

<sup>3</sup> Intersectionality is a concept introduced by Kimberle Crenshaw (1989) which came as a response to the often ignored simultaneity of various identities and essentialization of identities in the either/or frame that potentially leaves out sections situated at the bottom of both the groups

<sup>4</sup> {Men ‘other’ [women, (upper caste women ‘other’ Dalit women) (Hindu women ‘other’ Muslim women)]

<sup>1</sup> Simone De Beauvoir, 1997. The second sex.





women powerless and is manifested in forms of disadvantages like feminization of poverty<sup>5</sup>.

However the fact that poverty with its narrow definition as 'lack of income' also came under scrutiny in the later decades with Sen (1979) professing a more holistic way of looking at poverty as more than just income deprivation and as 'capability failure'<sup>6</sup>. Capability is defined as "the freedom to pursue valued beings and doings known as functionings". In this sense feminization of poverty can be theorized, as Fukuda Parr (1999) asserts, as 'not just the lack of income'. As is also rightly argued by Razavi (1999) and cited in Chant (2006)<sup>7</sup>

From a gender perspective, broader concepts of poverty are more useful than a focus purely on household income levels because they allow a better grasp of the multi-dimensional aspects of gender disadvantage, such as lack of power to control important decisions that affect one's life (Razavi 1999 cited in Chant, 2006 pp. 203)

Women, subjugated in every sense, be it in the traditional sense of poverty as assetlessness or the more all-encompassing understanding as capability deprivation, often as a result of these processes suffer through the lack of freedom to be able to make their own life decisions and chart their own course of life. This lack, both of tangible and intangible means, further embeds them in the loop of powerlessness and renders them intrinsically poor.

The idea of empowerment needs to be grounded in Sen's capability approach and the incapability of women towards achieving the lives that they value and enjoying the freedom to act and be the way they wish to be is what seems missing in the discourse on poverty. Talking just about the outcome, that the poverty is 'feminized' and that women form the larger chunk of poor and not paying attention to the process that leads to this outcome, for instance their disadvantaged position in the social order (leading to

their capability failures), the intra-household discrimination<sup>8</sup> etc, is bound to be futile.

Thus the pauperisation is not a matter of concern merely because it renders women devoid of assets to sustain themselves but about what Nussbaum and Sen both in their own rights talk about, that is the capability deprivation that it entails. So, it's not merely about the unfreedoms<sup>9</sup> in the form of material deprivation but also about the depletion of 'internal capabilities'<sup>10</sup>. As rightly pointed by Nussbaum (2000),

All too often women are not treated as ends in their own right, persons with a dignity that deserves respect from laws and institution. Instead they are treated as mere instruments of the ends of the others- reproducers, caregivers, sexual outlets, agents of a family's general prosperity (Nussbaum. 2000)

This puts women into a disabling arena, wherein their contributions are extremely undermined both in the labor market as well as their reproductive roles as mothers and in the household. Also, if we go by the dimensions of well-being in fig 1 we see that women face greater chances of failing in most of these well-being counts and eventually on the count of agency as well. Knowing that the latter has both intrinsic and instrumental relevance, the lack of it will be disempowering for women. Not being able to take your own decisions or participate in achieving the end that you value is manifested in 'the poverty of lives' for the women.

### **Defining Empowerment: Empowerment as Agency Expansion**

Empowerment is often used as a truism and is seen more as an outcome than a process, and moreso in case of women. Empowerment is one such aspect that has existed without one standard set of

<sup>8</sup> In the form of differential distribution of power within the household

<sup>9</sup> The term unfreedom is used in Sen's work 'Development as Freedom' (1999) and it refers to various disadvantages that hamper one's development like poverty, famine, lack of political rights

<sup>10</sup> Martha Nussbaum in her book "Women and Human Development: The Capabilities Approach" differentiates between 'basic capabilities', 'internal capabilities' and 'combined capabilities'; the basic capabilities are the natural, innate capabilities of a person like capability to hear and see; the internal capabilities are the capabilities that are requisite for performing a certain functions and unlike the basic capability are advanced states of pursuing the functions; combined capabilities on the other hand are the internal capability that get the requisite external support and are manifested in various ways.

<sup>5</sup> Originally used by Diana Pearce (1978) to refer to the phenomenon of increasing instances of female headed households falling prey to poverty

<sup>6</sup> The idea has been at the centre of capability approach which is the brainchild of Amartya Sen (1978) and is pathbreaking in that it sees disadvantages like poverty in more intangible terms like failure of freedoms to pursue valued ends

<sup>7</sup> Chant, Sylvia (2006) *Revisiting the 'feminisation of poverty' and the UNDP gender indices: what case for a gendered poverty index?* New series working paper, 18. LSE Gender Institute, London School of Economics and Political Science, London UK pp 3-4



definitions, a checklist, and its definition is often what one wishes it to be making it a function of one's own evaluative judgements. Empowerment for the purpose of this paper would be defined in terms of capability approach which puts emphasis on the agency aspect of women to empower them in more effective way. The conventional definitions of empowerment also include the aspect of agency in one way or another (United Nations; World Development Report (2001))

Sen (1985) in his lecture titled 'Well-being, Agency and Freedom' posited the duality of the aspects of 'well-being' and 'agency' and that both forward their own distinct notions of freedom. While the 'well-being aspect' forwards a rather narrow one dimensional idea of one's own advantage, agency aspect follows a more holistic, general idea of freedom, which allows one to have and follow one's own conception of good. Sen (1992) further divides agency into Realized Agency Success (RAS) and Instrumental Agency Success (IAS). In the case of RAS, there is an 'occurrence of those things that one values and one aims at achieving', in IAS 'the occurrence was brought by one's *own* efforts (or, in the bringing about of which one has *oneself* played an active part)<sup>11</sup>. The latter aspect of Instrumental agency success in which one plays an active role is valued over the one where things come about by chance or by others' efforts simply for the reason that in the former, the potent side of one's agency is at display and is materialised in the form of

not just the achievement of the goal, but also its pursuit. Agency in itself thus forms a very central aspect in the definitions of empowerment. Kabeer's (1999) definition of agency also centers around the idea of authority and self-determination of goals which further invokes upon what the author calls 'the power within' which is manifested in the form of 'bargaining and negotiation, deception and manipulation, subversion and resistance as well as more intangible, cognitive processes of reflection and analysis' (Kabeer, 1999). Other scholars also follow a similar ideation of empowerment with an acknowledgement of the role of agency in defining it. Agency takes many forms in these definitions, for instance, Jejeebhoy (2000) sees empowerment as autonomy and control of women over their own lives; Kabeer (1999) provides a definition of empowerment wherein she sees it as 'expansion in people's ability to make strategic life **choices**, in a context where this ability was denied to them' (emphasis added); Sen (1993) defines empowerment in relation to altering relations of **power**. All these terms, in one way or the other, relate to the celebrated aspect of agency and even call for the redistribution of power and authority. Alkire (2005) even goes as far as to categorize empowerment to be a subset of agency (see table 1)

<sup>11</sup> Sen, A (1992), *Inequality Reexamined*. Oxford: Clarendon Press.

**Table 1 Dimensions of agency and empowerment**

<b>Agency</b>	<b>Empowerment</b>
People's ability to act on behalf of what matters to them (their conception of good)	A subset of agency, that focuses on the instrumental aspect of agency
<b>Characteristics of agency</b> <ul style="list-style-type: none"> <li>• <b>Is part of one's own well-being (intrinsic value)</b></li> <li>• Can cause positive change in some dimensions of one's well-being (instrumental value)</li> <li>• Can create further changes one values (instrumental value)</li> <li>• May conflict with other dimensions of one's well being</li> </ul>	<b>Methods of increasing empowerment</b> <ul style="list-style-type: none"> <li>• Access to information, participation/inclusion, accountability, local organizational capacity</li> </ul>

Source- Based on [Alkire(2005)]

## CONCLUSION

Women empowerment in its very ideation is seen as somewhat of a truism, as a panacea response to the disadvantages faced by women due to their social positioning. These disadvantages manifest in the form of poverty which further hampers the capability of women to pursue valued goals. As the paper elucidates, empowerment should be seen as agency expansion wherein agency is defined as 'having one's own conception of good and being able to pursue it' (Kabeer, 1999). The power to take the levers of one's life in their own hands and follow whatever beings and doings one wishes to achieve has an intrinsic value in itself. Agency ensures that one is an active agent in their own upliftment and not just a passive beneficiary. This empowerment as agency expansion also flows from inside out, with what Kabeer (1999) calls 'power within' and thus is lasting in its impact and ensures sustenance. The paper thus professes to see empowerment as an intrinsic process and not as necessarily a change in tangible conditions since tangible resources are only means to achieving more valued intangible ends of empowerment. The agency achievement kicks start a positive loop of further valued externalities of empowerment.

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# INDUSTRIAL AND REGIONAL ANALYSIS OF INDUSTRIAL PRODUCTION AND EXPORT IN UZBEKISTAN

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## ANNOTATION

*Industry plays an important role in the economic development of the country. The most important consumer goods are produced by industrial production, and the country's socio-economic development also depends on the development of this sector. This article analyzes the production and export of industrial products in the Republic of Uzbekistan at the sectoral and regional levels. The analysis used the methods of systematic analysis, comparative analysis, averages of the dynamics of national and regional industrial production and exports. As a result of the analysis, the development trends of exports of industrial products of Fergana region were identified. Based on the results of the analysis, proposals were developed for the further development of industrial production and exports.*

**KEYWORDS:** *dynamic rows, advanced technologies, foreign investment, industrial production, export of industrial products, the Third Civilization.*

## INTRODUCTION

At a time when the Coronavirus pandemic continues around the world and has a significant negative impact on the economy, it is necessary to achieve sustainable development of the country's economy. Industry is one of the most important foundations of sustainable economic development[1].

Nowadays the economy of our country is transitioning to a third civilization, the development of industrial sectors and industries will undoubtedly become one of the most important tasks[2]. As a result of the adopted program of priority development of industry and the consistent implementation of sectoral programs for modernization, technical and technological renewal of production, the role of processing industries with high added value, producing competitive products is growing[3].

President Sh. Mirziyoyev noted that: "The issues of modernization of industries and regions, increasing their competitiveness, development of export potential should be in the center of our constant attention. To do this, we need to more actively attract foreign investment and advanced technologies, as well as information and communication systems (ICT) in all areas"[4].

## LITERATURE REVIEW

Kjeldsen-Kragh, Soren (2007) according to the theory of five sectors of the economy, i.e. primary (agriculture, mining, fisheries and forestry, etc.); secondary (industrial production and construction), tertiary (service); quaternary (knowledge economy); fifth (the highest sector, top executives, researchers, financial and legal advisers) it can be said that the taking main role for the industry is natural. This approach is aimed at improving the quality of life and employment, with a particular focus on population unemployment in sectors of the economy[5].

According to Jean Furaste (2019) (French economist and sociologist, one of the founders of the theory of industrial society), the distribution of labor between the three sectors of the economy, namely primary, secondary and tertiary sectors, develops at different stages: traditional civilization (labor quota 64.5%, respectively) 20%, 15.5%), the transition period (40%, 40%, 20%) and the third civilization (10%, 20%, 70%).

Ilyosov A. (2020) focused on some of the challenges in digital manufacturing and industrial product exports in the digital economy[6].

Kurpayanidi K., Ilyosov A. (2020) they studied problems of the use of digital technologies in industry in the context of increasing the export potential of the country [7].





Kurpayanidi K. et al. (2020) analyzed the issue of a competitive national innovative system formation in Uzbekistan[8].

### RESEARCH METHODOLOGY

The research used systematic analysis, synthesis, statistical grouping, abstract-logical reasoning, expert evaluation, and other methods.

### ANALYSIS AND RESULTS

From 2010 to 2019, the volume of industrial production in the country increased by 8.7 times. In 2012, 2014, 2015, 2016 and 2019, industrial production fell by -3.9, -3.8, -2.8, -1.5 and -17.5 percent, respectively, compared to the previous year. For example, in 2011 the chain growth rate was 124.8% compared to 2010, while in 2012 it was 120.9%, -3.9% behind. The rate of cumulative extinction was also 3.1%, 3.1%, 2.3%, 1.3% and 11.1% in these years. For example, in 2019, the extinction rate was 88.9% and the incremental extinction rate was 11.1% (100% - 88.9%) (Table 1).

**Table 1**  
**Analysis of the dynamics of industrial production in Uzbekistan in 2010-2019**

years indicators	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	2	3	4	5	6	7	8	9	10	11
Volume of industrial products, billion sums	38119,0	47587,1	57552,5	70634,8	84011,6	97598,2	111869,4	148816	235340,7	331006,6
1. Absolute growth, billion sums										
Chained	-	9468,1	9965,4	13082,3	13376,8	13586,6	14271,2	36946,6	86524,7	95665,9
Basic (compared to 2010)	-	9468,1	19433,5	32515,8	45892,6	59479,2	73750,4	110697	197221,7	292887,6
2. Growth rate, in%										
Chained	-	124,8	120,9	122,7	118,9	116,2	114,6	133,0	158,1	140,6
Basic (compared to 2010)	100,0	124,8	151,0	185,3	220,4	256,0	293,5	390,4	617,4	868,4
3. Accumulation rate, in%										
Chained	-	24,8	20,9	22,7	18,9	16,2	14,6	33,0	58,1	40,6
Basic (compared to 2010)	100,0	24,8	51,0	85,3	120,4	156,0	193,5	290,4	517,4	768,4
4. 1% increase in value, billion sums	-	381,2	475,9	575,5	706,3	840,1	976,0	1118,7	1488,2	2353,4
5. Absolute acceleration (or extinction rate), a) billion sums	-	-	497,3	3116,9	294,5	209,8	684,6	22675,4	49578,1	9141,2
b) at the expense of points	-	-	-3,9	1,8	-3,8	-2,8	-1,5	18,4	25,1	-17,5
6. Acceleration or extinction rate (%)	-	-	96,9	101,5	96,9	97,7	98,7	116,1	118,9	88,9
7. Accumulation acceleration (or extinction) rate, %	-	-	3,1	-1,5	3,1	2,3	1,3	-16,1	-18,9	11,1



According to Table 1, the average volume of industrial production in 2010-2019:

$$\bar{Y} = \frac{\sum Y}{N} \quad (1)$$

In rows of moments of dynamics, the average level is determined in a special way[9]. To do this, the initial and final series of levels are added in half, and the rest are added in full, divided by one less than the total number of levels formed:

$$\bar{Y} = \frac{\frac{1}{2}y_1 + y_2 + \dots + \frac{1}{2}y_n}{n-1} = \frac{\frac{1}{2}(y_1 + y_n) + \sum_{i=2}^{n-1} y_i}{n-1}; \quad (2)$$

This moment is called the chronological average of the series.

The average absolute increment is the result of determining the arithmetic mean of the chain absolute increments.

$$\Delta y = \frac{\sum \Delta y}{n} \quad (3)$$

The average absolute acceleration is calculated by dividing the number of cycles by adding the absolute acceleration values:

$$dy = \frac{\sum di}{N} \quad (4)$$

It is important to calculate the average velocities of the dynamics in determining the trends of the dynamics series and in their comparative analysis[10]. This is based on the results of aligning the dynamics series on the exponents (exponential function  $Y = f(a)$ ).

If the series levels change in the same rhythm and direction, the average dynamic velocity is determined by calculating the geometric mean from the chain velocities:

$$K = \sqrt[n]{K_1 * K_2 * \dots * K_n}; \quad (2.5)$$

Here:  $K_i$  - chain growth rates;

$n$  - is their number.

Thus, in 2010-2019, industrial production increased by an average of 31.0% per year.

**Table 2**  
**The results of the analysis of the dynamics of industrial production in Uzbekistan in 2010-2019**

№	Indicators	Calculation formula	Calculation result
1	2	3	4
1.	Average volume of industrial production, bln. sum	$\bar{Y} = \frac{\sum Y}{N} \quad (2.1)$	122253,6
2.	The average annual volume of industrial production, bln. sum	$\bar{Y} = \frac{\frac{1}{2}y_1 + y_2 + \dots + \frac{1}{2}y_n}{n-1} = \frac{\frac{1}{2}(y_1 + y_n) + \sum_{i=2}^{n-1} y_i}{n-1}; \quad (2.2)$	115330,3
3.	Average absolute additional growth, bln. sum	$\Delta y = \frac{\sum \Delta y}{n} \quad (2.3)$	29288,8
4.	Average absolute acceleration, bln. sum	$dy = \frac{\sum di}{N} \quad (2.4)$	10774,7
5.	Average dynamic rate,%	$K = \sqrt[n]{K_1 * K_2 * \dots * K_n}; \quad (2.5)$	131,0

Let us focus on the analysis of the composition of industrial production by type of economic activity. In 2010-2019, the share of mining and open pit mining in the total industry is on a downward trend until 2016, and in 2016-2019 it is on an upward trend, but decreased from 15.0% in 2010

to 13.0% in 2019. It can be said that the rational and efficient use of natural resources is associated with the development of resource-saving technologies[11].

The share of manufactured industry shows an increase in 2011, 2013, 2014, 2016 and 2018, and a decrease in 2015, 2017 and 2019 (Table 3).



**Table 3**  
The structure of industrial production by type of economic activity in 2010-2019  
(as a percentage)

Types of economic activity	Years									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	2	3	4	5	6	7	8	9	10	11
<b>Industry - total</b>	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
<b>Mining and open pit mining</b>	15,0	12,7	14,7	12,7	11,0	11,1	9,6	12,3	12,3	13,0
<b>Manufactured industry</b>	73,8	77,2	75,8	78,3	79,9	79,0	80,3	79,1	80,6	79,9
<b>Water, gas, steam supply and air conditioning</b>	10,7	9,5	9,0	8,4	8,5	9,2	9,4	7,8	6,2	6,4
<b>Water supply; sewage system, waste collection and disposal</b>	0,5	0,6	0,5	0,5	0,6	0,7	0,7	0,8	0,9	0,7

The analysis of the level of industrial production by regions shows that in 2010-2019, Tashkent, Tashkent, Andijan, Navoi, Kashkadarya and Fergana regions were the leaders in the

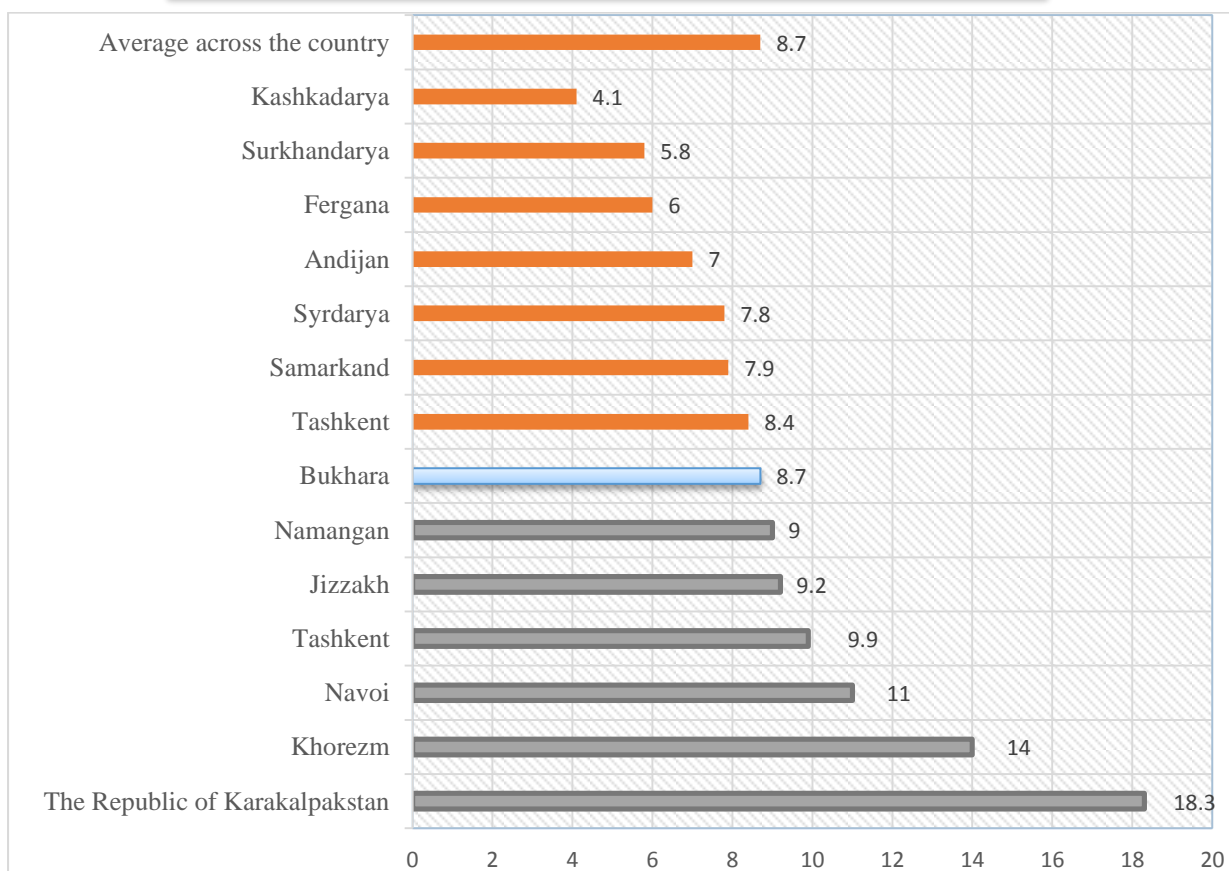
production of industrial products, while Syrdarya, Jizzakh and Surkhandarya regions are the lowest (table 4).

**Table 4**  
Volume of industrial production by regions in 2010-2019 (in current prices; billion sums)

	Production volume of canoat products									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Republic of Uzbekistan</b>	38119,0	47587,1	57552,5	70634,8	84011,6	97598,2	111869,4	148816	235340,7	331006,6
The Republic of Karakalpakstan	697,2	897,8	1034,2	1368,8	1717,2	2387,6	4265,7	6773,3	10911,9	12 729,7
<i>Regions:</i>										
Andijan	4701,4	5727,3	6934,9	9278,6	10463,2	9744,6	7965,7	13269,8	27454,7	33 027,3
Bukhara	1674,8	2202,6	2457,8	3073,9	3972,6	5143,9	5569,6	6422,3	8601,2	14 585,8
Jizzakh	522,7	659,6	785,7	933,3	1195,8	1474,5	2001,2	2548,8	3581,8	4 789,5
Kashkadarya	4957,5	5043,6	6076,4	6849,4	7194,7	8721,9	9632,2	10945,9	14529,5	20 552,2
Navoi	4038,5	4865,7	5761,1	7087,3	8238,9	9286,9	10657,9	13072,9	22892,4	44 540,4
Namangan	1007,0	1358,1	1615,6	1892,1	2315,2	2861,8	3475,7	4615,5	6586,6	9 092,4
Samarkand	2011,2	2485,6	3222,0	3880,1	4966,4	6095,5	7446,0	9242,0	13488,1	15 863,3
Surkhandarya	756,4	925,8	1101,8	1321,4	1615,3	1910,7	2200,7	2356,4	3234,7	4 402,8
Syrdarya	926,8	1211,4	1528,1	1929,3	2363,1	2820,6	3522,3	3806,5	5163,1	7 217,0
Tashkent	5471,2	7286,5	8112,1	10418,3	12474,6	14401,0	16864,7	21693,4	37724,4	53 930,5
Fergana	3265,5	4120,1	4596,9	5290,8	6596,4	7170,2	8040,7	9728,5	13613,8	19 490,5
Khorezm	628,6	852,4	1014,2	1297,2	1920,8	2616,0	2802,7	4070,4	6457,2	8 811,6
Tashkent city	6984,4	9628,9	12516,4	15531,3	15468,5	18986,1	23511,9	30459,6	43274,1	58 748,5

During the study period, the absolute growth rate of industrial production in the country averaged 8.7 times[12]. The Republic of Karakalpakstan (18.3), Khorezm (14.0), Navoi (11.0), Tashkent (9.9),

Jizzakh (9.2), Namangan (9.0) and Bukhara (8.7). Kashkadarya (4.1), Surkhandarya (5.8) and Fergana (6.0) regions have the lowest growth rates (Figure 1).



**Figure 1. Absolute growth of industrial production in 2010-2019, times**

The analysis of product types shows that the share of cotton fiber in the structure of exports from 2010 to 2019 ranged from 12.1% to 1.6%, the share of food products from 9.7% to 8.8%, energy sources

and petroleum products 22, From 8% to 14.5%, and machinery and equipment from 5.5% to 2.4%. The services sector grew from 10.2% to 19.7% (Table 5).

**Table 5  
Dynamics of export structure in 2010-2019**

Indicators	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	2	3	4	5	6	7	8	9	10	11
<b>Export structure</b>	100	100	100	100	100	100	100	100	100	100
<b>Cotton fiber</b>	12,1	9	9,3	8,1	7,7	5,9	5,3	3,8	1,6	1,6
<b>Food products</b>	9,7	13,3	6,4	10,3	12,4	10,5	5,7	7,0	7,8	8,8
<b>Chemical products and wares</b>	5,1	5,6	5,6	4,2	4,7	4,9	6,9	7,0	6,5	5,0
<b>Energy sources and petroleum products</b>	22,8	18,5	34,6	24	23	21,4	14,2	12,8	19,1	14,5
<b>Ferrous and non-ferrous metals</b>	6,9	7,4	7,8	6,7	7,2	6,6	5,9	7,3	8,4	7,2
<b>Machinery and equipment</b>	5,5	6,6	6,5	5,7	4	1,3	1,8	2,8	1,5	2,4
<b>Services</b>	10,2	11,8	17,3	20,6	22,4	24,5	25,8	19,7	21,9	19,7
<b>others</b>	27,7	27,8	12,5	20,4	18,6	24,9	34,4	39,6	33,2	40,8

Fergana region is one of the regions of the Republic that has a place in industrial production[13]. A number of reforms are being carried out in the region to develop industry. In particular, according to the Resolution of the Cabinet of Ministers of July 22, 2019 No 617 "On measures to accelerate the

implementation of investment projects and industrial development in Fergana region":

- May 2019 to May 2020 was declared a "milestone year" for the implementation of investment projects and industrial development in Fergana region;



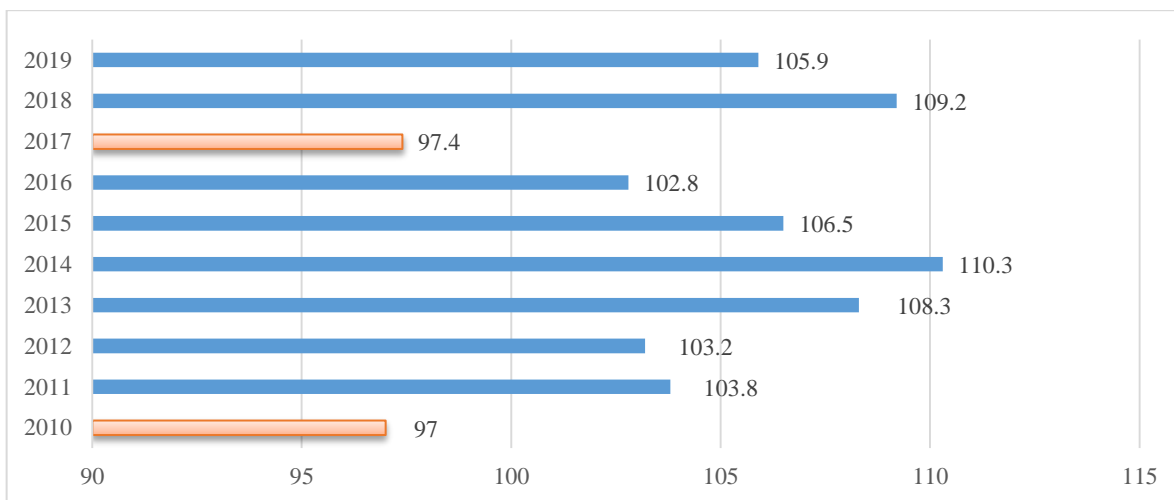
• In Fergana region, every Wednesday was designated as the "Day of implementation of investment projects and industrial development";

• Implementation of investment projects and industrial development in Fergana region was identified as a priority task of the governor of Fergana region;

• For the implementation of investment projects and the development of industrial potential in Fergana region, the heads of

khokimiyats, sectors, territorial public administration bodies of Fergana region and districts (cities) are personally responsible.

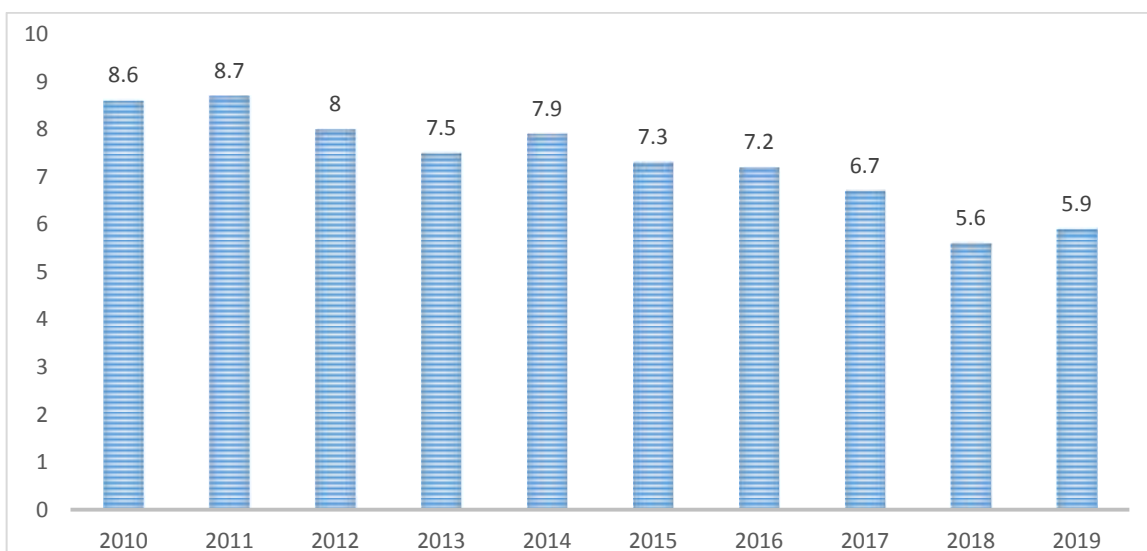
As a result of the measures taken in 2010-2019, the region's industrial production will increase almost sixfold, with an absolute volume of 16225 billion sums[14]. Although industrial production declined in 2010 and 2017, we can see that it increased in the range of 3% to 10% over the remaining years (Figure 2).



**Figure 2. Growth rates of industrial production in Fergana region in 2010-2019,%**

During the reporting period, the share of regional industrial production in the total indicator of

the Republic decreased from 8.7% to 5.9% (Figure 3).



**Figure 3. The share of industrial production of Fergana region in the total industrial output of the republic in 2010-2019, in%**

Despite the fact that the region's industrial production has increased in absolute terms during the years under review, its share in the country's total

decreased to 2.8%, the highest in 2011 - 8.7%, the lowest in 2018 - 5.6%[15].





## CONCLUSIONS AND SUGGESTIONS

In conclusion, it can be said that until recent years, the export of industrial products in the region did not fully reflect the economic potential of the region. We can further increase our export potential and strengthen our position in international trade by making full use of our existing opportunities, using the practical experience gained by leading exporting companies and implementing the following proposals:

- Increase the volume of exports through the full use of the production capacity of regional industrial enterprises and industry enterprises engaged in export activities;
- Take measures to attract industrial projects launched in the framework of the program of socio-economic development of Fergana region in 2020-2021 to export activities;
- take measures for the full and timely installation of imported machinery and equipment and the export of products manufactured at these enterprises;
- it is necessary to develop organizational and economic mechanisms to support exports. In particular, according to the World Trade Organization, there are 178 export-oriented organizations, and the system is effective in the United States, Great Britain, Japan, South Korea, Germany, and China;
- International trade administration, ie the creation of a system to protect the interests of national exporters abroad and provide export services;
- Develop measures to enter these markets with an in-depth study of the markets of South Korea, Oman and Latvia.

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# FLOW PRESSURE ON THE ROTATION OF THE PRESSURE WATER DISCHARGE OF THE KARKIDON RESERVOIR AND VELOCITY DISTRIBUTION ALONG SECTION

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## ANNOTATION

*The article discusses the change in pressure at the turn of the pressure spillway of the Karkidon reservoir and the laws of distribution of velocities over the cross-section of the pipeline. The flow in the pressure pipeline is investigated and where vibration is expected in the pressure pipeline. To find the beginning of vibration, we will use the Euler motion equation. The coefficient of kinetic pressure is found by the method of L. Prandtl. The main causes of vibration are inconsistencies between pressure and velocity. Basically, the discrepancy occurs at the turn of the pressure spillway.*

*To eliminate the vibration of the pressure pipeline, initial and boundary conditions are introduced and calculations are carried out according to the method of L. Prandtl. Calculations of the velocity's and pressures at the turn based on the initial and boundary conditions of the pressure spillway of the Karkidon reservoir can be divided into three groups. The article discusses the second group of calculations, which combines engineering solutions that allow them to be used in practice without performing complex mathematical operations or a large amount of calculations, in addition, the group presents experimental work in the form of graphs of empirical formulas.*

*For this purpose, the kinetic component is found due to the presence of normal accelerations in the section at the turn. Through the coefficient of kinetic pressure, the fluid pressure arising due to normal accelerations is expressed in fractions of the velocity pressure calculated from the average velocity.*

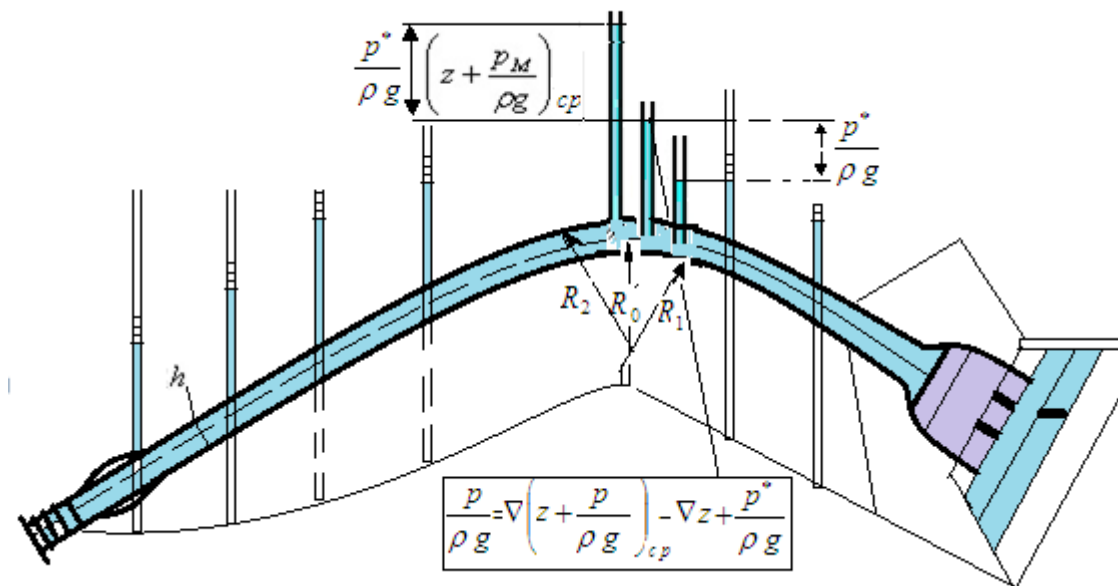
**KEYWORDS:** *flow pressures, speed distribution, cross section, interaction, Prandtl method, hydrodynamic method, pressure change, flow rate, flow equations, kinetic energy coefficient*

**DISCUSSION**

In many reservoirs, different vibrations occur at the turn of the pressure spillway, which are the main causes of destruction of the entire system of hydraulic structures. The basis of these vibrations is the discrepancy between the pressure and speed at the turn of the pressure spillway. To eliminate the vibration of the pressure pipeline, we perform calculations using the method of Prandtl. Calculations of speeds and pressures at the turn of the pressure spillway of the Karkidon reservoir can be divided into three groups.

The solutions of the first group can be performed using hydro-mechanical methods. Being mathematically complex, they are mostly not brought to an engineering solution or require a lot of computational work that is not justified by the achieved accuracy of calculation.

The second group combines engineering solutions that allow them to be used in practice without performing complex mathematical operations or a large amount of calculations. The group presents experimental work in the form of graphs of empirical formulas.



**Fig. 1. Influence of the kinetic component of pressure on the distribution of excess pressure at the corner.**

A curved water conduit, due to the kinetic component, the excess pressure increases on the outer wall and decreases on the inner:

Following Prandtl [1,4], we decompose the pressure into two terms  $p_{cm}$  and  $p^*$ , of which  $p_{cm}$  is the component corresponding to the hydrostatic law of pressure distribution (weight pressure), and  $p^*$  is the kinetic component due to the presence of normal accelerations in the cross section at the turn: According to the Fig. 1,  $p = p_{cm} + p^*$

$$\frac{p}{\rho g} = \nabla \left( z + \frac{p}{\rho g} \right)_{cp} - \nabla z + \frac{p^*}{\rho g}$$

In order to determine the  $p^*$ , we use the Euler equation in polar coordinates for a plane-parallel flow:

$$\frac{\partial u_r}{\partial r} u_r + \frac{1}{r} \frac{\partial u_r}{\partial \theta} u_\theta + \frac{\partial u_r}{\partial t} - \frac{1}{r} u_\theta^2 = g_r - \frac{1}{\rho} \frac{\partial p}{\partial r}$$



Taking the flow steady ( $\frac{\partial u_r}{\partial t} = 0$ ), the liquid is weightless, i.e., excluding the weight pressure ( $g_r = 0$ )

from consideration, we obtain for the scheme Fig. 1, c at  $u_r = 0$

$$\frac{1}{\rho} \frac{\partial p^*}{\partial r} = \frac{u_\theta^2}{r} \tag{1}$$

and after integration:

$$p^* = \rho \int \frac{u_\theta^2}{r} dr \tag{2}$$

Thus, the  $p^*$ -kinetic pressure is really caused only by the movement of the liquid. Pressure and velocity distribution with concentric arrangement of the walls. Fig. 2.



**Fig. 2 Pressure and velocity distribution with concentric arrangement of walls**

We use equation (1) to determine  $p^*$ . Since we consider an ideal liquid, we have:

$$\frac{p}{\rho g} + \frac{u_\theta^2}{2g} = const$$

va

$$-\frac{1}{\rho} \frac{\partial p^*}{\partial r} = u_\theta \frac{\partial u_\theta}{\partial r}$$

From this expression and (1) we obtain the differential equation:

$$\frac{dr}{r} = \frac{du_\theta}{u_\theta} \tag{3}$$

integration of which gives:

$$\ln r + \ln u_\theta = \ln C ;$$

$$ur = const .$$



Since on the axis, i.e. for  $r = R_0$ ,  $u_\theta = u_0$ , we get  $u_0 R_0 = u_\theta r$ .  $u_\theta = \frac{u_0 R_0}{r}$  substituting the found value and in (2) and integrating:

$$p^* = \rho \int \frac{u_\theta^2}{r} dr = \rho u_0^2 R_0^2 \int \frac{dr}{r^2}$$

we get

$$p^* = -\frac{\rho u_0^2 R_0^2}{2r^2} + C$$

At  $r = R_0$  the pressure is  $p^* = 0$ , whence  $C = \frac{u_0^2 \rho}{2}$ . As a result

$$\frac{p^*}{\rho g} = \frac{u_0^2}{2g} \left[ 1 - \left( \frac{R_0}{r} \right)^2 \right] u_\theta \frac{\partial u_\theta}{\partial r} \quad (4)$$

On the inner wall  $r = R_0 - \frac{h}{2}$ , on the outside  $r = R_0 + \frac{h}{2}$  where  $h$  is the distance between the walls. The velocity on the axis of the conduit is found from the continuity equation:

$$Q = b \int_{R_1}^{R_2} u dr = b u_0 r_0 \int_{R_1}^{R_2} \frac{dr}{r} = b u_0 R_0 \ln \left( \frac{R_2}{R_1} \right)$$

$$u_0 = \frac{Q}{b R_0 \ln \left( \frac{R_2}{R_1} \right)} = \frac{g h}{R_0 \ln \left( \frac{R_2}{R_1} \right)} \quad (5)$$

Knowing the speed  $u_0$  on the axis and using the equality  $u(R_0 + y) = u_0 R_0$ , the average speed of  $u$  at any point of the section at a distance  $y$  from the axis of the conduit is determined by the formula:

$$u = \frac{u_0 R_0}{R_0 + y} C^B \quad (6)$$

Where the  $C^B$  multiplier is an empirical correction to reduce the speed to zero when approaching a hard boundary:

$$C = 1 - \left( \frac{y}{\frac{h}{2}} \right)^3$$

$$B = 0,125 - 0,0833 \left( \frac{h}{R_0} \right)^{0,113}$$





The values of C and B can be taken from table. 1.

**Table 1. Values of coefficients A and B, C.**

$h/R_0$	0,00	0,025	0,050	0,075	0,100	0,200	0,300	0,400	0,500	0,000	0,700	0,800	0,900	1,000
<b>A</b>	1,125	1,100	1,0835	1,0715	1,032	1,042	1,031	1,025	1,021	1,018	1,016	1,014	1,012	1,011
<b>B</b>	1,125	0,0702	0,0358	0,0329	0,050	0,05)	0,052	0,050	0,048	0,046	0,045	0,044	0,043	0,042
$\frac{u}{h/2}$	0,999	0,998	0,997	0,993	0,995	0,994	0,993	0,992	0,991	0,993	0,985	0,980	0,975	0,970
<b>C</b>	0,0020	0,0040	0,0030	0,0080	0,0100	0,0120	0,0140	0,0159	0,0179	0,019	0,0228	0,0396	0,0494	0,0591
$\frac{y}{h/2}$	0,935	0,950	0,955	0,953	0,945	0,940	0,935	0,930	0,925	0,920	0,915	0,910	0,905	0,900
<b>C</b>	0,0688	0,0784	0,0880	0,0975	0,1070	0,1164	0,1258	0,1351	0,1444	0,153	0,1628	0,1719	0,1810	0,191

The coefficient of kinetic energy in the cross section at a turn with a concentric arrangement of the walls, corresponding to the velocity distribution according to expression (12) at  $C^B = 1$ , is determined by the formula: [2, p. 376]

$$\alpha = \frac{\left( \frac{1}{R_1^2} - \frac{1}{R_2^2} \right) (R_1 - R_2)^2}{2 \left[ \ln \left( \frac{R_2}{R_1} \right) \right]^3} \quad (7)$$

The  $\frac{p^*}{\rho g}$  can be calculated by the dependency:

$$\frac{p^*}{\rho g} = C_p^* \frac{g^2}{2g} \quad (8)$$

Where  $C_p^*$  - the kinetic pressure coefficient. The  $C_p^*$  coefficient expresses the fluid pressure arising from normal accelerations in fractions of the velocity head calculated from the average velocity. Substituting (5) into formula (4), we find the expression for the  $C_p^*$  coefficient:



$$C_p^* = \frac{h^2 \left[ 1 - \left( \frac{R_0}{r} \right)^2 \right]}{R_0^2 \left[ \ln \left( \frac{R_2}{R_1} \right) \right]} \quad (9)$$

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# **RISKS FACTORS, UPTAKE OF SCREENING AND WORKING GUIDELINES FOR CERVICAL CANCER SCREENING IN NIGERIA: A FIFTEEN YEARS REVIEW**

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## **ABSTRACT**

*Cervical cancer is the world's third most common female cancer, the fourth most common cause of female cancer mortality. It is also Nigeria's second-largest female cancer following breast cancer. Awareness of risk factors, the use of diagnostic programs, and practicable screening operational protocols will minimize cervical cancer occurrence. Although more people are aware of cervical cancer, screening practice among women is still scarce. There is very limited knowledge of risk factors. Updates need to be provided about cervical cancer risk factors and the benefits of screening via platforms such as radio jingles, social media, and TV advertisements for everyone. Knowledge of HPV infections and treatment vaccinations will increase the demand for and use of preventive vaccination.*

**KEY WORDS:** *Cervical Cancer, Risks Factors, Screening, Nigeria.*

## **1.0 INTRODUCTION**

### **1.1 Aetiological Determinants of Cervical Cancer**

The third most common cause of cancer in the world is cervical cancer. It is the fourth leading cause of cancer mortality in females and accounts for around 12% of all cancer forms.<sup>1</sup> Cervical cancer is a prevalent but preventable female cancer that develops in the cervix<sup>2</sup>. HPV, a common sexually transmitted infection, has been involved as a carcinogenic cause.<sup>3,4</sup> Cervical cancer does not come on suddenly; it is preceded by precancerous changes of the cervix, known as Cervical Intraepithelial Neoplasia (CIN).<sup>5</sup> Two cell types are found on the cervix, the squamous cells (on the exocervix) and the glandular cells (on the endocervix).<sup>3</sup> Cervical cancer can be identified through cytological study of epidermal cells scrapped from the cervix in a process known as Pap smear. These scrapings are tested for Human Papillomavirus (HPV) under visual inspection using acetic acid (vinegar) or iodine.<sup>6,7</sup>

Cervical cancer has been reported to be caused by an infection with oncogenic high-risk types of Human Papilloma Virus (hr-HPV).<sup>5,8</sup> They include types 16,18,31,33 and 45, with types 16 and 18 causing 70% of the cervix's cancer. The low-risk types cause warts and verrucas. These have no cell changes that may develop into cancer later.<sup>9</sup> Several factors including sexual behaviours, diet, use of contraceptives might contribute to the onset of cervical cancer.<sup>1,2</sup>

### **1.2 General objectives**

The objective of this paper is to review the risk factors, uptake of screening and screening guidelines for cervical cancer in Nigeria.

### **1.3 Specific objectives**

To review:

1. The risk factors associated with cervical cancer.
2. The knowledge and prevalence of these risk factors among women in Nigeria.
3. The rate of screening uptake in Nigeria.

- Screening guidelines for cervical cancer in Nigeria and that of the World Health Organization.

The cervix is a muscular opening which is part of the female reproductive organ that connects the uterus to the vagina. Another term for it is “neck of the womb”. The cells lining the surface of the cervix could undergo abnormal changes leading to cancer. While it could take years to manifest, complications could also occur in quite a short time.<sup>7</sup>

## 2.0 CLINICAL PRESENTATION OF CERVICAL CANCER

### 2.1 The Cervix

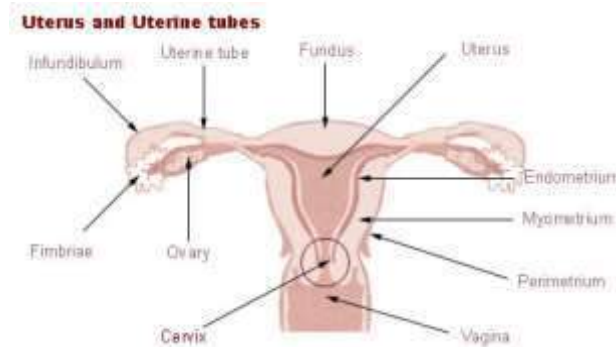


Figure 1: The Female Reproductive Organ. Source.<sup>7</sup>

### 2.2 Stages of Cervical Cancer Progression

Cervical cancer may not present any symptoms at early onset, but pelvic pain, pain during intercourse, vaginal discharge and post-intercoital bleeding may manifest in later stages.<sup>3,4</sup> Other

symptoms could include tiredness, weight loss, lack of appetite, and a single swollen leg.<sup>9</sup> Some of these manifestations could also be caused by other non-cervical cancer-related conditions.

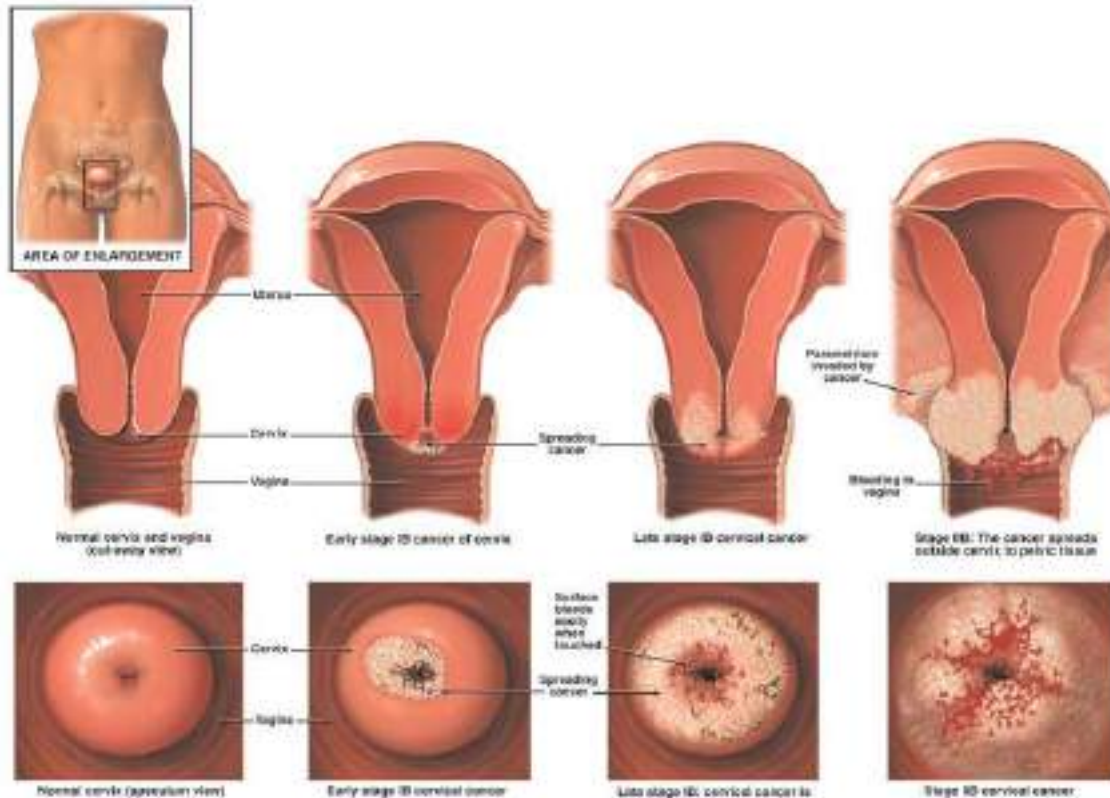


Figure 2: Stages of Cervical Cancer Progression. Source.<sup>10</sup>



### 2.3 Burden of Cervical Cancer

Cervical cancer makes up for 7.5% to 12% of cancer deaths in females, with a large proportion occurring in developing nations.<sup>9</sup> It is most frequent with the highest morbidity and death rates of female cancer in developing countries and with the highest incidence of sub-Saharan Africa, with a daunting estimate of about 70,722 new cases of invasive cervical cancer. Studies have shown that in the United States, about 12,109 women learn that they have cervical cancer annually.<sup>2,11</sup>

In Nigeria, female cancers are the second most prevalent after breast cancer with incidences of 34.5 cases per 100,000 females and that in 2008 the seventh most common cancer in the world, with 530,000 new and 275,000 mortalities in Nigeria.<sup>1</sup>

### 3.0 METHODS

This was a 15-year literature review between 2005 and 2019 on risk factors, the implementation of female's cervical cancer screening and the Nigeria screening guidelines.

Electronic literature search was conducted in this study. Information was obtained from the survey of medical journals, online databases, publications compiled by World Health Organization (WHO), and other scientific papers (Google Scholar, Medical Annals and several African Journals). Literature and relevant information were identified and analysed. The information gotten was further organized and presented in structured sections.

### 4.0 RISK FACTORS ASSOCIATED WITH CERVICAL CANCER

A woman is predisposed to cervical cancer by a variety of factors. These are divided into the following; genetic, socio-economic, biological, lifestyle, and climate. With prolonged HPV infection and the involvement of certain risk factors, the chances of developing cervical cancer rises. It is worth noting that many women who are at these risks do not develop the disease.<sup>6,12,13</sup>

#### 4.1 Biological and Genetic Factors

1. Human Papillomavirus infection: this is the major risk factor, notably high-risk infection with HPV. It contains more than 150 classes, including oral, vaginal or anal sex, of the related viruses, that infect epithelial cells of the skin, genitals, anus, mouth, throat, and spreads through intimate contacts between one's skin-to-skin contacts with infected persons.<sup>3,5</sup>
2. Co-infection with the Human immunodeficiency virus (HIV): The weakened HIV-related immune system makes women more vulnerable to

cervical cancer.<sup>3,5,14,15</sup> reported a higher HPV prevalence for HIV-positive women.

3. Medical Family history of cervical cancer: a woman with a family history of cervical cancer is more likely to develop the condition.<sup>16</sup>
4. Diethylstilbestrol (DES): This is a hormonal drug used in the United States of America from 1930 to 1971 in pregnant women to prevent miscarriage. Daughters born to these women are particularly likely to develop cervical cancer, not necessarily caused by HPV or other gynaecological cancers, such as clear cell adenocarcinoma of the vagina and cervix.<sup>3,17</sup>
5. Parity and multiple full-term pregnancies: In HPV positive women, increased number of vaginal births equate higher chances of developing cervical cancer. Changes in late pregnancy hormone levels may boost the risk of cervical cancer.<sup>1,3-5</sup>
6. The risk for HPV infection increases when one is co-infected with other Sexual Transmitted infections such as *Chlamydia trachomatis* and genital herpes.<sup>4,5</sup>

#### 4.2 Lifestyle Factors

1. Smoking: HPV-positive smokers are more vulnerable than non-smokers to the development of cervical cancer because smoking inhibits the response of immunity to HPV.<sup>3,4,18,19</sup>
2. Having multiple sex partners or having a partner with multiple sex partners (e.g. polygamy): The higher the number of sex partners a woman has or her partner, the greater the chances of getting HPV and thus being vulnerable to cervical cancer.<sup>2,4,5</sup>
3. Early coitus: the cervix may not be matured and more vulnerable to persistent form of HPV infection.<sup>4</sup>
4. First full-term gestation at an age younger than 17.<sup>3</sup>
5. Poor genital hygiene.<sup>4</sup>
6. Being overweight and physical inactivity: "Women who are overweight are more likely to develop cervix adenocarcinoma" according to the American Cancer Society.<sup>1,3</sup>
7. Poor nutritional status: Diets low in fruits and vegetables does not make for a strong immune system, that may have fought off infections.<sup>1,3</sup>
8. Male circumcision: Studies have shown that circumcised male is less likely to have and





transmit HPV.<sup>20</sup> Houle noted that an uncircumcised male is at higher risk for oncogenic and non-oncogenic HPV infection. Also, among the Muslims males, whose culture do not practice circumcision, the risks of contraction and transmission of HPV are high for women and thus increases the risk for developing cervical cancer.<sup>20</sup>

9. Contraceptive use over the long term: Studies showed that women with HPV positive status suggested that the long-term use of oral and intra-uterine contraceptives may be an essential cofactor in of cervical cancer risk.<sup>1,9,21,22</sup>
10. Infrequent screening practice.<sup>22</sup>

#### **4.3 Socioeconomic and Environmental Factors**

1. Low socioeconomic status: Low income earning women may not be able to afford adequate health care services, hence might not get screened and treated.<sup>2-4</sup>
2. Low educational attainment and illiteracy.<sup>1,2</sup>
3. Lack of accessible screening centres.<sup>23</sup>

#### **4.4 Knowledge and Prevalence of Risk Factors among Women in Nigeria**

Ahmed *et al* reported that among 260 market women evaluated in a descriptive study in 2013, 43.5% have heard of cervical cancer and its screening, knowledge of risk factors was poor, although 62.5% of the women mentioned Sexually Transmitted Infections (STIs) as a risk factor.<sup>24</sup>

Ingwu in his study in 2016 among 508 pregnant women, reported 8.1% knowledge of the risk factors for cervical cancer.<sup>25</sup> Also, a study conducted among 2000 women in Ogun State stated that 2.3% of the women could not identify the causative agent of cervical cancer and over 95% of them could not indicate risk factors for cervical cancer.<sup>23</sup> Similarly, another study conducted in 2018 on the knowledge and attitudes of caregivers in Enugu State reported low knowledge about the risk factors for HPV and its connection to cervical cancer.<sup>11</sup>

A contrasting finding in Lagos reported a 100% knowledge of cervical cancer among 185 female students with a notably high knowledge of risk factors.<sup>26</sup>

From the findings of this review, several risk factors associated with cervical cancer are prevalent among women in Nigeria. A study that assessed the knowledge and distribution of risk factors for cervical cancer among rural women of Northeast Nigeria reported early marriage, parity, multiple sex partners as the most prevalent risk factors, this could be a result of the influence of the traditional and religious practices of the people of this region on their lifestyle.<sup>27</sup>

Furthermore, Durowade *et al* in 2012 gave the following as the risk factors prevalent among the respondents of their study; early sexual debut, age at marriage, number of sexual partners (polygamy was included), family history of cervical cancer, parity, use of oral contraceptives, male partner circumcision, low socio-economic status and tobacco smoking. However, number of sexual partners was the highest risk factor prevalent.<sup>28</sup>

#### **4.5 Uptake of Screening Among Women in Nigeria**

Research has shown relatively low attitude in voluntary uptake of screening, with several themes make up the basic reason for this panacea; lack of awareness, fear of screening result, no time, not seen as necessary( as some women believe they can never have cancer), invasion of privacy, financial constraints, lack of health education, poor access to screening services, poor quality of services, relatively low number of working health personnel and few standard facilities for cervical cancer screening.<sup>14,19,22,23,25,29,30</sup> The above stated reasons could be due to the lack of knowledge of the benefits of screening and why those who have no clinical manifestations may believe it is not necessary.

A study carried out on 846 women in Owerri by Ezem in 2007 on the awareness and uptake of cervical cancer screening reported that 447 participants (52.8 percent) were aware of the screening, with major sources of information from hospitals (31.3 percent) and friends (30.9 percent).<sup>14</sup>

Also, another study conducted among female medical practitioners in Nigeria found out that awareness of Pap test does not necessarily mean its use, with only 18% of the participants stating that they have had screening.<sup>31</sup> In Ogun state reported low level of awareness of cervical cancer (6.5%) and its screening (4.8%) and 27 out of 2000 women studied have been screened.<sup>23</sup> In Enugu, although 90% of the participants have heard of cervical cancer screening, only 2.8% have been screened.<sup>25</sup>

Additionally, in Kaduna, Ahmed *et al* in 2013, stated that 43.5% out of 269 respondents knew about cervical cancer screening. Screening attitude was low (19.9%), 32.7% have never heard of cervical cancer screening prior to the study, while another 32.7% have had screening.<sup>24</sup>

In Ogbomosho, 22.6% of the participants were aware of cervical cancer, 79.2% know of screening services for it but only 1.6% have had a procedure done on them,<sup>22</sup> while in Lagos, among 185 students, 67% have been screened for cervical cancer, giving a remarkable high uptake of screening.<sup>26</sup>

Furthermore, in Nnewi Southeast Nigeria, 123 (71.5%) of the respondents knew about the screening tests, but only 12 (9.8%) have had Pap smear test. Bankers had the highest level of practice (44.4%),



followed by teachers (11.1%), then health workers (5.4%).<sup>30</sup> This low uptake of screening among health workers agrees with a study carried out by Dim.<sup>32</sup>

Another study conducted in Ogun State, Nigeria, reported low awareness of cervical cancer screening tests and concurrently a low uptake. The study suggested that the women's perception of cervical cancer might be a predictor of screening uptake.<sup>33</sup>

## 5.0 GUIDELINES FOR SCREENING

### 5.1 Cervical cancer screening in Nigeria

A cancer control policy, based on the guidelines for cancer control set by WHO, is in existence in Nigeria.<sup>34</sup> The National Cancer Control Program was established in 2008 by the Feral Ministry of Health (FMOH) with the aim of decreasing cancer morbidities and mortalities, to promote screening for the early detection of cervical cancer and the administration of the HPV vaccine to young females aged 9-15 years.<sup>35</sup> For cervical cancer screening, the ministry adopted the use of Visual inspection with acetic acid (VIA) or with Lugol's iodine (VILI) for screening as the most affordable mode of screening. The process of implementing a national guideline for cervical cancer screening is still in the works.<sup>34</sup>

### 5.2 World Health Organization Recommendations

On December 3<sup>rd</sup> 2014, the WHO launched a new guidance for the prevention and control of cervical cancer in Melbourne, Australia. The new guide outlines strategies for comprehensive cervical cancer prevention and control, the need for collaboration, and portrays the promising developments that new technologies can offer in addressing the problems encountered with cervical cancer prevention and control.<sup>36</sup>

The major elements in the guide include;

1. **2-dose vaccination of girls aged 9-13 years old.** As opposed to the previous 3-dose, the 2-dose vaccination was found to be as effective as it. This reduction was made in order to cut cost especially for countries with strained national health budgets.
2. **HPV testing.** It is recommended in screening to reduce the frequency of rescreening. This is because a negative HPV test result will not need to be rescreened for at least 5 years, but should not exceed 10 years. This will go a long way to save cost.
3. **Communicate more widely.** The guide recommends targeting a wider audience when carrying out health education for screening, as the people will be

compelled to make the women in their lives take up necessary preventive practices.

4. **Addressing Inequities.** The importance of addressing gender and social inequities is of paramount importance. Women of low social class and income are at increased risk of invasive cervical cancer. The new guide recommends that these group of women be considered in the development of national health policies and programs.
5. It also recommends a "screen, diagnose and treat" approach.

The guide also advocates for the creation of national cervical cancer prevention and control programs in developing countries, that includes all healthcare levels, promoting prevention activities and access to palliative care.<sup>36</sup>

## 6.0 FINDINGS

Treatment is possible with early diagnosis of cervical cancer. The administration of vaccine and knowledge of risk factors is primal in its prevention. This review showed that Nigerian women know little about the associated risk factors of cervical cancer and the benefits of regular screening. According to Abiodun *et al* when women have knowledge of cervical cancer, there is a possibility that they will take up screening.<sup>33</sup> But awareness of cervical cancer does not mean uptake of screening as shown by Eke *et al* and Dim *et al*. Female health workers had the lowest level of screening uptake.<sup>30,31</sup> This does not help in promoting screening awareness as they, who are supposed to influence this attitude on other women, do not promote the practice.

Several reasons cited as cause for low uptake of screening, which included no time, no need for the test and fear of outcome of result. Research has shown how little women understand the benefits they stand to gain from taking up screening.<sup>14,32</sup> Proper health education is needed to clear these wrong ideologies and fears. Several of the identified risk factors are prevalent among Nigerian women.<sup>29</sup> There is a national policy for cancer in Nigeria, with a cervical cancer control plan, although assessing the impact of this plan is debatable.<sup>34,35</sup>

From the Nigerian based studies reviewed,<sup>1,2,13,21,22,26,31</sup> it was discovered that with each yearly publication, there was little or no change in the results of the new study compared to that of a previous related study. This might be because the government shows little interest in the area of research; hence it does not follow the trends in health research or rely on the results from these studies to formulate strategic programs that will lead to the



promotion of better health for the people, especially concerning the cervical cancer threat.

## 7.0 CONCLUSION

This review showed that although more people are aware of cervical cancer, there is still low practice of screening among women. There is a dearth of comprehension of cervical cancer risk factors. There is need for the provision of updated information on associated risk factors and the benefits of screening through; radio jingles, social media, television adverts to everyone. Awareness of HPV infections and vaccine for treatment may increase demand and uptake of vaccination for preventive purpose.

## 8.0 RECOMMENDATIONS

The following recommendations were made based on the results of this review:

1. Efforts should be made to provide adequate health facilities for cervical cancer screening.
2. The cost of screening should be subsidized to enable uptake of screening by women of all social class.
3. Vaccines should be made available to all at subsidized rates.
4. It is essential that health practitioners in Nigeria talk more about the associated risk factors of cervical cancer to their patients and advice screening uptake where applicable.
5. Continuous advocacy for the availability and accessibility of screening centres and vaccines for the people.
6. Female health workers should be active in the fight against cervical cancer, they can do this by giving talks especially during antenatal visits.
7. Women in Nigeria should be encouraged to educate themselves on health issues especially those that affect women in order to avoid the outcomes of ignorance.
8. Community mobilization is important in the disseminating of health information. According to WHO, educating the masses on the associated risk factors and the benefits of regular screening offers a better chance of reducing the incidence of this menace. This is because the community is another influential group and includes family and friends, who will take it upon themselves and make the women in their lives partake in screening, thereby ensuring their safety.

**CONFLICT OF INTEREST:** The authors declare that there is no conflict of interest on this article.

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## **PROCESSING CHARACTERISTICS AND ACCEPTABILITY OF JACKFRUIT (*Artocarpus heterophyllus* Lam.) SEEDS, PHYSICAL AND FUNCTIONAL PROPERTIES OF ITS FLOUR**

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### **ABSTRACT**

Jackfruit possess 100-400 seeds which are oval, brown and edible after processing. A study was undertaken to investigate 'processing characteristics and acceptability of jackfruit seeds and to evaluate physical and functional properties of its flour'. Ripe jackfruits procured from a single tree at University of Agricultural Sciences, Dharwad campus were cut, and seeds were separated. Seeds were processed by boiling, pressure cooking, pan roasting, microwave roasting, baking. Unprocessed seeds served as control. Effect of processing on characteristics of jackfruit seed was evaluated. Seeds were subjected to sensory evaluation by semi-trained panel members using 9 point hedonic scale. Processed seeds were converted to flour and analyzed for physical and functional properties. Results revealed that weight, volume and edible portion of seeds increased in wet processing but decreased in dry processing. Boiling resulted in better acceptability with acceptability index of 83.15 per cent. Pressure cooked and pan roasted seeds were on par with boiled seeds followed by baked seeds, while microwave roasted seeds had lower acceptability. Flour yield was significantly higher in unprocessed jackfruit seeds ( $42.17 \pm 0.06$  %). Increase in bulk density was recorded with processing. All processing methods resulted in increased water absorption and oil absorption capacity of jackfruit seed flours. Swelling capacity of jackfruit seed flour increased during moist processing ( $6.46 \pm 0.11$  % in boiled and  $6.24 \pm 0.10$  % pressure cooked seeds) and did not decrease significantly in dry processing. The solubility of flours increased during boiling ( $21.07 \pm 0.05$  %) and decreased significantly on dry processing ( $15.63 \pm 0.20$  %). Jackfruit seed flour possess good functional property and hence can be used at domestic, commercial and industrial purpose

**KEY WORDS:** Dry processing, Flour, Jackfruit seed, Moist processing





## INTRODUCTION

Jackfruit (*Artocarpus heterophyllus* Lam.) is the largest tree-borne fruit belonging to family Moraceae. It is native to India and grown mostly in tropical countries. Pulp is consumed, whereas seeds, rind, core are discarded. Jackfruit seeds are 2-4 cm long and 1.5–2.5 cm thick. Having oval, ellipsoid or round shape. Depending on size, single fruit may have 100 - 400 seeds. Seeds are used for consumption, culinary purpose and also as source of starch by industries. Only 10 per cent of total seeds obtained are used, while 90 per cent of them are wasted on the whole. Jackfruits being highly seasonal, seeds are available only during March to July. Being a good source of nutrients, possessing therapeutic benefits, consumption of seeds should be encouraged to prevent wastage and enhance nutritional security. Processing improves acceptability, nutritional quality, digestibility, antioxidant activity, storage quality besides reducing antinutrients in food. Though lot of studies regarding jackfruit seed/flour composition and value addition are available, systematic studies revealing the effect of processing the jackfruit seeds are scanty. Hence, the present study was undertaken with the objective to assess the impact of processing on acceptability of jackfruit seeds and to study influence of processing methods on physical and functional properties of its flour.

## MATERIALS AND METHODS

Ripe jackfruits procured from a single tree at University of Agricultural Sciences, Dharwad campus were cut and seeds separated. Colour and shape were recorded by visual observation, size in terms of length, width and thickness was recorded using vernier caliper, weight and volume was noted using electronic balance and water displacement method respectively. Bulk density was calculated. Seeds were processed employing common methods of cooking: **a) Boiling** – 50g of seeds was transferred to a vessel containing boiling water and boiled with closed lid at 100°C till soft and cooked. **b) Pressure cooking** – 50 g of seeds was transferred to a vessel containing 20 ml water. Pressure cooked at 121°C till soft and cooked. From a and b, excess water was drained and superfluous water was removed by absorbent paper. **c) Pan roasting** - Seeds were roasted at 160°C in a pan till sweet aroma developed. **d) Microwave roasting** – 50g of seeds were microwaved at 480 Power till the seeds turned soft, sweet and developed aroma. **e) Baking** – Seeds were baked in pre-heated oven at 180°C for 15 min till soft and sweet aroma developed. All processed seeds were cooled. Unprocessed seeds served as control.

Processing characteristics like change in weight and volume of seeds were noted, leached out solids and edible portion were calculated. Processed seeds were subjected to sensory evaluation by semi-trained panel members of Department of Food Science and Nutrition, College of Community Science, UAS, Dharwad using 9 point hedonic scale. Processed seeds were milled to flour and analyzed for physical properties like yield and bulk density and functional properties like water absorption capacity, oil absorption capacity, swelling power and solubility. Mean, standard deviation and analysis of variance (One way ANOVA) was applied to the results. Statistical analysis was conducted using SPSS software (version 16.0).

## RESULTS AND DISCUSSION

### Physical parameters, processing characteristics and acceptability of jackfruit seed

Jackfruit seeds were brown in colour, oval in shape and comparatively smaller in size with length and width of  $3.52 \pm 0.18$  and  $1.77 \pm 0.15$  cm. The values were in comparison with results reported by Butool and Butool (2013) and Islam *et.al* (2015). Slightly lower values for length (2-3 cm) and width (1-1.5 cm) of seeds were mentioned by Abraham and Jayamuthunagai (2014). These variations can be attributed to the differences in variety, maturity index, location and climatic conditions of cultivation. On an average seeds weighed  $5.47 \pm 0.76$  g, had volume of  $5.25 \pm 0.32$  ml and bulk density of  $1.06 \pm 0.05$  g/ml.

Weight, volume and edible portion of seeds increased in wet processing and decreased in dry processing (Table 1-See Appendix). Pressure cooking significantly increased weight and volume of the seeds by  $5.20 \pm 0.03$  per cent and  $10.53 \pm 0.03$  per cent respectively whereas microwave roasting decreased significantly ( $13.77 \pm 0.06$  % and  $12.82 \pm 0.04$  % respectively). Direct contact of seeds with water in moist treatment resulted in absorption of water and thus increase in weight and volume. On the contrary, dry processing resulted in loss of moisture and volatile compounds. Further, higher increase in weight and volume lesser leached out solids might have led to significantly higher edible portion in pressure cooked seeds ( $97.38 \pm 0.03$ %). Open pan roasting at 160°C for 15 min led to a greater escape of moisture and higher decrease in weight ( $20.10 \pm 0.04$  %) and volume ( $17.75 \pm 0.03$  %). The seeds



which are enclosed in fleshy endosperm cells have a thick cell wall with stored polysaccharides which are heat liable, the loss of these during heating results in separation of brown spermoderm from seeds thus reducing the amount of edible portion.

Table 2(See Appendix) indicates acceptability of processed jackfruit seeds. The processed seeds did not differ significantly with respect to appearance. However, boiled seeds had significantly higher scores for all sensory parameters like color (7.29), flavor (7.48), taste (7.48), texture (7.57), overall acceptability (7.71) with acceptability index of 83.15. This may be due to softening of texture and increased sugar content during boiling. Acceptability index of pressure cooked seeds (78.30) and pan roasted seeds (76.91) were on par with boiled seeds followed by baked seeds (75.44). Microwave roasted seeds scored significantly lower scores for all sensory parameters like color (6.48), flavor (6.10), taste (5.90), texture (5.57), overall acceptability (6.60) and had lower acceptability with acceptability index of 68.17, may be due to hardening of texture and ununiform cooking due to rapid processing. However, all processed seeds were within acceptable range of sensory evaluation that is between liked very much to liked moderately. All the sensory parameters were significantly and positively correlated to reducing, non reducing and total sugars and negatively correlated to starch and dietary fiber (Table 3-See Appendix).

### **Physical and functional properties of processed jackfruit seed flour**

Flour yield was significantly higher in unprocessed jackfruit seeds ( $42.17 \pm 0.06$  %) as indicated in Fig 1(See Appendix). Among processing methods, significantly lower flour yield observed in moist processed seeds (boiling –  $31.46 \pm 0.05$  %, pressure cooking -  $34.70 \pm 0.07$ %) may be due to leached out solids along with other water soluble components, whereas microwave roasted jackfruit seeds yielded significantly higher amount of flour among processing methods ( $39.68 \pm 0.05$  %). Flour yield depends on type of raw material, initial moisture, composition, variety, size, pre-treatments, processing technique and equipments used. Removal of brown spermoderm during processing may be the reason for lower flour yield in processed seeds.

Increase in bulk density was recorded with processing (Fig 2-See Appendix), which may be due to heat processing (Ejiofor *et al.*, 2014 in jackfruit seed flour and Akubor and Obiegbuna, 2014 in African breadfruit kernel flour) and higher protein content. The results were in comparison with the values reported by

Chowdhury *et al.* (2012); Abraham and Jayamuthunagai (2014) who reported bulk density values of 0.61 g/ml to 0.81 g/ml in jackfruit seed flour. The bulk density is used to determine handling requirement.

Effect of processing on functional properties of jack seed flour is presented in Table 4(See Appendix). All processing methods resulted in increased water absorption and oil absorption capacity of jackfruit seed flours. Water absorption capacity was significantly higher in wet processed jackfruit seed flour compared to dry processing, pressure cooking having significantly higher value ( $282.71 \pm 0.02$ %) compared to unprocessed seed flour ( $182.36 \pm 0.03$ %). The results were in comparison with that reported by Ejiofor *et al.* (2014) in processed jackfruit seed flour and Akubor and Obiegbuna (2014) in African breadfruit kernel flour. Water absorption capacity may differ due to molecular structure of flours, protein concentration, interaction with water, conformational characteristics, hydrophilic groups, particle size, degree of milling, presence of husk, damaged starch, protein content and carbohydrates (Kaushal *et al.*, 2012). In the present study, oil absorption capacity of unprocessed jackfruit seeds flour was  $89.93 \pm 0.20$  per cent which increased on processing. Dry processed seeds ( $115.80 \pm 0.92$  % to  $164.76 \pm 1.17$  %) had significantly higher oil absorption capacity than wet processed seeds ( $101.05 \pm 0.08$  % to  $101.26 \pm 0.72$  %). The results were in comparison Abraham and Jayamuthunagai (2014) and Akubor and Obiegbuna (2014) and Ejiofor *et al.* (2014). Increased oil absorption capacity of processed flours may be attributed to denaturation and dissociation of constituent proteins that may occur on heating which unmasks the non-polar residues from the interior of the protein molecule. The swelling capacity of jackfruit seed flour increased during moist processing ( $6.46 \pm 0.11$  % in boiled and  $6.24 \pm 0.10$  % pressure cooked seeds) and did not decrease significantly in dry processing (Table 4-See Appendix). The solubility of flours increased during boiling ( $21.07 \pm 0.05$ %) and decreased significantly on dry processing ( $15.63 \pm 0.20$ % to  $17.49 \pm 0.41$ %). Similar changes were observed by Ejiofor *et al.* (2014).

Table 5(See Appendix) indicates particle size distribution of processed jackfruit seed flour. Irrespective of processing, higher proportion of jackfruit seed flour was passed through 85 mesh BSS standards sieve having particle size 180  $\mu$ m. It ranged from  $46.08 \pm 1.50$  per cent in unprocessed seed flour to  $31.96 \pm 1.92$  per cent in pressure cooked seed flour. Higher proportion of pressure cooked seed flour was



finer with particle size of 200  $\mu\text{m}$  ( $33.98 \pm 0.89 \%$ ). Very less quantity of unprocessed and processed seed flour could be passed through 300 mesh BSS standards sieve having particle size 53  $\mu\text{m}$  ( $0.47 \pm 0.38 \%$ ). On an average higher proportion of jackfruit seed flour was coarser, may be due to usage of domestic mixer for converting dry seed chips to flour. Mechanical milling if employed might result in finer flour.

### CONCLUSION

Boiled jackfruit seeds are highly acceptable followed by pressure cooked and pan roasted. Flour yield is maximum from unprocessed seeds. Unprocessed and processed jackfruit seed flour poses good functional property and hence can be used for value addition at domestic, commercial and industrial level for the replacement of cereal flours in traditional and conventional products or formation of novel products.

### APPENDIX

**Table 1 Processing characteristics of jackfruit seeds**

Treatment	Processing characteristics (%)			
	Change in weight	Change in volume	Leached out solids	Edible portion
<b>Boiling</b>	$5.20 \pm 0.03^b$	$10.53 \pm 0.03^b$	$3.12 \pm 0.04^a$	$94.45 \pm 0.05^b$
<b>Pressure cooking</b>	$8.85 \pm 0.05^a$	$14.29 \pm 0.03^a$	$1.44 \pm 0.05^b$	$97.38 \pm 0.03^a$
<b>Pan roasting</b>	$-20.10 \pm 0.04^e$	$-17.75 \pm 0.03^e$	-	$76.32 \pm 0.04^e$
<b>Microwave roasting</b>	$-13.77 \pm 0.06^c$	$-12.82 \pm 0.04^c$	-	$80.49 \pm 0.03^c$
<b>Baking</b>	$-18.82 \pm 0.03^d$	$-14.22 \pm 0.03^d$	-	$76.92 \pm 0.03^d$
<b>F value</b>	298162	661260	6996	201736
<b>S. Em. <math>\pm</math></b>	0.16	0.12	0.10	0.14
<b>C. D. at 1 %</b>	0.36**	0.26**	0.23**	0.32**

\*\*Significant at 1 % level

**Table 2 Effect of processing on acceptability of jackfruit seeds**

Treatment	Appearance	Color	Flavor	Taste	Texture	Overall acceptability	Acceptability index
Boiling	7.38 ± 0.80	7.29 ± 0.90 <sup>a</sup>	7.48 ± 0.87 <sup>a</sup>	7.48 ± 0.93 <sup>a</sup>	7.57 ± 1.16 <sup>a</sup>	7.71 ± 0.85 <sup>a</sup>	83.15 <sup>a</sup>
Pressure cooking	6.86 ± 1.24	6.90 ± 0.83 <sup>ab</sup>	7.00 ± 1.00 <sup>a</sup>	6.86 ± 1.06 <sup>a</sup>	7.24 ± 1.26 <sup>ab</sup>	7.33 ± 0.73 <sup>ab</sup>	78.30 <sup>ab</sup>
Pan roasting	6.86 ± 1.39	7.00 ± 1.18 <sup>ab</sup>	6.86 ± 1.28 <sup>a</sup>	7.10 ± 1.34 <sup>a</sup>	6.67 ± 1.24 <sup>b</sup>	7.05 ± 1.12 <sup>b</sup>	76.91 <sup>ab</sup>
Microwave roasting	6.76 ± 1.14	6.48 ± 1.29 <sup>b</sup>	6.10 ± 1.30 <sup>b</sup>	5.90 ± 1.55 <sup>b</sup>	5.57 ± 1.12 <sup>c</sup>	6.00 ± 1.22 <sup>c</sup>	68.17 <sup>c</sup>
Baking	7.10 ± 1.14	6.86 ± 1.39 <sup>ab</sup>	6.76 ± 0.94 <sup>ab</sup>	6.76 ± 1.58 <sup>a</sup>	6.57 ± 1.29 <sup>b</sup>	6.71 ± 1.10 <sup>b</sup>	75.44 <sup>b</sup>
F value	0.99	1.38	4.36	4.09	8.30	8.56	5.184
S. Em. ±	0.50	0.50	0.48	0.57	0.53	0.45	4.76
C. D. at 5%	NS	0.70*	0.67*	0.81*	0.74*	0.62*	6.68*

\*Significant at 5 % level

NS - Non Significant

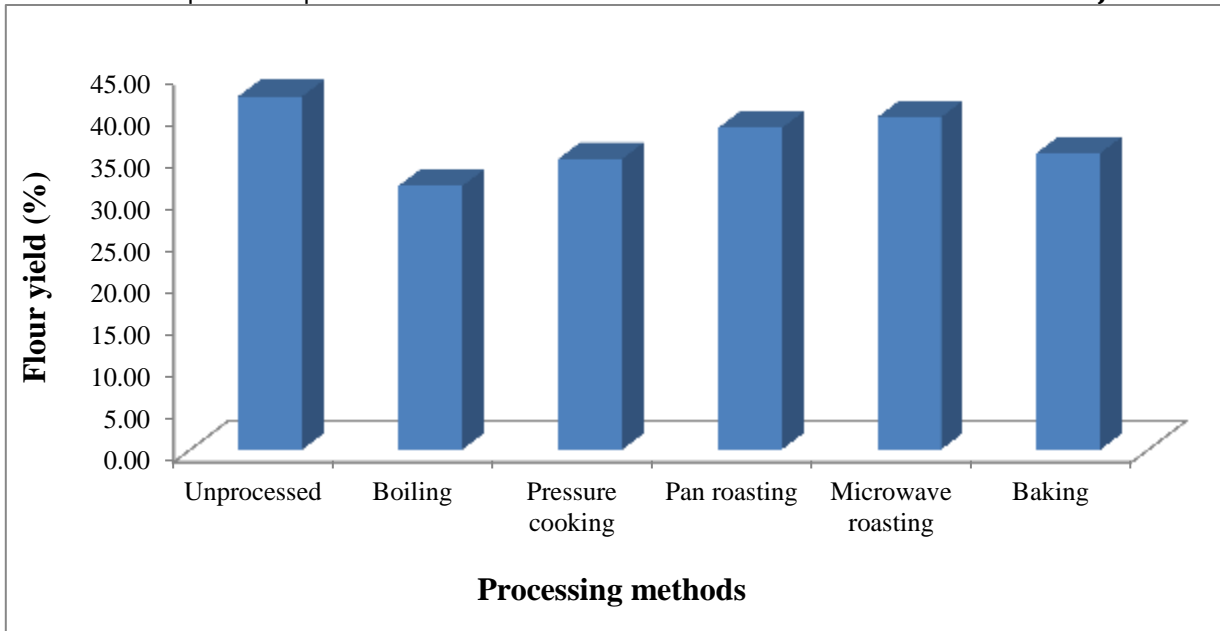
**Table 3 Correlation between sensory parameters and chemical composition of jackfruit seeds**

Chemical composition	Sensory parameters						
	Appearance	Color	Flavor	Taste	Texture	Overall acceptability	Acceptability index
<b>Reducing sugars</b>	0.709**	0.909**	0.946**	0.942**	0.925**	0.914**	0.940**
<b>Non reducing sugars</b>	0.410	0.537*	0.680**	0.489	0.772**	0.729**	0.688**
<b>Total sugars</b>	0.565*	0.733**	0.857**	0.707**	0.921**	0.884**	0.861**
<b>Starch</b>	-0.651**	-0.488	-0.560*	-0.372	-0.539*	-0.512	-0.553*
<b>Insoluble dietary fibre</b>	-0.417	-0.592*	-0.727**	-0.561*	-0.800**	-0.780**	-0.732**
<b>Soluble dietary fibre</b>	0.219	0.228	0.115	0.259	0.061	0.068	0.123
<b>Total dietary fibre</b>	-0.358	-0.520*	-0.661**	-0.486	-0.737**	-0.717**	-0.665**

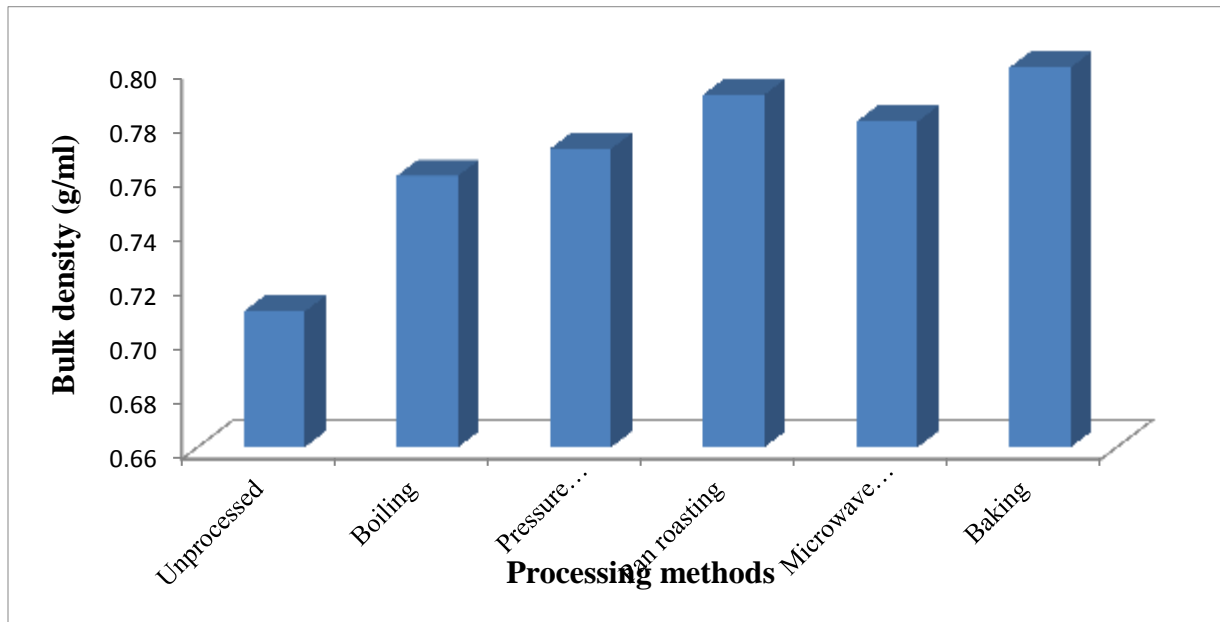
\*Correlation is significant at 0.05 level

\*\*Correlation is significant at 0.01 level





**Fig 1 Flour yield (%) of processed jackfruit seeds**



**Fig 2 Bulk Density (g/ml) of processed jackfruit seeds**

**Table 4 Effect of processing on functional properties of jackfruit seed flour**

Treatment	Functional properties (%)			
	Water absorption capacity	Oil absorption capacity	Swelling capacity	Solubility
Unprocessed	182.36 ± 0.03 <sup>f</sup>	89.93 ± 0.20 <sup>e</sup>	5.04 ± 0.06 <sup>b</sup>	20.09 ± 0.21 <sup>b</sup>
Boiling	260.30 ± 0.04 <sup>b</sup>	101.05 ± 0.08 <sup>d</sup>	6.46 ± 0.11 <sup>a</sup>	21.07 ± 0.05 <sup>a</sup>
Pressure cooking	282.71 ± 0.02 <sup>a</sup>	101.26 ± 0.72 <sup>d</sup>	6.24 ± 0.10 <sup>a</sup>	20.51 ± 0.28 <sup>b</sup>
Pan roasting	201.37 ± 0.03 <sup>d</sup>	115.80 ± 0.92 <sup>c</sup>	4.90 ± 0.02 <sup>b</sup>	15.63 ± 0.20 <sup>e</sup>
Microwave roasting	200.94 ± 0.02 <sup>e</sup>	130.88 ± 0.47 <sup>b</sup>	4.65 ± 0.45 <sup>b</sup>	17.49 ± 0.41 <sup>c</sup>
Baking	201.95 ± 0.03 <sup>c</sup>	164.76 ± 1.17 <sup>a</sup>	4.92 ± 0.06 <sup>b</sup>	16.31 ± 0.22 <sup>d</sup>
F value	58736	4461	18.95	258.82
S. Em. ±	0.12	0.82	0.23	0.29
C. D. at 1%	0.25 <sup>**</sup>	1.76 <sup>**</sup>	0.49 <sup>**</sup>	0.63 <sup>**</sup>

<sup>\*\*</sup>Significant at 1 % level

**Table 5 Particle size distribution of processed jackfruit seed flour**

Treatment	BSS standards [Sieve opening (µm)]						
	60(250)	85(180)	100(150)	150(105)	200(75)	240(63)	300(53)
<b>Unprocessed</b>	15.76 ± 0.74 <sup>b</sup>	46.08 ± 1.50 <sup>a</sup>	14.12 ± 1.80 <sup>a</sup>	6.54 ± 0.33 <sup>c</sup>	14.02 ± 0.48 <sup>e</sup>	3.96 ± 0.04 <sup>b</sup>	0.07 ± 0.01 <sup>d</sup>
<b>Boiling</b>	12.39 ± 0.08 <sup>d</sup>	33.23 ± 0.51 <sup>cd</sup>	5.24 ± 0.65 <sup>e</sup>	11.27 ± 0.88 <sup>ab</sup>	28.23 ± 0.67 <sup>b</sup>	10.61 ± 0.16 <sup>a</sup>	0.13 ± 0.06 <sup>cd</sup>
<b>Pressure cooking</b>	12.25 ± 0.55 <sup>d</sup>	31.96 ± 1.92 <sup>d</sup>	8.95 ± 0.47 <sup>cd</sup>	10.21 ± 0.81 <sup>b</sup>	33.98 ± 0.89 <sup>a</sup>	2.36 ± 0.71 <sup>c</sup>	0.47 ± 0.10 <sup>b</sup>
<b>Pan roasting</b>	14.51 ± 0.93 <sup>c</sup>	39.48 ± 1.00 <sup>b</sup>	11.25 ± 1.12 <sup>b</sup>	12.28 ± 1.54 <sup>a</sup>	20.81 ± 1.12 <sup>c</sup>	2.38 ± 0.14 <sup>c</sup>	0.23 ± 0.09 <sup>c</sup>
<b>Microwave roasting</b>	16.99 ± 0.74 <sup>a</sup>	35.22 ± 1.60 <sup>c</sup>	7.33 ± 0.90 <sup>d</sup>	12.60 ± 0.61 <sup>a</sup>	16.50 ± 0.53 <sup>d</sup>	10.10 ± 0.48 <sup>a</sup>	1.02 ± 0.03 <sup>a</sup>
<b>Baking</b>	14.73 ± 0.31 <sup>bc</sup>	34.47 ± 0.37 <sup>c</sup>	9.24 ± 0.50 <sup>c</sup>	12.55 ± 0.87 <sup>a</sup>	16.59 ± 0.76 <sup>d</sup>	10.59 ± 0.72 <sup>a</sup>	0.80 ± 0.13 <sup>a</sup>
<b>Mean</b>	14.44 ± 1.83	36.74 ± 5.04	9.35 ± 3.02	10.90 ± 2.32	21.69 ± 7.38	6.67 ± 3.94	0.47 ± 0.38
<b>F value</b>	26.33	49.54	27.40	19.21	304.86	234.25	67.11
<b>S. Em. ±</b>	0.73	1.49	1.18	1.06	0.90	0.55	0.10
<b>C. D. at 5%</b>	1.12*	2.30*	1.82*	1.64*	1.38*	0.84*	0.15*

\*Significant at 5 % level

Figures in parenthesis indicate sieve opening (µm)



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# **STRUCTURAL FEATURES OF SUBSTANTIVE, ADVERBIAL AND VERBAL PHRASES IN THE ENGLISH, RUSSIAN AND UZBEK LANGUAGES**

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## **ABSTRACT**

*This article is devoted to the analysis of substantive, adverbial and verbal phraseological units in the English, Russian and Uzbek languages. The relevance of the article is to identify the national characteristics of the aforementioned languages. The aim of this article is to demonstrate comparative structural-grammatical analysis of substantive, adverbial and verbal phraseological units and the identification of similarities and differences in the structural formation of the phraseological units. The author notes the importance of using phraseological units in human speech since they reflect the people's national mentality, its values and history.*

**KEYWORDS:** *phraseological units, comparative, non-comparative, substantive, adverbial, phrases, comparative analysis, verbal, convey, categories, linguistic, cultural, components, interconnected.*

## **DISCUSSION**

It is known that phraseology tends to convey the correspondence of culture and language. Phraseological units (PUs) are one of the categories in which the national mentality of language is manifested, which are interconnected images underlying the collective concept of the nation about the world and its place in it; in addition, PUs cover most of the human experience and carry the linguistic-cultural code of the nation, consisting of information and procedural components, where the first is a set of language units with symbolic significance, and the second - general and private schemes of reflection and language representation of the subject areas. Phraseologisms reflect centuries of history, religious beliefs, and moral values of the people, which are the main assets of the culture of a particular nation. V.N. Telia believes that PU "...are associated with cultural and national standards, stereotypes, myths, and when used in speech they reflect the type of thinking characteristic of a certain linguistic and cultural community" [7]. According to V.A. Maslova, PU are the soul of each language, express its spirit and identity of people, describe the world around people, interpret it, evaluate it, and

express people's subjective attitude towards it [5]. PU participate in the formation of the worldview of the person and society.

The presence of various studies in the field of phraseology show that linguists interpret the term "PU" differently, for example, V.I. Maximov PU calls a word or sentence closely related to components and used in certain syntactic roles as a ready element of speech [4]. It follows that the PU are ready, but not created in the process of speech or writing as new combinations. They have a whole meaning in terms of meaning.

In this article the substantive, adverbial and verbal PUs will be considered in detail according to the classifications of different linguists, will be given examples and point out the constructions used in these PUs.

Interpretation of a phrase (phraseological unit) as a superword formation consisting of two or more elements implies consideration of its syntagmatism in two aspects: 1) in the aspect of internal syntagmatics (consideration of relations between constituent elements of a unit) and 2) in the aspect of external syntagmatics (consideration of relations between phraseology and lexical environment). By





syntagmatics we mean the relations arising between consecutive language signs "when they are directly combined with each other in real speech flow or in text" [3]. It should be noted only that unlike units of other levels of the language system (phoneme, morpheme, lexeme), phrases in a speech stream or in a text are combined with lexical units rather than with each other, which allows to speak about the interlevel nature of the phrase syntagmatics. The nature of a phrase's connection with the lexical environment, depending on both formal and semantic characteristics of the combining elements, may change over time, and by different parameters: the degree of idiomatism, latitude of lexical and grammatical compatibility, etc. Let's demonstrate it by the example of substantive phrases of different structure.

Among the substantive PUs (SPUs), there are different phrases with completely rethought components and with partial-per-rethought components. This view is presented by Professor A.V.Kunin [3].

Among the substantive PUs with completely rethought components, turns with a holistic value are distinguished. An integer value arises in substantive PUs if the components of these formations are completely rethought and if these formations are characterized by structural monolithic, i.e., in closed rotations that have no variants and do not allow for normative inclusions of variable elements.

The integer value is a type of phraseological value of closed PU with completely rethought components. In A.V.Kunin's opinion, PU with integer value is an idiom [3].

Thus, substantive PUs with constant component dependence belong to the idiom class. Examples of a substantive idiom can serve: a back number - "отсталый человек; ретроград;" - "sustkash odam"; a break in the clouds - "луч надежды" - "umid nurlari"; a bull in a china shop - "о неловком, неуклюжем человеке" - "qo'rol odam"; a lay of the land - "положение дел" - "holat".

"Yes, - he said succinctly, - see the lay of that land, but what do I get out of it?" (Th.Dreiser, K., 554) - "Так, - резко сказал он, - я понимаю, как обстоит дело, а какая выгода будет для меня лично?" - "Xo'sh, - dedi u keskin, - ishlar qanday ekanligini tushunaman va shaxsan men uchun qanday foyda bo'ladi?"

"We, back numbers, - his father was saying, - are awfully anxious to find out why we can't appreciate the new stuff..." (J.Galsworthy, K., 662) - "Мы, старики, - сказал его отец, - стараемся понять, почему мы не можем оценить нового искусства..." - "Biz kekxa odamlar, - dedi

otasi, - nega yangi san'atni qadrlay olmasligimizni tushunishga harakat qilmoqdamiz."

A.V.Kunin believes that in addition to the integral and separate complete value, the substantive PU is also characterized by a single-literal value, which is a kind of partially reinterpreted meaning [3]. This value is found in phraseologies with components that have a literal meaning, i.e., have not lost their so-called function.

Single-literal substantive PUs are characterized by one component with a literal value and another component with a rethought value. A component with a literal value that is specified by a component with a rethought value is a semantic pivot. Judging by the definition given by A.V.Kunin to single-literal PUs, one can say that its single-literal substantive PUs are nothing but fragments. And the characteristic feature of the phrases, according to E.F.Arsentyeva, is a single combination of a component with a rethought value and a component with a literal value [2].

Examples of substantive phrases are revolutions: angel's visits - "редкие, но приятные визиты" - "kamdan-kam, ammo yoqimli tashriflar"; apple-pie order - "абсолютный порядок" - "mutlaq tartib" ..

...she was in revolt against an apple-pie order of existence which was being forced upon her (Th.Dreiser, K., 673). - ... ей претил строго размеренный уклад жизни, которому она должна была подчиняться. - ... u itoat qilishi kerak bo'lgan qat'iy o'lchovli hayot tarzidan nafratlandi.

Captain of industry - "промышленный магнат" - "sanoat sohasida boy odam"; a change of heart - "изменение намерения" - niyatni o'zgartirish.

When recently he had announced his intention of "turning Catholic", his wife was delighted at Ted's change of heart, little suspecting his real motives - Когда Тэд недавно объявил о своём намерении принять католичество, его жена очень обрадовалась, не подозревая истинной причины его "обращения". - Yaqinda Ted "katolik diniga kirishni" niyat qilganligini e'lon qilganida, uning rafiqasi asl sababini bilmagan holda juda xursand bo'ldi.

Cupboard love - "корыстная любовь" - "hudbin sevgi"; the dregs of society - "подонки общества" - "jamiyatning axlati"; a red-letter-day - "праздничный день, знаменательный счастливый день" - "bayram"; a pack of lies - "сплошная ложь" - "yolg'on".

In some phrases it is possible to variant a particular component: a silent (or sleeping) partner - "номинальный компаньон фирмы" - "firmaning



nominal nomzod sherigi"; Dutch comfort (win consolation) - "слабое утешение" - "ozgina tasalli".

Thus, substantive phrases are characterized by two types of component dependence: constant dependence and constant variant dependence. Most phrases are unstable, and they easily pass into the variables of word combinations.

The next issue to be discussed is adverbial PUs. Qualitative adverbial PU of the English language is divided into PU of the mode of action and measures and degrees.

Adverbial PU of a mode of action expresses the intensity of action (by hook or by crook, by leaps and bounds); incomplete action (by fits and starts, off and on); full action (hook, line and sinker); unexpected character of action (out of a blue sky); repeated action (time and again); single action (for once in a way).

Analyzing PU, we found that the model "Prep + Noun" is the most widely recognized: above all, after all, to the ears, to the ashes. In addition, the following are relevant here: "Prep + Adv + Noun" and "Prep + Adj + Noun" (in English); "Prep + Noun + Verb" (in Russian).

Adverbial PU measures and degrees, showing the measure and degree of action: in large measure, a whole good hour, to a high degree.

The above subclass has a model: "Adj + Noun", "Noun + Prep + Noun", "Adj + Noun + Adv" (in English), while in Russian - "Prep + Noun", "Noun + Verb", "Adj + Noun".

Circumstantial adverbial PUs denote the conditions in which the action is performed, as well as the external factor in relation to it:

Circumstances in which the action is performed: rain or shine, from scratch, by word from mouth. The constructions of this subclass are as follows: "Prep + Pron + Noun", "Noun + Noun", "Verb + Adj + Adj + Noun".

The circumstances of the place indicate spatial features: from China to Peru, from John o'Groat's to Land's End, handshake, hand in hand. In the languages analyzed by us the following models are applicable: "Prep + Noun", "Noun + Prep + Noun", but the model "Adv + Noun" is inherent only to the PUs of English, and "Prep + Noun + Verb" - Russian language.

The circumstances of time indicate the actions in time: in a flash, in the twinkling of an eye, in one stroke, with a diaper. Designs "Prep + Noun", "Noun + Prep + Noun" are used in the languages we compare, only in English - "Adv + Noun + Verb + Adv", only in Russian - "Prep + Noun + Verb".

Circumstances of the reason: in the heat of the moment, in one's cup, from under a stick, with anger. The model of the English language has a

formula: "Prep + Noun + Prep + Pron" and Russian - "Prep + Noun", "Prep + Verb + Prep + Verb".

Circumstances of the purpose: on the off-chance, just in case. General construction in the languages under study: "Prep + Noun". English only: "Prep + Noun + Noun/Pron", Russian only: "Prep + Adj + Noun" [4].

By researching and comparing the different classifications of adverbial PU of English and Russian, we have identified several types of adverbial PU that are common in the three languages:

- Adverbial phrases - phraseologisms, those that have in their structure the same and repetitive words: neck and neck, all in all, face-to-face, face-to-face, soul to soul. This may include the following structures: "Noun + Noun" and "Noun + Conj + Noun".
- Comparative phrases: like clockwork, like taking candy from a baby, like snow on your head, like a jam in oil. There is the use of constructions: "Prep like/like + Noun", "Prep like/like + Verb + Adj + Noun".
- Adverbial phrases with an opposing structural component: no deal, no hard feelings, no end, not far off, not at ease. The following constructions should be used: "Negative Particle no + Noun", "Negative Particle no + Adj + Noun", "Negative Particle no + Prep + Conj + Noun".
- Adverbial phrases with a binder union: fair and square, by fits and starts, by lips and bounds, avos yes, was yes, was yes, to the dust and ashes. It is reasonable to use constructions: "Noun + Linking word and / or yes + Noun", "Prep + Noun + Linking word and / or yes + Noun".

Analyzing the above, we have come to the conclusion that the semantic and stylistic originality of objective and adverbial PU is due to the grammatical nature. In contrast to other types of PU (substantive, verb), objective and adverbial phraseologisms include different parts of speech.

As a result of the structural-grammatical analysis, in terms of the structural-grammatical component of compared languages, objective and adverbial PUs have significant similarities, which is considered a natural result of the commonality of everything around us and the universality of categories of human thought. The ways of formulating syntactic relations are differences between the PUs of English and Russian languages, which is due to the different structure of the languages being compared.

The next issue to be discussed is verbal PUs. Each of verbal phraseological units united in phraseosemantic groups is unique in the sense of its



nominal value and contains not only the big volume of additional information on character of actions and behavior of a person, but also a special emotional estimation of designated action in comparison with those invariant senses on which they correspond in subgroups and microgroups. None of verbal phraseological units duplicates a word or other phraseological unit, none is superfluous in language, each of them occupies its own lawful place in system of nominal means [1].

Duplication, though very relative, can be talked about only in cases when a phrase is identified by a neutral equivalent, synonymous word. This group is not numerous and includes such phrases as, for example: kick the bucket - «сыграть в ящик» - "o'Imoq", join the majority - «отправится к праотцам» - ""Ota-bobolarga jo'nash"; cut the rug - «танцевать» - "raqsga tushmoq"; hang a leg «решаться» - "qaror qilmoq".

Nominations in a phrase other than a word, in a phraseology "trigger" other mechanisms of nomination, and therefore the criteria and characteristics of the lexical secondary nomination can be applied to the phraseological nomination quite relatively.

In phrases as units of the phraseological indirect nomination, each of the four components has its own specific manifestation. As in all units of the secondary nomination, the name here is a separated "ready-made" form, which is secondary used on the basis of its indirect correlation with reality.

The similarity of the general paradigmatic categorical characteristics of verbs and verbal phraseologisms makes it possible to assert that such general grammatical categories as procedural state, existence, activity, movement are equally characteristic of verbal phraseologisms and their denotative attribution is also based on the active attribute correlated with time [1].

Phraseologisms, to a greater extent than verb lexemes, reveal the ability to transmit complex additional information, consist of an expressive, emotional-evaluation characteristic of the phenomena of reality, the attitude towards them, which determines their ability to fill the gaps in the system of language nomination. This position is most fully confirmed in the semantic grouping of the studied type of phraseology.

Each of the verbal phraseological units united in phraseosemantic groups is unique in terms of its nominal value and contains not only the big volume of additional information on character of actions and behavior of a person, but also a special emotional estimation of the designated action in comparison with those invariant senses on which

they correspond in subgroups and microgroups. None of verbal phraseological units duplicates a word or other phraseological unit, none is superfluous in language, each of them occupies its own lawful place in system of nominal means.

## CONCLUSION

Each individual phrase of the English, Russian and Uzbek languages has been considered in the article as an ordered whole object, differs from all other linguistic phenomena by certain features, has a certain status among them, has categorical features that are manifested in its paradigmatic and syntagmatic features.

A phrase is a unit of constant context in which the index minimum required to actualize a given value of a semantically realizable word is the only possible one. A phrase, which is one of the semantic varieties of a phraseological unit, fills the gaps in the lexical system of the language, which cannot fully provide the name of new sides of reality known by man and in many cases is the only designation of objects, properties, processes, states, situations, etc.

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## **PROVERBS AND SAYINGS AS A KIND OF PAREMIOLOGICAL CLICHÉ AND AN OBJECT OF LINGUISTIC AND LINGUODIDACTIC RESEARCH**

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### **ABSTRACT**

*The article under discussion discusses proverbs and sayings as a kind of paremiological cliché and an object of linguistic and linguodidactic research. The author of the article considers that proverbs and sayings as genres of oral folk art are a means of conceptualizing reality, i.e. in a certain sense, by its purpose, it approaches the lexeme and contributes to the performance of such functions of the language as cognitive, imperative, aesthetic. To the least extent, proverbs and sayings contribute to the implementation of the communicative function of the language.*

**KEY WORDS:** *proverbs, sayings, linguistic, linguodidactic, research, function, lexeme, cliché, communicative, implementation, cognitive, discourse, cultural, linguistic problems.*

### **DISCUSSION**

Within the framework of this article, mainly aimed at studying the issues of linguodidactics, the definition proposed by V.V. Krasnykh has been adopted as: "Cultural linguistics is a discipline that studies the manifestation, reflection and fixation of culture in language and discourse. It is directly related to the study of the national picture of the world, linguistic consciousness, features of the mental-lingual complex" [5].

Being at the junction of cultural studies and linguistics, cultural linguistics turns out to be addressed to the subjects of both these disciplines. From this point of view, the subject of cultural linguistics was very succinctly characterized by V.A. Maslova: "If culturology studies the self-consciousness of a person in relation to nature, society, history, art and other spheres of his social and cultural life, and linguistics considers the worldview, which is displayed and fixed in the language in the form of mental models of the linguistic picture of the world, then cultural linguistics has its own subject and language and culture, which are in dialogue, interaction. If the traditional way of comprehending the problem of interaction between language and culture is to try to solve linguistic problems using some ideas about culture, then in our work we study the ways in which

language embodies in its units, stores and transmits culture" [7].

That is why it can be noted that culturology occupies a significant place both in the range of culturological and in the range of linguistic sciences. In addition, cultural studies maintains a genetic link with them, since is in many ways a derivative of them and continues to be at their intersection.

Proverbs and sayings are the subject of research of a special science - paremiology, which studies, along with them, almost all stable expressions in the language - phraseological units, wellerisms, slogans, aphorisms, maxims, riddles, omens, etc. The main difference between proverbs and sayings here is the lack of authorship. This means that their origin cannot be traced back to any literary author's text or statement. In other respects, proverbs and sayings are similar to the rest of the paremias. Note that in the tradition of the Russian linguistics the concept of "cliché" has some negative connotations, since it is often used as a synonym for expressions such as "speech stamp", "clericalism", etc. For example, in the "Dictionary of linguistic terms" O.S. Akhmanova gives the following definition: "Cliché originates from English cliché, stereotyped expression. A hackneyed, stereotyped, stereotypical expression, which is mechanically reproduced either in typical speech and everyday





contexts, or in a given literary direction, dialect, etc.: "Здоров как бык; передавайте привет; в связи со сказанным; вопрос ждет своего решения" [3]. However, in my opinion, there is a need to delimit the term "paremiological cliché" from the concepts of "clericalism" and "speech stamp". So clericalism is a word or a steady turnover from the official business style of speech, inappropriately used outside the situation of official communication - compare: "Articulate a position" instead of "Express an opinion". Note that most clericalisms consist of one lexeme or a combination of an independent word with an official one, for example: "further", "comprehensive", "due to something", "in plan", "at the level", "in the context". Most often, the use of clericalisms in colloquial or publicistic speech is assessed as a speech error, but this does not exclude their conscious use as a special stylistic means. Note that both concepts under consideration - clericalism and speech stamp - are part of practical (functional) stylistics, and it is within this discipline that they are often identified with the concept of "cliché".

Meanwhile, the term "cliché", or more correctly, "paremiological cliché" denotes a generic concept that encompasses a whole class of phenomena, including clericalism and clichés. It is characteristic that in the "Dictionary-reference book of linguistic terms" D.I. Rosenthal has no negative connotation for the term "cliché": "Cliché (French cliché). A speech stereotype, a ready-made phrase, used as a standard that is easily reproduced in certain conditions and contexts. Unlike a cliché, which is a hackneyed expression with a tarnished lexical meaning and worn out expressiveness, a cliché forms a constructive unit that retains its semantics and, in many cases, expressiveness.

As you can see, in quantitative terms, the positive aspects of the use of paremiological clichés in speech generally prevail over the negative ones. This allows us to conclude that the use of paremiological clichés, including proverbs and sayings, is conditioned by the very ontology of human speech. It is no coincidence that these phenomena are universal, since no natural language can do without them.

I would like to note that "the compositional structure of a judgment in a proverb is usually two-term, often supported by rhythm, rhyme, assonances, alliterations" [6]. Let us consider this circumstance in detail.

So, most proverbial sentences consist of two syntagmas. In my opinion, this is due to the fact that they reflect the most varied relationships between the most diverse phenomena of reality. So, for example, they reflect:

A) spatial relationships:

Russian proverb «Где дым, там и огонь».

English proverb "Love will creep where it may not go". Translation: «Там, где нет прямого пути, любовь ползком проберется».

B) temporary relationship:

Russian proverb «Когда деньги говорят, тогда правда молчит».

English proverb "A liar is not believed when he speaks the truth." Translation: «Лжецу не верят, даже когда он правду говорит».

C) causal relationship:

Russian proverb «Где солнце пригреет, там и вода примелеет».

English proverb "If the blind lead the blind, both shall fall into the ditch." Translation: «Если слепой ведет слепца, оба свалятся в канаву».

Also in the proverbs, a dialectical relationship is given:

A) form and content:

Russian proverb «Молодец красив, да на душу крив».

English proverb "Handsome is that handsome does". Translation: «Красив тот, кто красиво поступает».

B) beginning and end:

Russian proverb «Где не было начала, не будет и конца».

English proverb "In every beginning think of the end". Translation: «Начиная что-либо, всегда думай о конце».

B) old and new (young):

Russian proverb «Старое стареется, а молодое растет».

English proverb "As the old cock crows, so does the young." Translation: «Как старый петух кукарекает, так и молодой ему вторит».

The two-term structure of a proverb is realized in the fact that most proverbs are complex sentences of one type or another, namely:

1. Complex Subordinate Sentence (CSS): Russian proverb «И честь не в честь, коли нечего есть»; also CSS with homogeneous subordination:

Russian proverb «Не то худо, на что кривым глазом взглянул, а то, что худо и есть».

English proverb "A bad corn promise is better than a good lawsuit." Translation: «Плохой компромисс лучше, чем хорошая тяжба»; "A fool may ask more questions in an hour than a wise man can answer in seven years." Translation:





«Умный семь лет не ответит на вопросы, которые дурак задаст за один час».

2. Compound Sentence (CS): Russian proverb «Бог до людей, а отец до детей»; English proverb «*He is not poor that has little, but he that desires much*». Translation: «Беден не тот, у кого мало что есть, а тот, кто многого хочет»; English proverb «*He who pleased everybody died before he was born*». Translation: «Тот, кто всем угождал, умер раньше, чем появился на свет».

At the same time many proverbs are constructed as a simple sentence, complex by homogeneous terms, but at the same time they are also two-term, i.e. intonationally divided into two speech bars, compare: Russian proverbs:

«Бес качает горами, // не только нами».  
«Носи, да наблюдай // да в коробейку запирай!»

Likewise, English proverbs:

"*Better die standing // than live kneeling*".  
Translation: «Лучше умереть стоя, чем жить на коленях».

"*Velvet paws // hide sharp claws*".  
Translation: «В бархатных лапках скрываются острые когти».

Thus, it can be noted that the majority of Russian proverbs are so-called phrazoviks: "Phrazovik is one of the varieties of Russian dimetric vers libre (free verse). The structure of the phrazoviks is based on the free division of poetic speech into lines of verse, where the border of the intonation wave, marked by the final constructive pause, is the defining sign of division. This pause does not always coincide with the logical division of the phrase." [4]. A proverb is actually a couplet, devoid of poetic size in the proper sense (accent, or tonic, verse), which, however, is often supplied with accurate or imprecise rhyme:

Exact rhyme: Russian proverb «**В руках было, да по пальцам сплыло**»; «**На чужой стороншке рад своей вороншке**».

Inaccurate rhyme: Russian proverb «**Кашляй помалу, чтоб на год (или: надолго) стало**».

This circumstance makes the proverb a part of folk poetry, and not folk prose, which is important to emphasize, in view of the controversial nature of this issue. The presence of the movement of tone and rhyme (or consonant and assonant accords) proves the poetic nature of the proverb as a genre.

In my opinion, all these cases can be defined as the lexical conditionality of the formal variation of proverbs and sayings.

## CONCLUSION

The fact of the existence of such invariant values, common to the set of paremias, allows us to make the following assumption. Proverbs and sayings as genres of oral folk art are a means of conceptualizing reality, i.e. in a certain sense, by its purpose, it approaches the lexeme and contributes to the performance of such functions of the language as cognitive, imperative, aesthetic. To the least extent, proverbs and sayings contribute to the implementation of the communicative function of the language.

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## **DIFFICULTIES ENCOUNTERED IN WRITING ESSAYS IN EFL (ENGLISH AS A FOREIGN LANGUAGE)**

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### **ABSTRACT**

*The article under discussion summarizes the experience of the English language Olympiad conducted among the students of Ferghana Polytechnic Institute, Uzbekistan who study English as a foreign language. The main types of the Olympiad's tasks have been considered and typical mistakes in Writing section of the contestants have been analyzed.*

**KEY WORDS:** *Olympiad in a foreign language, objectives of the Olympiad, blocks of tasks, results of the Olympiad, expediency of introducing new tasks, educational institution, requirement, communicative competence.*

### **DISCUSSION**

The Olympiad of a foreign language in any educational institution is an important event and a driving force for the development and strengthening of the status of a given foreign language in the Uzbek educational language space. The content of the Olympiad should meet the requirement of a competent approach adopted today in world educational practice. The main goal of foreign language teaching at the present stage is the formation of communicative competence, since language is a means of communication [1]. In the absence of a natural environment for communication in the language under study, a great role in the formation of students' ability and willingness to enter into intercultural communication is to be played by extra-curricular work (various competitions and Olympiads), which allows the use of a foreign language both as a tool of cognition and as a tool of communication, to penetrate more deeply into the culture of peoples of foreign languages under study, because "languages should be studied in an inseparable unity with the world and culture of peoples speaking these languages" [2].

Participation in Olympiads increases motivation and interest in the language and culture of the native speakers of a given language, which students learn as a means of intercultural communication. Also participation in the Olympiad

influences the formation of personal qualities of students of any age, forms purposefulness, independence, expands the outlook and understanding of the culture of the country of the studied language.

For several years the Department of Teaching Foreign Languages of Ferghana Polytechnic Institute organizes and conducts an Olympiad in English as a foreign language for students of Year 1-4 of different faculties.

The aim of the Olympiad is:

- To establish the level of formation of communicative and linguistic competences of students, ensuring their ability to intercultural communication;
- To identify the most talented and competent students to master English.

The tasks of all sections of the Olympiad correspond to the threshold level of complexity B2 on the scale of the Council of Europe. The Olympiad includes Listening, Reading, Writing and Speaking sections.

One of the requirements of Writing section of the Olympiad is writing a mini essay. A mini essay does not only verify lexical and grammatical skills, but also allows you to evaluate a student's ability to reflect on often difficult topics in a foreign language. Learning to write an essay in EFL (English as a foreign language) is rather a complicated type



of work, as it requires from a student the ability to think creatively, to use speech structures competently, to follow a clear and precise structure of presentation. Students experience difficulties in this type of work both in our country and abroad. [3].

There are several main reasons why students face difficulties in writing an essay:

- lack of ability to write in English
- inability to write opinions
- poor vocabulary
- lack of familiarity with grammar
- inability to organize text
- poor time management

In the written part, the student should show his/her ability to write and express thoughts in English, as well as his vocabulary, imagination and knowledge of grammar. In addition, many Uzbek students get low scores due to copying phrases written in the task itself and a large number of common words and expressions that create a volume of text, but do not carry any information [5].

The analysis of the content of contestants' essays allowed to identify the following difficulties that took place in the performance of the task:

- Partially or completely misunderstanding of the task, deviation from the topic. In most cases, the subjects considered for instance environmental problems in general, global, with insufficient emphasis on the disappearance of animals. Obviously, this is due to limited vocabulary that does not correspond to B2 level;
- ignorance of the format of this task and the requirements for its performance;
- a limited amount of time allocated for the task fulfillment.

Among the most common mistakes in achieving a communicative goal in this case, the following can be highlighted:

- failure to follow a neutral style of presentation, deviation from objective presentation of information, narrowing the scope of the global problem to individual cases when the subjects described their personal experience, for example: *Once I saw a group of teenagers throwing litter in the lake;*
- Absence of introduction and/or conclusion in the essay. The most common mistake is literally using the wording of the task as an introduction.

Among the most typical errors in the text organization are the following:

- absence of text division into paragraphs;

- Limited use of binding elements. Users used mainly conjunctions *and, but and or;*
- incorrect use of binding elements (*also* instead of *although*) as well as use of unnecessarily long sentences that make it difficult to understand the text or break the logic of the statement;
- logic violation (not related to the incorrect use of binding elements), expressed in a sharp transition from one thought to another, unjustified conclusions, inappropriate examples, inconsistency of the conclusion with the arguments given earlier [6].

Language design. The analysis of the works showed that observing the correctness of a statement is much more difficult than a variety of vocabulary and grammatical structures. The most common grammatical errors:

- in the use of the verb to be: a) the verb is omitted, for example: *It <is> important to stop environmental destruction; people <are> too busy and lazy to do it;* b) the verb does not agree with a noun, for example: *There is* (instead of *'there are'*) *ecological friendly technologies;*
  - in the use of an article: a) the absence of the indefinite article before a singular noun, for example: *It can be <a> reason why other people try to help nature;* b) the use of the indefinite article with a plural noun, for example: *Our world has a serious environmental problem;*
  - in the use of countable/uncountable nouns, for example: *Now new cars have special equipments; a lot of transports use large amounts of fuel;*
  - in the use of prepositions, for example: *It is dangerous gas which influences on their health; they suffer of* (instead of *from*) *air pollution; It helps to avoid of ecological problems;*
  - in the agreement of a pronoun and a noun, for example: *If we realize these things;*
  - in the use of complex subordinate clauses with additive time and conditions, for example: *If all ordinary people will think that helping the environment; but if we do not do it, it is not a changing situation;*
  - in the use of modal verbs, for example: *People must have a lot of money and power; people can change the environment; we may not try to save the animals.*
- Typical lexical errors are the following:
- incorrect use of adjectives formed with negative prefixes and suffixes, for example:



*pandas look so unhelpful* (instead of *helpless*), probably due to ignorance of their meaning;

- the use of similar words with a different meaning, such as: *inspiration* (instead of *respiratory*); *pandas are dangerous* (instead of *endangered*) *nowadays*; *ordinary people can't solve* (instead of *solve*) *this*;
- incorrect use of certain words, for example: *destroyed habitat is the main reason* (instead of *cause*) *of their extinction*; *it is necessary to combine* (instead of *unite*) *people*.

## CONCLUSION

So, the analysis of the contestants' essays of the Olympiad in English as a foreign language conducted in Fergana Polytechnic Institute, Uzbekistan, demonstrates low scores obtained on the indicator "language design", which is due not so much to the narrow range of language means, as to lexical and grammatical errors made by the students.

The analysis of the content of the Olympiad works makes it possible to state the following decrease level of language competence of contestants during 3-4 years, which is due to weaker language training of students. At the same time, we can state a tendency to increase the number of participants in the Olympiad, which allows us to conclude that participation in the Olympiad is one of the effective means of increasing motivation for learning English.

Participation in the Olympiad helps students and teachers not only to assess properly the results of their efforts, but also to strengthen the spirit of healthy competition, respect for each other and the desire to acquire new knowledge.

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# THE PERFORMANCE OF RESPONSIBILITY ACCOUNTING IN SOME SELECTED BANKS IN SOUTHWESTERN NIGERIA

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## ABSTRACT

Globally, in business environments, responsibility accounting has been recognized as an instrument that measures the performance of each operational section within an organization, to achieve its stated goals and objectives. This study adopted a descriptive research method to examine the impact of responsibility accounting on performance, the effect of managers' participation in goal setting and the importance of organizational structure on performance in the banking industry. A random sampling method was used and a total of 240 copies of questionnaires were administered in four major banks in the south-west geo-political zone of Nigeria across five States to address the objectives of the study. SPSS was used to analyse the data using Pearson Correlation and t-test. Results from the study revealed that the involvement of divisional managers in goal setting which had a correlation of 0.144. Furthermore, organizational structure was also found to affect performance with a correlation of 0.405. Meanwhile, there is a significant impact of responsibility accounting on performance with a correlation of 0.405. On this basis, the study proffered, that responsibility accounting is a major tool for divisionalization to reduce the difficulty in managing the banking industry in Nigeria for maximum performance. Also, divisional managers should be encouraged in setting goals to help increase performance within the organization.

**KEYWORDS:** Responsibility accounting, Banking industry, Southwestern Nigeria, Divisional manager.

## 1. INTRODUCTION

The changing complexities in business environment and the need for timely decision making calls for a decentralized system in business operations, especially if there are many products and services they are providing. The larger the size of the company or the number of branches, the larger the scope of work it has to operate with. This emphasizes the importance of a decentralized system over a centralized management system of operations in the management of businesses.

Today, with the business environment becoming global, organizations need to respond timely and actively to various influences to remain competitive. Performance evaluation is also a major technique that must be in place to ensure organizations move towards the achievement of their objectives. This can only be made easy when each employee is assigned a particular task and he/she is accountable for such assigned task. Therefore, each employee could be evaluated in relation to his/her

contribution to the achievement of the organization's goal and objectives.

Responsibility Accounting is an accounting system that collects, summarizes, and reports accounting data relating to the responsibilities of individual managers. Responsibility accounting is an underlying concept of accounting performance measurement systems. The basic idea is that large diversified organizations are difficult, if not impossible to manage as a single segment. Consequently, they must be decentralized or separated into manageable parts. These parts or segments are referred to as responsibility centres that include majorly:

- i) Revenue centres,
- ii) Cost centres,
- iii) Profit centres and
- iv) Investment centres.

This approach allows responsibility to be assigned to the segment managers that have the greatest amount of influence over the key elements to





be managed (Martin 1994). Responsibility accounting, thus provide a way to manage an organization in a more efficient and organized manner. In addition, assigning responsibility to lower level managers allows higher level managers to pursue other activities such as long term planning and policy making. It also provides a way to motivate lower level managers and workers. Managers and workers in this system tend to be motivated by measurements that emphasize their individual performances.

According to The Chartered Institute of Management Accountants (CIMA) London, responsibility accounting is a system of management accounting under which accountability is established according to the responsibility delegated to various levels of management and management information, and reporting system instituted to give adequate feedback in terms of the delegated responsibility. The manager requires adequate information suitable enough to make the right decisions for the growth of the company within the available time frame.

Responsibility accounting is one of the uses of management accounting for managerial control. Among the control techniques responsibility accounting has assumed considerable significance as a control device by which costs are traced to individual managers for measuring the performance of various divisions of an organization.

### 1.1 Statement of the Problem

Banks offer many products and services to their customers located in different parts of the country and even abroad. The products and services which include corporate services, mobilization of savings and other deposits call for proper and adequate management operations that aid the survival of the business in the environment it is located. In the last few years, the banking industry in Nigeria has faced some economic challenges that border on performance management. Confronting these challenges call for the establishment of a responsibility accounting system within the banking industry.

Centralization focuses on decision making at the top level management with no regard for the middle or low level managers. The centralized system is a system that transmits and amplifies the effect of decision within the system it is practiced. This means that when bad decisions are made as inevitably as it may in the banking sector, the entire system will be affected. This centralized system makes the central planning prone to mistakes. This system of decision making makes managers ineffective thereby affecting the performance of the organization.

There is therefore the need to investigate how responsibility accounting could alleviate this situation to enhance performance in the Nigerian banking industry; hence, this study is aimed at solving these problems.

## 2. OBJECTIVES

The general objective of this study is to examine the impact of responsibility accounting on performance in the Nigerian banking industry. The specific objectives of the study are to:

- i. investigate the impact of managers' involvement in setting goals on performance of banks in Nigeria;
- ii. determine the impact of organizational structure on performance in the Nigerian banking industry;
- iii. examine the impact of responsibility accounting on performance of banks in Nigeria.

### 2.1. LITERATURE REVIEW

Responsibility Accounting was termed profitability accounting and also referred to as activity accounting. is a system that recognizes various decisions or responsibility centres throughout the organization and traces costs (and revenue, assets and liabilities) to the individual managers who are primarily responsible for making decisions about the costs in question.

Dandago and Tijani (2003) defined responsibility accounting as a structure of accounting which is aimed towards an organization such that cost and revenue are examined and reported by stages of responsibility in an organization. He further explained that each control-department/unit in the organization is charged only with the cost for which it is responsible and over which it has control on. Pandey (2003) gave a simple description of the concept as a structure that accumulate and report both actual and budgeted costs (and revenues) by individual unit responsible for them.

Adeniji (2004) also shared the same view like other authors, he described responsibility accounting as the term used to describe a system of decentralized authority with performance of decentralized units measured in terms of accounting results: cost (and revenue, assets and liabilities where pertinent) are traced to the individual managers who are primarily responsible for making decisions about the costs in question. Farounbi (2005) explained that the basic idea behind responsibility accounting is that big organizations are challenging, if not difficult to manage as a single segment; therefore, they must be decentralized or divided into manageable parts.



These parts or segments are called responsibility centres

According to Hansen and Mowen (2005), responsibility accounting model is defined by four essential elements which are: 1) Assigning responsibility 2) Establishing performance measures or benchmarks 3) Evaluating performance and 4) Assigning rewards.

### **Responsibility Reporting System**

Kimmel, Weygandt and Kies, (2009), stated that a responsibility reporting system involves the preparation of each level of responsibility in the company's organization chart. Safa (2012), also defines responsibility accounting reports as reports classified into different levels of responsibility. This starts from lowest level of the hierarchy and continues to the higher levels. At each level, directly incurred costs by the unit's manager are listed and the incurred costs by each of the subordinates to top managers of the unit are traced. Performance reports usually reflect the budgeted and actual financial results of the related responsibility centres. Management reporting is divided into two types: responsibility reporting and information reporting. Such reports aim to inform the manager and supervisor of how duties are carried out in the areas that the reporter is directly responsible and motivate them to take some actions to improve performance.

### **Measures of Responsibility Accounting**

Koontz and Weihrich (2002) stated that all forms of business – small or large, private or public, manufacturing or non-manufacturing can use responsibility accounting. The requirements of an effective responsibility accounting system and sound organizational structure with strictly defined authority and responsibility are stated below:

- i. Identification and classification of required activities.
- ii. Grouping of activities to attain set objectives.
- iii. The assignment of each grouping to a manager with the necessary authority to supervise the delegation, and
- iv. The provision of horizontal and vertical coordination of various responsibility centre (cost centre, profit centre, revenue centre and investment centre)

### **Performance Evaluation**

Performance evaluation is a formal determination of an individual's job-related actions and their outcomes within a particular position or setting. In financial trading, its objective is to assess the extent to which the individual added wealth to the firm and/or its clients, and whether his or her achievements were above or below the market or industry's norms.

Organizations routinely evaluate the performance of individuals, activities, and subunits. These evaluations clearly have a decision influencing purpose; they also serve to facilitate numerous economic judgments and decisions. For example, evaluations of performance frequently is used to allocate resources within the organization, decide on corrective actions, set future performance goals, develop or refine strategies, and identify training and development needs. Moreover, accurate performance evaluation is of critical importance in organizations, and both financial and nonfinancial data from the firm's managerial accounting system serve as a key input in forming these evaluations (Foster & Young, 1997; Ittner & Larcker, 2001).

### **Theoretical Review Contingency theory**

This theory aims at identifying an operational leadership style which shows interpersonal interactions between the managers and its subordinates in ensuring task are executed and goals are attained. Fiedler (1964), proposed contingency theory by highlighting the essence of leader's personality and the environments in which he operate. Further research showed how the theory has been developed, in Donaldson (2001), stated that contingency theory provides a major basis for organizational design. Fakir, Islam, & Miah (2014) assessed the practice and usage of responsibility accounting system identifying the implications of each division in regarding and handing over responsibility, establishing performance measures, appraising performance, allocating rewards to the system. For the purpose of his research, contingency theory is a focus because it relates to the organizational structure of an organization and its performance.

### **Agency Theory**

Agency is a form of contract that involves a relationship between a person known as an agent, who acts in place of the owner (principal) to operate legally with a third party. Agency theory is a principle which describes the rapport/ connexion between the principals and the agent. Jensen and Meckling (1976) define an agency relationship as a contract by which one or more persons (the principal) hire another person (the agent) to perform some service on their behalf, giving the agent some of their decision-making power. Agency theory enumerates responsibility accounting. There are many more reviewed theories relating to responsibility accounting by different researchers and various studies, for the purpose of this research study, the researcher has anchored the study to the agency theory because it relates to the principal agent relationship and reward system.



**Empirical Review**

In examining the role of responsibility accounting in organizational structure Mojgan (2012) opined that size is a major factor for responsibility accounting such that authority is decentralized and the directors saddle other level managers with the responsibility of planning and controlling its centre (cost, revenue and investment). To report on the actual in reference with the budgeted.

Hanini (2013) examined the extent of implementing responsibility accounting in the Jordanian banks. Questionnaires were used and the study revealed that responsibility accounting is tool which measures each centre’s ability and performance by the budget (planned and actual) controlled by a manager. The study further recommended that employees be involved in goals setting in accordance with their areas of specialization.

Maimako, Kwatmen, and Ishaya (2020) revealed the impact of responsibility accounting on bank management performance in Plateau State, Nigeria. Using a primary data, the study accessed 120 managerial staffs of different banks. Results were assessed and analysed with regression analysis. The study revealed that responsibility analysis has a positive and significant effect on banks management performance.

**3. METHODOLOGY (SAMPLING / STATISTICAL DESIGN)**

The descriptive approach was used for this study. For the purpose of this research, the questionnaire was designed in a structured and unstructured manner in collecting data and analyzed using the descriptive statistical method. Data collected were used in describing and interpreting prevailing practices, beliefs and attitudes in order to

assess the effect of responsibility accounting and performance in the banking sector. The hypotheses were tested using t-test and correlation analysis.

**4. GEOGRAPHICAL AREA**

The population of the study focus on some deposit banks in the southwestern geo-political zone of Nigeria. The sample frame consists of the following banks: Osun State, Oyo State, Ekiti State, Ondo State and Lagos State. The headquarters of the selected banks are located in Lagos State. Using a stratified sampling method, the following banks were selected as a basis:

- i. The Old Generation Banks represented by First Bank.
- ii. The New Generation Banks represented by Guaranty Trust Bank.
- iii. The Acquiring Banks represented by Access Bank.
- iv. The Reformed Banks represented by Sterling Bank.

The study sample size consists of 240 respondents using a random selection on all bank staffs in the zone while 15 respondents were selected at random from each state.

**5. RESULTS**

**Test of Hypothesis I**

H<sub>0</sub>: Managers’ participation in setting goals has no significant influence on the improvement of performance in the Nigerian banking industry.

H<sub>1</sub>: Managers’ participation in setting goals has a significant influence on the improvement of performance in the Nigerian banking industry.

**Table 1 Descriptive Summary of selected items for hypothesis 1; Goal setting**

SN	ITEMS	SA (%)	A (%)	N (%)	D (%)	SD (%)
1	Decisions implemented and goals set in each center are made by managers	70 (30.4%)	89 (38.7%)	40 (17.4%)	22 (9.6%)	9 (3.9%)
2	Employees are involved in setting goals for the upcoming year in the organization	46 (20%)	86 (37.4%)	52 (22.6%)	34 (14.8%)	12 (5.2%)
3	My immediate boss gives me reasons for setting the target I have.	61 (26.5%)	111 (48.3%)	29 (12.6%)	24 (10.4%)	5 (2.2%)

Source: Field Survey



**Table 2 Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Decision implemented.	2.18	230	1.089	.072
Standard performance.	1.83	230	.832	.055

Source: Field Survey

**Table 3 Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 Decision implemented & Standard performance	230	.144	.029

Source: Field Survey

**Table 4 Paired Samples Test**

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Diff				
				Lower	Upper			
Pair 1 Decision Implemented and standard performance	.348	1.271	.084	.183	.513	4.149	229	.000

Source: Field Survey

Decision Rule: Reject  $H_0$  if P-value  $< \alpha$  otherwise accept  $H_0$

P-value = 0.000 and  $\alpha = 0.05$

Conclusion: Reject  $H_0$  and conclude that divisional managers' participation in setting goals improves performances. Also the correlation revealed that there exist an evident significance between managers' involvement in goal setting and performance though the correlation is low.

**Test of Hypothesis II**

$H_0$ : Organizational structure has no significant effect on Nigerian banks' performance.

$H_1$ : Organizational structure has a significant effect on Nigerian banks' performance.

Table 5 Descriptive summary of selected items for hypothesis 2;



**Organizational Structure**

SN	ITEMS	SA (%)	A (%)	N (%)	D (%)	SD(%)
1	There is a structure dividing administrative sections into units according to the nature of activities	127 (55.2%)	91 (39.6%)	8 (3.5%)	3 (1.3%)	1 (0.4%)
2	There is a clear description of activity in each responsibility center in the bank.	135 (58.7%)	87 (37.8%)	6 (2.6%)	2 (0.9%)	0 (0%)
3	There is a specialized manager for each responsibility centre of the bank.	99 (43%)	91 (39.6%)	21 (9.1%)	10 (4.3%)	9 (3.9%)
4	The division of each unit and centre enhances the performance	108 (47%)	95 (41.3%)	24 (10.4%)	3 (1.3%)	0 (0%)

Source: Field Survey

**Table 6: Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Administrative Section	1.52	230	.672	.044
Divisional performance	1.66	230	.716	.047

Source: Field Survey

**Table 7: Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 Administrative section and divisional performance	230	.405	.000

Source: Field Survey

**Table 8. Paired Samples Test**

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Diff.				
					Lower	Upper			
Pair 1	Administrative section & divisional performance	-.139	.758	.050	-.238	-.041	-2.784	229	.006

Source: Field Survey

Decision Rule: Reject  $H_0$  if  $P\text{-value} < \alpha$  otherwise accept  $H_0$

$P\text{-value} = 0.006$  and  $\alpha = 0.05$

Conclusion: Reject  $H_0$  and conclude that Organizational structure has an effect on Nigerian banks' performance. Also the correlation indicates that there is an evident significance between Organizational structure and performance of 0.405.

**Test of Hypothesis III**

$H_0$ : Responsibility accounting has no significant impact on organizational performance of Nigerian banks.

$H_1$ : Responsibility accounting has a significant impact on organizational performance of Nigerian banks.

Table 9. Descriptive summary of selected items of Hypothesis 3;





**Responsibility Accounting**

S N	ITEMS	SA (%)	A (%)	N (%)	D (%)	SD (%)
1	Responsibility accounting system is an adequate tool for managerial efficiency	101 (43.9%)	98 (42.6%)	19 (8.3%)	8 (3.5%)	4 (1.7%)
2	The reports from responsibility centres are collated to assess performance of centres.	62 (27%)	125 (54.3%)	30 (13%)	8 (3.5%)	5 (2.2%)
3	There is an impact of responsibility accounting on performance in the banking sector.	85 (37%)	111 (48.3%)	20 (8.7%)	10 (4.3%)	4 (1.7%)

Source: Field Survey

**Table 10. Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Responsibility Reporting	2.00	230	.859	.057
Responsibility performance	1.86	230	.877	.058

Source: Field Survey

**Table 11. Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 Responsibility Reporting & Responsibility performance	230	.405	.000

Source: Field Survey

**Table 12. Paired Samples Test**

	Paired Differences					T	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95%Confidence Interval of the Diff.				
				Lower	Upper			
Pair 1 Responsibility Reporting & Responsibility Performance	.139	.947	.062	.016	.262	2.227	229	.027

Source: Field Survey

Decision Rule: Reject  $H_0$  if  $P\text{-value} < \alpha$  otherwise accept  $H_0$

$P\text{-value} = 0.027$  and  $\alpha = 0.05$

Conclusion Reject  $H_0$  and conclude that responsibility accounting has an impact on performance in Nigerian banks. Also the correlation indicates an evident significance between responsibility accounting and performance of 0.405.

In hypothesis I, the results showed a correlation of 0.144 showing that divisional managers' participation is positively correlated with performance in the Nigerian banking industry. It also

has a p-value of 0.000, therefore, accepting the hypothesis that divisional managers' participation goals setting has a significant influence in the improvement of performance in the Nigerian banking sector.

In hypothesis II, the results indicated that there is a correlation of 0.405, showing that organizational structure is positively correlated with performance in the Nigerian banks. It also has a p-value of 0.006, thereby accepting the hypothesis that organizational structure has a significant effect on Nigerian banks' performance.



In hypothesis III, there exists a positive correlation of 0.405 showing that responsibility accounting has a positive correlation with performance in the Nigerian banking industry. It is also significant and has a p-value of 0.027 accepting the hypothesis that responsibility accounting has a significant impact on organizational performance in the Nigerian banking industry.

## 6. SUGGESTIONS

From the study, it was discovered that the organisational structure in the banking sector is divided into administrative sections according to the nature of its activities and also there is a specialized manager for each responsibility centre who is responsible for the activities of his centre to maximize performance. This structure also aids the flow of authority from the boss to subordinates in each centre.

The involvement of divisional managers in setting goals is minimal such that the major goals and objective is made by the board and implemented by the divisional managers. The rate and level of their involvement in setting goals for the banking operation is minimal.

The study also found out that there is a relationship between responsibility accounting and performance. Also, results proved that responsibility accounting is an adequate tool for managerial efficiency.

## 7. CONCLUSION & RECOMMENDATIONS

From the result of the analysis, it was concluded that responsibility accounting has an impact on performance in Nigerian banks. Furthermore, divisional managers' participation in setting goals improves performances. So also, organizational structure has an effect on Nigerian banks' performance. Also, correlation analysis indicated that there is an evident relationship between responsibility accounting on performance, divisional managers' participation in goal setting on performance and organizational structure on performance.

Based on the findings of the study, responsibility accounting system encourages segregation of duties and divisionalization, for big companies such as banks; therefore, management should provide adequate resources such as skilled personnel and other service delivery resources in different sections of various departments to boost the service delivery system and performance and efficiency in the operations of the banking system.

It was discovered that, there is a significant correlation between divisional managers involvement

in setting goals and performance, though it was minimal. Therefore, there should be improvement in the divisional managers' involvement in setting goals because they serve as an intermediary between the marketers, customers and the executive managers of the bank. This would aid a grass root penetration in customer relations; identifying the loops of other banks' customers and satisfying them and creating an avenue to satisfy the bank's need to enhance performance.

Also, the reward system within the banking industry should be revisited so as to encourage and motivate workers to achieve the organizational goals and objectives.

Lastly, from the interviews conducted, proper orientation should be given to customers on the availability and use banks' products such as; e-transact, availability of credit accessibility to customers at a flexible interest rate, automated teller machine (ATM) usage and transfers and point of sale (POS) terminals advantages: this will increase their effectiveness and improve their performance.

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## PROBLEMS OF IDEOLOGICAL SECURITY IN THE CONTEXT OF GLOBALIZATION

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### ANNOTATION

*This article describes the author notes that humanity will understand and recognize the unity of the world based on diversity, if it can combine the national and the universal at the optimal level, the basis of the integration process will be viable and durable. Popular "popular culture" is a poisonous killer that deprives a person of the title of humanity and, consequently, kills the foundations of human civilization. Therefore, today one of the most pressing problems is to protect our citizens, especially our youth, from this ideological poison, to preserve the cultural identity of our people.*

**KEYWORDS:** *globalization culture economic and technological changes, worldview, cultural homogeneity "and" ethnicity*

### DISCUSSION

Today the discussion about the term "globalization" is characterized by different views. Some see these developments as a sign of a future international civil society, a new world and the beginning of an era of democracy. For others, globalization is the economic and political hegemony of the West, primarily America, with the result that culture takes on a uniform form throughout the world, giving Disneyland its characteristic sleek look.

Of course, while such views are valid, they do not fully reflect the current worldview when viewed in isolation. The question is rather complicated. But one thing is clear: the economic and technological changes that have led to globalization have caused serious social and political problems.

The globalization process has created favorable conditions for the technical re-equipment of production based on the most advanced, new technologies, the development of fast modern communication and communication systems, the collection and dissemination of scientific, technical and other information necessary for human life, labor productivity. leading to unlimited possibilities in this regard. This, in turn, contributes to the convergence of countries, the intensification of the process of integration into the world economy. But it is also impossible to ignore aspects of globalization that

cause a number of contradictions and contradictions in the modern world.

The fact is that the contradictions associated with the processes of globalization are manifested primarily in the field of culture. In this sense, globalization can also be called a global cultural revolution. "Today the whole world is becoming a separate giant blast furnace for processing national cultures" [1]

It is well known today that the West is striving for a monopoly with the entry of the Western powers into the ranks of the powerful leading states and the end of the bipolar world. Russian scientist V.L. Inozemtsev writes: "Globalization, in fact, is not a process of forming a single civilization based on universal human values, but an expansion of the "Western" model of society and the adaptation of the world to this model. It is no coincidence that terms such as "information neocolonialism" [2], "information wars" [3], "cultural imperialism" [4], "cultural hegemony" [5] and "information expansion" are often used by many scientists around the world [6].

Emerging global cultures have their own means of diffusion. Experts point out that there are four main ways of doing this.

The first is the international culture of the world's leading business and political circles. Samuel Huntington calls this "the culture of Davos." It is a



culture that is formed among those who strive to become participants in the global economic system and achieve success. The global culture of the Western intelligentsia as a second circle. Uni Peter L. Berger calls this "the club culture of the intellectuals." This culture is based on ideas and rules of behavior that are promoted and tried to popularize Western, mainly American intellectuals (for example, Western ideas about human rights, environmental protection, feminism, gender equality, as well as lifestyles and policies that correspond to these ideological concepts). driving rules).

The third is mass movements in one form or another (religious-confessional movements, Greenpeace, feminism movement, etc.).

Finally, global culture is a relatively obvious and perhaps the most dangerous means of spreading "popular culture". These tools and channels that spread global culture around the world are largely interconnected and require separate research.

As a result of the processes of globalization, cultural unification on the basis of the American model, attempts to form a single world culture while denying the diversity of cultures of different peoples bear certain fruit. In this regard, the American political scientist Z. Brzezinski writes: "Cultural superiority is an important aspect of America's global power. Regardless of what some may think of its aesthetic values, American popular culture, especially the youth of the world, attracts like a melody. Its appeal is probably due to the philosophy of love of life, the quality of life promoted through this culture, but the appeal of American culture is undeniable. American television programs and films account for nearly three quarters of the global market. American popular music is also a priority as it reflects interests, eating habits, and even the way they dress by Americans around the world. The Internet is in English, and most of the words in the computer are from America, which affects the content of global communication. Finally, America has become a Mecca for those seeking a modern education"[7]

In this regard, the German scientist V. Beck asked the question: "What is globalization?" "The modern world, its crisis and its progress can be understood without paying attention to the context of events described by such key words as 'cultural politics', 'cultural capital', 'cultural identity', 'cultural homogeneity' and ethnicity. [8]

Since language has become a political weapon, it is natural that there should be "manufacturers" and "owners" of these "weapons". Based on this idea, P. Burdet introduces the concepts of "linguistic market", "linguistic capital" and "owners of linguistic capital". The rules of pricing in the "language market" are introduced by "owners of linguistic capital".

According to the French sociologist, they legitimize the "official language" through the system of sanctions they have developed, that is, they determine which words are valuable and necessary, and what are the scope and meanings [9].

Pierre Burdet connects this situation with the phenomenon of "symbolic power". Symbolic authority, in his opinion, "through speech legitimizes the existing situation, makes people see and believe, confirms or changes a certain way of perceiving the world and through it influences the world." It is almost a mesmerizing power that allows people to achieve results that are usually achieved with the help of physical or economic strength, without the use of force "[10]

At the disposal of young people are dozens of different theaters and concert organizations, pop art groups, etc. Cinema, watching TV and video equipment remain the favorite form of youth leisure activities. At the same time, as it is correctly emphasized in the literature, it is necessary to make fuller use of the possibilities of libraries, clubs, houses and palaces of culture, recreation parks of museums and other institutions, to develop and implement appropriate measures aimed at educating and shaped by a qualitatively new democratic and conscious social psychology of youth. Uzbekistan [11]

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## MODERN CIVILIZATION: SIMILARITIES AND DIFFERENCES

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### ABSTRACT

*The urgency of this problem lies in the fact that the process of globalization, which is a characteristic feature of modern civilization, has also exacerbated the conflict between East and West. By now, the Western world can set prices for these types of goods, spreading information technology around the world, making them an important component of modern production. As a result, the gap between developed and developing countries is widening. Any attempt by developing countries to "catch up" ends with temporary success.*

**KEYWORDS:** *new technical means, world economy, changes, social production, information society, members of society, strengthening social ties, new phenomena, foreign investment, capital and goods.*

### DISCUSSION

Modern Eastern and Western civilizations are much more complex. Of course, the image of both has changed radically since the nineteenth century. The changes that have taken place in the West over the past thirty years deserve special attention. In particular, although the process of industrialization in the early stages put the workers in a miserable position, in our time it has provided material well-being for almost all citizens of developed countries. About 80 percent of US citizens are now members of collective capital. About seventy percent of employees use social funds more when they provide less to the community, and as a result they get used to living at the expense of society in part. [1.s -123].

A similar situation is observed in most developed countries of the Eastern world (Turkey, South Korea, Saudi Arabia, China, Kuwait, etc.). Material well-being is, of course, primarily a product of economic growth. Thus, significant changes in the economic structure of the world economy are still ongoing. Today he rises to the absolute level of the manager of transnational corporations. Academician N. According to Moiseev, transnational corporations account for 30% of world production assets, 80% of

trade in high technologies and 90% of capital exported from developed countries [2.c-12].

As a result of such changes in the production system, the class of managers and technocrats, their ideological leaders, are immersed in the dream of total rule over the whole world. It is well known that powerful civilizations and empires dream of ruling the world at the end of their lives, and that these dreams will shape civilizations and empires. The fact that these dreams are being reborn is a sign that the West is in a systemic crisis.

Fundamental changes in the structure of the economy demanded from the world economy to intensify investment activity, introduce new technologies in production, invest heavily in modern technologies, take measures to save energy and restructure the energy complex. To accomplish such tasks, it was necessary to carry out research work of practical importance. For this reason, during the twentieth century, special attention was paid to the development of science and technology in developed countries. As a result, the range of power used in human practice has expanded. For example, man, on the one hand, managed to create devices capable of transmitting the weakest signal with a power of



0.1x10<sup>-18</sup> watts. On the other hand, he built a space-powered hydrogen bomb. [3.c -4].

Such progress in science and technology, the rapid penetration of its achievements into the branches of the national economy led to the automation of production. In many scientific sources, the automation process is combined with the autonomy of production. Not really. Automation is the process of increasing the efficiency of the social production process, the introduction of technical means that allow the efficient use of various raw materials and materials. Any automation system includes two subsystems. One of them consists of technical units (machines), and the other is an operator (person).

Advances in science and technology have paved the way for the dissemination of scientific information. In 1860-1960 alone, more than 6 million scientific publications in natural sciences were created. It is noteworthy that half of these publications were published in 1946-1960. [4.c -41] .. It is clear that by the first half of the twentieth century, the amount of scientific information began to increase geometrically. In the first half of the twentieth century, the volume of scientific information doubled every 13.5 years, but by the beginning of the twenty-first century it will increase by 100 percent every 2-3 years [5.c-242].

Such advances in science and technology led to the creation of the information society in the West towards the end of the twentieth century. At the present stage of development of modern Western civilization, information has become not just information or knowledge, but a quantitative norm that allows you to manage a particular system, as well as a strategic and geopolitical resource. For example, today 40 percent of US GDP falls on the information production sector [6.].

Such a development of events, according to Microsoft President B. Gates, in the opinion of this led to a rational organization of economic activity and, ultimately, to an increase in the standard of living of people. [7].

It is this information that ensures that Western countries are at the forefront of civilized development.

The main features of the information society in the West are:

- Production, operation and popularity of modern information technologies;
- Opportunities for members of society and social groups to receive the necessary information and knowledge at any time and anywhere;
- the presence of a developed infrastructure capable of creating national information resources, the amount of information required to accelerate scientific, technological and socio-historical processes;

- Fast automation and robotization of management and production;

- sharp changes in social structures and, as a result, the expansion of information activities and services;

- Decrease in the number of people employed in traditional industries with an increase in labor productivity.

Even today, the developed countries of the West pay special attention to the transition to the information society. Corresponding strategic programs have even been developed on this score. For example, in the European Union, which unites 27 countries of the ancient continent, in 1994 a special action plan was developed "[8.c-11].

The growth of material well-being has exacerbated demographic processes in both the West and the East. It is known that the larger the material process in society, the lower the rate of demographic growth and, conversely, the lower the level of material well-being, the higher the rate of demographic growth. This law is evident in the Western world. P. Buchanan writes: The West is literally "dying": the population of almost all Western countries is shrinking at an incredible rate. We have never faced such a dangerous threat since the Black Plague, which wiped out a third of Europe's population in the fourteenth century. There is no doubt that this catastrophe will destroy the entire Western civilization.

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## **CERTAIN ISSUES OF THE PERFORMANCE OF G. MUSHEL'S ORGAN COMPOSITIONS**

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### **DISCUSSION**

Organ music is one of the youngest genres of Uzbek musical art. In 1946, organ was installed in the hall of the Tashkent State Conservatory, only after that the first experiments in creating organ compositions, based on Uzbek folk music material, appeared. Georgy Alexandrovich Mushel was the originator of Uzbek organ music. The number of works produced by him for the organ is limited, but their confidence and innovation distinguish the creative means of expressiveness that are used in them. His writings include the Suite for Organ (1947), consisting of three parts (Aria, Toccata, Fugue); Poem for organ and cello (1947); Album of organ pieces (1958) and organ transcription of "Samarkand Suite" for two pianos (1970).

The organ attracted the composer for several factors. As it is known, the organ is able to convey the contrasts between the strong, majestic sound and subtle, barely audible timbre colors, between static moods, frozen in their wholeness, and rapid movement expressly, with special force. In such contrasts, organ music always makes it possible to feel the multiplicity of the surrounding world, its "depth and height", the spiritual strength and fragility of the man - these dialectical opposites, which have received new nuances over the centuries.

Analyzing the figurative sphere of organ compositions of G.A. Mushel, one can see that the following is characteristic of it: on the one hand- an active, transforming attitude to the world, assertion of the creative power of the human personality, will and mind ("In Memory of Navoi", fugue from the Album of Organ Pieces, Toccata from the organ suite and others). On the other hand, there is a contemplative perception of the world, as if the desire not to interfere, but only to observe the beautiful harmony of the Universe, of which the man is a part (Nocturne, Elegy, Prelude and others).

In the oeuvre of G.A., the organ is receptive to the expression of both these patterns. Thanks to the unique expressive possibilities, which was embedded

in the very essence of the instrument. The first actively - effective sphere is close to the organ's ability to intensively fill the sounding space, its grandiose range and timbre -dynamic scale, and most importantly - the monumental unity of the sound mass (it is this last thing that distinguishes the tutti organ from the tutti orchestra). Consisting of instruments - individuals, the orchestra is potentially prone to splitting a common unity, while organ timbres are subordinated to a single breath and movement. This unified direction of sounding was used both in the improvisations of baroque toccatas, fantasies, and in the purposeful movement of motor preludes, fugues, fast parts of sonatas and concerts.

With the realization of the second tendency - statically - contemplative state - we meet in chorales, in the sublime images of romantic organ compositions, which as if raise the listener above the ephemera, routine, involving them into infinity. The causes of these sensations are in the smooth, boundless breathing of the organ sound, which does not obey the instantaneous "subjective", dynamically - timbre impulses of the performer. In addition, even the placement of the organ - high above the audience, where the performer remains an invisible magician who rules the worlds of sounds, contributes to the contemplation so characteristic of organ lyrics.

The notion of "organ sounding" itself should be considered as a two-line intersection zone. One of them, due to the peculiarities of organ sound formation, retains stability in different historical stylistic eras. The well-known stability of genres, figurative spheres, texture techniques of organ music is connected with it. The second line is the stylistic channel, within which organ music lives. The latter is associated with the discovery of the instrument's new, previously unused expressive capabilities. The intersection area of these two lines is large enough to place various artistic solutions in it.

Setting the task to illustrate the features of G.A. Mushel's organ compositions, we highlight the features, characteristic of compositions of different



themes, materials, written in different years. These traits are revealed in thematic invention, theme formation and texture.

Suite for the organ appeared the first one (1947). Each of the three parts of the Suite embodies the characteristic rhythms and intonations of Uzbek music. Contour of Uzbek melos with the emergence and persistent ascent to the auge (culmination point), alternation of second melodic movement with quint leap, characteristic syncopated rhythm that gives the development special elasticity - all this constitutes fertile ground for the creation of developed polyphonic forms. Organ fugues of G.A. Mushel outline one of the possible ways here.

The first piece of the Suite- Aria, resembles an Uzbek folk melody with surprisingly noble melodies. It should be played simply and soulfully, without false pathos, maintaining a calm, pensive character all over the piece. Rejecting all sorts of exotic register combinations, here organist must choose timbres that are easily and simply perceived, without requiring the audience's hearing tension. The strongest side of the analysis should be the diligent recognition of the melody's intonation richness.

Tocatta is a masterly-concert piece. Fast tempo and rhythmic clarity, the same audibility of all chord sounds in simultaneity, highlights the perception of the chord essence of the upper layer. Chord combinations, sounding one after another, regularity of the rhythmic grouping of chords and unison line of the middle voices give the music a feeling of free, unrestrained expression of thought. These freely improvised images are well known in organ music, vivid, resembling rhetorical voice, encountered in fantasies, toccata of the masters of the Baroque and later periods.

Fugue is notable for its perfect instrumental texture and shows fluency in instrumental thinking, characteristic of the composer. G.A. Mushel wrote a concert piece in a fugue style, in which a plastic theme, with a characteristic and very restrained general movement at the beginning, without losing all the tension, permeates the entire fugue and leads to a grandiose culminating point. Thus, in the fugue coda, where the culmination reaches its highest tension, G.A. Mushel uses "complex voice-leading" technique, which is characteristic of his artwork, based on the parallel movement of ninth chords.

Poem for Organ and Cello "(1948) was produced with the Suite almost at the same time. "Throughout this soft and calm piece, the narrative character of the Uzbek folk melody "Ulturgusi", which is the basis of the poem, is preserved. The "Poem" of G.A. Mushel is presented in the form, traditional for folk art – couplet (verse) form, which is in strict accordance with the musical content and structure of the quoted Uzbek song. The repetition of the composition theme

(3 verses) allows the author to deepen the nuances of the dominant emotional tone of the folk melody. In the methods of harmonization and re-interpretation of the melody (chant), G.A. Mushel acts as a worthy heir to the tradition of domestic classics, in particular, V.A. Uspensky, who always strived to preserve the quoted melody.

Poeticalness, as a special quality of musical drama, prompted the author to combine such constructions in a single line of emotionally - figurative development of the theme. To this end, G.A. Mushel makes dynamic the traditional form of compression techniques of verses scale. The facets of the constructions are veiled by the method of varying the melodic phrases, most characteristic of the quoted song.

Melodic of "Poem" is characterized by great fluidity, wide breadth of breath. It is devoid of tonal calmness and any tonal schematism. Movement to new modulations, new tonal spheres is inherent to it. At the same time, G.A. Mushel uses tonal contrasts carefully and with a large artistic tact, never forgetting that folk music is characterized by a long stay in one tonal plane. First of all, it is important to pay attention to the vibrant feeling of the expression, the plasticity of the melody and consistent articulation while performing the poem. Caesuras should breathe naturally (when changing manuals). Registration should be entirely compatible with the quality of the music and assist in the creation of the entire single epic.

In 1958, the Album of Organ Pieces of G.A. Mushel appeared. The cycle is an author's great achievement, a composition, unique in its originality: it contains the concentration of the material that is a peculiarity of Uzbek music, namely: the development of a specific organ texture on the new national melodic material. Pieces of the cycle of various music content attract with the freshness of the theme, originality of the sound, associated with the image of Uzbekistan.

Each piece of the cycle is small in scale, but still they should be viewed as six independent, focused and limited in themselves images. In the ballad, the unhurried tempo brings to the fore the expressiveness of the cantilena, which is especially heard in the soft color of the organ registers. At the same time, the linear nature of the instrument, even with the slightest metro-rhythmic differences in voices, makes it possible to hear intra-layer lines and micropolyphony.

#### **Note example 1.**

Intermezzo is a lovely watercolor picture with elements of dancing. An ancient instrument is combined here with new song and dance intonations. In this synthesis, household instrumental tunes rise above specific household connections and introduce





into the circle of abstract instrumental art. The rhythm of the piece is distinguished by great clarity and dynamic certainty. A bright, clear and lively interpretation would fit the essence of the intermezzo well. The swift sunny Toccata reflects the bright color of folk festivals, characteristic rhythms and invocatory sounds of Uzbek wind instruments - karnays. The figurative presentation of the chord vertical is used here in terms of an improvisatory play with a selected thematic - intonation element. This technique, known in modern music, the unity of vertical structure and horizontal structure, allows preserving the unity of theme in free mode-functional conditions. Activity is emphasized by the regularity of rhythmic, feeling of relaxed play - renewal of the modal (tone) system. In Toccata, the initial type of texture is maintained throughout the piece.

A mood of quiet sorrow, concentrated ponder, characteristic of the formed images of Uzbek song lyrics, imbues the thoughtful elegy. The sound texture is organized in the form of a three-dimensional texture with equally functional textured elements. The upper line in the form of a movable ostinato goes down smoothly and unhurriedly, and so the pedal line goes down. And in the middle of this space, like an independent melody, groups of freely imitating voices sound. The voices are coordinated by almost strictly observed rules of preparation and resolution of detentions and vertically form a series of consonant accords, which creates the unity of this layer.

Prelude is a piece of a motor type, which is characterized by an imperceptible, but constant "this and not this", which plays a crucial role in themes, in which even pulse, time-measuring rhythm is a restraint. In the Prelude, we encounter a case of texture change: the uniform movement of sixteenth is interrupted by the texture cadenza that inhibits brisk movement (episode *Meno mosso*). When interpreting this part, one should take into account some motor static character of the organ, therefore, despite the change in texture, in general, the author's intentions follow in a smoother, more flexible breath, characteristic of organ.

Fugue is an example of the plasticity of a calm and rational flow of thought. This is an example of the composer's polyphonic thinking. It is precious that such a logical textural development, revealing a deep penetration into the laws of fugue construction, is based on a sound system, based on Uzbek folk music. Thus, G.A. Mushel's fugue is a synthesis of a kind of national sound system.

#### **Note example 2.**

The album of organ pieces by G.A. Mushel demonstrates that the composer has a number of properties that are valuable in the author's work, writing for organ: he is able to create works that are

integral by images and development of the thoughts, on which the composition is based. The author implements this development laconically, simply and with great concentration. It is by using such miniatures as examples one can demonstrate especially clearly the diversity of the organist's artistic discoveries in the field of sound colors. Both contrasts of near and distant plans, and comparisons of "muteness" with a clear openness, and sometimes radiance of sound can find reflections in them. The transparency and variety of organ timbres alternate with the deliberate monochrome supporting voices, accompanying singing of the solo flute, oboe, and bassoon clarinet.

The last cycle of organ pieces "Six Pieces for Organ" was created in 1970. The composition begins with the piece "In Memory of Navoi", written in the form of the fugue with an introduction with a prelude, with similar to the prelude independent sections - interludes. The majestic question is formulated in the introduction of the recitative. Then the fugue comes, its development gives rise to confusion and struggle. The brightly, rhythmically sharply performed piece "In Memory of Navoi" should favorably shade the second piece - Nocturne.

In Nocturne G.A. Mushel develops an Uzbek folk melody. He managed to find here that unusual kind of organ texture in which this new voice could live and develop, revealing its new sides. It should be noted that the piece is by no means an adaptation of some melodic material to some instrument. The interpretation of the organ, found in the piece, corresponds to the expressive capabilities of not only the instrument, but also the melody, underlying the piece.

The piece Intermezzo is taken from the "Album of Organ Pieces", which has already been examined. The title of the next piece "Improvisation" reveals the author's intention and his artistic intentions. On the basis of the quoted melody (song of Tokhtasin Jalilov) G.A. Mushel creates a detailed composition. Its content turns out to be wider than the figurative sphere of the folk lyric song. In the process of its implementation, the author brings nuances of narration, philosophicality and vivid expression to the theme: as if a folk song gives rise to a chain of associations that are uniform in their specific color and different in emotional tone of production.

Musical phrases, familiar to us from folk instrumental music, are heard in the piece. However, parallelisms have not only melodic character here, they sound more decorative. It should be performed flexibly, slightly modifying the line in the melody, the organist should emphasize that the return of the theme is not just a repetition, but its reminiscence - the story happens in a time perspective.



In the prelude, we face a background upper voice and a melodic middle voice. The background chord layer is that sound space, harmonic field, on which the action occurs. It has its own horizon and its basis (when pressing the pedal). In addition, the melody of variants develops within this space. At that, the modal polysemy of the melody reveals the richness of colors, characteristic of the background.

The fugue is unified in its intonation structure: the theme begins with unison, then all the counter voices in one way or another go back to the theme - the progenitor. This piece contains many "pitfalls" and poses difficult technical tasks for the performer. A complex polyphonic texture should be pronounced slowly, weighty, strictly. Here one should be especially careful with the musical material - not a single intonation should be missed, not played "in any random fashion", not a single musical phrase should fall out of the general development.

Performing musician of organ works by G.A. Mushel should approach the author's text of the works very carefully. The author's text requires each musician to decipher the articulation, dynamics, registration, based on the timbre interpretation of the organ score, peculiar instrumentation, because this is the soul of organ music-making.

It should also be considered that the performance of the organist is inextricably linked with individual characteristics (and they are very diverse) of the instrument on which he will play. If the same organ excludes the possibility of meeting with a perfectly adequate "reading", "deciphering" the author's text by different performers, then, passing from one instrument to another, each time, we hear a musical composition in different timbre attire, in a different instrumentation.

So, the organist is not only a performer, but also an editor, and the editor is especially sensitive, flexible, who must, afoot (that is, in the process of rehearsal), having familiarized himself with the properties of this instrument, hear its strongest sides, and fix the registration instructions in the text.

It is worth noting historical erudition of the author in organ compositions of G.A. Mushel. Georgy Alexandrovich knows compositions of J.S. Bach, he knows the organ compositions of A.F. Gedike, M. Yudin, M. Balanchivadze and others. The composer not only knows, but also masters the technique, the means, by which he expresses the author's deep intention. G.A. Mushel demonstrates in his organ compositions his possession of composer's means and techniques of Bach's, Handel's, and Frank's pieces and, at the same time, he creates works, connected in their origins with the national sound contemplation of the author. The significance of Mushel's organ compositions lies precisely in the fact that historical knowledge does not remain only

formal knowledge here, but leads to synthesis of the historical and the modern, the traditional and the national.

G.A. Mushel's compositions for organ are widely known in our country and abroad. His organ pieces were repeatedly included in their programs of the famous Leningrad organist I.A. Braudo, professor of the Moscow Conservatory L.I. Roizman. They were performed by Tallinn organist, Professor Hugo Lepnurm, Liverpool organist Noel Roston, Scottish musician Ian Morton (Glasgow), Miss Dshun Pikson from Australia, professor of the Prague Conservatory Miroslav Kapelsheimer, French musician and professor at the Caen Conservatory Ervan la Prado, organist Lorenzo Banoldi from Milan, famous American organist Diana Bish. Many of these performers recorded their interpretations on audio and video media.

But Uzbek organists V.N. Bakeeva, R.Sh. Karimova, T. Levina and others should be considered as the real propagandists of G.A. Mushel's organ creativity. We owe the appearance of G.A. Mushel's organ suite and Poem for cello and organ to the creative contact of V.N. Bakeeva with composer G.A. Mushel. V.N. Bakeeva was the first performer of these artworks.

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## DIGITAL CULTURE AS A HUMANITARIAN PHENOMENON

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### ABSTRACT

*The article is devoted to the analysis of the virtual world from the standpoint of culture. Computerization and internet bore the new ontology of educational interaction and made new educational order. The procedure of getting knowledge and prominent component of knowledge as a value are changed, that is the culture of getting knowledge and its application is changed. Digital culture becomes opposite to humanistic pedagogics, specifies new values and meanings of genesis. This is the result of changes in educational environment and becomes the reason for changing the nature of humanism itself. The lack of ethical norms, spiritual aspects is one of the main problems of the digital reality phenomenon. Along with the undoubted practical benefits of digitalization, the claims of "numbers" to replace a person in art look dangerous, since they can deprive a person of spiritual development. The 21st century has entered as the digital age. The digital economy, digital money, digital crime, digital culture, digital hygiene, digital death, and even digital immortality have emerged. Digitalization is a natural stage in the development of society.*

**KEY WORDS:** digitalization, digital communication, cyberculture, digitality, virtual life, Pythagoras, Plato's "Cave".

### DISCUSSION

The philosophical origins of digital culture as a special reality, and not just a set of tools, can be seen in the works of Pythagoras and Plato. In Western culture, it was Pythagoras who was one of the first to see and substantiate that number is the basis of the universe. Moreover, the number has an independent essence and is ideal not only as a form but also in ethical terms - the number does not allow lies. The pythagorean ratio of elements and geometric figures, as well as the establishment of a connection between numerical ratios and musical tones, undoubtedly, are the threshold of modern culture, where a digital, a virtual matrix is superimposed on almost all of its spheres. One of the most important conclusions of the Pythagorean school for us is the conclusion that number allows us to overcome the chaos of the current reality, harmonizes it. If we turn to modern research in the field of information technology, then most of them are devoted specifically to the problem of protecting a person

from internal (own body, if we talk about medicine) and external elements by visualizing their dynamics<sup>1</sup>.

Plato developed and strengthened the ideas of the Pythagoreans in many ways. The world of Plato's ideas is, in fact, that digital reality that can only be imagined, cognized and modeled on eternal forms, which each time the transitory earthly visible world is recreated. Our world is just a projection of the ideal. Here one cannot fail to point out the parallel to modernity and the "Simulation-Based Design" paradigm used by high-tech companies, when creativity is based on and the creativity of the designer, mathematical models are laid that satisfy the objective function that is required from a certain product<sup>2</sup>

<sup>1</sup> Бухановский А.В., Иванов С.В., Нечаев Ю.И.

Интерпретация динамики судна при воздействии разрушающихся и экстремальных волн при функционировании бортовой интеллектуальной системы // Нейрокомпьютеры: разработка, применение. — 2011. — № 6. — С. 19–28.

<sup>2</sup> Цифровое проектирование. Алексей Боровков о системе 3D-моделирования, краш-тестах и



2.5 thousand years ago, the philosopher Pythagoras said that everything can be expressed in numbers. He brought this idea from the Karnak Temple in Egypt along with the "Pythagorean pants" theorem. Pythagoras also said that every 10 thousand years everything repeats itself "numerically" (i.e. literally). Perhaps our civilization repeats the path of the previous civilization?

Microsoft edition "Digital Culture: your competitive advantage defines it: "Digital culture is a shared, foundational and deeply rooted underlying assumptions, values, beliefs and norms that characterize how an organization encourages and supports the use of technology to get the job done most effectively."<sup>3</sup> Information in the modern post-industrial era acts as one of the bases for the functioning of social processes, moreover, information exchange is a condition for the relationship between them. The information space through the global network expands human capabilities, allowing to overcome geographic, political boundaries, making the world cultural values available for contemplation to everyone, "Virtualizing" the economic sphere of human life. The speed of distribution of information flows leads to a situation of total digitalization of social processes and the life of individuals.

If we take a closer look at the digital environment we live in today we can see that it is enveloping us – digital technologies are present in all aspects of our lives. Today we use digital technologies without noticing them – they are present in all business segments, underpinning our financial transactions from cash-tellers to stock market trading. Traffic control systems, medical and other equipment, elevators, etc., are today controlled or enabled through digital systems. "Most forms of mass media, television, recorded music, film, are produced and, increasingly distributed digitally. These media are beginning to converge with digital forms, such as Internet, the World Wide Web, and video games, to produce a seamless digital landscape"<sup>4</sup>

This generation perceives the format of traditional culture with an established system of values through the prism of numbers and emerging consequences: such as clip culture, screen culture, the

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концепции «Simulation-Based Design»

[Электронный ресурс] // ПостНаука. Режим доступа: <https://postnauka.ru/video/63239> (дата обращения: 01.05.2018)

<sup>3</sup> Digital culture: your competitive advantage (2017). Microsoft Corporation. 25 p.

<sup>4</sup> Gere, Charlie: Digital Culture. London, Reaktion Books, 2002

culture of computer games, etc. The main phenomena that determine a single modern digital culture include a personal computer and all the variety of digital devices: the Internet, artificial intelligence, system and application software, computer graphics and virtual reality systems, digital formats of traditional media communications (books, photographs, audio and video recordings, digital TV, etc.), computer games, technological art<sup>5</sup>.

Digitalization as a social phenomenon became widespread in the 60s-70s of the 20th century, it is characterized by three main characteristics:

1. All kinds of content are moving from analog, physical and static to digital, simultaneously becoming mobile and personal. Moreover, the individual gets the opportunity control his personal content, send information requests, form an individual trajectory of information activities.
2. There is a transition to simple communication technologies (technology becomes only a means, communication tool), the leading characteristic of the device and technology is controllability.
3. Communications become heterogeneous: vertical, hierarchical communication loses its relevance, there is a transition to a network structure of communication<sup>6</sup>.

"Digital culture" is another concept that combines many research approaches. For many researchers, the use of this definition does not mean a fundamentally new vector of research. The choice of this category for them is associated with the desire to leave for the prefix "cyber", which has technocratic connotations, and the recognition that digital technologies have become an organic part of modern life. It is no coincidence that the main body of works devoted to digital culture <sup>7</sup>falls on the period when they began to talk about the establishment of Web 2.0, or the second generation Internet with its interactivity, focus on the mass user. Hybridization

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<sup>5</sup> Галкин, Д.В. От кибернетических автоматов к искусственной жизни: теоретические и историкокультурные аспекты формирования цифровой культуры [Текст]: автореф. дис. ... д-ра философ. наук / Д.В. Галкин. – Томск, 2013. – 51 с.

<sup>6</sup> Сергеева, И.Л. Трансформация массовой культуры в цифровой среде [Текст] / И.Л. Сергеева // Культура и цивилизация. – 2016. – Т. 6. – № 6А. – С. 55–65

<sup>7</sup> Digital Cultures: Understanding New Media/eds. G. Creeber, R.Martin. N.Y.: Open University Press. 2009; Hand M. Making Digital Cultures: Access, Interactivity, and Authenticity. Ashgate Publishing, 2008





of online and offline spaces have intensified, Network has turned into a space of human communication, everyday activities and entertainment, in "anthropo-space", as S.V. Tikhonova narrates<sup>8</sup>. K. Basset, speaking of the need to build a social theory that takes into account these changes, describes a new stage in the development of digital technologies and their impact on society as a stage of "post-cyberspace"<sup>9</sup>.

The concept of "digital culture" as well as the concepts of "cyberspace", "cyberculture" has different interpretations. For some researchers, exploring digital culture is simply exploring the transition of mass media from analog to digital. Here, digital culture is actually identified with new media<sup>10</sup>. With this approach, changes associated with changes in the mass media system, but going far beyond its limits, remain outside the field of analysis.

For other researchers, studying digital culture means analyzing a wider field of artifacts and practices, the emergence of which became possible thanks to digital technologies: computer games, the Internet, computer graphics, technological art, etc.<sup>11</sup>. The study of digital culture through the analysis of its main phenomena allows us to determine its specificity, but, it seems, limits the subject of research.

It seems that digital culture research is not limited with the analysis of digital technologies, formats and gadgets, but affects the most different aspects of the life of a modern person, involves an analysis of the changes themselves practices and products of human activity. So, the study of digital

culture involves not only an analysis of its phenomena, which is important in itself, but turns into a study of what happens to culture in the era of the spread of digital technologies.

Digital culture is analyzed in a number of works on philosophy, sociology and cultural studies. In cultural and philosophical aspects, digital culture is interpreted as a new form of being, "third nature" (traditionally the second nature means "culture" as a whole), continuing the natural habitat and the "world of things". "A person acquires a new being in virtual space, while the value of the real world is gradually shifting towards the virtual. The border between them is blurred, illusion in relation to being intensifies"<sup>12</sup>. Like any type of culture, digital culture determines the lifestyle, motivation, communication features, human behavior. D.V. Galkin<sup>13</sup> considers digital culture at several levels of understanding, and this approach seems to be lawful and applicable in the course of further reasoning.

If we take a closer look at the digital environment we live in today we can see that it is enveloping us – digital technologies are present in all aspects of our lives. Today we use digital technologies without noticing them – they are present in all business segments, underpinning our financial transactions from cash-tellers to stock market trading. Traffic control systems, medical and other equipment, elevators, etc., are today controlled or enabled through digital systems. "Most forms of mass media, television, recorded music, film, are produced and, increasingly distributed digitally. These media are beginning to converge with digital forms, such as Internet, the World Wide Web, and video games, to produce a seamless digital landscape" Charlie Gere proposes that the extent of the presence of digital technologies in our lives points to the existence of a digital culture. He states that "digitality can be thought of as a marker of culture because it encompasses both the artifacts and the systems of signification and communication that

<sup>8</sup> Тихонова С.В. Социальная мифология в коммуникационном пространстве современного общества: автореф. дис. ... докт. филос. наук. Саратов, 2009. С.27-28.

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<sup>10</sup> Participation, Remediation, Bricolage: Considering Principal Components of a Digital Culture. URL: <http://www.slideshare.net/RemingInSydney/what-is-digital-culture>

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most clearly demarcate our contemporary way of life from others”<sup>14</sup>

Computer culture, virtual culture, cyber culture, e-culture, Internet culture, new media, convergence culture, digital culture are all relatively new terms that are today widely used in scientific and popular literature. Scholars from various disciplines have examined the impact of this new media on various social aspects of virtual space and its impact on the real sphere and they have changed their views on digital culture many times over a relatively short period of time. When stand-alone PCs were in focus the emphasis was on interface; when communication possibilities were added emphasis had to be put on interaction, and ICTs were no longer seen as tools but we started to think of their context as a space. Although interlinked, as they both frame our experience, the virtual and real spheres were clearly delimited. As ICT further progresses in its development towards miniaturization, the boundaries are no longer clear. There is another shift taking place “from the virtual foreground to the material background”, as pervasive computing focuses on embedding specific ICT-based elements into the ambient background of local physical spaces.<sup>7</sup> Thus, rather than not real, virtuality starts to mean “a tacit aspect of material reality” (Hawk and Rieder, 2008). This means that reality has also been transformed into information space where material objects are becoming media objects as they potentially become information flowing through global networks. Ambient intelligence, ubiquitous computing and the “Internet of Things” are new terms that were recently introduced into discussions about digital culture. This indicates that culture and digital culture evolve and are becoming more interlinked as they frame our experience – more closely, one and the same<sup>15</sup>.

Culture is always in development, but it becomes important that these changes are occurring rapidly. Increasing rate of change generates the phenomenon of time compression as a constant time compression by events. If we try to describe the growth of technological discoveries that have influenced culture through the image of the 24-hour scale on the dial, then we will see that “the speech appeared at 21 hours 33 minutes, the letter - at 23 hours 52 minutes. The world saw the first book at 23 hours 58 minutes, and a little over a minute later, at 23 hours 59 minutes and 14 seconds, a printing press with movable letters appeared -Gutenberg's

invention. In 33 seconds people got radio and television.”<sup>16</sup>

A philosophical understanding of these processes is necessary, because it is capable of significantly ahead of its time, and there are plenty of such examples in the history of philosophy. It is unlikely that Plato, using the famous metaphor of the cave, could have guessed about modern technologies that, in a certain sense, will turn this mental model into a kind of reality. The author of these lines, returning once after a lecture on ontology (during which he was just telling a student about the term “Generation Kopf unten” (literally “generation with a bowed head” popular in Germany), passing through the hall of the educational building, I noticed that in the darkest corners there were many students, each holding a gadget in his hand. They absolutely did not communicate with each other.(unless only through the same gadgets). It was a realized image of Plato's cave - people immersed in the world of shadows, and chained to it, not even by someone consciously, but only by their own attachment to the virtual world in a smartphone<sup>17</sup>.

The influence of digital culture on the formation and development of personality is not only technogenic, but also humanitarian in nature, but the sixth technological mode itself, within the framework of which digital culture develops, will change not only the world around a person but also the person himself. One of the main problems of digital culture is the lack of ethical reflection both in relation to the past and to the present and the future, which is also due to the infinite perfectionism. An equally important problem is the relationship between digital culture and art. If digital technologies are an addition to art, a way of amplifying it, then digital here does not pretend to be a culture, being within the framework of analog. But if we talk about replacing the subject-person in the field of art with the subject-number, who will write poetry “like Pushkin”, music “like Mozart” and make films “like Fellini”, then it will be necessary to state the death of “the last person” (F Fukuyama), from which the basic spiritual need - for creativity - will disappear as almost the only one that allows one to overcome the biological principle.

<sup>14</sup> Charlie Gere. *Digital culture*. London: Reaktion Book. 2002. 9-15 pp.

<sup>15</sup> Aleksandra Uzelac, Biserka Cvjetičanin. *Digital culture: The Changing Dynamics*. Institute for International Relations Zagreb, 2008.12-p.

<sup>16</sup> Vinterhoff-Shpurk, P. (2007), *Mediapsikhologija. Osnovnye printsipy* [Media psychology. Basic principles], Gumanitarnyi tsentr Publ., Khar'kov, Ukraine

<sup>17</sup> Миронов В.В. Платон и современная пещера big-data // Вестник СанктПетербургского университета. Философия и конфликтология. 2019. Т. 35. Вып. 1. С. 4–24.  
<https://doi.org/10.21638/spbu.2019.101>



Works in various scientific fields - art, archeology, computer science, law, interdisciplinary sciences - demonstrate that the concept of "digital culture", "digital heritage" covered various aspects of the sphere of culture and the growing role of digital technologies in this area has significantly increased needs of society.

The digital culture itself as a category, despite the presence of signs of an independent culture, remains to a greater extent a cultural phenomenon, since it lacks key cultural indicators: productivity, typification, reproducibility, etc.

As a phenomenon, digital culture contains a number of problems, the main of which are related to epistemology and ethics. So, the colossal amount of information, the point nature of its receipt, the constant simplification of the methods of working with information have been significantly simplified, but at the same time weakened the cognitive abilities of a person in terms of knowing the whole and the reasons. And the absence of ethical guidelines in the digital space, conditions for ethical reflection makes it irrelevant precisely as an integral culture, once again indicating the status of the phenomenon. Let us recall that Plato did not consider the phenomenal to be genuine precisely because of its temporality, impermanence, constant transformation, and illusion. These are the features of the digital space phenomenon.

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## EXTERNAL DESCRIPTION OF TRANSFORMERS AND THEIR EFFICIENCY

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### ABSTRACT

*The most rapidly developing areas of society and state life are closely related to the increase in electricity consumption. Electricity consumption is also increasing due to the increase in the welfare of the population, the use of more and more electrical appliances in everyday life. This article presents an external description of the transformer and its graph, as well as formulas for determining the useful coefficient of waste.*

**KEYWORDS:** *voltage drop, power loss, short-circuit voltage, load value, inductive properties, active power unit of the transformer, measurement uncertainty.*

### DISCUSSION

The level of development of the culture of material production of mankind is determined primarily by the creation and use of a source of energy. Its use, and over the next 100 years, the use of electricity, brought a technical revolution in the development of the industry and played a decisive role in social relations.

In 2000, the monthly electricity consumption of each household consumer was 114 kWh, while in 2018 this figure increased by 57% to 200 kWh. In 1990, the share of the population in the total use of electricity was 10.3%, by 2000 this figure had risen to 13.9%, and in 2018 to 26.5%.

For information, according to estimates, the total demand for electricity in the Republic by 2030 will increase by 1.7 times compared to 2018, including 1.5 times, taking into account the growth factor of the population. With this in mind, the role of transformers in providing uninterrupted power to electricity consumers today is invaluable. In order to ensure the uninterrupted operation of the transformer, the correct choice of transformers should be fully aware of their external characteristics in order to increase their energy efficiency.

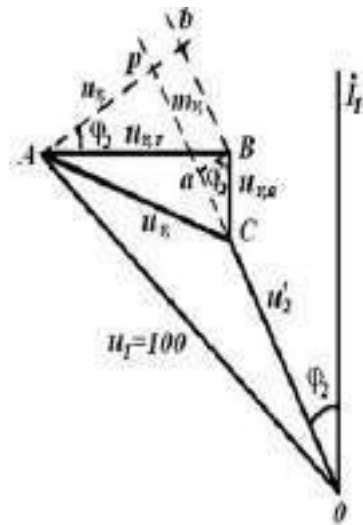
According to the state standard, the voltage drop across a given power coefficient of a two-phase transformer is the value of the difference between the voltage of the secondary winding in no-load operation and the voltage of this winding when the secondary rated current is calculated as a percentage of the secondary rated voltage. In this case, the voltage change is brought to the conditional temperature of the blanket at 75Celsius.

Thus,

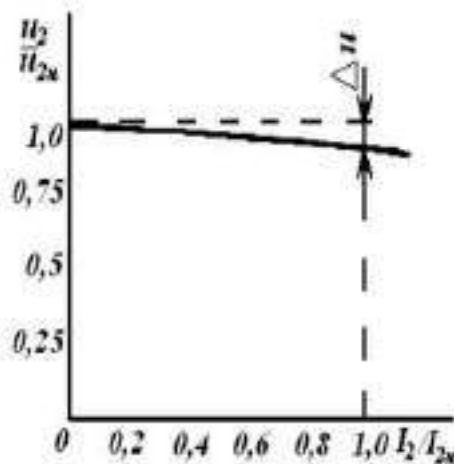
$$\Delta U_2 = \frac{U_{2H} - U_2}{U_{2H}} \cdot 100 = \frac{U'_{2H} - U_2}{U'_{2H}} \cdot 100 = \frac{U_1 - U_2}{U_1} \cdot 100$$

Suppose that the voltage drop  $\Delta U_2$  is calculated for the nominal value of the current  $I_H$ . In this case, the

vector  $\overline{OA}$  of voltage  $U_1$  is divided into 100 conditional pieces (Fig. 1) and the sides of the triangle ABS are  $U_k$ ,  $U_{ka}$  and  $U_k \cdot r$ . Since we are talking about arithmetic difference, we replace the vectors on the sides of the AVS triangle with simple straight lines.



**Figure 1** Vector diagram



**Figure 2.** External characteristics of the transformer.

According to Equation (1) above:

$$\Delta U_2 = \frac{100 - U'_2}{100} \cdot 100 = 100 - U'_2$$

From point A we pass AP perpendicular to the continuation of the vector  $U'_2$ . We assume that the cross-sections SP and PA are equal to the  $m'_k$  and  $n_k$  segments.

In that case

$$U'_2 = \sqrt{100^2 - n_k} - m_k = 100 \sqrt{1 - \left(\frac{n_k}{100}\right)^2} - m_k$$

We spread the value under the root to the binomial row and ignore the higher than the second-order constituents.

Therefore,

$$U'_2 = 100 \left[ 1 - \frac{1}{2} \left(\frac{n_k}{100}\right)^2 \right] - m_k$$



$$\Delta U_2 = 100 - U'_2 = 100 - 100 + \frac{n_k^2}{100} + m_k = m_k + \frac{n_k^2}{200}$$

To express the above values  $m_k$  and  $n_k$  through  $U_{ka}$  and  $U_k \cdot r$ , we move Bb perpendicular from the point B to the section CP Ba and AP to the continuation of the section. In that case,

$$m_k = C_p = C_a + aP = U_{ka} \cdot \cos \varphi_2 + U_k \cdot r \cdot \sin \varphi_2$$

and

$$n_k = A_p = AB - BP = U_{KR} \cos \alpha_2 - U_{KA} \cdot \sin \alpha_2$$

Thus,

$$\Delta U_2 = U_{K\alpha} \cdot \cos \alpha_2 + U_{Kr} \cdot \sin \alpha_2 \frac{(U_{Kr} \cdot \cos \alpha_2 + U_{K\alpha} \cdot \sin \alpha_2)^2}{200} \tag{2}$$

For the most part, the second addition of (2) is a very small number relative to the first. Therefore, in cases where there is no need for greater accuracy in the calculations, it is assumed that:

$$\Delta U_2 = U_{K\alpha} \cdot \cos \alpha_2 + U_{Kr} \cdot \sin \alpha_2 \tag{3}$$

In this case, the value of  $\Delta U_2$  is calculated for the nominal load. If the load differs from the nominal, for example, if the load differs from the nominal, for example, if the load coefficient  $K_{load} = P_2 / P_H$  is not equal together, the voltage drop will change in proportion to Kload.

$$\Delta U = K_{load} \cdot (U_{K\alpha} \cdot \cos \alpha_2 + U_{Kr} \cdot \sin \alpha_2) \tag{4}$$

It can be seen from the above connections that the voltage drop depends on the value and nature of the load when the parameters of the transformer are given.

The external characteristic of a transformer is said to be the connection  $U_1 = Const \text{ ba } \cos \alpha_1 = Const U_2 f(I_2)$  when the primary voltage and load characteristics are constant. The external description allows the detection of the voltage drop. For example, when  $I_2 = I_{2H}, \cos \alpha_2 = 0.8 \text{ ba } U_K = 55 - 105\%$ , the voltage drop is  $\Delta U_2 = 5 \div 8\%$ .

Like all electric machines, the efficiency of transformers is  $\eta$  the ratio of the transformer's (secondary) power in the active power unit (ie, kilowatts, or watts) to P2 to the primary power (P1) supplied to it. Thus, the value of the efficiency ratio is:

$$\eta = \frac{P_2}{P_1} \quad \check{e}ku\eta = \frac{P_2}{P_1} \cdot 100\% \tag{5}$$

In high-power transformers, the value of the efficiency is very high (99% and higher at large capacities). Therefore, the method of direct determination of the efficiency, ie the method of calculating the efficiency by determining the P1 and P2 using measuring instruments, is not used, because inaccuracies in the measurement of P1 and P2 can lead to gross errors in determining the efficiency.

In such cases, the direct method of determining the efficiency is to determine this or that power through other power and wastes.

If PM is the power dissipation in the coils, Pp is the power dissipation in the steel, P1 + P2 + PP + PM and

$$\eta = \frac{P_2}{P_2 + P_{II} + P_M} \cdot 100\% = \left(1 - \frac{P_{II} + P_M}{P_2 + P_{II} + P_M}\right) \cdot 100\% \tag{5.1}$$

In determining these values, some assumptions are made, which simplifies the determination of the efficiency, and at the same time results are obtained with satisfactory accuracy, because the assumptions result in errors, or second-order small values, or offsetting values. These assumptions are as follows.

The secondary power P is called the rated power of the transformer. It is defined as follows:

$$P_2 = K_{load} \cdot P_H \cdot \cos \alpha_2; \tag{6}$$

In this case, Kload is the load factor of the transformer.

The determination of power losses Pp and Pm is conditional.





Assume that the transformer does not operate at rated primary voltage  $U_1 = U_{1H} = Const$  and rated cycle speed (frequency)  $f = f_H = Const$ .

In no-load mode  $P_{II} \approx P_0$ . On the other hand, the steel losses at a given cycle velocity  $f$  are  $P_{II} \equiv B^2 \equiv E_1^2$ . But,  $E_1 = -(U_1 - I_1 Z_1)$ . Hence, the change in  $E_1$  depends on the voltage drop across the transformer primary winding; when the value of the load of inductive nature increases electromotive force  $E_1$  decreases, while  $E_1$  increases in capacitive character. This means that if the transformer load is of inductive nature, the waste in steel will be less than in the no-load mode, and in the capacitive load - more. In most cases, if the change in load is in the normal range, the change in driving force will not exceed 1.5-4%. This means that steel losses do not change in the range of 3-8%. Thus, under the above conditions (excluding the change in RP), the steel losses can be assumed to be independent of the load,

$$I_1 = I_0 + (-I_2^1)$$

In this transition, if the load is inductive, the value of  $I_1$  increases more than in the short circuit, and at the same time the power dissipation in the primary winding copper increases, if the load is capacitive, the reverse occurs, i.e.  $I_1$  and with it the PM decreases. Thus, ignoring the value of the magnetic current  $I_0$ , we reduce the value of losses in copper when the load is inductive (relative to the actual value), and in the case of capacitive load - by multiplying. However, since the effect of  $I_0$  is so small, this third hypothesis, like the other two, has almost no effect on the value of the useful work coefficient, on the contrary, it partially compensates for the error in determining steel wastage.

We assume  $Z_1 \cdot I_1 \approx 0$  and  $I_{oa} \approx 0$ , i.e. we see a simplified transformer, because the decrease in forces in the windings of the transformer when the transformer is operating under load is  $Z_1 \cdot I_1$  relative to the remaining voltage and electromotive forces, while the value of the active component of the magnetic current  $I_{oa}$  is very small to  $I_0$ . Therefore, regardless of the value and nature of the current,  $\dot{U}_1 \approx \dot{E}_1$ . Assuming that the value of the mains voltage  $U_1$  is constant, we see that for the value of any load the same constant value of the driving force  $E_1$  is formed. Therefore, the main magnetic flux  $\dot{\phi}$ , its generating current  $\dot{I}_0$ , and  $\dot{F}_0 = \dot{I}_0 \cdot W$  the values of  $f$  are also constant and retain these values in any mode of the transformer. The value of the short-circuit power  $P_K$  at the rated current in the windings and at 75 C is given in the transformers according to the state standard.

If the load value is the Kload part of the nominal load, then the currents in the coil will also change once the Kload. This does not take into account changes in the temperature of the blanket (the blanket is heated to the desired temperature and it is assumed that it does not change). This is a waste of energy in copper

$$P_M = K_{load} \cdot P_K, \quad (7)$$

and the efficiency of the transformer for the general case is written as follows:

$$\eta = \left(1 - \frac{P_0 + K_{load} \cdot P_K}{K_{load} \cdot P_H \cdot \cos \alpha_2 + P_0 + K_{load}^2 \cdot P_K}\right) \cdot 100\%. \quad (8)$$

If there is a constant value given in the given connection, then the only variable of this equation is Kload, and at what value of this coefficient it is possible to calculate the maximum operating efficiency of the transformer. To do this, take the first product of Kload and set it to zero. After that the following is formed:

$$P_0 = K_{load} \cdot P_K, \quad (9)$$

that is, for the maximum operating efficiency of the transformer to be maximal, the power losses in copper must be equal to the power losses in steel.

In other words, when the variable ( $P_m$ ) power losses are equal to the constant ( $P_p$ ) power losses, the efficiency of the Kload reaches its maximum value.

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# SYNTHESIS OF CONDUCTIVE POLYMERIC COMPOSITIONS BASED ON POLYANILINE

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## ABSTRACT

*In this research polymer compositions with metal oxides were synthesized using the chemical oxidation method. The effect of oxidation concentration and polymerization temperature on PANI yield was studied. The results obtained showed that the inclusion of  $Fe_2O_3$  and  $V_2O_5$  in polyaniline leads to an increase in their current conductive ability.*

**KEYWORDS:** *aniline; polyaniline; emeraldine salt; polymerization; oxidizing; conduction; metal oxides.*

## INTRODUCTION

In recent years, there has been a growing interest in conductive polymers such as polyaniline, polythene, and polypyrrole [1].

Conductive polymers are used in various fields due to their excellent conductivity, low density, stability and corrosion resistance, electrochemical and optical properties, as well as low cost. For example, it is used in batteries, electromagnetic coatings, chemical sensors, biosensors, nanocomposites, light emitting diodes, electrochromic screens.

The conductivity of polymers is related to the state of redox, which changes the electronic structure of the polymer. Conducting polymers have a highly delocalized  $\pi$ -electron system, which is formed by one and two bonds in the main chain of the polymer. Therefore, the oxidation and reduction processes can proceed easily [2,3]. The electrical conductivity of such polymers is called "own" because there is an electrical charge in the molecular structure that can move along the polymer chain without other conductive materials (such as metals and graphite). Presumably, these materials can be dielectric in the neutral state. The electrical conductivity of such polymers is due to the interaction of the dopand molecule with the electrically non-conducting part of the polymer

chain. This process is called "doping". The amount of Dopand molecule can be up to 50% of the mass of the conductive polymer. Dopant interacts directly with the polymer, and the conductive charge does not play a role. There are two types of doping: P-type doping and N-type doping.

In N-type doping, the polymer loses electrons and this increases the conductivity of the polymer, a process known as polymer reversal. P-type doping, on the other hand, is called polymer oxidation and is widely used in the semiconductor industry. Chemical or electrochemical methods are used to change these properties of polymeric materials. Chemically, an oxidizer or reductant is added to the polymer.

Polyaniline (PANI) is one of the most promising of these polymers. Currently, this polymer is a leader in the manufacture of conductive and corrosion-resistant coatings, in electronic publications related to the study of its properties and structure for use in various electrochromic and electrolyuminescent devices and other electronic devices [4].

PANI is one of the electrically conductive polymers of the class of organic semiconductor high-molecular compounds. The PANI macromolecule consists of a basic polymer chain consisting of a linear benzene nucleus and a nitrogen atom attached



to it. The multi-conjugated  $\pi$ -electron system in the Pani macromolecule is caused by the interaction of nitrogen atoms bonded to the benzene nucleus in the main polymer chain. Charging positive poles are introduced into the polymer by chemical or electrochemical oxidation method. Stabilization of the poles with strong acids results in delocalization of charge carriers and an increase in electrical conductivity. The oxidation state of PANI and the degree of protonation using acids can take many forms [5]. PANI mainly occurs in 3 different states: Leukoemeraldine ( $y = 1$ ), Emeraldine ( $y = 0.5$ ), Pernigranilin ( $y = 0$ ), which differ in color and electrical conductivity [6].

In the production of PANI mainly polymerization methods by electrochemical and chemical oxidation are used. Today's scientific studies show that aniline can also be polymerized by enzymatic methods, but the synthesis of PANI under acidic conditions reduces the activity of enzymes (eg, horseradish peroxidase), resulting in a decrease in the conductivity of the obtained PANI, second method used.

Due to a number of useful properties of PANI polymer compositions obtained with inorganic fillers, they are widely used in electronics and electrical engineering. Hybrid materials consisting of organic and inorganic nanocomponents are in great demand in the field of microelectronics. They are

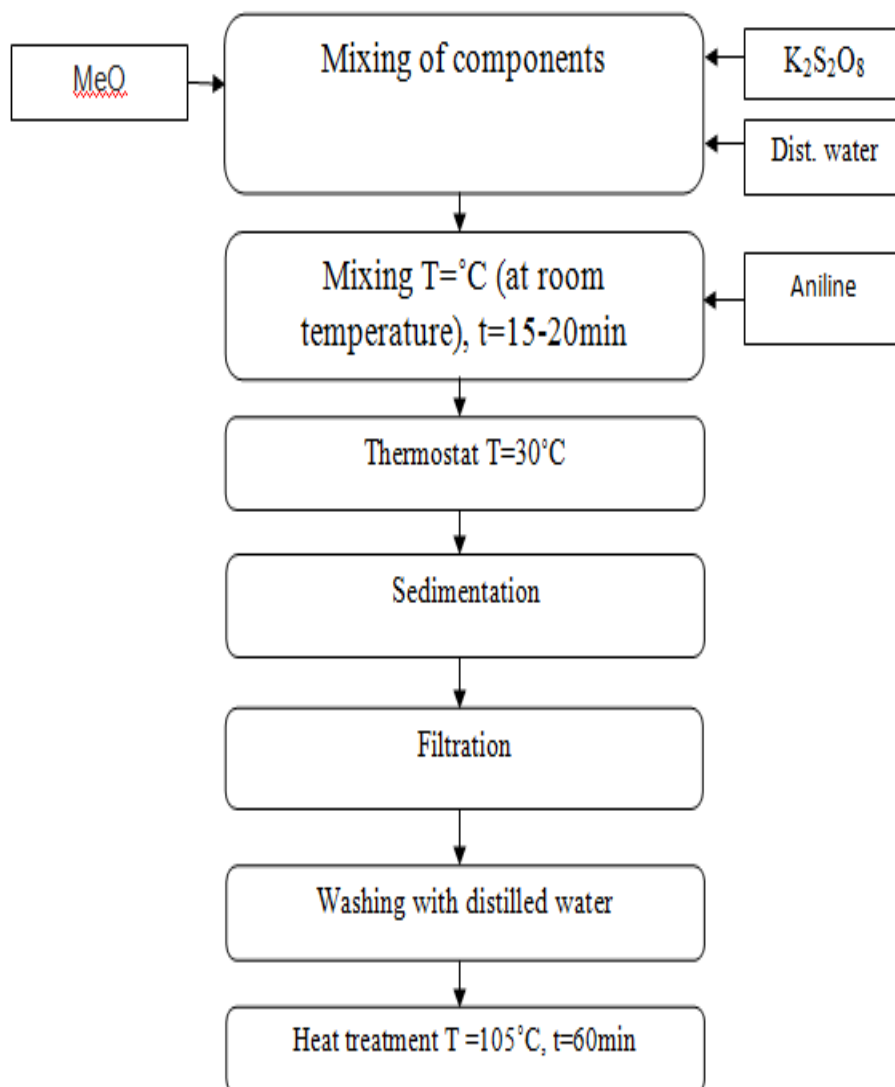
highly sensitive to light, various gases, catalytic active substances [7, 8].

In this study PANI va PANI/V<sub>2</sub>O<sub>5</sub>, PANI/Fe<sub>2</sub>O<sub>3</sub>were synthesized.

## RESEARCH METHOD

PANI was synthesized by chemical oxidation without the addition of any acid. This method allows to obtain PANI without the use of special high-acid reagents, thereby not only increasing the corrosion resistance, but also reducing the complexity of the method and increasing its environmental friendliness [9, 10].

To obtain PANI, potassium persulfate salt, which is a chemical oxidant, is dissolved in distilled water and stirred vigorously for 15-20 minutes. Aniline is added dropwise while stirring constantly. Samples are stored at constant  $T = 30^{\circ}\text{C}$  with time interval  $t = 5-48$  hours. Distilled water is added to the reaction mixture and the powdered PANI is precipitated. The precipitated PANI is separated from the solution using a syenrafuga. The separated PANI powder is separated by washing with distilled water and re-cyanurizing to remove impurities. The process is repeated several times and dried in a PANI thermostat at  $30^{\circ}\text{C}$  ( $T = \text{const}$ ). PANI.



**Figure 1. Technological scheme of obtaining PANI and PANI / MeO composition.**

The synthesized PANI structure was determined based on their IR spectrum. According to the IR spectrum data, all the main absorption spectra in PANI are preserved, characteristic for the monomer: 3428  $\text{cm}^{-1}$  (NH valence oscillation), 3010  $\text{cm}^{-1}$  (CH valence oscillation in the benzene nucleus), 1637 and 1491  $\text{cm}^{-1}$  ( correspondingly benzoid, SS deformation oscillation of quinoid structures), 1165  $\text{cm}^{-1}$  (deformation deformation oscillation of SN-group). However, for PANI samples, there is a significant difference in the field intensity between 1630 and 1494  $\text{cm}^{-1}$ . Absorption region 1310  $\text{cm}^{-1}$

(valence oscillation for S-N secondary aromatic amine), in the case of aniline, this absorption line is 1281  $\text{cm}^{-1}$ . The PANI spectrum also clearly shows the absorption line in the 601  $\text{cm}^{-1}$  region, which is due to the effect of the N-H bond on the secondary aromatic amine (764  $\text{cm}^{-1}$  absorption line for the N-H bond in the aniline spectrum).

Studies have shown that the oxidation concentration and the temperature of the reaction mixture have a significant effect on the yield of PANI synthesis, which can be seen in Figure 2 below.



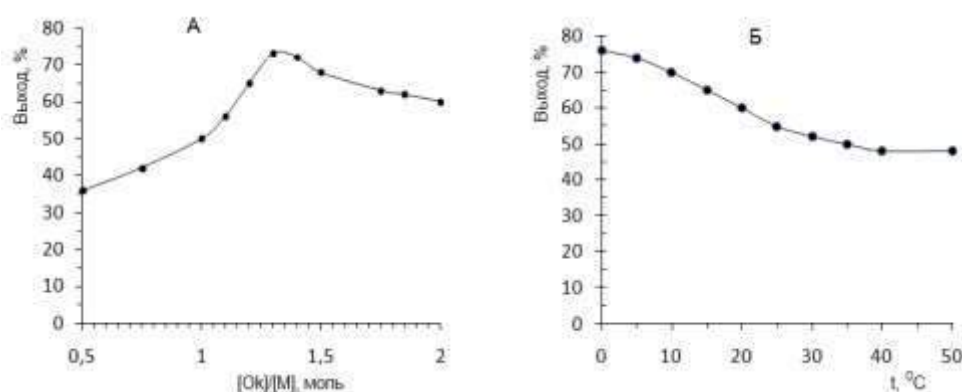


Figure 2. Oxidation to PANI yield: effect of monomer mole ratio (A) and reaction mixture temperature (B).

Research on PANI sampling has shown that they exhibit poor electrical conductivity. Therefore, several metal oxide compositions were obtained with

PANI. Figure 3 shows the electrical conductivity of polymer compositions derived from PANI /V<sub>2</sub>O<sub>5</sub> va Fe<sub>2</sub>O<sub>3</sub>.

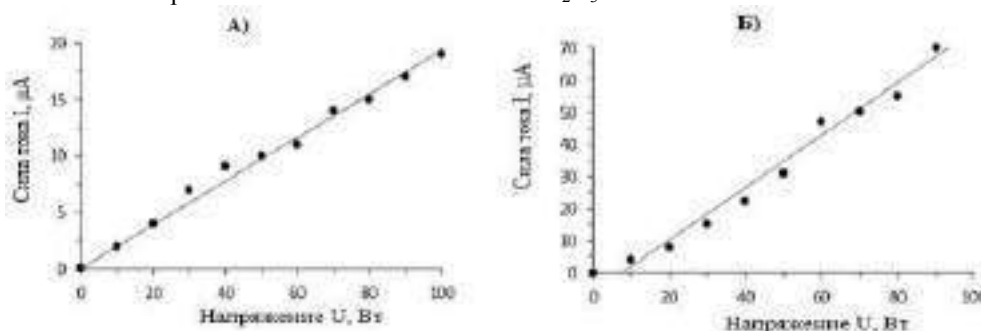


Figure 2. Voltage dependence of electrical conductivity of PANI/V<sub>2</sub>O<sub>5</sub>(A) va PANI/Fe<sub>2</sub>O<sub>3</sub> compositions.

Figure 2 shows the current conductive ability of the PANI/Fe<sub>2</sub>O<sub>3</sub> composition. PANI/V<sub>2</sub>O<sub>5</sub> is much higher compared to PANI/Fe<sub>2</sub>O<sub>3</sub>.

Studies have shown that the electrical conductivity of polymer compositions increases with increasing temperature.

In this study, polymer compositions based on PANI and metal oxides (Fe<sub>2</sub>O<sub>3</sub>, V<sub>2</sub>O<sub>5</sub>) were sited. The dependence of the initiator concentration and the polymerization temperature on the polymer yield was shown. The inclusion of metal oxides in PANI has been shown to increase their electrical conductivity.

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# **BIOLOGY OF COMMERCIAL PREDATORY FISH, LOWER REACHES OF THE ZARAFSHAN RIVER BASIN**

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## **ABSTRACT**

*The article presents a brief physical-geographical and hydrobiological characteristics as well as the ichthyofauna of reservoirs in the lower reaches of the Zarafshan River. The regularity of the formation of predatory fish in different types of water bodies of the lower reaches of the Zarafshan River and the conditions of anthropogenic impact are revealed. The data on the commercial use of predatory fish species and their importance in the water bodies of the lower reaches of the Zarafshan are foreseen.*

**KEYWORDS:** *iomelioratorov, anthropogenic, diet, endemic, zooplankton .*

## **INTRODUCTION**

The commissioning of the Amu-Bukhara machine channel significantly changed the hydrographic network of the lower reaches of the river. Zarafshan. A number of new reservoirs were formed here - Tudakul (22 thousand hectares a),) and lakes Dengizkul (40 thousand hectares), Tuzkan (5.7 thousand hectares). These reservoirs accumulate domestic and waste agricultural water and can be used for fishery purposes. The inflow of Amudarya water into the water bodies of the lower reaches of the Zarafshan basin radically changed not only hydrography, but also the hydrochemical and hydrobiological regime, as well as the composition of the ichthyofauna. In the pool there are new, not typical of the region's fish species, especially o-pike perch, Aral asp, asp - bald, snakehead and others; their distribution, biological features in the basin have not been studied. Meanwhile, the need to study the distribution of these fish and the features of biology is ripe, including for the development of issues of their use as biomeliorators and in the fishery. To achieve this goal, we have set the following tasks:

Study of reservoirs of the lower reaches of the R. Zarafshan as a habitat for predatory fish (features of hydrology, hydrochemistry, higher aquatic vegetation, zooplankton and zoobenthos).

**In yvavlenie regularities in the formation of herds of prey fish in the waters of the lower reaches of the Zarafshan diverse in terms of human impact.**

Study of the biology and ecology of predatory fish species in new conditions (morphometric characteristics, size-age structure of populations, reproduction biology and fertility, maturation, spawning, nutrition). Determination of the commercial use of the studied predatory fish species, and their importance in the reservoirs of the lower reaches of the Zarafshan .

Scientific novelty. For the first time, the study of predatory fish and their significance was carried out. Data on the structure of populations, peculiarities of biology and ecology of species in new conditions for them have been obtained, and their importance in fishing has been determined. Data on the features of changes in biologically important traits of the studied fish in new water bodies with a low degree of water pollution are generalized. For the first time, an inventory of predatory fish has been carried out for different types of water bodies in the lower reaches of the Zarafshan; their species composition has been established; the occurrence of predatory fish, their diet were determined, their harm and benefits for the population of the reservoir were assessed.



Practical significance. The data on the biology of predatory fish presented in the work allow solving the problems of managing the number of predatory fish in the region. Proposals have been developed for the use of predatory fish as ameliorators, regulating the number of weedy and low-value fish in water bodies. The results of the work are useful in the development of the fish industry in the lower reaches of the Zarafshan.

## MATERIALS AND METHODS

Aral red-

breasted asp *Aspius aspius ibiloides* (Kessler), the cooper asp *Aspiolus esoctnus* (Kessler), the pike perch *Stizostedion likioperca* (L), and the Amur snakehead *Channa argus warpachowskii* (Berg). Material on the biology of these fish prey collected Tudakul during and storage in different seasons. Gathering the treated material is a piece of brabatyvali conventional methods in the ichthyological studies (Shapishnikova 1950, Chugunova, 1959, PRAVDIN 1966, etc.). Collection of hydrobiological samples was also carried out by conventional methods (Kiselev, 1956, Zhadin, 1960; others). During the collection of materials, the temperature of water and air was determined. On the spawning grounds, soil and vegetation samples were taken. Total biological analysis of fish and morphometric measurements about drove on fresh caught individuals. The indices of plastic signs were calculated as a percentage of body length without the caudal fin, the mean sample and error ( $M + m$ ), as well as the coefficient of variation ( $C_v$ ) were determined. The reliability of the differences in the average values of the traits of fish from different water bodies ( $M_{diff}$ ) was calculated by the formula:

$$M_1 - M_2$$

$$M_{diff} -$$

The difference was considered significant at a 5% significance level. Juveniles were fixed in a 2-4% formalin solution. Age and height were determined by scales collected just above the lateral line under the first ray of the dorsal fin; otoliths were used for the snakehead. The scales were studied under a binocular microscope and an apparatus for reading microfilms "Mikrofot -5 PO - 1". Growth was restored according to the formula of E. Lea (Pravdin, 1966). The ratio of weight and linear growth of the studied predatory fish was calculated according to the formula of L.S. Berdichevsky (1964):  $R_v (V_2 - V_1) / \sum V_n$ , wherein  $R_v$ -mass growth;  $V_2$  and  $V_1$ -annual gain weight;  $\sum V_2$  - sum of annual increments defining fatness fishes Fulton Individual absolute fecundity (PAI, thousand eggs).. determined by the weight method, gonads were weighed whole,

fixed with 4% strength solution of formalin, the number of mature eggs was counted in the sample lifting 1 g, was converted to the entire weight of the gonad. calculated individually with respect hydrochloric fertility (DCI, eggs weight without internals). The diameter of the eggs was measured micrometer binocular MBS-1. postprocessing material fish nutrition conducted wr to pulley teaching materials K. Fortunatova O. and Popov (1951, 1973.1974). Daily rations and feed ratios were determined n about X. Fortunatova (1951), G. Vinberg (1955), Melnichuk (1980). The energy balance of fish was calculated using the formula:  $C - P + R + F$ ; where C is the diet, the amount of energy entering the body with food; P is the part of the diet used for weight gain per unit of time; R - waste of energy for exchange; F is the undigested part of the diet excreted from the body. In the energy balance equation for pike perch, the values of F and R were taken equal to 0.446 and 0.83 to the data (Briger, 1956; (Melnichuk, 1980). These coefficients were determined for a water temperature of 20 ° C; therefore, a correction was introduced that was found from the normal Krogh curve (Vinberg, 1955) for April - 2.20 June - 40 July - 3.50 September - 3.30, 2.40 October is long in the feeding perch was assumed to be 210 days average daily weight gain was determined by K.Shmalgauzenu (1935), Efficiency of food on the growth of established. coefficient K1 and K2 (Ivlev, 1939). The energy consumption (J) of a unit and a pike perch was determined according to literary styuk, 1973, 1978). The list of fish in the Amudarya and Zarafshan basins is given according to the system of L.S. Berg (1948-1949). Statistical processing was performed on the IBM / 486 computer algorithmic lang s ke.

The reservoirs investigated by us are located in the bass. In the lower reaches of Zarafshan, this region is located in the desert zone of Uzbekistan. Administratively, the region is part of the Navoi and Bukhara regions of Uzbekistan. The main source of water for irrigation is water coming through the Amu-Bukhara machine canal from the Amu Darya.

**Aral red-lipped asp -**

*Aspius aspius taenlatus nation iblioides* (Kessler). Distribution. Aral asp occur in the Amu Darya, Syr Darya (Kamilov, 1973). In odoemy Zaravshan of Amu penetrated by follows entering into operation tion ABMK Abdullayev, 1969). According to our information currently Aral asp circulated There Kul, Kuyumazarskom and Shurkuls kom reservoirs, lakes Dengizkul. Aral asp in natural bodies of water to spread reaches sexual maturity at the age of 4-5 years (Berg 1949, Nicholas, 1940; We DATA m or asp in the new conditions of reservoirs zovya Zarafshan reaches sexual



maturity at the age of 3-4 years at a body length of 30-35 cm. Aral asp ecology spawning relates to lithophil fish, females lay their eggs on the stony or sandy bottom. In Tudakul vodohranlische spawning held at the raceway portion at the depth 1,0-4.0 m at a water temperature 8- 9 °, not Rest asp accompanied by rapid vspleskivaniem, individualistic d ualnaya absolute female fertility at 30.1-58.1 cm body length and body weight of 605-1950 g aged 4-5 years and was 23100-189900 krinok an average 98761 eggs. absolute Nye fecundity grows with age and as body size increases. There are differences in the magnitude of the absolute fecundity of females from different reservoirs of the lower reaches of Zarafshan. For example, females 42 cm long from Lake Dengizkul have a maximum lodging was 74074 eggs, in fish from the lake. Tuzkan with the same body length - 50544 eggs. We associate this with the different food supply in different water bodies. Thus, in the water bodies of the lower reaches of the Zarafshan for asp, the conditions for reproduction are quite good, as evidenced by the high absolute fertility when compared with other water bodies of the region.

Power asp in the seasonal aspect is characterized by a CTE different Peña intensity and different composition of feed consumed Ob OBJECTS. The highest intensity in asp was noted after spawning in April, and the lowest in December-January. The bea minute, the average number of the stomach with food was more than 60. 21, varying within 7 74.3-26.7 % In April codes pot filling and Use by the highest. Asp intensively uses fast food (10.6% by weight), as well as shrimp. The smaller quantity consumed I shemaya (4.9% by weight). In April, asp consumes about 2.5% of the annual ration by weight, and up to 50% of this amount is accounted for by fast food. In summer, in the food lump of asp, the frequency of occurrence is dominated by the fast-growing fish - 41.9%, by mass - the gudgeon - 27.3%. In autumn, with a decrease in water temperature, an approach to the coastal areas of carp, bream, roach is observed, as a result of which their role in the diet of asp increases, and carp appears in the diet. The index of the complements of 1.05, consumption - 1.26%. In winter the same diet Reha largest value (by weight) has shemaya (30.1%), by weight of the filling index - 0.51% and the index of consumption - 0.61%.

**Carp family - Cyprinidae ; The genus of asp is Aspiolucius Berg . Species - asp-bald , bald - Aspiolucius esocinus ( Kessler ).**

The genus Aspiolucius includes only 2 species: A. harmandi is found in the vicinity of Hanoi in Vietnam; A. esocinus - in the Aral Sea basin. Lysach is an endemic species for water bodies of Central Asia. he inhabits the river Vakhsh,

Panj, Kafirnigan , Kyzyl-Suu, Naryn . In the Amu Darya lysach meets the mouth of the river. Kafirnigan to Turtkul. In the Syr Darya it occurs from Karadarya to chinaz (Nikolsky, 1938; Berg, 1949; )

Literary data on the biology of the Amu Darya bald beetle are not numerous {Shaposhnikova, 1950; } . There sve Denia on lysacha the middle reaches of the Syr Darya - from p. Chirchik ( Kamilov , 1973). As shown by our The investigations dovaniya lysach now widely spread in the lower reaches of the Zarafshan river basin reservoirs. Number lysacha higher in irrigation GOVERNMENTAL reservoirs than in lakes. The control catches carried out by us in different seasons of the years showed that the number of coopers decreases every year.

**Reproduction.** According V.A.Maksunov a (1988) in the plains vodoh ranilischah Syrdarya lysach reaches of lovozr elosti aged 6-7 years. M.A.Abdullaev (1989), G.K.Kamilov (1973) noted the lack of study of the biology of reproduction ly with Acha in conditions of water bodies in Uzbekistan.

In his studies to observe the peculiarities of spawning ly with a cha we have also failed. It should be noted that at the end of February and in March we met a relatively large number of sexually mature individuals with mature sex products ready for spawning in the ABMK. Ready to spawn specimens were 35-68 cm in length and body mass 500-3500 g WHO Raste 5-7 years. Females have absolute fertility 22 - 190.84 you syachi eggs. On the basis of the above-noted it is possible to assume that lysach reaches sexual maturity at the age of 5-7 years and spawn in Feb. le-March. The water temperature at this time was 7-12 °. Spawning proish Deal on a fast flow in irrigation canals. The diameter of eggs in gonads at maturity stage IV was 1.1-2.3 mm.

**Food** , Lysach is a predatory fish ( Nikolsky, 1938; Maksunov, 1951; Abdullaev, 1989; others). According to our data immatures feed mainly on animal organisms spectrum consists of 7 food compo nents (for occurrence). Dominated by weight of shrimp (49.9%) and a strong non-target fish such as oetroluchka and Bystrianka 38.1%). Note that the proportion of carp in food can be quite SEASON ki (to 29.8%). In the first and second years of life nutrition lysacha has CME shanny character: invertebrates make up 93%, fish - by 7%.

According to the seasons, the diet of the cooper is different. It feeds intensively in spring, at this time the filling index reaches 259 ° / 000 , in summer m the index decreases to 238 ° / 000 , in autumn - 200 ° / oo o - In sexually mature





individuals, the nutritional spectrum consists of 9 components, 6 of them are fish ... It should be noted that the incidence of about myslovyyh and non-target species roughly equal - 1: 1. The occurrence of food components in different water bodies is different. So lysach in Tudakul reservoir mainly consumes shrimp, mysid and rybu in ABMK nutritional involved terrestrial insects. Adults feed intensively in summer (198 ° / 000) and autumn (182.5 ° / 000). Among adults, the incidence of empty stomachs reaches 18-25%. Of the fish, a large share is made up of eastern bream, carp, and rattle. Su exact pay ion is approximately 20-30% of its own weight. A characteristic feature of lysacha our data are UMP livost and rapid death in networks. Fishermen say that even prikos novena fish to fishing gear can cause death.

As our studies have shown, in recent years, the lysach asp has become very small in number. Commercial its value it is almost sweat ryal, in fact - is a candidate for a sad listed in the Red Book of Uzbekistan. In this connection it is necessary to arrange a number of activities to prevent its disappearance, especially, that lysach endemic to Central Asia. First of all - a complete ban on fishing. Currently lysach single copies still meeting etsya in the lower reaches of the Zarafshan. Decrease in its population, according to our given nym depends largely on the regulation of the flow of the rivers in the region, Uwe lichenie irrevocable extraction of water for irrigation of crops.

#### **Family Perch - Percidae Genus Sudak -**

##### **Stizostedion Rafinesque**

##### **Species (Common) pike perch -**

*Stizostedion lucioperca* (L.)

The Aral Sea basin walleye was distributed in waters of the Amu Darya delta, Lower and middle reaches of the Syr Darya and Aral more (Nicol'sky, 1940; Berg, 1949; et al.).

In the lower reaches of the Zarafshan, pike perch is currently found in the Tudakul, Kuyumazar reservoirs, in the lakes Dengizkul, Shurkul, Tuzkan, Karakyr, and in irrigation canals and collectors.

In our collections perch were many tourists from flax in Tudakul vodohranili slit were individuals up to 9 years in lakes Dengizkul and Tuzkan - up to 8 years, ABMK - up to 6 years.

**Reproduction.** According to the literature data perch reaches polo vozrelosti in Central Asia reservoirs aged 2-3 years when the body length of 26-40 cm and a weight of 280-1220 g. Thus, in Kairakum with whom Reservoir walleye becomes sexually mature at 2-3 years at line 36-40

cm (Karimov, 1976). In Kairakum reservoir spawning place from the end of March until the beginning of April water at a temperature 8-17 °, ikrometa weight of was at 10-13 ° (Karimov, 1977). According to our data, in the lower reaches of the Zarafshan, spawning of zander begins in the third decade of March at a temperature of 13-15 °, sometimes continues until May. Spawning in the Tudakul reservoir in 2016 took place on April 10-11 at a depth of 1-2 m. The eggs were deposited on the rhizomes of the reed. Laying eggs most intensely held at 17-18 hours on lan kah with sandy-silt soil. Already on April 9-10 in the north-western parts of the reservoir, we noticed a cluster of males and females perch, drink Mina marriage fattening. Intensive spawning took place until April 15.

With age and an increase in body size, the mass of ovaries increases. The maximum weight of ovaries noted by us - 355 g - was in females 56-60 cm long. In our studies, the minimum absolute fecundity - 25.66 thousand eggs - was observed in a female 35 cm long and weighing 386.3 g. The average values were - body length 47.2 cm and absolute fecundity - 193.3 thousand eggs. These absolute plodovitos ti perch reservoirs investigated changes with increasing absolute fertility perch female body size.

Among reservoirs lower reaches of the Zarafshan average fertility perch Tudakul reservoir above than on s erah Tuzkan and Dengizkul. Apparently, the conditions of the hydrological and hydrobiological regime are more acceptable in the reservoir. Tudakul reservoir is more deep-high transparency, lower mine alization water. In March, the diameter of the eggs was 0.99 mm with a fluctuation of 0.65 - 1.04 mm. At the same time, eggs with a diameter of 0.25-0.30 mm were also observed in the ovaries. In May, eggs with a diameter of 0.10-0.15 mm prevailed; from March to May, the diameter of the eggs increased by 0.02-0.05 mm.

In the studied water bodies, pike perch laid eggs at a shallow depth of 0.5-1.8 m on underwater vegetation - reed roots, stems and roots of cattail, chara, sedges, and filamentous plants. Caviar small, Zheltov color, adhesive. After spawning, the females leave the spawning grounds, he tzu for some time remained in the spawning grounds.

The pike perch in the lower reaches of the Zarafshan spawns at a time. This Ack verzhdatsya not only observations of spawning but also uniformity in sizes of eggs gonads, before spawning diameter eggs composition lyal 1.4-1.5 mm. In an ut it in the course and intensity of spawning in the presence of large number of reservoirs juvenile walleye, can be considered in the



downstream Zarafshan perch I found favorable propagation conditions conducive guides its reproduction.

**Nutrition.** Pike perch is a predatory fish. In reservoirs Khoresm mature individuals 17.5-18.3 cm long feed mainly small untargeted fish (Hakberdiyev, 1983). Thus, we see that pike perch is a predator with a wide range of prey, the composition of food depends on the composition of the inhabitants in a particular water body. Power perch in the lower reaches of the Zarafshan river basins in the literature illuminates fragmentarily. Our investigation was 180 copies born in these reservoirs. We did not find zander larvae in the open part of the water bodies we studied, which we associate with the lack of available food here. At the same time, coastal waters area abounds with small forms zooplankton. Larvae perch 0.8-1.1 cm long feed zooplankton filling index is fairly high and the average is 380 ° / 000 In late April perch fry fully transitions to exogenous nutrition. In food, Nauplii and Copepodite dominate in number, the frequency of which is 18-26.8%. According to us dominate Ceriodaphnia quadrangula (7.6%), Diaphanosoma brachyurum (6.4%) and rotifers (27.2%). In juveniles 1.6-3.0 cm long, weighing 165 mg on average, caught in May, planktonic nutrition was preserved, the main food components were Nauplii and Copepodite (40.5% by weight of food). Major components of Tami of occurrence was by Cyclops vicinus, Mesocyclops crassus, Acanthocyclops vernalis larvae of Chironomidae occur sporadically and in last place is probably due to the large size, so that the larvae of walleye are not yet able to use them. In feeding larvae filling an average of 289 ° / a 00 In feeding larvae Dhaka in May, no significant changes occurred. Still dominated zooplankton organisms.

In the lower reaches of juvenile walleye Zarafshan 3.1-4.0 cm long weighing 220 mg (early June) together with zooplankton organisms meet Chironomus plumosus and mysids. The average index complements the intestine in June, 192 ° / a 00 The basis of the food spectrum consists of 8 species of organisms leading place on species diversity of the zooplankton organisms, by weight - shrimp and opossum shrimps. Along with copepods and Cladocera crustaceans larvae Hirone mid, opossum shrimps and prawns.

Thus, in the studied water bodies, nutrition in the first year of life in spring and summer was planktonic. Plankton fish as noted in the stomachs of 85-95% of individuals. Empty stomachs were noted in 2-3% of individuals. Based on our research the nature of the power and place of zooplankton and zoobenthos in the diet of young

walleye lower reaches of the Zarafshan, abundance and affordability, we see that food zooplankton and zoobenthos is natural.

In September, the degree-fed yearlings significantly reduced, reducing the number of individuals with food in the stomach, which is probably due to the unsuitability of walleye long nutrition zooplankton. The feeding spectrum of 7-10.1 cm long underyearlings weighing 7.1-9.6 g caught in October remained the same. The food was based on mysids, shrimps, chironomid larvae, and zooplankton organisms.

In November, juveniles leave the coastal part of the water bodies, individuals 11.5-15.3 cm and 12-15 g are caught in the open part of the water body. During this period, zooplankton and zoobenthos decrease in the coastal part. There is a change in the spectrum in the diet of zander. The food mainly falls in individual copies individuals of their own species, carp, roach, while there is still the organisms of zooplankton and zoobenthos. The stomachs perch contain 2-3 or more copies of young fish, fish prey length - 3.2 cm. Sydak with a body length 17.1 cm and a weight of 140 g predatory proceeds to honors. In yearlings and yearlings observed decrease power intensity in the stomachs were perch, carp, bystranka, roach and other. John DEX content was on average 117 ° / 000

Pike perch feeds on a seasonal basis. In March, in the diet of fish, they accounted for 28.8% of the mass of the food bolus, shrimp and mysids, 31.8%; in June 35.4% and 64.4% respectively. In November, fish accounted for 4.0%, mysids and shrimps - 35.0%. In spring, the occurrence of carp in the diet of pike perch increased to 3.0-3.2%, while in the rest of the seasons the indicator decreased to 0.5%. As the perch changed and the percentages of the components of the basis food were shrimp (58.5%) and mysids (21.3%), fish was 15.3% of the bolus. In mature individuals, a lump is formed by shrimp (41%) and fish (51.2%). In individuals older than 7+, the role of fish in feeding is dominant (89.5%) in terms of total occurrence. The share of mysids, shrimps and other organisms is small (10.5%). Adult perch feeds mainly on fish, showing the species of biratelnost. The main trend - the consumption of available zooplankton fish fauna, which is determined by their number and size. The more diverse the ichthyofauna of the reservoir, the more diverse the diet of pike perch.

Out of 36 fish species found in the downstream Zarafshan, found in the stomachs of perch 9 species most commonly presented with small neperomyzovye fish. The feeding spectrum of pike perch in the open part of water bodies and in the coastal part was different. In the stomachs of the



predator from the open part, the food spectrum included 5-6 components (eastern bream, carp), in the coastal part of water bodies - 9-10 components (non-commercial fish, mysids, shrimps).

An important stage of the study is to determine the power walleye efficiency fodder utilization gains ichthyomass. We analyzed the daily ration according to the formula of the balance growth rate, metabolic rate, and the amount of ration (Vinberg, 1955). On the basis of the literature data on the duration of feeding of pike perch, the composition of the diet and the caloric content of food organisms, the annual diet of one individual was obtained. Calculations have shown that in all age groups, energy expenditure (R) on metabolic processes exceeds expenditure on weight gain (P). With the growth in the exchange of energy consumption led away Chiva. So, at the age of 1+, the daily expenditure of energy is 1.26 kJ / day, at the age of 5+ - 16.18 kJ / day, at the age of 8+ - 38.66 kJ / day. Energy consumption for plastic metabolism also increases with the age of fish: 1+ - 0.84, 5+ - 4.21. But the efficiency of food use (K1-K2) for growth is reduced. If the values of K1 and K2 in yearlings are 31.7-40%, then in 6-year-olds it is 14.4 and 18.7%. About pre valirovanii plastic metabolism of energy in yearlings su Duck shows the value V, which is equal to 0.67, in 8-year bonds - 0.20. A decrease in mean daily energy consumption when growth in older age groups from 8.18 kJ (10+) to 6.79 kJ (12+) (Drozhina, 1987). In our samples, specimens older than 8 years, not encountered chalis. Studies have shown that a significant part of pike perch matures at the age of 3+. Therefore, the energy expenditure for generators nye processes expected from this age. With increasing WHO rasta fish growing spending on energy generative protses si (P g). Su Duck e aged 3+ generative exchange consumes 0.08 kJ / d ki, aged 5+ - 0.92 kJ / day; in older age groups - up to 2.35 kJ per duck. The absolute values of mean daily rations perch (C) regularly increased from 6.79 (1+) to 14.56 (8+), the relative values by reduced from 0.97 to 0.58%. Information ratio of pe cial diet and is necessary for optimal growth of fish allowed to establish their food security

A positive factor that improves the quality of fodder water ems of the lower reaches of the Zarafshan, you should consider having mysid shrimp, rich zooplankton, larvae of chironomids, which serve in size intermediate between bentoplanktonnyimi organisms fish. We have already noted that underyearlings feeding on mysids were distinguished by high fat and fatness indices.

As you know, the size of prey depends on the size of the predator. The water emah lower reaches of the Zarafshan perch length of 20-30 cm 5-10 cm consumes fish, preferring to sacrifice 5-6 cm long. Pike length of 30-40 cm eats fish 2-12 (in media therein 10) refer to the most widely Meas. Zones time mers victims have perch more than 40 cm in length - the size of the victims of 5-17 cm, od Nako average does not change much, - adult walleye prefers fish 10-12 cm.

To evaluate the fishery values of walleye, the degree of its influence ence on fishing fish fauna of the reservoir and thereby to identify the role of this kind in a single growing season, beginning th yearlings, we estimated annual requirement of food items for each of the WHO rasta. It can be seen that the main food item for pike perch in the first year of existence is zooplankton (892.2 kg / year), in the second year of life, the role of zooplankton begins to decrease to 158 kg / year, in the third year, zooplankton is only 23.41 kg / year. The role of miazids, shrimps, and fish is gradually increasing. In total, a herd of pike perch consumes 51939.9 kg of food lump during the growing season. The population of pike perch consumes 5447 kt of sagan during the growing season, which is 10% of the food consumed.

Pike perch uses 10-12% of the commercial fish fauna of reservoirs, which is associated with a relatively small number of non-commercial fish. The size of the victims increases with age. The basis of the fish ration of older predators is made up of fastworms. Sudak aged 3+ eats Bystrianka in the average length of 6.5 cm, at the age of 7+ - 9.3-9.7 cm Every action eaten Bystrianka does not exceed 10 cm carp food meeting. Etsya 3.7 mm in length - 12 cm, capoetobrama kuschakewitschi - 3.3 mm - 7 cm, Aral roach - 2.5 mm - 7 cm. Victims 20-25 cm long in the stomach of pike perch are a rare case.

Thus, the perch uses as food is mainly small fish, fry carp, bream, chub other commercial fish consumes not a large amount. Such valuable fish such as pike, carp, white, silver carp and other - in the diet perch found in trace if honors. The calculated coefficients of accessibility of prey fish for pike perch in the reservoirs of the lower reaches of the Zarafshan were no higher than 55-65%. However, on average, these coefficients are lower: for fast food - 17.7-34.2%; for roach, bream, sa s Ana - 7.9-21.2% as pike consumes bases nom small fish. The feeding rate of pike perch can be judged by the filling index, which was quite high, especially in the first two years; there is a certain tendency towards a decrease in feeding in the coastal zone of water bodies by November. So, in fish aged 2+, the filling index is 220 ° / 000, and in autumn - 194 ° / 000. In 4-year bonds the filling



index is 190-240 ° and 119-145 / o o o , respectively but.

In conclusion we can mention the following: food perch is relatively small number of invertebrate species of major to toryh and copepods are cladocera crustaceans, mysid shrimp.

Among the fish food is dominated by small-scale artisanal fish size to toryh available for walleye. Among the victims are of secondary importance to the well - busy , eastern bream, Aral asp. In different seasons of the year, the composition of n ish and may vary somewhat. To meet food with perch sponding sizes required number of small fish in vodoe max Zaravshan lower reaches of 10-12 copies / m<sup>3</sup> or 2-4 copies / m<sup>2</sup>. If the indicators are lower than this, then the pike perch satisfies the need at the expense of juvenile commercial fish.

#### **Snakehead family -**

#### **Chanidae [ Ophiocephalidae ]**

#### **Genus Snakehead - Channa Soopoli**

#### **Amur snakehead species -**

*Channa argus* warpachowskii Berg

**Spread.** The range of the Amur snakehead covers the middle and lower reaches of the Amur, the Ussuri basin, Lake Khanka , water bodies of China, Korea, India (Rozov, 1934, Taranets , 1937 Berg, 1949). Start dis rostraneniya snakehead in the Central Asian waters coincides with the time of delivery here herbivorous fish China Plain ihtiofaunisticheskogo complex - the beginning of the 80s. The reason for the appearance Nia snakehead is acclimatization. In the Amu Darya snakehead is known since 1965, and in the fishery - since 1968. At present, snakehead and the day-to-basin common locally in lower and middle reaches of the basin, including Lake and in dohranilisha, irrigation and drainage canals and collector (Gusev, Zholdasova 1986 ; Khakberdiyev , 1994).

According to our observations, the snakehead entered the lower reaches of the Zarafshan through the ABMK from the Amu Darya. Nowadays, it lives in different types of water bodies of the region everywhere, except for Lake. Dengizkul . Snakehead prefers clean fresh water. By the presence of the snakehead in the reservoir, one can judge the pollution and salinity of the reservoir. The reason for the absence of the snakehead in the lake. Dengizkul is served by high salinity of water (8000-10000mg / l), high BOD and pollution of the lake with industrial waste. Snakehead numerous in Tudakul reservoir where mine alization water 2000-2500 mg / l, is in the lake. Tuzkan where m ineralizatsiya water is 500 -6 00 mg / l, BOD<sub>5</sub> not exceed 15-20%. Snakehead chooses places much overgrown, shallow, well-warmed, with a low

sustained water and exchange . For winter, it migrates to deeper places and digs holes, where 8-12 fish accumulate.

**Reproduction.** Sex on vozrelo with five snakehead in the lower reaches of the Zarafshan dos Tiga in the third year of life, ie, at the same age as in the Amu're Chimkurgan with whom reservoir waters of Khorezm, bass. Syr (Nikolsky, 1956 . Abdullaev, 1967; Amanov, 1974; et al.).

**Nutrition .** Snakehead juveniles in the river. Kashkadarya begins to feed on fish with a length of 52 mm. The size of the prey is 20-43% of the body length of the predator. Mostly in the food there are weedy fish - and the ralskaya spiny fish , Turkestan gudgeon, less often fry of the Turkestan barbel. We are in their research analyzed 110 stomachs of fish lengths from 40 mm to 74.5 cm. Specimens 40 mm in length were fed mostly copepods

( by Cyclops vlcirms , Mesocyclops crassls ), vetvis Tous crustaceans

( of Daphnia longispina , Chidorus spheenus , Cerlodaphnia sp. ) . e ti body is 10-12% by weight of the bolus; the rest of the lump (30-50%) consisted of mysids and chironomid larvae . The filling index was 210 ° / o oo . Juveniles with a length of 50 mm or more were consumed mainly by juvenile fish ( swine , mosquito, hawk , carp, bream, roach, shemaya, etc.). The basis of snakehead food before the age of one year were 4 groups nN organisms 1 - copepods and cladocerans crustaceans; 2 - mysids ; 3 - fish; 4 - larvae of dragonflies, chironomids and shrimps. Zooplankton accounted for about 50% of the fish food volume up to a year. From the age of one , the role of fish food increases. In the following years of life, the main share in the diet goes to the fish. For a more accurate identification of the snakehead's nutrition, we divided all fish into three groups:

1) juveniles 0+, 1+ up to 30-80 mm long 2) immature and sexually mature fish up to 2+ 15-30 cm long; 3 - sexually mature adult fish 30-70 cm long.

In reservoirs audio of ovev Zaravshan spectrum power snakehead state um in total of 15 components Moreover, the younger individual, the different Shaped spectrum power, the majority of adult fish food monotony on (mainly fish) According to our calculations snakehead in the downstream Zaravshan uses approximately 20-25 kg of fish per year. Of these, 10-12 kg are carp. This snake heads harmful fisheries. Eating well in a big if honors larvae of dragonflies, amphibians and leeches benefits. Summarizing the data , we can draw the following conclusions:

At present, the lower reaches of the Zarafshan reservoirs encountered 5 species of predatory fish, of which only the catfish is an Aboriginal,





wasps tal species - asp, lysach , walleye, snakehead - entered from the pool, on the Amu Darya; asp, lysach and pike are common on the lower reaches of the Zarafshan in all investigated waters and more or less evenly, and kite egolov meeting etsya in all waters except Lake. Dengizkul.

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# TEACHING FUTURE PRIMARY SCHOOL TEACHERS TO PASS MATHEMATICS LESSONS THROUGH INNOVATIVE TECHNOLOGIES

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## ABSTRACT

*Here was written about the importance of and the types of innovative technologies using in math lessons, the main idea of innovative technologies.*

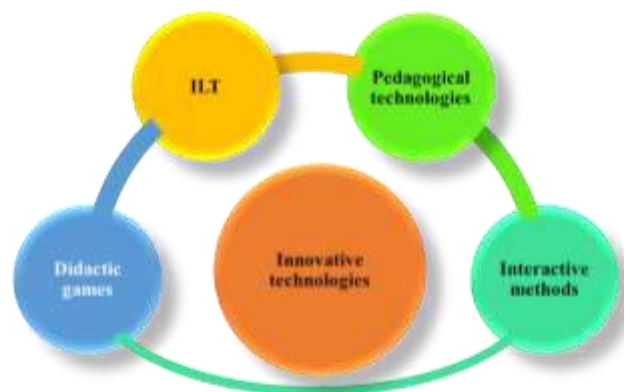
**KEY WORDS:** Lesson, sum, math, teaching methods, innovative technologies, primary school.

## DISCUSSION

The effective use of new innovative technologies in the process of teaching subjects in secondary schools in the educational system is a topical issue in our country. It is precisely these new innovative technologies are considered an essential tool of education that not only allow the formation of knowledge, skills and experience in students, but also satisfy their interest in the development, knowledge of personal characteristics.

In pedagogical and psychological research, the same thing is noted, the transition of the lesson in schools on the basis of new innovative technologies has a strong impact on the development of theoretical, creative and reflexive thinking, speech activity of students. In the memory of the student, he or she, or this phenomenon, the figurative expression of the process, enriches the teaching material and contributes to its scientific assimilation. This imposes a number of tasks before the teachers of the upcoming primary class.

The following can be attributed to the innovative technologies that the future elementary teacher can use in the process of elementary mathematics classes:



The word “innovation” is derived from the Latin word meaning “innovation, change, update”. The technology that stands on the highest point of innovative technologies is considered to be this pedagogical technology.

Pedagogical technology is a broad concept in relation to other innovative technologies, it forms the general state of the lesson, its holistic base. Here we can understand that in the process of teaching mathematics in the elementary school, the use of pedagogical Technologies is said to introduce each stage of the lesson into a certain system. From the beginning-to-ending molding of the lesson, taking into account each element is organized based on a certain pattern, planned and visually, all assignments, ranging from how students sit in a row. I.P. Volkov interprets it as “pedagogical technology - planned



training”<sup>1</sup>. For example, you want to teach addition and subtraction among 10 in Class 1.

If you have 30 students in your class who pass the mathematics course, you can organize the lesson unconventional using either 5x6 or 6x5 technology. In order to organize a lesson based on this technology, the teacher will put 5 tables, and around each table will put 6 chairs (or vice versa). In groups, the captain will be appointed. Assignments will be also planned much earlier and should have a certain system and generality.

It should be remembered that the lesson can not be an unconventional lesson, the use of various colorful visuals, didactic games, several interactive techniques. In order to be an unconventional lesson, it is necessary to organize the lesson on the basis of a certain pedagogical technology.

Another of the innovative technologies that can be used in the course process is the interactive method. Interactive method means that without much effort, achieve a high result. It is necessary that the method of interactive techniques used in elementary mathematics classes is very diverse.



**Method of “Brain storming”**

This method is a widely used method for solving problems on a particular topic, and it encourages participants to develop certain skills and skills in a broad and comprehensive way of thinking about the problem, as well as the positive use of their own imagination and ideas. In the process of training organized with the help of this method, there is an opportunity to find several original solutions to voluntary problems. The “Brain storming” method creates conditions for identifying certain concepts within the framework of Selected Topics and choosing ideas that are alternative to them.

In the course of the lesson, the use of the “Brain storming” method requires compliance with the following rules:

1. Motivate the students to think extensively within the framework of the problem, achieve their logical expression of thoughts.
2. The opinions expressed by each student are encouraged. Among the expressed opinions, most of the receipts are selected. The stimulation of thoughts leads to the birth of new thoughts in the queue.
3. Each schoolchildren can be based on his personal thoughts and change them. Summarizing, categorizing or changing the previously expressed opinions lays the groundwork for the formation of scientifically based opinions.
4. In the process of training, it will not be allowed to control the activities of students based on standard requirements, to evaluate the views expressed by them. When their thoughts are evaluated, the students focus their attention on protecting their personal thoughts. As a result, new thoughts are not put forward. It is desirable to abandon the evaluation of their activities, bearing in mind that the main goal of using the method is to motivate the educators to think broadly about the problem.

**For example:** (a system of questions that forces students to think.)

- What do we do in the lesson of mathematics?
- In the lesson of mathematics, we solve an example and a problem, perform various mathematical tasks. –In what lesson do we learn to count?
- In the lesson of mathematics.
- Who will list correctly and in reverse from 1 to 10?
- 1 2 3 4 5 6 7 8 9 1 0
- 10 9 8 7 6 5 4 3 2 1 and so on.

“Cluster” method

The cluster (Bud, ligament) method is a certain form of pedagogical, didactic strategy, which helps the educators to create conditions for free, open thinking and freely articulating personal thoughts about voluntary problems (subjects). This method requires the identification of a structure that gives an opportunity to think about the relationship between different ideas. The “cluster” method is considered a form of thinking, which is not oriented to a specific object. Its use is carried out in connection with the principle of functioning of the human brain. This method serves to ensure that the thinking activity remains one-stop until a particular topic is thoroughly and thoroughly mastered by the students.

The main feature of interactive techniques is that it allows you to focus more on one review, creating a better picture of it. For example, the cluster method can also be used in the process of passing a

<sup>1</sup> Azixodjaeva N.N. O‘quv jarayonining samaradorligini oshirishda pedagogik texnologiyalar -T.: 2007. 14-23 bet.



new topic, if at the end of a large topic or section, then in the elementary mathematics lessons. For example, at the end of the Department of performing arithmetic operations within 10, the use of this method gives a good result. Students will try to record exactly what they are familiar with in the process of passing this section, one after another, in memory of each other, even examples and ways of their solution. During the use of the cluster method, it is necessary to give readers an understanding of its feature and importance. For example:

- to illuminate what you think after reading the base concept;

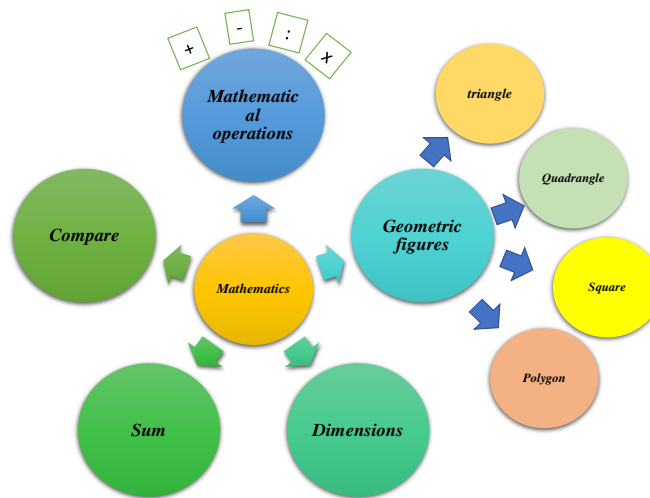
- to write opinion which is not analyzed in orthographic terms;

-do not stop writing the idea until the given time has come to the end, until for a while nothing is formed in your imagination, to remember, draw a picture of something,

-to pay attention to the relevance and diversity of ideas,

-when the time is running out, gather the necessary basic ideas around the concept and form a beautiful text.

For example:



To explain interactive techniques through tables in a beautiful way, we use educational tools for delivery. In many literature, educational tools are also referred to as graphic organizers. “KLW”, “fish skeleton”, “t chart”, “Vennel chart”, “Insert Chart”, “lily flower” are examples of these.

Another of the innovative technologies that the teacher needs in order to explain the topics in the process of the lesson is information technology.

Information technology is an individual-oriented technology, lies in the development of motivation, the formation of knowledge and professional skills, ensuring the attitude of students to the educational process as a value, increasing activity, the formation of self-awareness and independence.

Currently, the following basic information technologies are widely used and studied in education:

1. Power Point productions
2. Electronic educational and methodical complexes
3. Electronic educational-methodological materials
4. Electronic guidebooks
5. Electronic textbooks.
6. Multimedia
7. Multimedia books
8. Flash productions
9. Hypermedia books

**Electronic facilities of teaching.** The process of teaching consists in the interaction of the

educator, the educator and the means of teaching. The modern computer tools and information



technology options allow teaching aids to load part of the duties of the teacher and the educator.

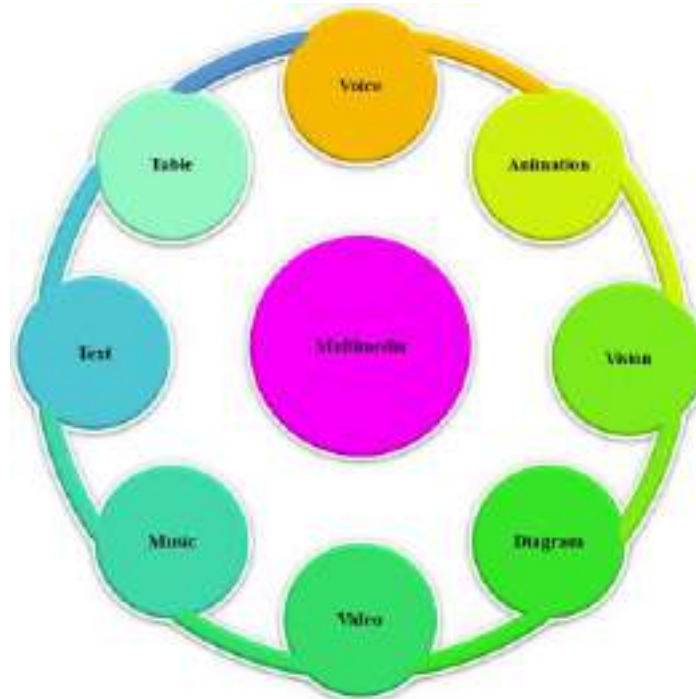
**Electronic educational and methodological complexes**-educational and methodological complex consisting of didactic, programming and technical interactive complex of teaching in the modern Information Technology Environment and providing educational materials on the basis of Computer Technology, audio-video means.

**Educational-methodical materials in electronic form**- electronic textbooks, electronic manuals, electronic lecture materials, electronic libraries, compatible (GD, Flash, etc.) audio visual materials in capacitance, interactive training courses, laboratory tasks for conducting computing experience on the computer, systems for testing.

**Electronic textbook** is a means of reading designed to use teaching methods based on educational literature or computer technology aimed at the application of teaching methods based on computer technology, the acquisition of independent education, teaching materials in a particular subject, the effective assimilation of scientific data in all aspects.

**E-learning literature** are educational resources that are able to collect, describe, update, Store, present and control information in an interactive way based on modern information technologies.

Multimedia is a technique or software consisting of a set of sound, video and various animation effects designed for a computer. Sound, video, animations can be called "multimedia elements".



**Multimedia** technologies integrate many types of information in themselves. For example:

- Images from the scanner;
- Recorded sound, musical effects and music;
- Videos with complex video effect
- Different animations

It remains to say that in addition to multimedia tools, a projector, an interactive whiteboard can also be inserted.

Again, it is worth noting that the knowledge gained through multimedia allows a person to be stored long in memory and applied in practice when necessary. In general, by using multimedia, the following training effectiveness is achieved:

. Mastering knowledge is not mandatory, but is carried out at the discretion of the reader;

. Multimedia is accepted by the reader with pleasure, and joy in turn change his attitude to educational science to the positive way;

. The opportunity to expose the reader in relation to others arises;

. A new objective criterion appears in the reader to evaluate his performance: whoever knows a lot and can use it successfully, he will win;

. there is an opportunity to give freedom to one's own fantasies, a feeling of fear, a feeling of being laugh at others, a feeling of fear of getting a bad evaluation retreat;

. Healthy competition and competition environment in the team;





. Students strive to independently overcome the existing difficulties;

. The inter-subjectivity gives birth to the possibility of real implementation of the link.

**Multimedia books** is a textbook, software tool consisting of text, audio, static-dynamic and video-visual information, concentrated into one media carrier (for example, a CD-ROM drive).

Flash is a tool of creativity of the Web designer, it is such a program that with its help it is possible to prepare various presentations, small games, multimedia web pages, dynamic sites and other desired multimedia products. The size of the products made with the help of Flash will be small, so it is also very convenient to place the prepared files on the web pages or send them across the internet.

In the flash, basically, the following are prepared::

- Multiplicative roller and cartoon characters;
- Videos;
- Games;
- Presentations.

The Microsoft Power Point program is created under the Windows Shell, which makes it one of the most convenient software tools for working with presentations (presentations, that is, presentations). This can be done through the program to create all the visual weapons and in some places also as a database. In some cases, it is also possible to perform the functions of managing and supporting these programs from multimedia devices, sending them to demonstration devices. To work on the program, let us get acquainted with the basic concepts that we are new to.

**The presentation** is a collection of slides and special effects, which are stored in a single file in the form of a display, a distributed material, a lecture plan and a synopsis.

**A separate frame of the slide presentation**, which includes text, titles, graphics and diagrams. Restored slides with Power Point tools can be printed on a black-and-white printer, or make 35-millimeter slides in Photoplay with the help of special options.

**Hypermedia books** is an improved form of multimedia books, in addition to the basic text, This is a textbook in which the user can refer to various additional sources. It remains to be noted that students will have the skills to use e-mail in the learning process.

We can introduce didactic games into the ranks of assistant innovative technology for the upcoming elementary teacher. The important aspect of

didactic games is that it serves for a visual and interesting delivery of the creative and recalling type of exercises that are given in the textbook. For example: picking apples on the tree, solve examples, a game of travel, a mysterious crate, a step by step, a chain, a scythe, a quick answer, a builder, a game of night and day from the sentence. Step by step is example from the game of stairs: (The class is divided into two groups. Students from each group come out one by one and quickly solve the example given to them. Objective: which group will win the first deducted place in the last example).

At present, the interest and attention to the application of innovative technologies, pedagogical and information technologies in the educational process are increasing day by day. One of the main reasons for this is that in traditional education, students are taught only to possess ready-made knowledge, modern technologies in primary education teach them to search for the knowledge they possess, independently study and analyze, and even draw conclusions themselves. The future primary class teacher creates conditions for the development, formation, acquisition and education of the individual in this process.

In a word, the introduction of modern pedagogical, innovative and information technologies into the educational process, while improving the quality and effectiveness of primary education, requires the popularization of advanced work experiences. In the process of mathematics lessons, it is also necessary to use the necessary and necessary innovative technologies and teach it to be applied even in the process of life.

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## UNITS OF SPEECH INTONATION

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### ABSTRACT

*The following article deals with intonation and its units. Types of intonema, the functions performed by intonema in speech, the meanings it expresses, and its semantic types are also given in the article.*

**KEYWORDS:** *speech, intonation, intonema, prosodica, prosody, speaker speech, mental intonema, arbitrary intonema.*

### DISCUSSION

In modern linguistics, it is important to analyze the language phenomena based on the state of speech, because speech is complex and multidimensional. Language units are specific to perform different tasks in speech. In speech that results from the communicators' common goal of "informing" or "receiving information", tone, or intonation, is one of the tools that help to understand this "purpose of speech".

Any speech is dynamic, and this movement is accomplished by a certain intonation: the tone, speed, pauses, pitch and power of the speech change and glow depending on the requirements of the content and emotion of the sentence. We cannot make up a sentence without intonation: that's why every sentence has its own intonation. [6] For example, if we tell the sentence "Grandmother has come" in question, exclamatory or affirmative form, we will be able to change the aim of the sentence. The word "Sky..." (incomplete tone, i.e. the continuation of an idea), "Sky" (informative tone); "Sky!" (endless excitement, enjoyment); "Sky?" (interrogative tone); pronouncing in this way serves to reveal the essence of the speech. Thus, melody is the main nonverbal tool for the correct understanding of the "purpose of speech".

It is clear that, language is a "system of systems". Prosody is an integral part of the phonological system of a language. Each component has its own units, rules and methods.

The word "prosodica" is being used in recent researches. Prosody is a unit of phonology that reflects the physiological properties of speech as a measure of the substantial level. The linguistic-functional features and functions of phonetic-

phonological units in language, the components of phonology that study their role in the mechanism of language are called phonemes, syllabema, accentema and intonema. Phonology itself is divided into segmental and supersegmental phonology. Prosodica is a generalization of syllables, accents, and intonemes that are the subject of supersegmental phonology [1].

Intonation is derived from the Latin word "intonation" ("intono, intonare" - "to pronounce aloud"). Intonation is a set of interrelated rhythmic and melodic components of speech. As the American scholar Kington indicated, "Intonation is the lifeblood of the speech process". Intonology is the study of intonation in linguistics. Scholars focus on intonation tools such as accent, melody, tempo, and timbre. The tempo, timbre, and emphasis of these tools are used to express the main mood, emotions, and mood of the speaker. The pace of speech can vary depending on the purpose: slow, medium, fast. Changing the pace of speech depends on the emotional state of the speaker. It's played by actors who play more roles, because that's how they describe the situation of the actor they're playing. [7]

Alexander Alexandrovich Reformatsky, a representative of the Moscow School of Phonology, was one of the scholars who made a significant contribution to the role of intonation in the phonological system. He revealed the peculiarities of intonation in his book "Prolegomena to the study of intonation". A.M. Peshkovsky, in his article "Intonation and Grammar", emphasized the need to study the intonation structure of sentences in order to build a grammatical theory [3].



Looking at intonation from the point of view of the speech process seems that its function as a way of organizing the whole meaning of the communicative speech expression and connecting it logically with the next sentence. Intonation reveals the informational nature of speech, reflects the interconnectedness of speech. The description of intonation allows us to look at the sentences as a meaningful one, a grammatical tool, and a speech phenomenon, connecting them in terms of logical sequence when analyzed based on the above function. H. Jamolkhanov has defined the role of intonation in language and speech as follows:

- it serves as an important tool for expressing the intonation of the sentence;
- it participates in distinguishing types of speech according to the purpose of expression and emotionality;
- it is an important phonetic device representing syntactic connections [6].

All the functions of intonation together help to express the rich nature of oral discourse, which is called "speech in action".

In the "age of innovation" with the development of computer technology, the telephone and various communication programs (such as telegrams, IMO) are actively used as a means of communication between people, as well as long-distance means of communication. People use the "sms" service to send messages, the possibilities and conveniences of which are not new to today's man. Interestingly, in sms messages, we use "smile" because the words do not fully reflect our thoughts, that is, the purpose of our speech. In addition to the main "information" of the speaker, they have a variety of additional meanings, such as his personal opinion, mood in the process of speech, age, nationality. This means that the letters of the alphabet, the words in our dictionary, "fail" to fully explain the "purpose of speech." In oral speech, the tone of speech can express the function of these "smiles". For example, consider the following passage from the work: "It's cold, - said my mother in **thoughtful tone**. There is not anything to put on children's body and head, especially difficult for the little ones" [5]. The author's "**thoughtful tone**" reflects the woman's helplessness and the family's support for her husband. A change in the tone of the sentence could change the tone of the speech. (E.g. anger, indifference, threat, etc.).

Individual intonation research in world linguistics has begun not so long ago - in the 1940s, with great advances in linguistics and the collection of a number of experimental data from the study of many world languages. The use of modern precise methods of phonetic analysis has led to astonishing results, which have made it possible to declare

intonology as an independent branch of linguistics with its own object of study and its own method of analysis. Intonation began to be studied from different angles: linguistics, paralinguistics, sociology, didactics, aesthetics, and others.

Intonation is a universal linguistic tool, all languages have their own intonation, but its form and function inevitably differ from the point of view of the situation.

The research that began today with the study of the difference between the English dialect and the British and American dialects has led to the discovery of many interesting scientific discoveries, such as the Azerbaijani dialect, the Italian dialect, and the Turkish dialect. It should be noted that the Uzbek dialect has not yet been studied.

The unit of intonation is the intonema (tone phoneme, intonation structure), which is the intonation period, the intonation characters (parameters) sufficient to distinguish the statement or part of it and the communicative type of the statement, the semantic significance of the syntagms, and the division into topics and parts.

The term intonema first appears in textbooks and manuals on Russian linguistics published in the 1940s. Russian scholar V.A. Artyomov, who directly involved in intonation, linked the origin of the term to the name Reformatsky. [2]

According to the opinion of V.A. Artyomov, intonema is a functional unit with a typical pattern of various intonation elements, in this regard it is important to distinguish between the concepts of intonem and intonation invariant. Typically, the first term is a socially non-linguistic unit of speech in the context of a language system, while the second term refers to speaker speech as a relative model (structure) of the acoustic features required in a particular language.

An intonema is a unit of intonation, an intonation model, the result of the generalization of intonational qualities related to the meaning of a statement. Intonema provides intonational regularity, which helps to identify intonation-semantic segments in speech. The material of an intonema consists of intonation elements (stop, syntagma, rema, etc.), but this intonema does not mean a simple combination of these elements. The physical aspect of an intonema is usually characterized by the formation of generalizations based on the similarities of the pure intonation sounds present in the speech of certain language speakers. According to experts, a generalized set of intonemes is stored in the memory of speakers of a particular language (for example, Uzbek, Russian or German) and serves as a norm in the pronunciation or "comprehension" (listening) of specific parts of speech.



Linguists classify intonemes semantically and divide them into four groups. These are:

1) **mental intonema** (true intonema division, connection intonema level, significance intonema level, question intonema, affirmation intonema) serve to distinguish syntactic meanings and categories, to separate the flow of speech, and to compare the question with affirmation. Mental intonemes are always present in speech.

The values of intellectual intonemes are the moments of mental activity reflected in the language associated with the formation of speech, that is, the use of intonation in one of two selected forms of expression: statement (transmission of information) or question (desire to receive information).

True intoneme division serves to divide a text into paragraphs, sentences, and syntagms, and is followed by a pause.

The communicative intoneme refers to the relationship between the actual units of division by component. It usually consists of melodious music, which slows down the pronunciation. True intoneme division and communication intoneme often interact in the flow of speech.

Significant intoneme is used to emphasize the most important parts of speech. It is characterized by slow speed and high density as a secondary elevation. Significance intonation usually refers to the logical effect of one or more words on a syntagm. For example,

You are right. All conditions are well. We know that the conditions are right for any whirlwind, - said Omonullo, emphasizing the word "we". It was a special sound that struck the boss in the brain like a hammer and shook him. But he laughed out loudly. [10,77 p.]

2) **arbitrary intonema** - directly, depending on the position of the speaker (communicator) in the speech environment. Naturally, the speech conditions are intertwined with the listener's influence on the communicator during the discourse, the fact, the external influences (health, social status, level, worldview of the informant). The melody of voluntary intonemes is, of course, higher than the norm accepted by society, because even if the communicator's mood is not reflected in the words, it is difficult not to express it in the tone of speech. For example,

We left in the yard only two with my Kimsan aka. I shamed to be standing in front of him, and I was walking toward the yard for laundry, when Kimsan aka gestured with his hand: Sit down, Robiya... I have something to talk to you...

I have understood everything from the **word tone**. My heart pounded. He sat in front of me on the porch. There was a deep, thoughtful meaning in his eyes. Sweat dripped down his sunburned face, and

his lips quivered. It's as if he's grown up one day ... [4, 101p.]

It is clear from the passage that the speaker (Kimsan) knew something terrible about the listener's father (Robiya) from his tone of voice.

Arbitrary intonemes are divided into two groups:

1) arbitrary intonema – neutral intonema (My heart pounded. He sat in front of me on the porch. There was a deep, thoughtful meaning in his eyes. Sweat dripped down his sunburned face, and his lips quivered. It's as if he's grown up one day... [4,101p.]  
2) stimulating intonema (order, strong density, high range). The order is pronounced, the words are clearly separated and emphasized, and the tone is in a wide range of ups and downs. Options for implementing the order intonation: decision, desire of interest, persuasion, warning, request, etc. This intonation is characterized by wave-like music. The music is placed in a high range so that the interlocutor adapts to the interlocutor as usual. For example,

— "Comrade Captain, if you have anything to say, come and talk." There's some information on the phone that you can't tell, you know.

After a brief explanation of the address, the man forgave the connection. Omonullo understood from **their tone** that the case of the "**boy who speaks directly to Moscow**" was related to the State Secret Service. He also realized that it would not be easy to find and talk to someone with a "helicopter underneath". [10,63 p.]

In discourse, the speaker uses a stimulus intonation even when the goal is to turn an idea expressed in the speech into a basic speech reality (to provoke, to draw attention, sometimes to gain information through it). For example,

Omonullo told him about his new views on Samandar Ochilov and the conclusions of the examination. Mels Khodjaev had promised to deal with the next case, which would be resolved through a military prosecutor. After Omonullo summed up the trip, he began to report, "**We didn't sit idle either, brother**".

- "I spoke to the district military prosecutor personally," said Mels Khodjaev, with childish joy and childish pride, and looked at Omonullo as if expecting applause. [10,101p.]

If we say something in order to prove or explain something (the content of which does not correspond to orthoepic norms), all the sentences can be an example of arbitrary intonation.

3) **emotional intonema** - serves to express the emotional state of the speaker, expresses his feelings (anger, fear, tenderness, sadness, hatred, indifference, sadness, joy, shame, surprise, etc.) by intonation .



Emotional intonemes are related to a person's mental experiences and are expressed using independent speech units (emotional urges, rhetorical questions, urges, etc.). However, the presence of a communicator's emotional state may not be necessary at the time of speech to express these signs. It is important to know the specifics of each emotional intonation. For example, **the intoneme of anger** is characterized by an increase or decrease in intensity:

- "Get up, Rano, get up, my dear!" They are calling me.

Behind the hole, my daughter-in-law Rano whispered in a low but **angry tone**:

"Damn you!" Where did this cold sock come from? They will not leave me alone today. [4,153p.]

• **The intonema of grief** produces a small variation in tone, in which the beginning of the syntagm is intense and then the intensity decreases or is interrupted:

Kimsan brother turned to us hanging on a pole like a porter. My mother looked back and sobbed as she covered her face with her palm. "The war has begun!" said my grandfather in a **broken tone**. The Germans invaded our country. [4,100 p.]

A wife of my brother-in-law sat quietly playing the corner of table cloth and said: "I sold my pearl" in a **muffled voice**. "I have to do sacrifices for two children." "She was choking with tears, and she couldn't cry." Her lips trembled and she covered her face with her palms. [4, 199 p.]

• **Intonema of indifference** - the tone is dry, cold, decreased intensity, as well as the state of indifference is felt in the intonation as well as in the intonation, which is less pronounced abstraction.

- He approached and greeted. - What's up, bride? he said in a dry tone. "You're looking for a bridegroom!" [5,297p.]

• **The intonema of joy** high "jump" tone, duration of ascent, "light", "warm" timbre:

The boys and girls greet each other with a squeak. Ermon takes his grandfather and sits down to dry. He unties the knot without haste. "Oh, the blacksmiths!" "Oh, pops," he said in a **solemn tone**. "Welcome to the table." Don't be shy, coincidences! [5,68p.]

• **The intonema of guilt** is characterized by a decrease and prolongation of the voice, inconsistency and trembling, as if the tone of speech does not seem to end:

I looked at my mother in fear. "I did," he said slowly. "Isn't there any left?" "She fell over," said my mother **guiltily**. [5,24p.]

• **The intonema of licking** is characterized by the length of the voice, the rhythm of the speech:

Once we came across a woman in a shawl. My mother asked again in the same **naked tone**:

"Hey, bless you, don't you know the Prophet?" [4,120p.]

• **The intonation of calm**, serenity is characterized by a slowing of the tempo of the melody, a rhythmic rhythm and, in part, abstraction:

He'll be out sooner or later. They're checking now, I said in a very calm tone. - If it is true, they will publish an article and assign you a "personal pension". If it's wrong, they'll sue. [4, 151p.]

• **In the intonema of surprise**, the volume is directed from top to bottom and is combined with a state of amazement and fear.

4) **in a positive intonema**, expressive expositions, pleasant events, beautiful objects, appearances, non-negative features of details (appropriate to a person's mental state) serve to elevate the intonation means. The semantics of these intonemes are related to mental processes such as perception, intuition, and imagination. Among the positive intonemes are the following: an intonema with the meanings of "big" ("strong", "worthwhile", "burdensome") is characterized by a low level of sound, ie low frequencies, emotional length, slowing down: intonema, which means "small" ("weak", "flickering", "flickering"), is expressed aloud (I started reading!); An intonema meaning "urgent" ("urgency") is described at an accelerated rate; The intonema, which means "quiet" ("long" ("far")), is characterized by a slow, low-intensity length.

A communicator is able to use all types of intonemes effectively in speech, based on his inner experiences, and emotional state of speech.

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# DEVELOPMENT OF LOGICAL THINKING IN MATHEMATICS LESSONS AS THE BASIS FOR IMPROVING THE QUALITY OF THE EDUCATIONAL PROCESS

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## ABSTRACT

*The article examines the factors that form logical thinking in mathematics lessons in elementary school, psychological and pedagogical research, the formation of basic logical skills at the primary level.*

**KEYWORDS:** *empirical, intellectual skills, types of thinking, analysis, synthesis, abstraction, generalization, experiment, individual.*

## INTRODUCTION

At the moment, one of the main problems of primary school students is that in the classroom they do not know how to find a rational way out of various situations, thereby complicating the task of teaching, do not rationally use the time in the lesson.

Among the basic intellectual skills are logical skills, formed, first of all, when teaching mathematics. The objects of logical inferences and the rules for their construction adopted in mathematics contribute to the formation of the skills to substantiate and prove judgments, formulate clear definitions, develop logical intuition, briefly and clearly reveal the mechanism of logical constructions and teach their application.

Psychological and pedagogical studies of domestic and foreign scientists have proved that the basic logical skills at an elementary level can be formed in children from the age of 5-6.

**Purpose of the research:** identification and description of the most productive ways of developing logical thinking in children of primary school age.

**The subject of the research** is the development of logical thinking.

To achieve this goal, I plan to solve the following tasks:

- describe the theoretical foundations of the formation of logical thinking in children of primary school age;

- to characterize the existing general methodological approaches to solving logical problems in mathematics lessons in elementary school;

- to reveal the role of using logical problems in mathematics lessons in elementary school;

- to select suitable logical problems and classify them in accordance with possible solutions in mathematics lessons in elementary school.

**The practical significance of the research** - skillfully and rationally organized work of the teacher in solving problems contributes to the development of logical thinking in children.

When writing the work, the following theoretical **research methods** were used:

- theoretical- analysis of psychological, pedagogical and methodological literature, periodicals, Internet sources on the research topic;

- empirical- analysis of the products of students' activities, design, description of the results of testing.

- to form the logical thinking of primary school students;

- improve the quality of knowledge in mathematics through the development of logical thinking.

## Experience relevance

One of the main tasks of a modern school is to train a person who is able to make decisions independently and act effectively and reasonably in life situations. Over the years of work at school, I realized that the successful implementation of this



task largely depends on the formation of logical thinking in students.

Thinking is a special kind of mental and practical activity, involving a system of actions and operations of a transformative nature included in it. Cognitive activity of people is carried out using mental operations: comparison, analysis, synthesis, abstraction, generalization and concretization.

There are three types of thinking: visual-real, visual-figurative, verbal-logical. The earliest stage in the development of a child's thinking is visual-actual thinking. It is characterized by the fact that the task subject to thinking is given visually and solved by hands, i.e. with practical action. This form of "thinking with hands" does not disappear with the development of higher forms of logical thinking. With the development of speech and the accumulation of experience, the child comes to visual-figurative thinking. He thinks in images, and the word he owns helps him make generalizations. When a child comes to school, he basically thinks based on specific images. But a complete and deep study of the program material contributes to the development of verbal-logical thinking. Logical thinking is the highest stage of a child's mental development, it goes a long way.

When a child enters school, significant changes take place in his life, educational activities are formed. On the basis of educational activity, the basic psychological neoplasms of the younger schoolchild are developed. Thinking becomes the dominant function. The ability to think logically, to carry out inferences without visual support, to compare judgments according to certain rules is a necessary condition for the successful assimilation of educational material in mathematics lessons. About a child who has a well-developed logical thinking, they say that he thinks thoroughly, discusses disciplinedly. Such a student, as a rule, does not make mistakes in his reasoning and conclusions. The process of developing logical thinking is quite lengthy. Therefore, it should begin from the first years of a child's education at school.

Cognitive activity of people is carried out using mental operations: comparison, analysis, synthesis, abstraction, generalization and concretization.

**Comparison** is the juxtaposition of objects and phenomena in order to find similarities and differences between them.

**Analysis** is the mental division of an object or phenomenon into its constituent parts, the isolation of individual parts, signs and properties in it.

**Synthesis** is the mental combination of individual elements, parts, and attributes into a single whole.

Analysis and synthesis are inextricably linked, are in unity with each other in the process of

cognition. Analysis and synthesis are the most important mental operations.

**Abstraction** is the mental highlighting of essential properties and attributes of objects or phenomena while simultaneously abstracting from the nonessential. Abstraction is at the heart of generalization.

**Generalization** is the mental unification of objects and phenomena into groups according to those general and essential characteristics that stand out in the process of abstraction. The process of concretization is opposite to the processes of abstraction and generalization.

**Concretization** is a mental transition from the general to the singular, which corresponds to this general. To concretize in educational activity means to give an example.

In elementary school, students must master such elements of logical actions as: comparison, classification, highlighting the characteristics of objects, defining a familiar concept through genus and species difference, making simple inferences based on these premises. Therefore, it is advisable to start learning logical actions with the formation of the corresponding elementary skills, gradually complicating the tasks.

The assimilation of knowledge is a big and hard work. It requires students to maximize, prolonged and strenuous efforts, constant mobilization of will and attention. Every day of children's lives is dear, starting from birth, and even more so, time should not be lost in the first school years, which are the most important period in the development and formation of a person. At this time, the development of logical thinking acts as the most important factor ensuring the effectiveness of its further education at school, success in professional training and life.

Well-developed logical thinking warns against mistakes in practice. This quality develops mainly in the process of studying mathematics and is, in my opinion, the main task of mathematics lessons. In mathematics, the student can most fully see the demonstration of almost all the basic laws of elementary logic. The quality of students' knowledge depends on the development of thinking.

Discovery, research, experiment are the basis of the educational process. The idea is to provide students with the opportunity to experience for themselves what any researcher who has to answer the questions posed is experiencing, even before students receive specific knowledge.

Considering the development of my students, I drew attention to the fact that learning puts thinking at the center of the child's consciousness.

The development of logical thinking in junior schoolchildren is one of the most important areas of student learning. The importance of this process is



indicated by curricula and methodological literature. The urgency of the problem of the development of thinking is explained by the fact that the success of any activity depends in many respects on the characteristics of the development of thinking. It is at the primary school age, as special studies show, that logical thinking should develop quite intensively. Thinking plays a huge role in cognition. It expands the boundaries of knowledge, makes it possible to go beyond the limits of direct experience of sensations and perception. Thinking makes it possible to know and judge what a person does not directly observe, does not perceive.

Unfortunately, in the middle grades, mathematics teachers are faced with the problem of unformed students' ability to analyze, concretize, generalize, plan, and draw conclusions. The question arises, how can we improve the mental activity of primary school students in mathematics lessons, make their minds more flexible, teach them to think what means to use.

Based on this problem, I believe that the development of logical thinking in mathematics lessons in elementary grades is relevant and is determined by the social order of society for a creative person capable of mastering, transforming and creating new ways of organizing their activities.

In elementary school, students must master such elements of logical actions as: comparison, classification, highlighting the attributes of objects, defining a familiar concept through genus and species difference, making simple inferences based on these premises.

A first-grader has visual-figurative thinking, his analytical skills are elementary, the content of generalizations and concepts includes only external and often insignificant signs, therefore it is advisable to start learning logical actions with the formation of the corresponding elementary skills, gradually complicating the tasks. With the help of exercises, the knowledge of children is not only consolidated, but also clarified, the skills of independent work are formed, and the skills of mental activity are strengthened. Children constantly have to deal with analysis, comparison, make up phrases and sentences, abstract and generalize. This ensures the simultaneous development of a number of the most important intellectual qualities of the child: attention, memory, various types of thinking, speech, observation.

Thus, in the process of forming the logical thinking of children of 7-10 years old, perhaps the most important thing is to teach children to make, even if small, their own discoveries. A student should already in the elementary grades solve problems that required him not to simply act by analogy (copying the teacher's actions), but would conceal an opportunity for a "mental breakthrough". It is not so

much the finished result that is useful, but the process of solving itself with its hypotheses, mistakes, comparisons of various ideas, assessments and discoveries, which, ultimately, can lead to personal victories in the development of the mind.

In my lessons, I always find a moment when I can offer students joke tasks, smart tasks, tasks in verse. It helps to make the learning process more interesting, and contributes to the development of logic.

For the development of mathematical abilities and the development of thinking, logical problems are very useful and interesting. Logical tasks - tasks that require the ability to conduct evidence-based reasoning, analyze. It allows you to organize interesting situations in the classroom that contribute to better assimilation of program material and the development of logical thinking.

Experience shows that the majority of students have common sense ahead of mathematics training. This determines the high interest of schoolchildren in solving such problems. They differ from ordinary ones in that they do not require calculations, but are solved using reasoning. We can say that a logical task is special information that not only needs to be worked out in accordance with a given condition, but also wants to be done.

To implement the plan, I developed a system of using a variety of methods, techniques, tasks aimed at developing the logical thinking of students, testing students for the formation of their logical thinking. After I was convinced that the students are able to think logically while completing math tasks, I began to carry out control and correction activities for completing math tasks.

Experimenting my scientific work in practice, I noticed that almost all students eventually became more active in the classroom, and logical thinking was also highly developed. We have learned to solve logical problems in a short time.

## CONCLUSION

Since mathematics provides real prerequisites for the development of thinking, I decided to make fuller use of these opportunities in the classroom when teaching children. As my experience shows, the lessons of mathematics have a unique developmental effect and provide real prerequisites for the development of logical thinking. I believe that the systematic nature of my work, the forms and methods of development of logical thinking that I have chosen, contribute to the development of the independence of the logic of thinking, which will allow children to build inferences, carry out proofs, statements, draw conclusions, justify their judgments, acquire knowledge, and also more actively use this knowledge in math lessons and in everyday life. The practical significance of the work is that the materials



are used in practice by primary school teachers. Logical thinking is the basis of school education, the key to a successful understanding of technical and humanitarian disciplines. The development of logical thinking as a pedagogical process must be carried out in accordance with the laws of the development of the child's body, in unity and harmony with the intellectual development of the child. The development of logical thinking of students in all lessons is one of the most essential requirements for ensuring the quality of teaching.

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## FORMATION OF A MOTIVATION-VALUE ATTITUDE TO A HEALTHY LIFESTYLE STUDENT YOUTH

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### ABSTRACT

*At the present time, it increased the number of studies aimed at understanding the issues related to the attitude of today's youth to a healthy lifestyle. Moreover, the formation of such behavior should begin from adolescence. After all, it is young people, as the most actively developing social group, who are most susceptible to various kinds of risks and need skills to save and promote health.*

**KEY WORDS:** *healthy lifestyle, health, physical culture, student youth, interests, needs, formation.*

### DISCUSSION

In modern times, due to the acceleration of the pace of social, economic, technological, climatic, environmental and other changes occurring in the world, there is a pattern that leads to the formation of new problems related to the health of the population. A decrease in the functional reserves of the body, self-regulation processes, the birth of weakened offspring and much more is characteristic of the modern generation. In this regard, in our country, the state has determined the main goal in the field of physical culture and sports - the improvement of the nation, the formation of a healthy lifestyle of the population and the harmonious education of a healthy, physically strong generation. The state of health of the younger generation and student youth is of particular concern. The future depends on them the potential of our country. In this regard, the value attitude of young people to their health and the formation of motivation for a healthy lifestyle are relevant today.

In everyday life, we are faced with the fact that most often the need of a young person for health and the actions he takes to strengthen and preserve it do not coincide.

The formation of a healthy lifestyle refers to almost all aspects of human life, from the biological to the emotional and spiritual spheres. The organization of the normal life of student youth entering a new independent adult life depends on the conditions and traditions of the educational institution in which they study. The modern lifestyle

and behavior of students is largely influenced by housing and living conditions, financial opportunities, material wealth, the organization of study and recreation, the regime and quality of food (this especially applies to nonresident students). The interpersonal relationships that develop in the student environment are of great importance. The motives associated with the social environment are expressed in imitation of friends, idols. Motives associated with self-affirmation - the desire to prove the ability to lead a healthy lifestyle, motives associated with a sense of duty and responsibility, or the desire to be an example for someone. The first course of study at the university is characterized by a transition to a new education system, students are aimed at obtaining the knowledge necessary for future professional activities, overloading with educational material. Therefore, the first two courses young people adapt to new conditions, and this time is associated with the loss of physical, mental, and sometimes social health.

At the present time there are a large number of sociological studies revealing the views and knowledge of young people about health and healthy lifestyles, their needs for compliance with the norms of a healthy lifestyle and the reasons why students do not lead a healthy lifestyle. This formulation of the question does not solve the existing problem and its relevance remains today. Analysis of some studies in this area shows about the fact that the majority of our population, especially pupils and students are not generated values related to health and healthy way of





life and what the dynamics of the relationship to these values every year goes down.

Young people, as the most actively developing social group, are most susceptible to various kinds of risks and need knowledge related to the culture of health and the skills of leading a healthy lifestyle in order to save and improve health. Young people do not yet realize the importance of their health for the future and are often prone to underestimate its value. Unfortunately, most of the students studying at different universities do not have the correct knowledge about health, a healthy lifestyle, and have not developed an interest in physical education. Also, the worldview has not been formed, about the close relationship of indicators of preventive culture with other values that determine the influence of the lifestyle, lifestyle on health and the achievement of life goals. Sociological research confirms that young people are more formal about their health. They lack actions aimed at the implementation of a healthy lifestyle, which manifests itself primarily in real behavior. This may be due to the fact that young people do not have a sufficiently versatile view of this problem, focusing their understanding of a healthy lifestyle only on such aspects as proper nutrition and giving up bad habits. A situation often arises when the principles of a healthy lifestyle are imposed on them from the outside and young people do not make them the basis of their behavior. In this regard, it is required to teach students about health aspects, factors posing a health risk, about the role of physical activity for strengthening, maintaining and restoring health, about the essence of hardening and its significance for health, in order to expand their understanding of behavior, which should be aimed at maintaining health and thereby create the basis that will allow young people to really enjoy life without exposing their health to those risks that will negatively affect in the future, reducing their social well-being and the ability to perform their functions throughout their lives.

Formation of motivation for a healthy lifestyle among students requires certain efforts. Since the effect of these efforts is projected for the future and not every student is able to solve this problem on his own, it is necessary to focus the system of higher education on the formation of students' motivational and value attitude to a healthy lifestyle. The educational process in higher education should be saturated with health-preserving values and aimed at fostering a culture of health among young people. The lack of volitional efforts to maintain a healthy lifestyle is aggravated by the peculiarities of life - it is a sedentary lifestyle (elevator, transport, etc.), modern media are modern technologies (Internet, video, telephone, etc.), which modern young people not only do not offer resistance, but

actively spend the maximum of their time and money on them.

In this regard, new effective forms of the formation of a motivational-value attitude to health and a healthy lifestyle for our younger generation and student youth, who are the future of our country .

In practice, it turns out that the implementation of the factors that determine the behavior and lifestyle of students, which are an integral part of a healthy lifestyle, is extremely difficult. There are many reasons, but the most important is the lack of motivation for a positive attitude towards one's health. The fact is that the needs underlying the behavior of student youth, health is far from being in the first place. This is due to the low culture of society and student personality. It follows that the focus on the priority of the value of health the needs of young people are absent, and the formation of health is, first of all, the problem of every person. Thus, the level of motivation for a healthy lifestyle does not fully correspond to the modern realities of life. But student youth is not only a productive force, but also the most active part of society, which will be entrusted with the further development of the Russian state. Therefore, the educational and upbringing process in higher educational institutions is entrusted with a great responsibility for the formation in the young generation of high demands on themselves, on their health, striving for a healthy lifestyle. Further professional and social adaptation of young people depends on the degree of success in solving this problem of higher education.

Motivation for a healthy lifestyle is external and internal motives that induce actions to strengthen and maintain health, as well as conditions that act as an accompanying health-preserving behavior. The motivation for a healthy lifestyle changes depending on age, health status, social status and other factors.

To form a value-based attitude towards one's health among students, one must begin with raising the level of health culture, forming active self-development and self-sufficiency in health. The upbringing and educational process in higher education institutions should be organized, with a focus on preserving and strengthening the health of students, means and methods of recreational activities should be aimed at the conscious development and self-development of a healthy student's personality. Thus, the necessary conditions are created for self-knowledge of oneself and one's health, self-improvement and self-realization.

The purpose of physical education in higher educational institutions is the formation of physical culture of the student's personality. To achieve it, the teacher must necessarily solve the problems of a positive and valuable attitude of students to physical culture, attitudes towards a healthy lifestyle, physical



self-improvement and self-education, the need for regular exercise and sports. Physical culture plays a huge role in a healthy lifestyle. In the organization of active leisure of student youth, a wide range of various physical culture and recreational activities, contributing to the formation of a habit of healthy outdoor activities. A variety of physical exercises are used to combat physical inactivity. The possibility of complex use of all means of physical education, such as the natural forces of nature, hygienic factors and physical exercises, provide their high health-improving and hardening effect.

Physical culture classes are a structural element in the system of spiritual and physical development of student youth, they provide an opportunity to show social activity and be expressed in the purposeful development of consciousness and behavior of a young person. Therefore, as an initial step in the formation of a healthy lifestyle, it is necessary to consider the process of upbringing an adequate attitude to one's own health and physical education.

Physical culture is a type of culture that is a specific process of human activity and the results of this activity, as well as ways of physical improvement of people to fulfill their labor, social and biological duties. Therefore, we consider it possible to consider the formation of a healthy lifestyle among students in the process of physical education in higher educational institutions.

The formation of a person's physical culture can be judged by how and in what specific form students' personal attitudes towards physical culture and its values are manifested. Students who are convinced of the value and the need to use physical culture for the development and realization of personality capabilities, inherent in the thoroughness of knowledge of physical culture, the student must possess the skills and abilities of physical self-improvement, use the means of physical culture for rehabilitation with high neuro-emotional stress and after illness, must have skills in organizing and leading a healthy lifestyle. Young people should have a creative initiative and use modern forms of physical exercise for active recreation, leisure and entertainment in family life, in professional activities.

It is necessary to carry out the promotion of a healthy lifestyle by the mass media in the educational environment of higher education. Measures to prevent alcohol consumption, five tobacco, drug use among students, should be a systematic intervention, and be an integral part of long-term, educational programs. Students must have information about bad habits that destroy human health. Recently, the problem of preserving the mental health of the younger generation has become increasingly important. In this regard, young people need to be

armed with knowledge about the lifestyle and the role of the family in raising a healthy child, what harmful habits of parents affect the health of children, how the lifestyle of the family affects the physical development and health of the child, about the mental health of the family, features and ways of preserving it. ...

After graduating from the university, young specialists show independent initiative in many spheres of life. Therefore, it is appropriate to assert that physical culture acts as an integral part of the general and professional culture of a young person, and as the most important qualitative characteristic of his personal professional growth.

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# TEACHING PUPILS TO SOLVE INGENUITY MATHEMATICAL TASKS

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## ABSTRACT

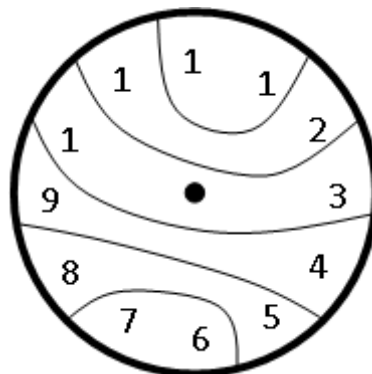
*Ingenuity learning tasks are an essential tool in the formation of pupils' independent thinking. By teaching pupils to solve creative tasks, they enhance logical thinking and creative activity. Their interest in mathematics will grow. They enjoy their work by completing homework assignments independently. This article covers intriguing square problems in the form of similar assignments 3x3, 4x4, 5x5.*

**KEYWORDS:** *ingenuity, independent thinking, logical thinking, creative activity, interesting square, interesting triangle.*

## I. INTRODUCTION

Teaching students to think independently is one of the most important tasks for any primary school teacher. Reforms to bring the educational process to a new level of quality in the country and development of material and technical base have developed a normative framework for the enhancement of spiritual and moral qualities based on national and universal values, the need for

students to acquire knowledge from primary education. "The Strategy of Actions" for the further development of the Republic of Uzbekistan prioritizes the issue of "educating physically healthy, mentally and intellectually developed, independent-minded, loyal to the Motherland, deep-rooted democratic reforms and increasing their social activity in the development of civil society."



Inguinity tasks are of overriding importance in terms of formulating pupils' logical thinking. It is gratifying to see the inclusion of ingenuity assignments in math textbooks published in recent years. In particular, in the 3rd grade mathematics

textbook published in 2012 (Authors S.Burhanov, O.Khudoyorov, K.Norkulova), it is planned to consider such assignments in the form of puzzles for gifted students in almost each and every lesson. In practice, an overwhelming majority of students are



less enthusiastic about completing such assignments; as such mathematic puzzles require in-depth observation and the application of theoretical knowledge.

**II. ANALYSIS**

We describe below the methodology for performing some of these tasks.

Assignment 1. Divide the surface of the clock into 6 parts so that the sum of the numbers in each part must be the same.

This task requires the student to think logically. Numbers from 1 to 12 should be divided into 6 groups so that the sum of the numbers in each section should be equal to each other. It is crystal-clear that it is possible to determine the sum of numbers from 1 to 12,  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 = 78$ . 78 divided by 6, we get  $78 : 6 = 13$ . So these options are  $12 + 1 = 11 + 2 = 10 + 3 = 9 + 4 = 8 + 5 = 7 + 6$

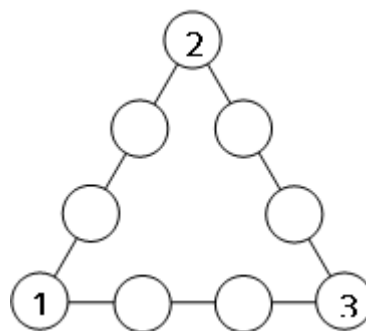
Assignment 2. If 3 out of 9 sticks are divided into 3 pieces each, what is the total number of sticks?



This task involves finding the total number of objects when any 3 of the 9 objects consist of 3 parts each. It is advisable to present it as an exhibition as follows. Its solution may vary.

- 1 - method  $3 \cdot 3 + 3 + 3 = 15$
- 2 - method  $3 \cdot 5 = 15$
- 3 - method  $3 \cdot 3 + 3 \cdot 2 = 15$

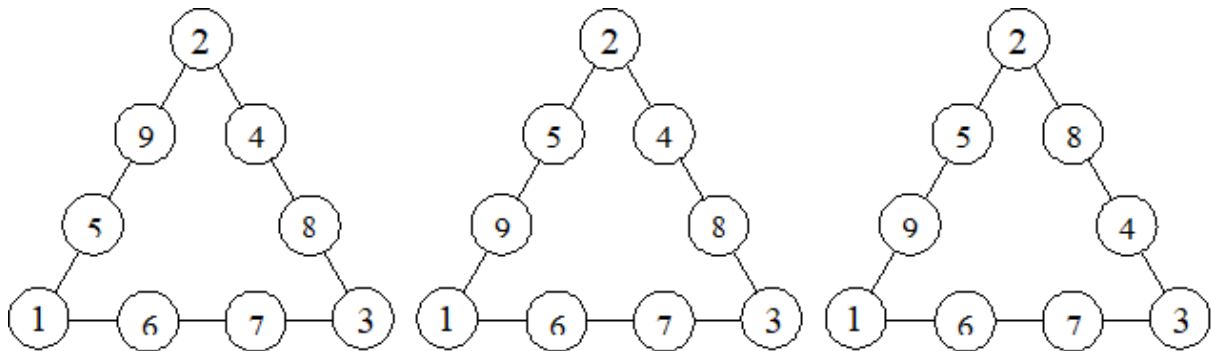
Assignment 3. Place 6 numbers from 4 to 9 in empty circles so that the sum of each row is 17.



In this creative task, you have to choose 6 numbers so that the sum of the results is 17 in a row. The teacher can prepare the assignment on separate sheets and assign it to the pupils (pairs) sitting at each desk as group work - independent work.

Students will be interested in this task. Students will find a variety of solutions.

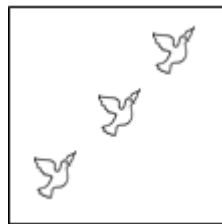
Properly solved options will be referred to the student discussion.



Given the number of sorted sets made up of 2 out of 6 elements, there will be 15 different solution options for the above task. The most memorable of these options is Figure 3, where the numbers 1, 2, and 3 at the ends of the triangle are followed by the corresponding numbers 9, 8, and 7, which complement them by 10. As a result, there is 1 empty circle on the sides of the triangle. To find them, subtract the sum of the numbers in the row from 17. These numbers are 5, 6, 7, respectively. This task is called “Interesting Triangle”. Teaching pupils to

complete tasks such as “Interesting Triangle” and “Interesting Square” will increase their ingenuity and develop their logical thinking. In particular, the creation of such assignments by pupils independently requires creativity and independent thinking

Assignment 4. A flock of birds is flying, one bird in front, two birds behind it; one bird in the back, two birds in front of him; one bird in the middle, one bird in front of him, one bird is behind him. How many birds are there in the flock?



This logical question requires the student to think logically. Some students look at a logical problem as an arithmetic operation on a given number, divide the problem into three parts, solve the problems for each part, and answer that there are a total of 9 birds. In this regard, the following considerations can be made: Since there is one bird in front and two birds behind it, in the first part of the problem it is considered as  $1 + 2 = 3$  birds. Similarly, in the part of the problem where one bird in the back is two birds in front of it, the answer is  $1 + 2 = 3$  birds. For the

third part, the answer is  $1 + 1 + 1 = 3$  birds. So they find a general answer to the problem as  $3 + 3 + 3 = 9$  birds. However, since the problem is logical, it is conducive to provide the following diagram, which describes the condition of the problem. As can be seen from the diagram, the solution to the condition given in the text of the given problem is a flock of three birds.

Assignment 5. Arrange the numbers 1 through 9 in square squares so that the sum of the numbers on each row and column of the square is 15.

4		

This “interesting squares” task requires the student to think independently. The number 4 is given in one of the squares in this assignment given in the textbook. The student must place the remaining 8 numbers so that the sum of the numbers on the rows, columns,

and even diagonals is 15. It can be seen that students have found solutions to different options. These options are created by rotating the square by 5, or by rotating the horizontal and vertical columns.





4	3	8
9	5	1
2	7	6

When placing numbers from 1 to 9 in a 3x3 square, the solution to this problem, which is the sum of 15 columns, rows, and diagonals, is as follows: first write the number 5 in the middle of the square, then in the corner cells of the square, the sum of the diagonals 15 is written so that the even numbers 4, 8, 6, 2 are written in such a way that 4 and 6, and 8 and 2 are on the same diagonal. Then the numbers 1, 3, 7, 9 are placed so that 4 and 6, and 8 and 2 be on the same diagonal. Then the numbers 1, 3, 7, 9 are placed so that the sum of the columns and rows is 15. Here's another way to fill in this "Interesting Square". Let's write the numbers from 1 to 9 in order, tag to tag. Draw a line parallel to each other by tilting a sheet of paper (turning it left and right at the bottom). The lines drawn are 3x3 squares.

The numbers 2, 4, 5, 6, 8 in the same square remain in the square, we place the numbers 9, 1, 7, 3

1	14	15	4
12	7	6	9
8	11	10	5
13	2	3	16

outside the square in such a way that the resulting square is the number of columns, rows and diagonals. To do this, move the number 9 to an empty cell between 2 and 4, and 1 to an empty cell between 6 and 8. Similarly, the number 3 moves to the empty cell between the numbers 4 and 8, and the number 7 moves to the empty cell between the numbers 2 and 6. The result is an "interesting square".

Grade 4 students can be encouraged to find a "4x4" "Interesting Square". Numbers 1 to 16 should be placed in squares of 4 squares with sides so that when you add the numbers along the row, column, and diagonal, the result is the same 34. This task is a very difficult task and requires creative activity from the student. We found it necessary to give a method of deriving one of the solution options.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

The first step is to write the numbers from 1 to 16 in the "4x4" squares. The second step is to alternate the numbers 5 in row 2 and 12 in row 3. The number 8 in row 2 is replaced by the number 9 in row 3. In the third step, the numbers 2 and 3 in row 1 are replaced

by the numbers 14 and 15 in row 4, respectively. In the fourth step, the numbers 6 and 10 in column 2 are replaced by the numbers 7 and 11 in column 3, respectively, to form an "interesting square".

	2	3	
5			8
9			12
	14	15	

16			13
	11	10	
	7	6	
4			1

16	2	3	13
5	11	10	8
9	7	6	12
4	14	15	1

A more interesting and memorable version of creating a 4-order "Fun Square" for the reader is also found in the math literature. We prepare two 16-cell 4-order squares.

Let's draw diagonals of square 1. From the numbers 1 to 16, we write the numbers corresponding to the empty cells that do not intersect diagonally, these numbers are 2, 3, 5, 8, 9, 12, 14, 15.



In square 2, we write the numbers that are not written in descending order from 16 in the cells where the diagonals intersect. These numbers are 16, 13, 11, 10, 7, 6, 4, 1.

Now let's put these two squares on top of each other and fill in the numbers in the cells. A "wonderful square" is created.

1	14
12	7

15	4
6	9

8	11
13	2

10	5
3	16

7	6
11	10

Thirdly, the sum of two adjacent numbers in a row is 15 or 19. These alternate in rows. Fourthly, the sum of the numbers 12, 14, 5, and 3 in the square is equal to the sum of the numbers 15, 9, 8, and 2 in the square. When the numbers in this square are connected by lines, two equilateral rectangles are formed. The sum of the numbers at its ends is equal to 34:

$$12 + 14 + 5 + 3 = 15 + 9 + 8 + 2 = 34$$

1	15	10	8
14	4	5	11
7	9	16	2
12	6	3	13

1	15	6	12
14	4	9	7
11	5	16	2
8	10	3	13

1	15	4	14
12	4	9	7
13	3	16	2
8	10	5	11

Task. Place the numbers 1 to 25 in a square of order 5 so that the sum of the numbers on the columns, rows, and diagonals is equal. This task is more difficult, but it will be easier to do it by quickly learning how to create an "interesting square". It's like doing a 3x3 "Interesting Square". Numbers from 1 to 25 are written in five orders. The sheet of paper is divided into squares using diagonal lines. The lines drawn are 5x5 squares.

The numbers 11, 7, 3, 12, 8, 17, 13, 9, 18, 14, 23, 19, 15 located in the same square remain in the square. A number outside the square is written in the empty cell between the numbers 13 and 19 in column 3, and the number 25 is written in the empty cell between the numbers 7 and 13 in the same column. The number five is written in the empty cell between the numbers 17 and 13 in line 3, and the number 21 is written in the empty cell between the numbers 13 and 9 in the same line. The numbers 6 and 2 and 24 and 20, respectively, are written in empty cells that are not adjacent to the column in

This "Interesting Square" is also called the "Wonderful Square". This is due to the fact that it has its own characteristics.

Firstly, the sum of the numbers on the columns, rows, and diagonals is 34. Secondly, the sum of the 2x2 squares in the four corners of the square and the 2x2 squares in the center of the square is 34.

These squares are:

Fifthly, when the rows and columns in a square are replaced by the first and fourth, and the second and third rows or columns, respectively, the "Wonderful Square" property is retained. Only the sum of the numbers on the diagonal may not be 34.

Here are four "Wonderful Squares" of order. Gifted elementary school students can be encouraged to create an interesting 5x5 square of the fifth order.

which these numbers are located. Numbers 4 and 10 and 16 and 22 are placed according to the same rule.

### III. CONCLUSION

By teaching pupils to tackle mathematical creative tasks, they develop logical thinking and creative activity. This, definitely, kindles their interest toward mathematics. They will be mesmerized by completing homework assignments independently.

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# LEFT-HANDED CHILDREN AND THE LEARNING PROCESS

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## ABSTRACT

*The article gives a brief overview of theories about the causes of left-handedness. The paper considers the work of the left and right hemispheres of the brain, the mechanisms of their interaction. Special attention is paid to speech, as the most complex functions of the brain. It is emphasized that in the educational process of left-handedness, children by teachers and parents they should take into account the specific features of left-handedness, because it affects the success of their learning and the quality of social functioning.*

**KEYWORDS:** *left-handedness, inter-hemispheric interaction, asymmetry, speech process, learning.*

## INTRODUCTION

Left-handers, like those who differed from the majority in some individual characteristics, always caused surprise and attracted increased interest. As a rule, the attitude towards left-handers was wary, and at times sharply negative. This attitude has manifested itself in many cultures and languages. For example, in the Uzbek language there are still numerous examples of this kind: "left goods"-goods sold to the left (illegally), or fake, forged goods. In the same row: "left income", "left money". In English, the word "left-handed" has other meanings – "sinister", "hypocritical", "clumsy", "illegal". There are similar examples in other languages.

There are many interesting hypotheses about the origin of right-handedness and left-handedness, the listing of which would require writing a separate book. It has now been proven that it was not working articulate speech that caused the asymmetry. It arose in the process of evolution as an important adaptive trait even among our animal ancestors, which, ultimately, allowed the human race to take a leading place in the world of animals existing on earth.

In different eras, the number of left-handers was apparently constant and amounted to about 10 - 12 % of the population. There are about twice as many ambidextrous, that is, people who are equally good at both the left and right hand. In men, left-handedness occurs 1.5–2 times more often than in women, which is caused by the lesser specialization of the hemispheres in women and the easier ability to

retrain at an early age. With a variety of brain lesions in one of the hemispheres in left-handers, there are disorders that are never noted in right-handers. Such violations include mirror writing, that is, all letters are written on the contrary, in a mirror image, mirror reading, mirror perception, the phenomenon of expanding the space of vision, and the phenomenon of anticipation, that is, a clear description of events that have not yet happened and which occur later in time. Many of them show increased skin sensitivity. For example, they can detect the color of objects with their eyes closed and sometimes detect their image on paper. Their psyche is more vulnerable, mood swings are more noticeable, they often experience unaccountable anxiety and stress. Lefties, as a rule, have a more vivid imagination, artistic inclinations, the ability to reincarnate, a kind of vision of the world around them. No wonder the sculptors Michelangelo, Leonardo da Vinci, the painter Picasso, the artist Charlie Chaplin and many other representatives of art were left-handed.

Today there is a strong opinion that left-handers are unhappy people, since "the whole world" is against them. Indeed, if you take a closer look, it is easy to see that everything in our life is adapted for right-handed people. And this is not surprising-but: left-handed is still in the world's population constitute, according to various estimates, only 8-12 %.

In our time, the phenomenon of left-handedness is being actively studied. The results



obtained make it possible to change the stereotyped perception of left-handers, which makes it possible to develop methods of teaching them. If in the past they tried to retrain left-handers at school, to “adjust” them to the right-handed class (and the teacher himself), today teachers already know that this is extremely harmful. They understand that it is necessary to take an individual approach to left-handed children, using other teaching methods that are more natural for them and therefore more effective.

## METHODOLOGY

### Subjects and application to practical class

There is still no consensus on the cause of left-handedness. The most developed and scientifically substantiated theory is the functional asymmetry of the cerebral hemispheres. We will consider these theoretical foundations more in detail, since we consider them leading in this phenomenon.

Let's start with human speech as the most delicate, fragile, and complex function of the brain. Well-developed speech is just that feature of a person that sharply distinguishes him from the animal world. The mechanisms of speech, their representation in brain structures have always been the subject of keen interest of researchers. However, it should be noted that systematic observations on this issue have been conducted not as long as one could imagine: only since the 30s. XIX century. It was at this time, more precisely in 1836, that the French physician M. Dax made a report at the medical society, in which he summarized the results of observations of 40 patients who suffered from speech loss due to cerebral hemorrhages. In all patients, the left hemisphere was affected, which, in addition to speech disorders, caused partial paralysis of the right extremities. Here the anatomical structure of the nervous system should be recalled. The left half of the brain controls the work of the right half of the body and the right half of the work of the left half of the body. This feature is caused by the intersection of nerve pathways leaving the brain, at the level of its stem structures. Therefore, paralysis of the right limbs indicates damage to the left hemisphere and vice versa. From his observations, Dax rightly concluded that speech is controlled by the left hemisphere.

The most complete evidence for the asymmetry of the hemispheres was obtained by the French physician P. Broca. He, like Dax, observed patients with loss of speech, and always found in them concomitant paralysis of the eight limbs. The area of the brain, the defeat of which causes loss of speech-aphasia, in medical terminology has become firmly

established in science under the name of “Broca's zone”. It is located in the left hemisphere in the lower third of the frontal lobe near the anterior central gyrus. In further research, it was noticed that aphasia can exist in several forms. What Broca observed is now called expressive aphasia and is manifested in the violation of the patient's own speech. At the same time, understanding of someone else's speech is preserved. Such a patient either does not speak at all, or speaks with great difficulty, with hesitation and long pauses, without intonation, and with a violation of the grammatical structure of the phrase. There is an accompanying writing disorder, but the comprehension of written language is preserved.

Another type of speech disorder, mainly associated with understanding speech, was first described in 1874 by the German researcher K. Wernicke, who, like Brock, associated this disorder with a well-defined area of the brain. This area is now called the “Wernicke zone”. It is also located in the left hemisphere in the posterior portion of the first temporal gyrus between the primary auditory cortex, the portion of the cerebral cortex, which receives signals from the auditory organs, and the angular gyrus, in which visual signals are converted into auditory. The defeat of Wernicke's zone leads to receptive aphasia: the patient experiences great difficulty in understanding speech, but to a much lesser extent loses the ability to speak. At the same time, the fluency of speech and rhythmic stress are preserved. In addition, in contrast to patients with expressive aphasia, patients with receptive aphasia do not notice defects in their speech and get angry when they are not understood by the people around them.

Even in our time, after so many years and receiving numerous new data, Wernicke's scheme is considered correct. According to him, understanding speech and composing phrases occur in the zone named after him. From there, the information is transmitted to Broca's zone, which details the program and gives commands to the corresponding muscles to form the sounds of the voice. The implementation of the motor response, i.e., the movement of the lips and tongue, occurs through the motor fields of the anterior central gyrus. The heard word enters the primary auditory cortex located near Wernicke's zone, where the auditory signal is directly perceived at the speech level. With the visual perception of a word (reading), it first enters the visual cortex, located in the occipital regions of the brain. From there, information enters the angular gyrus, where it is translated into a form accessible to Wernicke's zone, i.e., into the code of auditory receptors.

All the processes described above occur exclusively in the left hemisphere of the brain. What about the right hemisphere? What are its





functions? If the left hemisphere operates with words, it means that it operates with thoughts and, logically, is the leading or, as they say, dominant in the work of the brain as a whole. For a long time, it was this point of view on the work of the hemispheres that prevailed among scientists. However, the last 40-60 years have made significant adjustments to these views.

In particular, it was found that, contrary to popular belief, only 15% of left-handed people have speech centers in the right hemisphere. In 70% of left-handed people, speech functions, like in right-handers, are performed by the left hemisphere, and in 15%, speech centers are presented in both the left and right hemispheres of the brain.

A significant difference in speech specialization of the hemispheres in men and women was shown. In males, the specialization of the hemispheres is formed up to 5-7 years, in females - not earlier than 13, and sometimes it does not occur at all. In women, even during the period of intrauterine development, the accessory speech center, located next to Wernicke's zone and subsequently participating in the formation of syllabic speech, is duplicated, passing from the left hemisphere to the right. Thanks to this feature, girls begin to speak earlier and are more capable of learning languages than boys. The same feature is observed in left-handed men. Naturally, the presence of an additional speech center in the right hemisphere somewhat reduces his ability for imaginative thinking and thought processes based on it. In particular, the ability of foresight, intuition, etc. A broader representation of speech functions leads to the preferred use of verbal analytical strategies for solving non-verbal problems. This can significantly slow down the speed of thought processes since the amount of information processed with the figurative decision strategy characteristic of the right hemisphere turns out to be  $10^6$  times greater per unit time than with the verbal one.

What conclusions can be drawn on the basis of all the data learned using various methods in healthy and sick people over the past decades? Has the conclusion about the dominance of the left hemisphere in right-handers been confirmed? No, it seems that interhemispheric relationships are much more flexible than previously thought. Indeed, speech functions are under the jurisdiction of the left hemisphere, but not as fully as expected. The fact that the right hemisphere is involved in the processing of signals in the brain, including and speech. Primary parametric processing includes the distribution of signals by tonality, loudness and some other physical characteristics, without the isolation of which further circulation of the signal in the brain is impossible. In case of damage to the right hemisphere, the left hemisphere

can take over these functions, but it will perform them much slower and less efficiently, and in difficult cases it may not be able to cope at all. This is similar to when, instead of a professional master, a beginner starts to do the job. No skills, no dexterity, and the tool is not the right one. Therefore, injuries to the right hemisphere also affect speech functions in right-handers, although less noticeably than injuries to the left hemisphere.

In our studies, for example, it was found that 80% of children have stuttering visible EEG (startup image recording, recording using the electrical device brain biotoki) irregularities in the parietal temporal area of the right cerebral hemisphere. In addition to ineffective performance of uncharacteristic functions, the left hemisphere as a result of additional work is overloaded and begins to perform worse in its immediate activity, which, apparently, causes stuttering.

In addition to complex interactions, there are a number of functional features inherent in each hemisphere. One of the most important of these features is undoubtedly the way information is processed and the associated thought processes. The left hemisphere is characterized by logical processing, expressed in sign form, and the processing method itself is very similar, apparently, to the principles laid down in modern electronic computers (ECM). Sign information is fixed in spatial and temporal coordinates, and therefore is easily perceived. But it is precisely such a feature that is completely uncharacteristic of the right hemisphere, which operates with images and resembles an analog computer more, albeit with even greater stretch in comparison than a computer for the left hemisphere. The mental processes of image formation turn out to be fundamentally unconscious, since their most important feature is the impossibility of ordering information in space-time coordinates. Probably, a processing method based on holographic principles is used here.

The unconscious has always seemed strange, frightening to a person. In this regard, the observations of the psychologist L.V. Zankov are very interesting, who noticed that the right half-space associated with the left hemisphere of the brain is associated with truth, a bright world, kindness and clarity. The left half-space is endowed with opposite properties. Analysis of the most ancient and later monuments of painting shows a reliable predominance of the left-right direction of movement of the depicted objects. Even an examination of the monuments of Neolithic art (rock art) shows that the depicted animals move from left to right and are represented by their right profile. Psychologically, this coincides with the process of transformation into a real sign of the stream of images from the



unconscious right hemisphere. "By depicting animals, the artist thereby called them out of nothingness, the other world; the act of creativity was a simultaneous act of creation".

Summing up all the data available to date on the work of the cerebral hemispheres, it can be noted that the most characteristic feature is not dominance, but interaction based not only on some duplication of functions, their complementarity and, but also some opposition.

We now turn to the question of some other reasons for left-handedness. The most common is the so-called genetic left-handedness. Until now, the exact transmission mechanisms of this trait are not known, but it has been reliably established that left-handedness is approximately 10 times more common in families in which at least one of the parents is left-handed. Genetic left-handers may not have any developmental disorders, then this is considered simply an individual identity, a variant of normal development.

Allocate the so-called "compensatory left-handedness" associated with damage to the brain of any genesis, more often, as mentioned above, its left hemisphere. Since the activity of the right hand is regulated by the left hemisphere, when it is damaged at an early stage of the child's development, the right hemisphere takes over the corresponding functions: the left hand becomes the leading one, more active when performing everyday activities, including writing.

In children and found "hidden left-handedness." Here we are talking about changing the dominant hemisphere. Above, we talked about that critical period when the main functions of the brain are evenly distributed between the two hemispheres, after which their specialization occurs (in boys, the specialization of the hemispheres is formed up to 5-7 years, in girls-not earlier than 13). At this critical juncture, "hidden left-handers" begin to dominate the right hemisphere, and they are often called "hidden" or "psychic" left-handers, implying that the signs of their left-handedness are not associated with the dominance of the left hand in a "pure" form.

It should also be mentioned "forced left-handedness", when the choice of the leading hand is associated with an injury to the right hand. This left-handedness can also be the result of imitation of someone from significant people (relatives, friends, etc.).

Left-handedness. Here we are talking about atypical mental development, when in the critical period the dominant hemisphere in relation to the hand is not formed in children. In this case, approximately equal use of both hands occurs. It also happens that a child eats with his right hand and writes with his left.

## CONCLUSIONS

To ensure that a child is left-handed and successful in learning, both educators and parents need to know about the reasons for his left-handedness. They may be different, and because of them, the development of certain individual qualities may depend on the child.

Left-handedness gives some advantage in sports that require quick reactions - boxing, wrestling, tennis, etc. In right-handed people, the image is perceived by the right hemisphere, and motor commands go from the left hemisphere to the right hand. In a left-handed person, everything happens in one hemisphere, so the speed of the movement is higher. From all that has been said, it follows that a left-hander cannot be regarded as "the opposite right-handed." This is a peculiar and original device of the central nervous system.

If there is reason to believe that the child's left-handedness is caused by violations of the specialization of the cerebral hemispheres, then it is necessary to turn to specialists (psychologist, neuropsychologist, neurophysiologist) who can conduct special sessions to correct interhemispheric connections. Often, even after a small number of lessons, the child begins to write and draw with his right hand without any compulsion.

For a more accurate determination of the individual characteristics of left-handed children, it is necessary to take into account the entire set of human asymmetries. Therefore, in modern psychology, the term "individual profile of laterality of the organization of functions" (PLO) is used, which reveals a certain combination of sensory and motor asymmetry. To determine the PLO, and with it - the identification of a possible left-handedness, the technique, koto-paradise consists of three groups of tests: to determine the dominant hand, leading the ear and lead the eye (sometimes further define and lead the foot, although this information is not input IT analysis the resulting profile.

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## FORMATION OF READING SKILLS IN JUNIOR SCHOOL CHILDREN

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### INTRODUCTION

Interest in reading arises when the reader is fluent in conscious reading and has developed educational and cognitive motives for reading.

A condition for mastering reading activity is also knowledge of the methods of reading, methods of semantic processing of text, possession of certain skills and abilities that should not develop spontaneously.

I believe that one of the options for improving the quality of reading in primary school is the purposeful management of learning to read.

The teacher puts a lot of work into teaching children to read. But it's no secret that already first-graders, having just learned to read, immediately lose interest in reading and consider the reading lesson to be one of the least favorite ones.

The main technique that ensures the development of reading skills is repeated reference to the text, re-reading it each time with a new task. It is then that the child discovers something new in him, which he did not notice at the first reading.

The goal of the teacher: to create favorable conditions for working on the content, analysis and assimilation of read on the basis of a variety of forms, methods and types of work, to try to subordinate reading lessons to the lessons of the Russian language, the world, speech development, pay more attention to vocabulary work, more often use various creative tasks, combine collective and individual work in the lesson, teach to work with the text. From my practice, I want to share how I systematized the types of work on the text, writing them down in a separate notebook under the appropriate number. When writing a lesson plan, there is no need to write down in detail the assignment that will be offered to the students. It is often sufficient to indicate only the number of the type of work in the lesson plan.

Types of jobs:

1. Reading the entire text (as instructed by the teacher)

2. Reading, division into parts. Planning.

3. Reading according to a ready-made plan.

4. Reading, retelling after reading.

5. The student reading a new text prepared in advance at home.

6. Abbreviated reading, (children remove sentences or words that can be omitted.) Prepare for a concise retelling.

7. Reading in chain according to the proposal.

8. Reading chain by paragraph.

9. Reading in an undertone.

10. Reading, finding a passage for a picture.

11. Reading, answering questions.

12. Finding a passage in the text that will help answer the question.

13. Reading the most beautiful place in a story or poem.

14. Finding the entire sentence at a given beginning or end of a sentence (later, the sentence can be replaced with a logically complete passage.)

15. Reading "above the norm" (basically this is homework, when a student, knowing well his norm of reading an unfamiliar text, through training at home, types 10-15 words, for example: the norm for reading an unfamiliar text is 40 words, which means that the child should read at a rate of 50-55 words per minute).

16. Reading a passage to which you can pick up a proverb.

17. Finding a proposal with which you can correct the mistake.

18. Finding a sentence or passage that reflects the main idea of the story.

19. Reading and establishing what is true and what is fictional (for a fairy tale).

20. Reading, finding sentences that have become sayings (for a fable).

21. Reading, writing a script for a filmstrip (briefly, in detail).

22. Reading, selection of sound design for the "film".

23. Conversation with accompanying sample text.



24. Finding 3 (5, 7 ...) conclusions in the text.

25. Expressing their direct judgments about what was listened to after reading by the teacher or student.

26. Reading, a story about how you liked the work, what was remembered

27. Establishing by reading cause-effect relationships.

28. Reading the title of the story. (How else can you call it?)

29. Reading by roles.

30. Reading on the roles of the dialogue, excluding the words of the author.

31. Reading, retelling of what has been read using gestures, facial expressions, posture.

32. "Live picture" (one student reads, the other reacts to what he heard with facial expressions)

33. Finding a sentence (excerpt) that this man could read:

34. Finding a passage that needs to be read contemptuously, sternly, with entreaty, vexation, indignation, derision, joyfully, merrily, sadly, etc.

35. Finding and reading a sentence with an exclamation mark, question mark, comma, ellipsis, etc.

36. Competitive reading of poems (the jury is selected from the winners of the previous competition).

37. Finding and reading figurative words and descriptions.

38. Finding and reading words with logical stress.

39. Finding and reading words, sentences that are read loudly, quietly, quickly, slowly.

40. Reading a poem, pauses.

In the complex reading process, three main points can be distinguished:

**1. Perception of these words.** To be able to read means, first of all, to be able to spell out the words that they denote. Reading begins only from the moment when a person, looking at the letters, is able to pronounce, or remember, a certain word corresponding to the combination of these letters.

It is not difficult to show that in this process of perceiving letters as symbols of a certain word, not only vision, but also the memory, imagination and mind of a person take a large part. When we read words, we not only add letter by letter, but, grabbing one or several letters, we immediately guess about the whole word.

**2. Understanding the content associated with the words read.** Each word we read can cause some changes in our consciousness, which determine our understanding of this word. In one case, a certain, more or less vivid image arises in our consciousness, in the other - some feeling, desire or an abstract

logical process, in the third, both together, in the fourth - no image and feeling, but only simple repetition of the perceived word, or perhaps another word associated with it.

**3. Evaluation of the reading.** The ability not only to read a book, but also to be critical of its content is not always observed, as you know.

The motive for reading is need. A younger schoolchild who masters reading first has a need to learn to read, that is, to master the sound system and the process of reading itself - the emergence of words from letters. This piques his interest. Having mastered the initial reading (literacy), the student changes the reading motive: he is interested in understanding what thought lies behind the words. As reading develops, the motives become more complicated and the student reads in order to find out some specific fact, phenomenon; even more complex needs appear, for example, to know the motive of the hero's deed in order to evaluate it; find the main idea in a popular science text, etc.

Reading is directly related to speaking. With the help of oral speech, the expressiveness of reading is practiced; when reading, the means of speech expression are used, as well as coherent oral speech to convey the content of the text and communication between the readers.

The perception of texts by younger schoolchildren does not correspond to the perception of a mature reader and has a number of peculiarities. He is characterized by:

- fragmentation, lack of integrity of the perception of the text;
- weakness of abstracting and generalizing perception;
- dependence on life experience;
- connection with the practical activity of the child;
- pronounced emotionality and spontaneity, sincerity of empathy;
- prevalence of interest in the content of speech, and not in the speech form;
- insufficiently complete and correct understanding of the figurative expressive means of speech;
- the predominance of the reproductive (reproductive) level of perception.

To form reading as an educational skill, this circumstance must be kept in mind. It is also important to take into account the peculiarities of the cognitive activity of children. Children of 6-7 years old have not yet developed logical thinking, it is visual in nature, requires reliance on practical actions with various objects and their substitutes - models. Further, thinking gradually acquires a visual-figurative character, and, finally, logical abstract thinking arises. These stages in the development of





the cognitive activity of a younger student leave an imprint on the nature of education.

The modern methodology understands the reading skill as an automated ability to read a printed text, which implies awareness of the idea of a perceived work and the development of one's own attitude towards what is read. In turn, such reading activity presupposes the ability to think over the text before reading, during reading and after finishing reading. It is this "thoughtful reading" based on the perfect reading skill that becomes a means of introducing a child to cultural traditions, immersion in the world of literature, and development of his personality. At the same time, it is important to remember that the reading skill is the key to successful learning in both primary and secondary school, as well as a reliable means of orientation in the powerful flow of information that a modern person has to face.

In the methodology, it is customary to characterize the reading skill, naming its four qualities: correctness, fluency, consciousness and expressiveness.

**Correctness** is defined as smooth reading without distortions affecting the meaning of what is being read.

**Fluency** is the speed of reading that determines reading comprehension. This speed is measured by the number of printed characters read per unit of time (usually the number of words per minute).

**Consciousness** of reading in the methodological literature of the last time is interpreted as an understanding of the author's intention, awareness of the artistic means that help to realize this idea, and comprehension of one's own attitude to what is read.

**Expressiveness** is the ability to convey to listeners the main idea of the work and their own attitude towards it by means of oral speech.

All these qualities are interconnected and interdependent. Without the correct sounding of graphic signs, it is impossible to understand individual units of the text, without understanding the meaning of each unit, it is impossible to understand their connection, and without the internal connection of the individual components of the text, the idea of the work will not be realized. In turn, understanding the general meaning of the work helps the correct reading of its individual elements, and correct reading and understanding of the text becomes the basis for the expressiveness of reading. Fluency, being the pace of reading, under certain conditions becomes a means of expression. Thus, the preparation of the reader should be built taking into account the simultaneous work on all four qualities of the reading skill. This approach is implemented already during the period of literacy training. It is even more important to keep this system of work in mind in the lesson when reading literary texts.

In the methodology, along with the term reading skill, the term reading technique is used. Until recently, this term only referred to the technical side of the reading process.

**Stages of developing the reading skill of a novice reader.**

In methodological science, there are three stages in the formation of reading skills: analytical, synthetic and the stage of automation.

**The analytical** stage is characterized by the fact that all three components of the reading process in the reader's activity are "torn apart" and require the child to make separate efforts to perform specific operations: to see a vowel letter, to correlate it with a fusion syllable, to think about where to read the letters outside the fusion, to voice each seen graphic syllable, i.e. pronounce fluently, so as to recognize the word and understand it. Reading by syllables is a sign that a child is at the very first stage of skill formation - analytical. The analytical phase is generally considered to correspond to the literacy period. However, the teacher must remember that each child has its own pace in development in general and in mastering the reading skill in particular.

**The synthetic** stage assumes that all three reading components are synthesized, i.e. perception, pronunciation and comprehension of what is read occur simultaneously. At this stage, the child begins to read with whole words. However, the main sign of the reader's transition to this stage is the presence of intonation during reading. It is important that the child not only comprehend individual units of the text, but correlate them with the integral content of what he is reading. Intonation during reading appears provided that the reader retains the general meaning of what is being read in his mind. This usually occurs in the second year of primary school.

**The automation stage** is described as the stage at which the reading technique is brought to automatism and is not recognized by the reader. His intellectual efforts are aimed at understanding the content of the read and its form: the idea of the work, its composition, artistic means, etc. the automation stage is characterized by the child's desire to read to himself. The main sign that children have reached the level of automatic reading is their immediate emotional reaction to a work they read independently, their desire to share the primary reader's impressions without additional questions from the teacher, and their desire to discuss what they have read.

This path - from the analytical stage to the stage of automation - can be traversed by a child within the framework of elementary school, provided that the teacher provides a certain mode of work in the classroom;

1) Reading exercises should be everyday;



2) The selection of texts for reading should not be random, but should be made taking into account the psychological characteristics of children and the literary characteristics of the texts;

3) The teacher should carry out systematic work to prevent erroneous reading;

4) The teacher should use an expedient system for correcting mistakes made during reading;

5) Teaching to read to oneself should be specially organized, involving several steps: reading in a whisper, soundless articulation of what is being read, "quiet reading" (in terms of inner speech), actually reading to oneself.

#### **Work on the correctness and fluency of reading.**

It makes sense to talk about correctness and fluency as qualities of a reading skill only if the reader understands the text that is being read. However, the teacher must know special techniques aimed at practicing correctness and fluency. There are two directions here:

1) the use of special training exercises that improve visual perception, development of the articulatory apparatus, and regulation of breathing;

2) the application of the principle of multi-reading proposed by M.I. Omorokova and described by V.G. Goretsky, L.F. Klimanova.

This principle consists in the fact that when analyzing the text, constantly direct the child to re-reading the passages that are important in semantic terms, and thereby not only provide penetration into the idea of the work, but also achieve correct and fluent reading. Reading accuracy is reading without distortion, i.e. without errors affecting the meaning of what you read. Long-term observations of the development of reading skills in children allow us to single out several groups of typical mistakes made by learners to read.

#### **1. Distortion of the sound-letter composition:**

- omission of letters, syllables, words and even lines;
- rearrangement of reading units (letters, syllables, words);
- inserting arbitrary elements into reading units; - replacement of some reading units with others.

The reasons for such errors are imperfection of visual perception or underdevelopment of the articulatory apparatus. However, the cause of distortions can also be the so-called "guess reading". This phenomenon is based on such a person's property as anticipation - the ability to predict the meaning of a text that has not yet been read according to the meaning and style that is already known from the previous passage read. A guess appears in the reader with the acquisition of reading experience and is, thus, a sign of his progress

in mastering the reading skill. At the same time, the teacher must remember that the textual guess of an experienced reader rarely leads to errors that distort the meaning of what is being read, and the subjective guess of an inexperienced child often entails such errors that prevent him from understanding what he is reading.

#### **2. The presence of repetitions.**

Such errors consist in the repetition of reading units: letters, syllables, words, sentences. The less perfect the reading skill, the smaller the unit of reading is repeated. These errors are very close to the previous type, however, their causes are different. Repetitions, as a rule, are associated with the child's desire to keep the component just read in RAM. This is necessary for the little reader to comprehend what he read. Therefore, at the analytical stage of the formation of a skill, repetitions are inevitable and should be perceived by the teacher as a natural and even positive phenomenon. Excessive haste of the teacher, early suppression of "repetitions" in the reading of students can prevent the child from freely and naturally moving to the synthetic stage of reading.

#### **3. Violation of the norms of literary pronunciation.**

Among errors of this type, several groups can be distinguished:

1) Errors are actually orthoepic; among them, irregular stress is the most common type. Such errors are associated with ignorance of pronunciation norms or with ignorance of the lexical meaning of words that are read;

2) Errors associated with the so-called "spelling reading":

units of reading are voiced in strict accordance with the spelling, and not with the pronunciation. The teacher should keep in mind that "spelling reading" is an obligatory period of skill development. The sooner the student learns to synthesize all the actions of the reading process (perception, pronunciation, comprehension), the sooner he will abandon the "spelling reading". Therefore, the work helping the child to comprehend what he is reading will also contribute to the elimination of "spelling reading";

3) Intonation errors, which are incorrect logical stresses, pauses inappropriate in terms of meaning. It is easy to see that such mistakes are made by the reader if he does not understand what he is reading. However, from a small child, the reading process requires not only intellectual, but also physical efforts, therefore, the reason for intonation errors in a little reader may be untrained breathing and speech apparatus.

A teacher can work correctly on correcting and preventing errors in reading only if he understands the reasons for erroneous reading and knows the method of correcting errors. So, factors such as:



- 1) Imperfection of visual perception;
- 2) Underdevelopment (lack of flexibility) of the articulatory apparatus;
- H) Shortness of breath;
- 4) lack of knowledge of orthoepic norms;
- 5) lack of knowledge of the lexical meaning of the word;
- 6) "Guess" caused by the subjective type of reading.

Fluency is the speed of reading that presupposes and ensures a conscious perception of what is being read. Thus, fluency cannot be an end in itself, but it is fluency that becomes the determining factor for other reading qualities. The standards of fluency are indicated in the reading program by years of study, but the main guideline for the teacher should be the individual's oral speech. An objective guideline for fluency is considered to be the speech rate of a TV or radio announcer reading the news, which is approximately 120-130 words per minute.

Fluency depends on the so-called reading field and the length of stops that the reader allows during the reading process. The reading field (or reading angle) is a piece of text that the reader's gaze catches in one step, followed by a stop (fixation). During this stop, awareness of what is captured by the gaze occurs, i.e. consolidation of the perceived and its comprehension is carried out. An experienced reader makes from 3 to 5 stops on a line of unfamiliar text, and the segments of the text that are grasped by his gaze in one step are uniform. An inexperienced reader has a very small reading field, sometimes equal to one letter, so he makes many stops on a line and the segments of the text he perceived are not the same. They depend on whether the words and phrases that are being read are familiar. Repetitions in the reading of an inexperienced reader are also connected with the comprehension of what was grasped in one step:

if he could not keep the perceived segment in his memory, he has to return once more to the already voiced text in order to realize what has been read. Now it becomes clear that by training visual perception, the teacher is working not only on correctness, but also on reading fluency.

**Work on reading consciousness.** Consciousness in general can be defined as reading comprehension. However, in the methodology, this term is used in two meanings:

- 1) In relation to mastering the reading process itself (reading technique);
- 2) In relation to reading in a broader sense (T.G. Ramzaeva).

When they talk about consciousness in the first meaning, they mean how consciously the child performs the necessary operations that make up the sounding of printed signs: he finds vowels, correlates them with syllables-fusion, sees consonants outside

of fusion and realizes to which syllable-fusion they follow.

The term conscious reading in the second meaning functions in the methodology at different levels of the reading process itself.

The first level, which often coincides with the analytical stage of the development of reading skills, involves understanding most of the words used in a direct or figurative sense; understanding individual sentences and their relationship with each other; understanding the meaning of individual parts of the text, their internal connection and interdependence, and, finally, understanding the general meaning of the entire text.

The second level of conscious perception of the text is based on the first and presupposes an understanding of the subtext of the work, i.e. clarification of his ideological orientation, imaginative system, artistic means, as well as the position of the author and his own attitude to what is read.

We can also talk about the third level of conscious reading, when an individual is aware of his reading interests and possesses skills that can satisfy them, in other words, consciously determines the reading circle, focusing on his capabilities. Thus, in the modern methodology, the point of view has been established that reading consciousness presupposes:

- Understanding the meaning of each language unit of the text;
- Understanding of the ideological orientation of the work, its figurative system, pictorial and expressive means, i.e. the position of the author and his own attitude to what he read;
- Awareness of oneself as a reader.

“Without reading there is no real education, no, and there can be no taste, no syllable, no versatile breadth of understanding” - wrote A. Herzen, and V.A. Sukhomlinsky said that “you cannot be happy without knowing how to read. The one for whom the art of reading is inaccessible is an ill-mannered person, a moral ignoramus”.

Mastering the full reading skill for students is the most important condition for successful school education in all subjects; at the same time, reading is one of the main ways of acquiring information outside the classroom, one of the channels of comprehensive influence on schoolchildren. As a special kind of activity, reading presents extremely great opportunities for the mental, aesthetic and speech development of students.

All of the above emphasizes the need for systematic and purposeful work to develop and improve reading skills.



Formation of high-quality reading skills in primary school children is one of the main tasks of primary school.

Thus, the reading process consists of two interconnected sides - semantic and technical, covering visual and sound-auditory-speech-motor mechanisms. And although this process is single, the formation and formation of its constituent sides proceeds in different ways, it goes through a number of stages from initial to higher.

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## DEVELOPMENT OF TOLERANCE IN THE HISTORY OF EASTERN CULTURE

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### ABSTRACT

*The article notes that the peoples of Central Asia and the Middle East have a long history of tolerance, that our ancestors from an early age were tolerant to other religions and nationalities. Such precious qualities as respect for the culture, language and traditions of other peoples were instilled in them from the birth or early years of childhood. At the same time, it was said that the education of tolerance was also passed on to future generations namely to upcoming young generation of students.*

**KEYWORDS:** *tolerance, national-spiritual value, great figures, harmony, spiritual-religious purity, humanity, brotherhood, mutual understanding, patience, discrimination, harassment.*

### DISCUSSION

Today, one of the spiritual and educational heritage of our ancestors in the formation of such spiritual and moral qualities as humanity, tolerance, harmony, solidarity, kindness, hard work, honesty based on the ideas of tolerance in the process of educating a comprehensively mature, harmoniously developed generation in it is incomparable. Tolerance has long been a characteristic feature of the Uzbek people, but many of its aspects are now overlooked by researchers. Important tasks in this area are: first of all, to define a system of teaching materials that will serve to form students' concept of tolerance. At the same time, it is advisable to pay special attention to the activities of great figures and educational materials informing about the historical experience of our people.

Folk legends, tales and epics glorify the legendary love and friendship between people of different religions and nationalities. In particular, the works «Chor Darvesh», «Farhod and Shirin», as well as Firdavsi, Jalaliddin Rumi, Ibn Sino, Beruni, Navoi, Babur promoted interreligious and interethnic tolerance.

The Avesto, which promotes monotheism, places great emphasis on promoting tolerance. As you know, one of the most ancient civilizations in the world originated in our region. The natural climate of the region, its geographically and strategically

important position for thousands of years led to the migration of various indigenous tribes. This led to the coexistence of tribes of different religions. In this process, it can be seen that their culture, customs, values and traditions have also merged. This, in turn, prompted various peoples, tribes and clans living in a certain area to live on the principles of peaceful neighborhood, friendship and brotherhood and, naturally, to establish and develop mutual economic and cultural ties. The idea of living in harmony and working for the development of society and humanity is also the main content of spiritual and religious values. It is known that in the first millennium, Zoroastrianism originated in the territory inhabited by the peoples of Movarounnahr and Khorasan. Religion is based on the idea of monotheism, worship of absolute gods, the idea of interreligious and interethnic tolerance, the eternal struggle between good and evil, constant good to others, the awakening of virtues.

The basic principles of Zoroastrianism, which have national and universal significance, are described in detail in the Avesta, which is considered a holy book. Avesta is an invaluable written source for the study of centuries-old history, socio-economic life, culture, spirituality, moral, philosophical, legal, ethnic views of our ancestors. The basis of moral education in Avesto is the education of pure, honest and pure-hearted people, regardless of skin color,





language or place of residence. "What a great success in the fate and life of people - to be born pure and blameless, to enter an innocent world. We must strive for the decency of the world, for the peace of the world in order to preserve it and bring it to light. [1, p. 26]. That is, a person is born innocent in the eyes of the Zoroastrians, and people of any race are equal before the absolute god.

Avesto condemns futile bloody wars, massacres, military conflicts and aggression, and encourages a wholesome, peaceful, serene life. In this regard, he said: "I will not be offended by the actions of those who want to harm people in the world. The evil of these hostile actions will return to the enemies themselves" [1, p. 23].

The characteristics of tolerance, such as humanity, brotherhood, understanding, harmony, patience, are praised in the Avesto as "reverence for refuge, leadership, vigilance and vigilance." [1, p. 101]

In particular, Avesto says that you need to take care of all people: this is manifested in the desire to live in peace and brotherhood" [1, p. 75]. Or "Ashavan Zoroaster hopes that a friend will shelter a friend, that friendship will be a support for friendship" [1, p. 101] we see the glorification of the ideas of tolerance.

In particular, in Firdavsi's "Shahnama", King Khosrov was more interested in issues of faith and inter-religious tolerance than other kings. Although Khosrov was tolerant of other religions, he remained steadfast in his religion. Zoroastrian temples, including the temple of Atur Gushnasp, were regularly visited and invariably fulfilled all the conditions of the faith. Khosrov ascended the throne with the support and assistance of the Byzantine emperor Mauritius.

To strengthen the mutual alliance, he marries the Byzantine queen, daughter of the Emperor Mauritius, wise, intelligent, beautiful Mary. Mary's influence on Khosrov was strong and the king built Christian churches for the queen and listened to her advice on religious matters. But he will always remain loyal to Zoroastrianism.

In the Qur'an, manifestation of generosity, openness, tolerance, kindness, and generosity is considered a sign of high enlightenment. Whoever does not hide his generosity and kindness from people and does not close the door of generosity, first of all, he will benefit greatly from this, he will be spiritually satisfied, and his spirit will rise. The hadiths condemn interethnic conflicts, bloody clashes and various forms of ethnic division. Representatives of different nationalities are encouraged to know and respect each other's language, history, culture, national customs and values and live in harmony, even if their religions and religious beliefs are different. It is said that oppressing and condemning people of other religions is a great sin: "Whoever

insults a person of another religion living in a Muslim country will be beaten with a fiery whip on the Day of Judgment". "Make friends with blacks, because three of them will be the greatest of the people of Paradise: Lukmani Hakim, Najashi, Muazzin Bilal Habashi" [2].

In the teachings of Islam, which is a universal secular value, it is said that the noblest and noblest act is to patiently teach and guide not only people of other religions, but also oppressors and perverts.

The proverbs in the hadith, such as "Do good for yourself and others", "Feed the hungry, visit the sick and satisfy the needs of those in need," are applicable to all peoples, nations of the world, as universal moral values. Al-Jami al-Sahih, a masterpiece by Abu Isa at-Tirmizi, emphasizes that kindness and brotherhood are important signs of a person's spiritual maturity. It is close to Allah, Paradise and people, and far from Hell [3].

The great scientist of the East Abu Nasr al-Farabi writes: "There is no natural or voluntary connection between some people. Others think they will compromise if they fail. In doing so, they are forced to come to terms with each other under the pressure of an outside force, and if that power is lost, the agreement will be lost. Alienation occurs again and they diverge. One of the animal beliefs of mankind is delusion and deceptive faith"[4].

It is clear from these thoughts of Farabi that he advocates the elimination of various conflicts as a result of the need for people to live together, voluntarily, in solidarity. This is especially true for the Uzbek people. Indeed, not all people consciously obey the qualities that characterize tolerance, but some of them do it, imitating the majority, even without an adequate understanding of the essence of the problem.

Because such a mood is reflected in the nature of the Uzbek people, in its nature. The Uzbek people have a number of qualities underlying national values, which are a manifestation of tolerance. For example, humility, modesty, chastity, respect for adults, respect for babies, hospitality, respect for parents, abandonment of one's own interests, tolerance for the actions of others, and so on.

These ideas should be used effectively in educating students for tolerance.

Thanks to friendship, solidarity and cooperation, the rapprochement of a person with people, peoples with peoples, nations with peoples, friendly relations, socioeconomic, cultural and spiritual development can become the basis of the universal value of the teachings of the great scientist Abu Ali ibn Sina (5). Informing students about Ibn Sina's views on tolerance during classroom hours is of practical importance. Ibn Sina's historical and philosophical views are tolerant, they are understandable to people of different races and religions. Ibn Sina condemns



all racially motivated violence, stressing that humanity is of the same origin.

Ibn Sina, who fled from city to city in pursuit of Shah Mahmud's treasures, criticized his occupation activities, believing that the calamities that befell people of different religions and nationalities, the destruction of cities and the spread of various diseases based on hunger. In addition, at a time when religious fanaticism was on the rise, Ibn Sina treated and cared for Jews, Christians and people of other faiths, based on the belief that all people are equal.

This indicates that such qualities as tolerance, nobility, courage, and humanity are embodied in him. Ibn Sina shows that the services of the ancient Greek thinkers Socrates, Aristotle, Zeno, Galen were invaluable in the emergence and development of philosophy, mathematics, medicine, astronomy, literature, art criticism and a number of other sciences. He left several reviews of their work. These comments state that a person's religion, race, social origin and region of residence do not affect his or her contribution to the development of society.

Hence it follows that only when all peoples live in harmony, harmony, solidarity and brotherhood, human progress will develop and lead to perfection. Ibn Sina's ideas about using the qualities of tolerance among the highest human qualities in the formation of a mature community and the upbringing of a harmoniously developed person are still relevant today.

Having studied certain concepts of tolerance, a person forms a homogeneous system of analogous attitudes towards objective life. Ethical norms of social behavior are also determined. The student's interest in the demands of public life is formed through an understanding of ethical directions. This is especially important for elementary school students who are just starting to adopt a code of conduct.

Elements of a sustainable attitude towards members of society are formed regardless of their religion. From the day of entering school, the child is aware of material and spiritual existence in a certain sequence. He begins to understand this deeper and deeper. He begins to look at the environment in a new way. They begin to understand the world by applying their knowledge. From this period, the process of developing skills for assessing the behavior of oneself and others begins.

They get used to evaluating the successes and shortcomings of themselves and their peers. This serves as a unique reason for his later life, which he will spend on tolerance.

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## THE LITERARY OF ANTHROPONYMS

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### ABSTRACT

*The article examines anthroponyms and their forms, features, their place in a work of art. The purpose of anthroponyms in works of art is also revealed through examples.*

**KEY WORDS:** *anthroponyms, art, work of art, names, surnames, nicknames, style.*

### DISCUSSION

The granting of the status of the Uzbek language as the state language, the realization of the identity of our people, the role of the language in the internal and external life of the country, the restoration of national spiritual and cultural values is one of the important and main issues in the life of our people. With the efforts of the President of the Republic of Uzbekistan M.Mirziyoyev extensive opportunities were created to study the spiritual heritage was restored our national and spiritual values created by our ancestors.

It is worth to say in its place that our first President I.A.Karimov expressed such thoughts about this: "As the heirs of the invaluable wealth that has passed from ancestors to generations, we must constantly work on preserving our native language, enriching it, increasing its prestige. In particular, expanding the scope of application of our native language in such critical areas as fundamental sciences, modern communication and Information Technologies, the banking financial system, publishing etymological and comparative dictionaries, developing the necessary terms and phrases, concepts and categories, in a word, the comprehensive development of the Uzbek language on a scientific basis serves noble purposes such as understanding the National

Based on this idea, the opinions on the originality of the present Uzbek style and comprehensively revealing its speech opportunities are relevant and valuable for the linguistics of today. For example, anthroponyms that denote the names of a person are also from the sentence shular. Because

in anthroponyms the nationality and originality of the nation are manifested

After gaining independence, the Uzbek language is comprehensively developed in our linguistics, it was aimed at revealing the Turkic nature of our Language, linguistic problems, in particular, semantics and motivation of anthroponyms, scientific principles of classification of anthroponyms, comparative study of anthroponyms with fraternal and non-Turkic languages, principles of periodization of anthroponyms, Uzbek historical anthroponymy, in various styles of anthroponyms, especially social-linguistic, national-cultural, philosophical-ethnic approach issues, special attention was paid to such issues as the lexical requirements and principles of creating explanatory, spelling transcription dictionaries of anthroponyms, study of anthroponyms in the language of historical written monuments, creation of anthroponymics of the Uzbek language. And this leads to the fact that the text of the work of art characterizes the antoponymic units by practical analysis and interpretation, together with the national-spiritual world of the Uzbek people, the spiritual and cultural values formed over the centuries, in turn, the need to further inform the world science. It also provides an opportunity to create an explanatory and parse Dictionary of anthroponymy of the Uzbek language, draw new conclusions about the development of meaning, and give an interpretation to the public.

The stories of representatives of Uzbek literature, in general, are rich in creativity, lexical, in addition to the words that are actively used at the



present time, are also three lexical units, characteristic of the historical sequence. One such layer is anthropomorphs. It seems that traces of folk creativity, thinking, and consciousness are preserved in them. The period, the history of the times, the situation described in the anthroponyms in the works are embodied, we can see that they performed not only the nominative, but also the stylistic task.

To study of the language of the artistic work is now one of the important practical issues of linguistics, which helps to identify and more effectively use the specific artistic tools of the poet or writer. Each writer, poet has his own way, artistic styles, language, the general language of which is subject to the laws, is based on it. Each writer, the poet, uses his own means of expression in the universal language. In the same process, we can see its uniqueness in the game even in the use of anthropomorphs, that is, person names. In particular, it is of particular importance to study and apply the names of people applied in the artistic work from a practical point of view. They are considered a means of showing the degree of attachment and compatibility of the language of the work to the national and folk traditions.

It will be possible to talk about the linguistic feature of this work, the individual style of the author of the work, by determining the stylistic value of the anthroponym in the text, its service in revealing the idea of the work that it performs.

For example, the famous Uzbek writer Tahir Malik created a unique style in his works when using anthroponyms. In the stories of the creator he named the main characters, but did not name episodic images. Maybe in this way the creator wanted to say that the reader should focus his opinion on the main issue. Referring to the analysis of anthroponyms in the works of the writer, in the tale of author "Qargish(Curse)", anthroponyms performed a certain stylistic task. We can see that the meaning of the name directly served to reveal some aspect of the life of the hero. For example, one of the main characters is a boy named Comrade. He is a kind brother to the eldest children of the family, father and brothers. The meaning of this name means to accompany the Uzbek father or brother. There are such personalities in society that they live worthy of the name that their parents put with their dreams. For this image in the game it is also appropriate to use the expression of the same on the noun body, of course. This is reflected in the following excerpts from the story:

"Thinking and thinking, he took a measure to get rid of the spell: he stood at midnight and went to his house in a decision that "if I die, I will die and not touch my brothers.""

"The comrade liked to help his mother. A hand came to some work, too."

Also in the community occurs in persons who are inappropriate to the name. And this is what the writer shows by the image of Rahima and emphasizes this in particular:

"The name of this woman does not fit her body, especially her soul, with the so-called "Rahima (Mercy)", she had compassion in her heart."

Satellite's father follows. This name is also partly due to its meaning and is described in the game as an image that does not have its own independent opinion, follows the opinion of others and acts. Even two months after the death of his wife, he follows the words of his relatives and marries a woman, and then, as he says, gives her children, too, to her aunt. This name showed its negativity in the game. In fact, following a child, a parent who puts his name on it, dreams that he will follow the good, the good. And the creator, using this meaning of the word skillfully, once again showed how vivid and rich the meanings of the Uzbek language are.

The writer speaks in the name of Mister Belden, the hero whom the comrade who went abroad met. From this name, the creator used the same environment to perform live performances before the eyes of the bookstore.

As already mentioned above, anthroponyms are one of the elements that ensure the viability of the work. Their use is considered an ideal style inherent in the creativity of the writer.

And in the light of the character-feature and appearance of heroes in artistic works, writers often use anthroponymic units, that is, nicknames, the surname of the hero. Such units can tell about the origin of the hero, his role in life, his profession, way of life, his attitude to the surrounding world, his appearance, his dress, etc. In the artistic work, anthroponymic units can be used for various purposes. Including:

1. Biror shaxsni xarakterlovchi, uning ustidan hazil-mutoyiba yoki kamsitish, haqorat vositasi sifatida. Masalan: "...Ertasi Ulton piyonning vahimasiga «ergashib» rayondan chiqib kelgan bir to'da odam Quriqsoy yoqasiga enaverib, ko'ngil aynituvchi manzarani ko'rdi.» (Sh.Xolmirzayev). Bu misolda piyon so'zidan foydalanib ijodkor qahramonining ichkilikka berilgan kishi ekanligiga ishora qilyapti.

As a means of characterizing a person, a joke or humiliation over him, an insult. For example: "...the next time a gang of people who "followed" the panic of Ulton pawn and came out of the Rayon, went down to the side of Kuriksoy and saw a nausea scene."(Sh.Kholmirzayev). In this example, using the word pawn, the creator points out that his hero is a drunkard.

In addition, such words as naughty, Satan characterize the person from the negative side. With this feature, they stand close to the nickname. But





still the nickname can not rise to the threshold. When such words are used by the creator a lot, in that sense, to characterize that person, it is possible to rise to the level of the nickname only if it becomes a constant attribute of the person. When it reaches such a level, these words begin to be added to the person's name and form a nickname: Halima naughty, Karim is like a devil.

2. In the formation of nicknames, it is also possible that the word in the task of nicknames begins to be used in place of the person's name, that is, it is customary to name the person not by name, but by nickname. In this case, the nickname will be able to fulfill the role of a noble horse. The beginning of the application of the nickname in place of the name of the person form it in the form of a full, literal nickname.

- Do you know a man called Sadir Minullin?

- He didn't.

- Oh, yeah... True, you may not recognize Minullin, but you should not refuse to know Kazan deganni. Kazan is the nickname of Minullin.

(Tahir Melik)

3. A word that has become a nickname according to another purpose of the creator, more precisely, has moved to the task of a nickname, always comes into being in the composition of a person's name, with which it is applied or in place of a name independently performs the function of a nickname. The fact that the nickname comes after the person's name is typical. [40] For example: I met a swindler of Steel, - there was a dispatcher in the garage, - said "a cockerel, if you do not give five hundred rubles, you will not get a tractor." I do not have yellow lightning. The swindler was speaking a lot, I said, "they should have imprisoned you, not me, in fact." (Sh.Khalmirzayev)

4. It is also the ability of nicknames to perform a stylistic task, in addition to a simple, functional-nominative task. According to this, certain groups of nicknames that exist in the Uzbek language begin to be used as a stylistic artistic tool in the language of artistic literature. Nicknames that entered the language of artistic literature play an important role in the opening of the characters of the work, the character of the personages participating in the work, describing them in satirical, humorous situations, giving an emotional-express spirit to the language of the work.

Stylistic features of nicknames in the artistic language, in particular, describe the negative features of personalities, the heroes of the work, by the way, are very touching in expressing the writer's attitude to the owner of the nickname. [40] example:

-E! - said Hasan. Let bondage, trapped out of your tongue?

- Yes, you pulled out the slice..., - answered Shodagul pismik(miserly).

(Sh. Khalmirzayev)

Not all nicknames that entered the language of fiction can have a stylistic coloring. If this feature is associated with the profession coriander, occupation, character-character of the nickname owner, it will not have a stylistic coloring, as already mentioned above:

"Then the sheep turned to the sheep"

"His father Rahmon did not fall in the fight even at the age of forty, and then when a Middle-year-old average polvon(strongman) fell down in a fluff so much that he would say," the mat swung, sprinkled water over it, hugged him, he had died before the cough, then the blood vomited.

"The surviving sniper wore a crate over mist, his leg was light, he did not sink into the snow.

"...The shepherd frowned and rejoiced and wrote on the table."

"Madiyor is the son of Dallol!"(Sh. Khalmirzayev)

We can observe the cases when the names of our addicts are also used by surnames. We can meet such manifestations in the expression of the image of the writer, in particular, officials in the style of Shukur Kholmirzayev.

Kozim Pakhtayev is more than fifty years old, a man of fine silk.

"After Dilnura Kasimova came out and watched the secretary of the party, Husan Keldiyev raised his second hand under the table with one hand touching his waist:

- That's paper, pen... summer, summer!"

"When the owl went out, Shayim Shaydulov, who wore his hat on his head, in which the garishi turned upside down, was next to the machine moskvich(the Russian type of the car), a member of the byuro".

- " Strangely enough, as long as I did not know. Avoid the road, - he said. - Hov, The Master Madiyorov!"

And in the style of the creative Tahir Malik, we can observe the characterization of the official heroes through their career:

- Did you understand the prosecutor's accusation? Do you confess to your crime?

The owner looked at the court judge as if he did not understand the question. The judge did not even put it down for the fact that young people had stubborn habits.

The judge took his eyes from him, so as not to shout at the prosecutor.

The commissioner at first did not understand his action.





Thus, various nicknames, surnames, which are attached to the names of the individual, together with the designation of the position, position of these persons in society, give the reader a certain spiritual pleasure, help to more clearly understand the essence of the image in the Artistic Picture, and serve as a means of a specific image of each creator.

The works created by the authors in different periods differ from each other in terms of language. Social life development, the changes in it, the richness of the writer's world view and the change of course will not affect the language of the literary works created. Therefore, as the language of the artistic work is studied, it is necessary to compare this work with other works of the writer, to determine its own characteristics. In the study of the creative language of the writer, along with consideration of the historical conditions of this period, one can not ignore the direction in which the writer belongs, his worldview and influence on him by his contemporaries and creators of the past, as well as the process of writing the work.

The study of anthroponyms in the language of an artistic work is significant, on the one hand, if it is significant for the anthroponymic sphere of linguistics, on the other hand, one of the most pressing issues in linguistics – the language of an artistic work and the inclusion of certain clarifications in the problem of writer's style. The study of anthroponyms used in the language of artistic works it will be possible to determine the position of anthroponyms in the history of the Uzbek language, what phonetic, lexical and grammatical cases it has experienced so far, to draw a certain summary about its semantic development. If this is really a goal from the article, then the second goal is to focus on the importance of anthroponymy in the language of the work of art by studying its application in the language of the work of art.

So the language is a very vivid phenomenon. Therefore it is also necessary to study in connection with the life of the people. To do this, we will first of all be helped by artistic works. Onomatopoeic units in the work of art, in particular, antonyms, are also derived from this nationality, folk life and past, which are reflected in it. For the same reason, it is important to study and research them. Through this, we are moving yet another step forward in knowing and understanding our nation, our history. I think that the immortal heritage of the creators of the independence period helped us very much to move forward this step.

In conclusion, we can say that in the artistic work, anthroponyms can be a source indicating the relationship of an individual and society. And the reasonable use of them brings the language of the work closer to the living folk language, and any

anthroponymic forms, in turn, we can evaluate as a weapon indicating the nationality.

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## IMPLEMENTING AUTHENTIC TEXTS AT THE FOREIGN LANGUAGE LESSONS IN HIGHER EDUCATIONAL INSTITUTIONS

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### ABSTRACT

*This article is devoted to the study of the use of authentic reading texts at the foreign language lessons in higher educational institutions. The aim of this article is to analyse the effectiveness of English learning through authentic texts at the English language lessons in non-language high schools. The features of teaching reading authentic texts at the English language lessons in higher educational institutions are considered in the article.*

**KEYWORDS:** *high school, authentic texts, non-language, competence, self-guided work, reading.*

### DISCUSSION

One of the priority goals of the modern education system in a higher educational institution is the formation of an intellectual, creative, spiritual and moral personality. It should be noted that the higher the spiritual and moral culture, the higher the social relevance and social significance for society. The formation of the spiritual and moral education of the future specialist is based on the process of cultural self-determination of the individual, his understanding of socially and individually significant values. The process of spiritual and moral education is the ascent of the subjects of education to themselves as a unique spiritual individuality, to a spiritual ideal, which arises as a result of a reflexive-value understanding of the system of socially and individually significant values [1, p. 47].

Currently, in higher educational institutions, much attention is paid to communicative disciplines, including the discipline "Foreign language", since in foreign language lessons one can show intellectual and creative activity and individuality. One of the main tasks of teaching a foreign language at a pedagogical university is the formation of the spiritual and moral qualities of a student through reading. It is reading that contributes to the formation of the spiritual and moral qualities of students and allows them to better understand the world around them. It is aimed at developing students' thinking, language skills and abilities.

In foreign language reading lessons, students are involved in the active creative process of language activity. Reading activates cognitive activity, fosters a sense of respect for the country and culture of the target language.

In the educational process, reading of authentic texts in the specialty is widely used. The FGOS VO 3+ emphasizes that students of non-linguistic specialties in the direction of preparation 44.03.05 Pedagogical education (with two profiles) must be ready to communicate in oral and written forms in Russian and foreign languages to solve the problems of professional activity [2]. They should be familiar with the peculiarities of reading professional texts. Consequently, teaching foreign languages to students in a pedagogical university presupposes the practical orientation of this discipline, i.e. taking into account the needs for business communication on professional topics in a foreign language.

In a non-linguistic university, reading is aimed at extracting basic information from the texts being read and understanding its content. Since information processing and understanding of its content is an important factor in memorizing language material.

For effective assimilation of language material, it is necessary to create a positive emotional background and, thanks to this, it is possible to increase the motivation and intensity of students' intellectual activity. After all, it is motivation that has



a significant impact on the effectiveness of teaching foreign languages [3].

It is also very important to choose the right texts, take into account their content, novelty and their practical importance. It should be borne in mind that the information in the texts should arouse increased interest among students.

One of the most popular texts, which is perceived by students with great enthusiasm, is an authentic text of linguistic and cultural content. An authentic text (from the Greek *authentikos* - authentic) is understood as a text that corresponds in content to a text in another language and has the same force [4].

Authentic texts are notable for their informativeness. They reflect the real facts of the modern reality of the country of the target language and convey a typical view of this country. Often the themes of these texts are the following: the geographical position of the country of the target language, its political system, the country's monetary unit, national holidays, the symbols of the country, and so on.

The process of reading authentic texts evokes positive motivation among students of non-linguistic universities. Thanks to reading authentic texts, students get acquainted with the culture and traditions of the country of the studied language, become familiar with the moral and spiritual values of another people. Thus, students develop linguistic and cultural competence.

In the modern world, the Internet offers a variety of Internet resources where you can find authentic texts in foreign languages. The modern educational process of teaching is characterized by the basic position of information and the functional use of well-known sources of the Internet [5]. Internet resources contain electronic databases of the most famous newspapers and magazines in English, periodicals, including: The Daily Telegraph, The Guardian, Washington Post, Wall Street Journal, USA Today, New York Times and others.

Based on these resources, it is possible to make a selection of analytical texts, in accordance with the age characteristics of students and the level of knowledge of the English language.

As an additional material, it is possible to suggest using teaching aids for students of pedagogical universities, for example, a textbook: Dzhegutanova N.I., Pavlenko V.G. "Workshop of written and oral scientific speech in a foreign language for students of pedagogical universities [6]. This manual is intended for students of pedagogical universities studying in the areas of training "Pedagogical education", "Psychological and pedagogical education" and is aimed at developing students' professional and communicative

competence to master reading in a foreign language. Each section of the manual contains grammatical explanations, illustrative material with translation into Russian; theoretical material is consolidated in creative exercises based on authentic scientific and popular science articles from leading foreign publications in recent years. The paper presents methodological recommendations for organizing students' independent work in reading authentic texts, thematically related to the direction of training.

We believe that the effectiveness of reading lies not only in the correct selection of language material, but also in the correct organization of independent work. It is the correct organization of independent work that is one of the key didactic-organizing problems and the main component of university teaching foreign languages [7].

Therefore, students of pedagogical universities are invited to study the methodological recommendations for preparing for independent work with the text in English, provided by the discipline program, which allows them to get an idea of the goals and objectives, the nature and volume of the material to be studied, increasing professional competence and creative activity of students [8].

Independent work with a text in English in a pedagogical university provides for the solution of the following goals and objectives:

- deepening and systematization of knowledge: reading the text, translating it, working with dictionaries and reference books;

- development of analytical and synthetic abilities of mental activity, the ability to work with information of different volume and type, educational and literature: analytical text processing, text annotation, selection of information with specific goals;

- practical application of knowledge and skills: performing lexical and grammatical exercises, preparing statements on the topic, performing creative work on the topic, translating original documentation, compiling and designing it.

Students can be offered the following algorithm for working with analytical text:

Reading the title of the text, express your assumptions about what the text may be about.

To navigate the compositional structure of the text. Find keywords, highlight the main meaning

Try to understand the meaning of words without resorting to using dictionaries. Quickly re-read the text again to get a complete picture of its content.

The analysis of the use of reading authentic texts in foreign language lessons at a pedagogical university allowed us to draw the following conclusions. Firstly, reading authentic texts in foreign language lessons enables students of non-linguistic universities to



improve their language level, enrich their vocabulary and understand the way of thinking of people who speak a foreign language. Secondly, reading authentic texts contributes to the spiritual and moral development of the individual and has a positive effect on the personal and emotional state of students. And thirdly, it increases not only communicative and cognitive motivation, but also forms intercultural competence.

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# **KALTAMINOR CULTURE IN THE TERRITORY OF KHOREZM STATE (ON THE EXAMPLE OF MODEL OF DJAMBAS 4 KEPT IN THE COLLECTION OF THE STATE MUSEUM OF HISTORY AND CULTURE OF THE REPUBLIC OF KARAKALPKASTAN)**

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## **ABSTRACT**

*This article provides information about the culture of monument Kaltaminor – Djambas 4 fortress and a model kept in the museum, which was found during archeological excavations in the territory of Khorezm state.*

**KEYWORDS:** *Djambas 4, Kelteminar, Akcha-Darya, Neolithic, geomorphological, Archaeological, "unquenchable fire", collection, tribe, desert.*

## **DISCUSSION**

The study of the mysterious world of mankind has been studied to this day through the results of archeological excavations. According to archeological data, the history of mankind has been studied as follows.

That is; divided into the Stone Age, Bronze Age and Iron Age. The Stone Age is the longest lasting century. The Stone Age is divided into three: Paleolithic, Mesolithic, Neolithic. The territory of the Republic of Karakalpakstan (Khorezm region) has been studied by archeologists Ya.Gulomov, S.P.Tolstov, T.A.Jdanko and by many other archeologists.

From the very beginning, the work of the Khorezm expedition was mainly connected with the Southern Akcha-Darya corridor and the territory of the northern delta. First, the route back to the Aral Sea along the Akcha-Darya canal aroused the interest of archaeologists.

The members of the expedition began to explore the desert lands. Archaeological and geomorphological works were carried out in parallel during the research. Archaeological monuments in the territory of desert delta have been thoroughly studied and collected data.

During the Neolithic period, the tribes of the Kelteminar culture lived in the Akcha-Darya delta, an example of this is the opening of the Djambas 4 fortress in 1939. (Djambas-fortress is located in the south of the delta mountain). The tribes living there were mainly engaged in fishing and hunting.

The Djambas 4 platform, which remains a classic monument of Kelteminar culture to this day, is a great objective of the cultural layer up to 40 cm thick and covered with bare mud lying under the sand. Archaeological excavations have revealed that the remnants of the fire at the Djambas 4 fortress are in the shape of a rectangle, and was found to be a dwelling built of wood and reeds.

The structure of the monument was completely restored on the basis of remains of burnt floor. After the fire, floods caused the monument to be covered with layers of mud, and thus the remains of the construction have been preserved for more than five thousand years. The Djambas 4 fortress was built on top of a sandy mountain ridge, measuring 26x17 m in length, and the roof of the building was conical. According to archaeologists, in the center of the house





there was a hole for smoke at a height of 8-10 m, which is called "unquenchable fire".



Fish bones, pottery, and quartz tools were found in Djambas 4. The Djambas 4 settlement is the oldest of the monuments found in the Djambas fortress, which dates back to the end of the 4th millennium BC.

Over the years, the territories belonging to the Khorezm state have been studied by scientists and archeological researches have been carried out. As a result, the models of the findings, goods were turned into museum exhibits.

The collection of the State Museum of History and Culture of the Republic of Karakalpakstan also contains artifacts found as a result of archeological and ethnographic research.

The archeological collection of the museum contains information and artifacts from antiquity to the 19th century. One of them is a model of Djambas 4, which is now in the exhibition hall of museum. It is gaining the attention of the visiting audience.

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# METHODS OF TEACHING THE TOPIC OF HIGH MOLECULAR COMPOUNDS ON THE BASIS OF DIFFERENTIAL APPROACH

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## ABSTRACT

*This article describes the methods of teaching the topic of high molecular compounds on the basis of differential approach at higher education institutions and university instruction. This course for advanced undergraduates and masters level graduate students focuses on teaching the basics of polymer history, synthesis and differential approaches, characterization with connections to the core chemistry curriculum in a small auditory size environment and without a textbook. Furthermore, an extensive overview of the applications of polymeric materials gives students a connection to real life applications. The course includes polymer case studies, informational lessons on real world objects made of polymers, and demonstrations. Student presentations on how polymers are important to society help connect the course to the world around them. The course is designed to instill the knowledge necessary for students to be successful in a career in polymers. A brief discussion of course reflections and student input is also given.*

## 1. INTRODUCTION

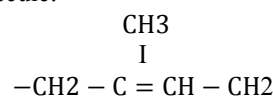
Among the many substances found in nature, there is a group of substances that differ from others in their physical properties, which can form fibrous membranes, etc., due to the high viscosity of solutions. This group includes cellulose, lignin, pentosans, starch, proteins and nucleic acids, which are formed during the vital activity of plants and animals. A variety of fibers, leather and rubber, called natural polymers, have been used since ancient times.

High molecular weight compounds differ from lower molecular weight compounds by their extremely large molecular mass. Typically, substances with a molecular mass of 5,000 or higher, whether natural or synthetic, are classified as high-molecular compounds.

This means that the chemistry of high molecular weight compounds strikes chemicals consisting of hundreds and thousands of atoms.

Analysis of high-molecular compounds has shown that their molecules are basically the same parts. Therefore, such parts are called elementary

links. The elemental link in natural rubber is the isoprene molecule:



If we dwell on, the background and role of polymers, they are materials made of long, repeating chains of molecules. The materials have unique properties, depending on the type of molecules being bonded and how they are bonded. Some polymers bend and stretch, like rubber and polyester. Others are hard and tough, like epoxies and glass. The chemist Hermann Staudinger first proposed that polymers consisted of long chains of atoms held together by covalent bonds, which he called macromolecules. Paul Flory was awarded the Nobel Prize in Chemistry in 1974 for his work on polymer random coil configurations in solution in the 1950s.

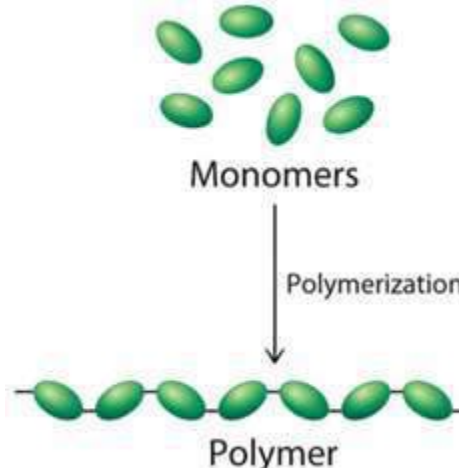
Polymers touch almost every aspect of modern life. Chances are most people have been in contact with at least one polymer-containing product — from water bottles to gadgets to tires — in the last five minutes.



Almost, polymers are used in every area of modern living. Grocery bags, soda and water bottles, textile fibers, phones, computers, food packaging, auto parts, and toys all contain polymers. Even more-sophisticated technology uses polymers. For example, "the membranes for water desalination, carriers used in controlled drug release and

biopolymers for tissue engineering all use polymers," according to the ACS.

The term polymer is often used to describe plastics, which are synthetic polymers. Popular polymers for manufacturing include polyethylene and polypropylene. Their molecules can consist of 10,000 to 200,000 monomers.



**Picture 1. A polymerization reaction, a large number of monomers become connected by covalent bonds to form a single long molecule, a polymer.**

In Uzbekistan several scientists have learnt high molecular compounds in chemistry speciality. They are: T.M.Babayev("High molecular compounds"), Askarov M.A., Yoriev O.M., Yodgorov N. ("Physics and chemistry of polymers") S.Sh.Rashidova ("Introduction to high molecular weight chemistry connections"), S.R.Rafikov ("Introduction to physico-chemical solutions of polymers") and others.

## 2. EXPERIMENTAL

### Material and Methods

Researchers are experimenting with many different types of polymers, aiming to further medicine development and enhance products we already use. For example, carbon polymers are being developed and enhanced for the automotive industry.

"Carbon-fiber-reinforced polymer (CFRP) composites — also called carbon-fiber laminates — are the next-generation materials for making cars lighter, more fuel efficient and safer," according to a 2016 Live Science column by Nikhil Gupta, an associate professor, and Steven Zeltmann, a student researcher, both in the Composite Materials and Mechanics Laboratory of the Mechanical and Aerospace Engineering Department at New York University Tandon School of Engineering. "Carbon laminate is extremely strong and stiff because of its

woven layers of nearly pure carbon fibers bonded together by a hardened plastic, such as epoxy resin."

So, this work presents following teaching methods proving to teach high molecular compounds on the basis of differential approaches. Teaching and learning is conducted through a variety of methods and is adjusted depending on the type of material being presented. Polymer synthesis methods are taught by board lecture, real life examples, auditory discussion and interactive case studies. This is a slower approach, but it often helps students solidify knowledge, have time to prepare to ask questions and better discussions. This slower pace method is especially important for students with very little or no exposure to polymers, and many of whom have no experience with radical initiated reactions and mechanisms.

This method also allows for drawing clear connections with organic chemistry. For the application part of the auditory, lectures are taught using a mix of computer aided presentations and videos from scientific research publications (Kraft, Rankin, & Arrighi, 2012). These were supplemented by pointing out important points and connections on the board to solidify concepts. The presentation videos allowed for showing the complexities and awe-inspiring nature of modern materials in a way unattainable through drawing. Most of the applications portion of the course is put together using primary literature from journals such as *Macromolecules*, *Polymer Chemistry*, *Chemical Communications*, *JACS*, *Nature*, and *Science*, etc. This allows for some of the newest and most exciting



topics in polymer science to be presented and connected to the synthesis techniques examined in the first part of the course. The biggest challenges with using primary literature is that many of the articles are very advanced to upper level undergraduate or first year master's students, so great care must be given to clarify and connect the advanced concepts back to the basic polymer chemistry learned in the first part of the auditory. The lectures are broken up by a series of auditory and/or group activities. The first type of activity is a case study discussion (Campbell, Powers, & Zheng, 2015). This is most often a recent paper using a polymerization method discussed in auditory. The problem is presented with background, and split by either showing how the researchers solved the problem or gave the problem without a solution, in both cases using their learned knowledge to see what kind of method they could come up with. As an example, students are presented with a problem related to polymer membranes in proton exchange devices. The device structure of a proton exchange device is discussed as well as limitations with current technology. The standard polymer Nafion® is introduced and its potential limitations were determined through auditory discussion. A potential replacement is then introduced from using phosphonic acid block co-polymers made by anionic polymerization (Perrin, Elomaa, & Jannasch, 2009). A learning example is introduced showing the importance of structure in anionic polymerization, with uncyclically hindered monomers undergoing nucleophilic substitution at the phosphonate instead of undergoing anionic polymerization. By adding steric bulk to the initiating monomer, polymerization proceeded. The differences in properties between Nafion and this new material are then compared and contrasted.

The second activity is the discussion of real-life applications of polymers examined in auditory.

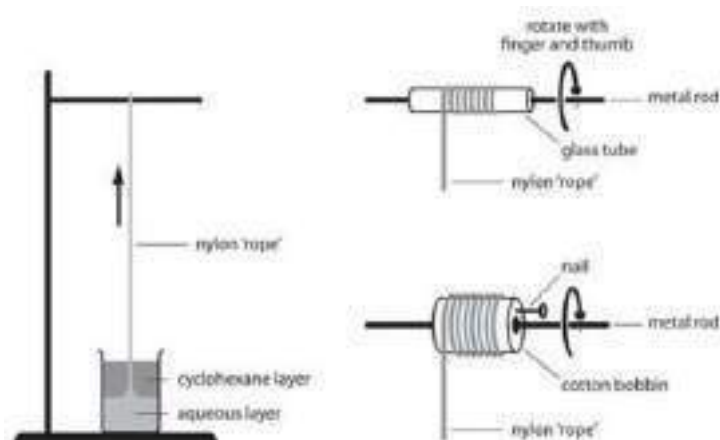
### 3. RESULTS AND DISCUSSION

During the course teaching covers a wide range of topics including general polymerization techniques of basic polymer systems (i.e. polystyrene, nylon-6,6 etc.), block copolymers (structural motifs, types of blocks), conjugated polymers and their photonic and electronic properties and applications, high performance polymers (smart polymers, actuators, gels), hybrid polymers (silicones and other inorganic polymers) and biopolymers (drug delivery, tissue engineering, biodegradable, non-

fouling and biomimetics). The synthesis, properties, and the industrial, biomedical and optoelectronic applications of all of these materials are discussed. Students learn design principles to achieve specific functions from polymers, synthetic methodology, structure property relationships, and fabrication of devices from polymers.

When we use experimental works, we must work in a well-ventilated laboratory and wear eye protection and disposable nitrile gloves when pulling out the thread. There are given several part of using methods of teaching the topic of high molecular compounds in order:

- Wear eye protection and disposable nitrile gloves when pulling out the thread.
- The room should be well ventilated and there must be no sources of ignition.
- Details for waste disposal can be found on ASE1, SSERC2 or CLEAPSS3 websites.
- This demonstration has been described in many sources using chlorinated solvents for the acid chloride. These are no longer considered safe and will soon become unavailable. Cyclohexane is less dense than water whereas chlorinated solvents are denser. The layers are therefore inverted compared with the old method.
- Cyclohexane is preferred to hexane as it is less harmful.
- Hexanedioyl dichloride (adipoyl chloride) can be used as an alternative to decanedioyl dichloride, but it does not keep as well.
- Decanedioyl dichloride reacts with moisture in the air to produce decanedioic acid which forms nylon much less readily than the acid chloride. Ensure that the bottle is restoppered carefully after opening and consider storing it in a desiccator. The dichloride is also available in 5 cm<sup>3</sup> sealed ampoules. The cyclohexane solution will still make nylon for a couple of days after being made up even if left unstoppered. A solution kept in a stoppered bottle is still usable after two weeks. The solution can be stored over anhydrous sodium sulphate or calcium chloride to keep it dry.
- Solid 1,6-diaminohexane can be difficult to get out of the bottle. The easiest way to manipulate it is to heat the bottle gently in warm water until it melts at 42 °C and dispense the liquid using a dropping pipette.



Picture 2. Process of procedure.

The reaction is a condensation polymerisation  
$$n\text{H}_2\text{N}(\text{CH}_2)_n\text{NH}_2 + n\text{ClOC}(\text{CH}_2)_8\text{COCl} \rightarrow \text{H}_2\text{N}[(\text{C}_6\text{H}_4)_6\text{NHCO}(\text{CH}_2)_8]_n\text{COCl} + n\text{HCl}$$
  
The nylon formed is nylon 6 – 10 so called because of the lengths of the carbon chains of the monomers. Nylon 6 – 6 can be made using hexanedioyl dichloride (adipoyl chloride). The diamine is present in excess to react with the hydrogen chloride that is eliminated. An alternative procedure is to use the stoichiometric quantity of diamine dissolved in excess sodium hydroxide solution.

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#### 4. CONCLUSION

In conclusion, methods of teaching the topic of high molecular compounds on the basis of differential approach has been discussed. The approaches described would allow instructors with little or no experience in polymer chemistry to develop their own courses, and/or incorporate polymer topics into their core courses. Polymers will continue to be an important part of everyday life for many years to come (Ritter, 2002) and therefore education about their syntheses, function, and properties will only become more important.

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## THE CATEGORY OF MANIPULATION AND ITS TYPES

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### ABSTRACT

*This article reveals the essence of the content of the category of manipulation. In doing so, a generalized definition of its many interpretations is developed by analyzing and synthesizing the features that make up the content of the concept of manipulation. It also compares the interpretations of the concept of manipulation in different studies and identifies its types.*

**KEYWORDS:** *manipulation, manipulator, communicator, symbolic force, political myth, image, stereotype, hidden influence, the distortion of information*

### DISCUSSION

The term “manipulation” is derived from the Latin word “manus” which means “hand”. In European languages, this term is used in the sense of referring to some object with certain purposes (for instance, the manual manipulation of a physician, his way of illustrating something to a patient using his hands). The Oxford English dictionary describes the term “manipulation” as “influencing someone discreetly, governing their actions without their notice, discreet act of influence”. Clearly, the term manipulation has a metaphoric aspect, and can be used in a figurative form of a speech.

So, the term manipulation literally means to handle objects skilfully with hands, and it figuratively means to influence people without their notice. It is clear from the thoughts given above, that this term was, right from the beginning, associated with the complex of skilful, even hidden influence methods. If we look at the descriptions of the term “manipulation”, we can notice that it has a number of unique characteristics. First, it is a kind of physical violence and psychological influence. In this case, the human mind, and the psychic structure of a person is conceived as a target for the manipulator. The work of sociologist Herbert Franke “The Manipulated man” (1964) is considered as one of the first works dedicated to the direct study of the mind manipulation. The researcher describes the mental manipulation as such: “manipulation denotes to often hidden and harmful influence on the object of manipulation by the manipulator”[1].

Second, the manipulation is such a hidden influence, that its target does not notice the facts of manipulation. As H. Schiller puts it, “In order for manipulation to be successful, it must stay covered and hidden, and the target of manipulation must perceive the effects of manipulation as natural and necessary (inevitable) phenomena. In other words, the process of manipulation requires an imperceptible level of false reality”[2]. If the attempts of manipulation is discovered and the information about them is spilled, the circle of actions is diminished. Otherwise, there is a great risk towards the manipulator. In these kind of cases, even if the attempts of manipulation are discovered, the actions are encrypted more securely in order to hide the main goal of the manipulation. Thus, the top-secrecy of the information is one of the main features of the manipulation.

Third, the manipulation is such a kind of influence, exerting of which requires special skills and professional knowledge. Even at the local scale, in order to manipulate the social world, certain expertise and professional skills are required. Thus, the manipulation of social sphere becomes a certain type of technique, and it bolsters the processes of the production of specialists capable of handling such technique and of scientific and popular literature. Part of the authority technologies are one of the most important aspects of manipulation. However, it must not be understood as exerting influence on the behavior of a friend or a companion.

A number of thinkers, such as I. L. Vikontyev, A. I. Vlasov, D. A. Volkogonov, E. A. Dotsenko, L.



G. Ionin, S. Kara-Murza, A. N. Kochergin, A. I. Kovler, G. Churchill, H. Schiller conducted in-depth studies of the essence, contents and the types of manipulation. The study of these works focuses on the object, subject, goals and objectives of political manipulation, dosing information using modern media and technologies, the formation of specific advertising policies, exaggeration of rumors, negative assessments, social rhetoric, the formation and confirmation of socio-political myths and socio-political images and allows to identify and analyze the descriptive features of the expressed procedural manipulation.

Accordingly, the study of the peculiarities of socio-political myths and the formation of socio-political image is an important aspect of forms and methods of manipulation. As we are aware, the term "image" was first introduced to the scientific usage by E. Bernaiz. P. S. Gurevich, A. F. Gutsal, N. A. Karnaupov, V. M. Shepal and others, in their researches on the aspects of socio-political image, revealed the habitual, material, environmental, verbal, charismatic and kinesthetic elements of manipulation. According to the results of above mentioned researches, the image is created with the purpose of manipulating the popular consciousness on the basis of special technologies.

The fundamental and theoretical bases of socio-political myths are treated in depth in the works of V. I. Garadj, R. A. Zbov, V. N. Kelasyev, I. M. Chudinov and others. According to these researches, manipulation is specially oriented exertion of influence on a certain object with the purpose of attaining previously set goals. The role and the importance of manipulation came to be understood gradually, as the implementation of political technologies proliferated and studies of "popular consciousness" are intensified. The level of success of the manipulation depends on the amount of the means of influence exertion, and the level of their elasticity and variety.

It must be specifically stated, that in political literature, the term "manipulation" is used to denote a special means of promoting a certain idea. In this case, the first task is to form an environment of information, or, say, to form a "target" of information influence. In the manipulation of public political consciousness, it is important to control the process of information and communication, which determines the forms, rules, perceptions and attitudes of human activity.

There is wide range of theoretical and methodical approaches in defining the term "manipulation". G. V. Grachev describes this notion as "Non-violent, mental influence, or form of hidden domination"[3]. D. A. Volkogonov describes this term as "the domination of the mental state of an

individual, and the authority over the processes of his inner changes"[4]. He assumes that the process of manipulation can be considered successful only when the manipulator succeeds in implanting the stereotypes he wants to the consciousness of an individual. According to Volkogonov, "manipulation is one of the stepping stones of the mechanisms of psychological warfare"[5]. A. I. Vlasov describes manipulation as, "securing authority against the will of the populous"[6]. V. Ricoeur, in his work titled "The Art of Political Manipulation" describes a world which allows for the victory with means of manipulation. According to R. Cialdini, "manipulation is prompting for some behavior with means of lie"[7]. According to E. L. Dotsenko, "manipulation is an attitude towards others as means or tools"[8].

Renowned American thinker, Herbert Schiller describes manipulation as "hidden and compulsory programming of thoughts, goals, feelings, attitudes and behaviors"[9]. Another leading American thinker, E. Shostre thinks that, "manipulation is using, exploiting and controlling others, or treating them as objects"[10].

In 1921 V. M. Bekhterov published a work, titled "Collective Reflexology". In it, he describes a kind of popular absorption under the influence of "psychological contamination". Bexterev connects the phenomenon of absorption directly with the process of manipulation of consciousness, explaining it in this act as a threat to the mind of "I", for instance, foreign ideas without the direct participation of the subject. Analyzing the above approaches and considerations, we can give a psychological definition of the same concept: manipulation is a type of mental influence used to achieve a one-sided victory by secretly encouraging others to perform a certain action against their will[11].

As we are aware, the phenomenon of manipulation is, above all studied by the researches in political sciences. For, this term is first used in politics as a metaphor, then transitioned in other spheres of public consciences.

The notion of political manipulation covers the notions of interpersonal and mass manipulation in its content. In the first case, the manipulator uses the certain technique consisting of the methods of interpersonal manipulation. In the case of mass manipulation, the manipulator uses manipulative techniques.

The interpersonal manipulation is directed towards individual people, while the mass manipulation is directed towards entire nations. For, manipulators, in their use of mass manipulation, try to exert their influence on as much portion of the populace as possible. In this case, the opinion of a



certain portion of the population, and in some cases, even of some individuals are presented falsely as the opinion of the entire population.

E. Kanetti in his work, "The masses and the authority" presents the idea that, "human nature presents a great fear in him"[12]. His present work aims to illustrate the essence of the feelings of fear in human nature. According to him, "an individual person can destroy the whole amount of virtue in the nature of the entire humanity"[13]. The author concludes, that it is strange that there should exist conflicts between one man and the whole mass of others who can destroy him. In this work, the pessimism about the future leads to the domination of the spirit.

According to Y. P. Avverin, the technological manipulation of the masses is "the exertion of the influence on the public opinion by the communicator with the help of management effects"[14]. The political manipulations can acquire not only negative, but positive aspects. For instance, they can be used for attracting the masses to the political events, and for heightening the level of their participation in political scene of the society. But, this study mainly concerns with the analysis of the negative aspects of the notion of manipulation.

Therefore, this study considers the meaning of the category of political manipulation in the form of covert influence on the general public through propaganda, using the features of popular psychology, forcing people to think and act according to the interests of the manipulator.

Manipulation is the distortion of the information for some purpose. Therefore, the symbolification of the information, associated with the imaginative universes is placed in important position. The objectivisation of the information is achieved through the codification. This, in its turn, gives an opportunity "to control the individual". The codification of the information is forming its structure, changing its status, and creating informational schemes. This allows people's minds to absorb the elements that are required to exist at a stage before they can comprehend the constituent component of the information. In this sense, the informational codification is associated with the regulation of social and individual practice, and it is directed strictly to a set purpose. According to S. Kara-Murza, "the codification is associated with systematization of situational chaos through the symbols"[15]. It is achieved through the unification and homogenization of the reality and by creating a simplified and intelligible picture of the universe. The tensions and conflicts in the process of understanding is lifted with the help of codification, formalization and unification of the information.

The codification, by limiting the variety and choice, simplifies its objects and makes it intelligible for any age group. "Thus, through the codification, the universe will acquire a simple, rational, intelligible and controllable aspect. As a result, both the man and the universe transforms into a stable, rational and formalized which can be foreseen"[16].

Thus, the manipulation is the recreating and reforming the information accordingly with the interests of the manipulator through the redefinition of certain political events and the creation of symbolic authority. The symbolic authority, according to S. Kara-Murza, "is associated with the manipulation of not only world picture, but of its own status in public space, it's "own image"[17]. It claims to change the assessments and imaginations. Truthfully, the words, and notions, which are chosen for the formation of reality, "create" reality as they are expressed. In this case, the chosen words and symbols serve as a basis of strategy and identity.

With the help of rumors, gossip, judgements, superstitions, myths, images, the public is influenced and a new reality is created by replacing old relationships with new ones. The symbolic authority is based on the principle that if the universe is changed, then so are the methods of its formation, and in its turn, the content and the identification of the social groups. It can be argued, therefore, that the symbolic authority is the authority of the formation of required groups, the absorption of the image of a certain universe to the minds of the others, "a way of asserting oneself"[18].

On a concluding note to the above-mentioned thoughts, we can assert that the recreation and remaking of the information is achieved through following methods:

1. The distortion of the information (the interpretation of information, which does not represent the reality, or based on the subjective position);
2. The veiling of information (sifting, censoring and monitoring and presenting the materials according to the interests of manipulator);
3. The manipulation through the presentation of the information which is remade according to the tastes and the interests of the manipulator;
4. Urging the masses to make positive decisions about the manipulator (the attempt to show the judgements the manipulator needs as the judgements of the objects of manipulation);
5. The manipulation, associated with the time of the presentation of the information.

Thus, the manipulation of the public consciousness denotes to a hidden method of influence exertion in which the objectives and the expected results of the process of the manipulation are kept secret. It is achieved through the myths and



with the help of various information-distortion techniques.

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## METACOGNITIVE LEARNING METHODS IN TEACHING ENGLISH AS A FOREIGN LANGUAGE

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### ABSTRACT

*While it entails gaining knowledge of foreign languages, one will never say that he or she has reached perfection in gaining knowledge of it. Mastering the language of a distant place is ever to be any progressed, given the complexness of linguistic systems furthermore due to the incontrovertible fact that languages evolve in time. The aim of our paper is to supply many samples of metacognitive studying methods for teaching English as the language of a foreign place and spotlight the effect in their use upon the students' ability to self-adjust studying, their action of learner autonomy, moreover as their overall studying potential and getting to know the motivation.*

**KEY WORDS:** *language, learning strategies, life-long learning, metacognitive strategies, metacognitive skills.*

### DISCUSSION

Vocabulary finding out is taken under attention as an accomplice vital and vital area of looking at as “terms square measure the critical constructing blocks of language, the gadgets of this show that from that larger structures like sentences, paragraphs, and whole texts rectangular measure shaped” (Read, 2000). In step with Ruutmets (2005), vocabulary-gaining facts of strategies rectangular degree a subcategory of mastering approaches and build data referring to what inexperienced folks do to discover the which means of the progressive terms, keep them in reminiscence, recall them as quickly PRN lack of ability, and make use of them in language generating. They may be categorized right into

a) strategies for experience the words that recommend, like making deductions from the phrase-shape, linking to cognates, estimation from the context, and the usage of a lexicon, and

b) Ways for studying phrases, like continuation the word over and anyone once more, organizing terms in the thoughts and links to the ancient past.

Learners try to notice the way to this of a phrase by using estimation with the assist of the

context, structural facts of the language, and reference materials. For Schmitt (1997) the second one thanks to noticing the brand new this shows that of a word rectangular degree thru victimization social strategies through asking a person for facilitating with unknown terms. Other than the preliminary discovery of them thanks to this of a phrase, beginners need to use an expansion of techniques to observe and keep vocabulary. During this taxonomy, mental function techniques rectangular measure almost as if memory techniques but do not goal smart mental techniques. They contain repetition and use of a mechanical manner like phrase lists, flashcards, and vocabulary notebooks to be schooled words. In the end, metacognitive methods in Schmitt's (1997) taxonomy square measure incontestable as techniques used by college student's international organization employer management and pick out their own mastering like checking out oneself.

Metacognition is also mentioned merely as considering interest (Anderson, 2002). Its miles the potential to create one is curious seen. It is the capability to replicate what one is responsive to and could and what one will now not perceive and would not do. Metacognition results in the vicinity unit an





essential but wholesome mirrored image and analysis of questioning that can cause growing particular adjustments in however one learns. Metacognition is not whilst not a doubt questioning lower back on an occurring, describing what happened, and additionally the way one felt concerning it. It necessitates masses of deeper interest and manner. Improving metacognitive attention is a very critical natural procedure and academic purpose (Ridley, Schultz, Glanz, & Weinstein, 1992; Sendag & Odabasi, 2009). Metacognitive talents have a completely critical role in studying technological knowledge. The cause, mastering era is not always pretty much statistics, standards, or ideas but, further, an aiming to recognize the strategy for school students in conventional existence. Subsequently, within the science getting to know the way, college students want to construct their information of several. Primarily based at the many preceding take a glance at, that includes the analysis that achieved through Hidayati (2016); Jagals and Walt (2016); Kallio, Virta, and Kallio (2018); Lajeng (2017); Okoza, Aluede, and Owens-Sogolo, (2013); and further Tamsyani (2016), a tremendous degree of metacognitive focus is related to the electricity of the student to higher style, screen, examine, and replicate at the getting to know method consciously. It will help the scholar to grow to be additional independent and warranted in learning. Therefore, the authorization of college students' metacognitive within the route of learning is a shot that must be lifeless by victimization the trainer or lecturer (Fauzi, 2013; Panchu, Bahuleyan, Seethalakshmi, & Thomas, 2016b; Ramadani et al., 2015). In the course of this regard, faculty college students' global health business enterprises have accurate metacognitive recognition can evaluate well than the ones that do not have accurate metacognitive awareness (Pantiwati & Husamah, 2017). If faculty college students already have an accomplice in Nursing hobby and keenness in mastering and participate in information the cloth, additionally to possibly on top of things in their terribly personal gaining knowledge of, the scholar's vicinity unit already attentive to their metacognitive (Yulianingtyas, Budiasih, & Marfuah, 2017). One of the most vital duties of teachers is to coach students on the manner to observe throughout their period. A bit like the pronouncing says, 'supply someone a fish and additionally you feed him for an afternoon; educate someone to fish and also you feed him for a lifetime'.

1) A first-rate way to educate students on the way to examine and construct they're aiming

to recognize the layout and, as an end result, have interaction in lifestyles-lengthy learning, instructors want the motor inn to metacognitive ways. Metacognition designates the eye, evaluation, and records that a person has of his/ her mental feature (studying, wondering) strategies.

2) The term 'metacognition' became coined victimization yank natural manner scientist John Flavell (1979) international fitness business enterprise mentioned it as information concerning noises and manage of noises. In psychology, Nelson and Narens (1990, p. 127) histrionic companion in Nursing relevant distinction between observance – developing judgments concerning the strength of 1's memories – and manage – using one's judgments to manual behavior, mainly have a look at picks. Flavell (1979: 908) has categorized noises into three components:

- Metacognitive information/ metacognitive popularity: what people perceive concerning themselves et al as mental characteristic processors;

- Metacognitive regulation: the law of noises and gaining knowledge of studies via a fixed of sports activities that assist individuals to manipulate their reading;

- Metacognitive reports: reports that have one element to try to with the present psychological feature. Vocabulary is data of terms and word meanings. However, vocabulary is additionally state-of-the-art than this definition. First, phrases location unit available bureaucracy: oral and print. Oral vocabulary includes the ones phrases that we will be predisposed to perceive and use in listening and speaking. Print vocabulary consists of those phrases that we have a propensity to perceive and use in reading and writing. Second, phrase capacity, in addition, comes in work, receptive, and productive. Receptive vocabulary consists of words that we will be inclined to recognize while we will be predisposed to pay attention or see them. Effective vocabulary consists of phrases that we will be predisposed to apply as soon as we communicate or write. Receptive vocabulary is regularly giant than efficient vocabulary and should embrace numerous phrases to that we have a propensity to assign a few that imply, despite the fact that we will be inclined to don't well-known their full definitions and connotations – or ever use them ourselves as we have a tendency to communicate and write. Coady, J. (1997) Richards and Renandaya (2002) decided the truth that vocabulary schooling changed into given little or no precedence in second language packages



and vocabulary acquisition changed into forgot and acquired no interest in several textbooks and language programs. Hedge (2001, p. A hundred and ten) complained or so neglecting vocabulary spoken communication that “inside the literature of instruction and getting to know, a relevant subject matter has been disregarded of vocabulary”. He additionally states that this forget about is quite sudden for over one purpose. The first motive is that students themselves vicinity enormous significance on vocabulary. The overlook of vocabulary is moreover sharp because of the vocabulary mistakes location unit numerous unclear than grammatical ones. It is moreover obvious that vocabulary aiming to recognize maybe an essential corporation for EFL (2001, p. 217) outlined vocabulary mastering approaches as to approaches which require to

- a) Contain need, that is, their vicinity unit numerous strategies to select from,
- b) Be sophisticated, this is, their area unit numerous steps in getting to know,
- c) Originate facts and have the gain of schooling, and
- d) Growth the overall performance of vocabulary studying and vocabulary use.

Takac (2008, p. 52) believes that vocabulary getting to know ways place unit “specific methods applied in the remote project of gaining facts of vocabulary at intervals the goal language” and provides that scholars will use them in any language gaining information of matters. He, in addition, declared four traits of vocabulary learning methods as 1) need alternative on college students’ component, 2) show off complexity and necessitate advantageous system, 3) depend upon enjoy and should, additionally, enhance via guidance, and 4) create gaining knowledge of and victimization vocabulary in L2 greener.

“Metacognition” is usually while no longer a doubt disclosed as “wondering regarding thinking”. In truth, way metacognition is not invariably that straightforward. Albeit the basic live has been a section of the vocabulary of educational psychologists for a preceding wide variety of extended time, and alongside the perception for this prolonged as human beings’ locality unit ready to the replicate on their highbrow function memories, there’s adequate speak about mainly what metacognition is. One motive for this confusion is that the simple fact that their locality unit numerous phrases currently accustomed make a case for ordinary sleek development (e.g., self-regulation, government control), or an aspect of that improvement (e.g., meta-memory), and extraordinary human beings phrases unit

of the dimensions currently and each one all yet again used interchangeably at intervals the literature. Their locality unit a handful of variations amongst definitions that emphasize the perform of kingdom ways most of the overseeing and law of psychological perform methods. Flavell, J.H. & Wellman, H.M. (1977). Every of a shape definition states that metacognition is composed of every metacognitive fact and metacognitive reminiscences or law. Metacognitive statistics go to no hereditary info touching on intellectual operate methods, the records partner sincerely due to get will not to coping with mentally operate methods that. Flavell, moreover, divides metacognitive records into three categories: information of person or girl variables, venture variables, and approach variables. Anderson, N. J. (2002a). Maximum of the primary investigations of metacognition place unit descriptive in nature in the course of this they needed to deliver proof for extensive organic approach kinds of children’s information regarding memory ways. They need been considerably fascinated by methods distressed with acutely conscious and deliberate storage and retrieval of knowledge. However, as research affected from descriptive to empirical, the styles of method prolonged, the vary of evaluation extended, and would love for a topic maintains in thoughts to depend on the purpose this growing corpus of literature on metacognition arose. Numerous kind schemes location units accustomed cluster, examine, and choose one’s ways, and admittedly there square degree a unit crucial variations amongst them, generally, three well-desired suggestions consistently seem intellectual function announcement, highbrow feature law, and a mixture of every. Chamot, A. U., & Kupper, L. (1989). The metacognitive capability to go back to a name out and use expressways for the duration of a very given context for a selected purpose approach the learner can forecast and accumulate acutely aware options close to the training method. Beginners need to be pressured to be tutored not whole concerning checking out ways but at the identical time almost about as currently on developing the utilization of them and except the way to the usage of them. College students have to be taught within the way to choose out the only and fine method for the duration of an extremely whole given situation. The consecutive critical part of metacognition is the assertion technique use. Through checking out and declarative their use of roughly to recognize approaches wherein, university college students have a diffusion of possibilities of success in meeting they are going to understand needs. Faculty students should be pressured to be expressly



cautioned that when they want to elite and started to apply the crucial strategies, they ought to investigate periodically whether or now not or no longer or not or no longer, now not, or now not had the only techniques place unit powerful and getting used as meant. As a partner instance, once studying, they will use context to wager due to this of the assorted unknown vocabulary subjects. To observe their use of this approach, they must pause and test to take a look at, if this shows that, they guessed is sensible within the count range content material textile, and if now not, return and alter or regulate their approach. Anderson, J.R. (1985). Knowledge of the great thanks to using companion assistant combination of approaches in assistant enterprise trend can be quite important metacognitive experience. The evaluation has related that loaded language beginners have a tendency to have a look at on out procedures within which employment well aboard in assistant notably terribly mercantilism shows that, custom-designed to the desires of the language undertaking. In the direction of this instance, one's cookies can actually justify the approaches in which they use and why they use them. Bachman, L. F., & Palmer, A. S. (1996). Super ways or clusters of methods sq. Degree associated with precise language competencies or duties. As a partner example, FL writing, like L1 writing, edges from the education strategies of bobbing up with, self-monitoring, deduction, and substitution. Everglade country talking needs techniques like risk-taking, paraphrasing, circumlocution, self-monitoring, and self-evaluation. Sunshine state listening comprehension earnings from ways of elaboration, differencing, selective hobby, and self-tracking. Sorting out comprehension uses strategies like learning aloud, guessing, deduction, and summarizing. The analysis suggests that the employment of acceptable acquisition ways usually finishes up in improved enjoy or accomplishment popular or particularly revel in regions. Nunan, D. (1991). One in each of the essential metacognitive approaches, which is probably too degree the effectiveness of approach use. Self-thinking, record discussions while methods that take a look at, going to recognize logs amongst that students record the outcomes in their aiming to recognize methods applications and checklists of the method customers vicinity unit reception with a piece of writing the pupil to repeat thru the cycle of checking out. At this degree of metacognition the complete cycle of growing with, selecting, the usage of, tracking, and orchestration of the technique is evaluated. It was given to be stated that very exclusive metacognitive abilities flow into one another.

The climate does not look like applied at a few reasons in a very linear style. One metacognitive method at the facet of mental perform ones is likewise operational at some cause for a getting to know the challenge. That the orchestration of numerous approaches wherein commonly common a critical a locality of a second acquisition usually and vocabulary aiming to understand especially. Permitting novices prospects to simply accept and cite however, they integrate varied strategies permits the maneuver to use. Brown, T. S. & Perry, F.L. (1991). Three metacognitive competencies also are relevant in reaching any undertaking: arising with (technique need and helpful resource allocation); declaration (attention concerning one's undertaking standard overall performance); examination (assessing the product than the overall performance at that the organization became finished). Every other applicable metacognitive enjoy is retentive motivation to complete companion organization, albeit, due to the plasticity to journey getting ready to distracting stimuli in case you'd like to preserve try over time. Building metacognitive control in school students allows them to win loaded aiming to understand. It is essential to show faculty college students now not what to reckon however the way to reckon, no longer complete what to be tutored but the way to evaluate. Gaining information about how to evaluate relies upon, mostly, on ahead the only way to anticipate. Wondering a fashion to count on, in possible terms, metacognition takes place as presently as rookies go back to be acutely attentive to the precise truth that their functionality to top-notch one issue has unsuccessful them (e.G. Descriptive linguistics policies) and, consequently, they want kind efforts to make accomplice expertise of it. Therefore, via taking component in the course of a metacognitive act, beginners cover levels: they take into the idea that there unit barriers to any or all of uses information to complete an undertaking, but, put together that they possess ways that needed correcting the restricting scenario and entire the assignment.

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## DETERMINATION OF THE GRAVITATIONAL CONSTANT BY TORSIONAL SCALES OF CAVENDISH

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### ABSTRACT

By determining the gravitational constant with the torsional scales of Cavendish, it is possible to develop the students' skills in science, to preserve the traditional form of the lesson, to further increase the interest in science.

**KEY WORDS:** Modern technology, modern methods, the scales of Cavendish, science and technology education.

### DISCUSSION

In the preparation of a teacher of the new century, it is very important that he has a deep knowledge of pedagogical and psychological intellectual potential, awareness of innovative educational technologies, interactive methods of teaching and effective ways to increase creativity.

Physics education requires students to have deep theoretical knowledge as well as high practical skills. In this regard, the use of quality innovative methods in education is one of the most important tasks of physics education.

Until recent years, the teaching of physics was based solely on theoretical knowledge. There have been some difficulties in applying the knowledge gained in this way to practice. The use of new innovative methods to overcome such problems is effective.

One of such innovative methods is to determine the gravitational constant with the torsional scales of Cavendish.

#### **The following results are obtained from the experiment:**

Note that the oscillation of a rotating pendulum around an equilibrium state is time-dependent

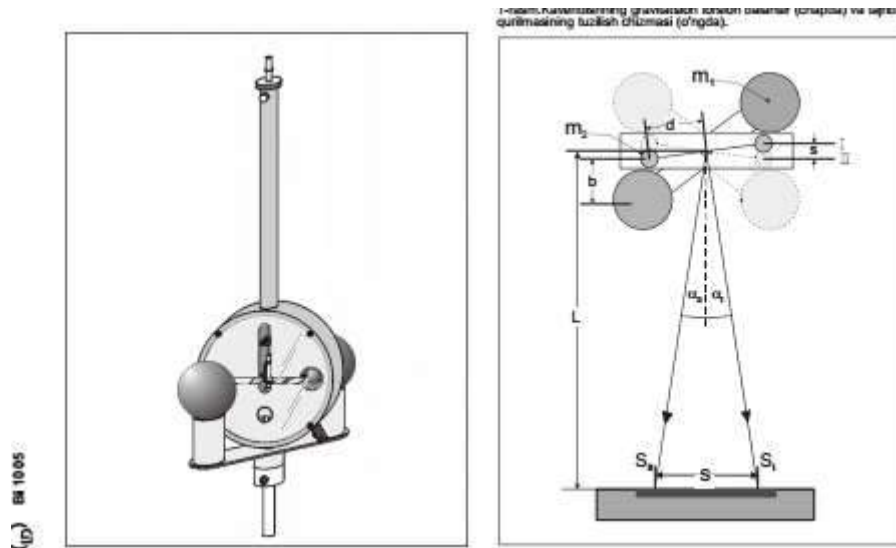
- Find the gravitational constant  $g$  by the method of determining the extreme deviation.
- Determination of the gravitational constant  $g$  by the acceleration method.

#### **It is important to have the following theoretical knowledge to observe the experiment:**

Torsion balancer-the base of the Cavendish scale consists of a light transverse rod suspended on a thin elastic net with balls of mass  $m_2$  at the ends  $d$  from the point of suspension. These two bubbles are affected by two bubbles of mass  $1$ . Although the force of impact is in the range of  $10^{-9}$  N, this force can be observed with a very sensitive gravitational torsional balance. The motion of small bubbles is detected and measured by an infrared motion detector (figure 1).

The infrared motion detector has four infrared diodes that illuminate a sunken window mounted on the transverse beam of a torsion pendulum. The light returning from the window falls on a series of phototransistors and records the vibration of a balloon of mass  $m_2$ . Based on the information about the motion of a body of mass  $m_1$  and the geometry of the device, the gravitational constant can be determined using the maximum deflection method or the simple acceleration method.





**Figure-1. Cavendish's gravitational torsional balance (left) and the experimental device (right).**

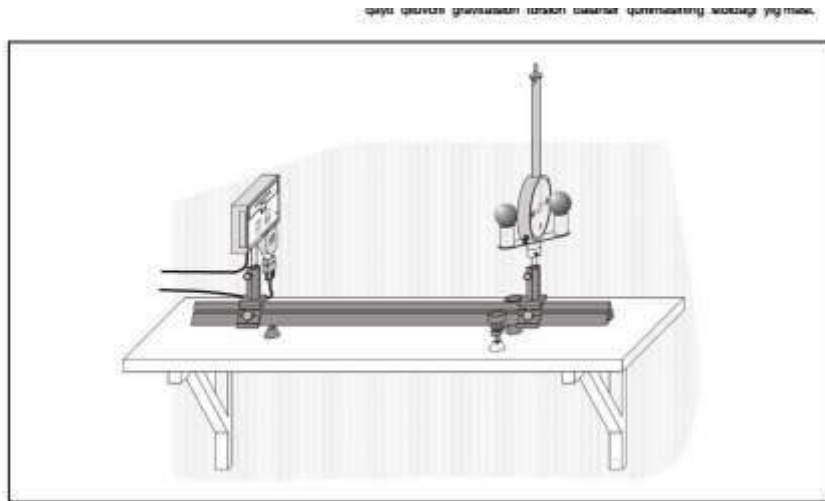
Device structure

1 Gravitational torsion balance	332 101
1 IQ Status detector(IRPD)	332 11
1 Optical rail,standard cross section 1m	460 32
1 Optical drive 60-50	460 373
1 Optical drive 90-50	460 374
1 Tag stem,25 cm	300 41

**Experimental device**

Measurement results can only be satisfactory if the critical torsional balance is adjusted on demand. In addition,the interaction between the objects must not be disturbed by the external vibrations of the pendulum. Torsion is very sensitive to external mechanical influences on the pendulum body. Convections caused by temperature differences in the torsion balance body can also cause torsional pendulum oscillations. Choose a solid wall for the experimental device. For the experiment,choose a place where there is no wind,which is not exposed to direct sunlight. Do not strike the base when twisting the base of the balls or installing lead balls. Figure 2 shows an overview of the experimental device. Gravitational torsion balance start-up assembly:

- Assemble the desktop for the experiment as shown in Figure 2 (see also instructions 332 101 and 322 11)
- Install the optical rail with the gravitational torsion balance.
- Adjust the gravitational torsional balance so that the axis of the sphere is large enough
- Loosen the grip mechanism of the torsion pendulum so that the needles at the ends of the pendulum,suspensions are in the middle of the hole so that the pendulum can rotate freely.
- Let the torsion pendulum hang for one or more days. Reset to zero if necessary.



**Figure 2. experimental device. A table assembly of a gravitational torsion balancer that electronically records vibrations with an IR motion detector.**

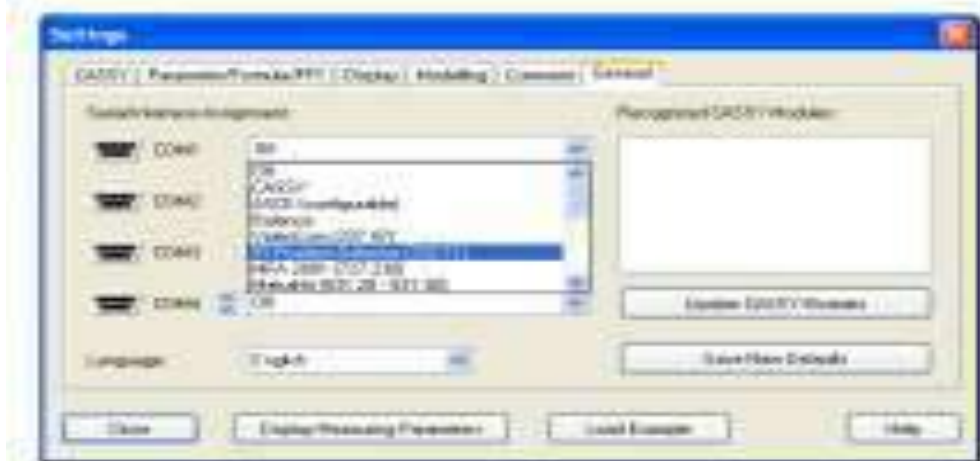
**Recording vibrations**

- Connect the IR detector to the computer via the RS232 interface port

- Install and run the program if the computer is not installed yet (configure the CASSY Lab user interface)
- Click the Settings window on the toolbar:



• "Settings" oynasidan "General" bo'limini tanlang va IQ harakat detektori uchun mos COM portni tanlang:



- In the "Settings" window,select "General" and select the appropriate COM port for the IR motion detector:

**During the experiment  
Initial preparation:**

- In order for the pendulum to remain calm in any equilibrium position,the device must be free from external shocks and impacts for at

least two hours. Note: For optimal adjustment,the optimal balance is at a distance of about 20 mm and 50 mm. if this is not the case,the rotating scales will tilt at a small angle. In this case,this step will need to be repeated several times.

- If the rotating pendulum has not be used for a long time with the locking screw



loosened, it may take a long time to bring it into equilibrium.

Therefore, it is possible to record the time dependence of the extinction of oscillations around the equilibrium position of the rotating pendulum, and to determine the maximum deviation of the gravitational constant  $g$ . The knowledge taught using the same innovative methods will make a huge contribution to the development of our country.

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## **CRAFT OF KHOREZM IN THE PERIOD OF ANUSHTEGIN KHOREZMSHAKHOV**

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## **РЕМЕСЛО ХОРЕЗМА В ПЕРИОД АНУШТЕГИН ХОРЕЗМШАХОВ**

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**Аннотация:** Статья посвящена изучению ремесленного производства Хорезма в период Ануштегинидов на основе письменных и археологических источников. В этот период высоко развивались в Хорезме такие отрасли ремесленного производства как ткачество, металлообрабатывающее ремесло, гончарство, ювелирное дело, переработка дерева и камня. Для ремесленного производства была использованы в качестве сырья и переработаны руды, камни из талька и такие полудрагоценные камни, как бирюза и сердолика, выработки из недр горных хребтов Султанувайсадаге. Образование централизованного государства Ануштегинов и развитие трансконтинентальной торговли в Хорезме оказали большое влияние на развития ремесленного производства.

**Ключевые слова:** Хорезм, источники, археологические исследования, средние века, ремесло, ремесленные изделия, ткачество, металлообрабатывающее ремесло, производство, города, торговля, караванные пути.



В период правления династии ануштегинидов (1097-1231 гг.) появление мощного централизованного государства на Востоке в Хорезме проложило путь для развития экономической жизни, торговли и промышленности. В тот период около 400 городов на больших территориях, которые были присоединены к Хорезмскому государству, вступили в процессы взаимной интеграции. Включение в состав Хорезмского государства таких городов, как Джент, Ниса, Дагестан, Нишапур, Рей, Мерв, являющихся торгово-ремесленными центрами Востока, стало важным фактором развития ремесленничества. Также продолжается развитие урбанизационных процессов, начавшихся в Хорезме в IX-X веках. В частности, если в начале X века в Хорезме насчитывалось около десяти городов, то к середине XI века число таких городов достигло сорок.

В начале XI-XIII вв. в Хорезме развиваются экономические направления, как градостроительство, ремесленничество, земледелие и торговля.

В городах Хорезма сосредотачиваются искусные ремесленники. Сведения авторов начала XIII века подтверждают эту мысль. Из них, согласно Аль-Кураши, в Хорезме насчитывается примерно 50 основных специализированных областей ремесла, Закария аль-Казвини (XIII век) отмечает, что жители Гурганджа (Куна-Ургенч)- «искусные ремесленники», особенно кузнецы, плотники и другие, достигшие в своем ремесле совершенства [2,-с.102].

Хорезмский ученый аз-Замахшари (1075-1144 гг.) в произведении «Мукаддиматуль-Адаб» подчеркивает существование специализированных ремесленных мастерских, таких как «олтунчи» (ювелир), «кулфчи» (мастер по изготовлению замков), «кулачи» (чеканщик меди) [7,-с.7].

В Хорезме до монгольского нашествия (начало XIII века) вывозились для внешней торговли и высоко ценились металлические изделия, такие как замки, также отделанные золотом и серебром седла и сбруи [5,-с.202].

В этот период искусство резьбы по дереву в Хорезме также было высоко развито. Ремесленники не только наносили в дерево художественные украшения, но и использовали привезенные из-за границы слоновую кость и дуб для изготовления деталей резных изделий [2,-с.102].

В то время деревянные конструкции широко использовались при строительстве. В дворцах, мавзолеях, мечетях, медресе ворота, двери, колонны изготавливались из дерева, а также к ним наносились различные узоры и украшения на основе резьбы по дереву. Остатки деревянных конструкций с резьбой обнаружены в дворцовых комплексах Кават-калы, датированной XII-XIII веками. Использование дерева в качестве украшений интерьеров в Хорезме наблюдается в памятниках архитектуры Хивы XII-XIII вв., где сохранились резные деревянные колонны.

Посетивший Хорезм в 1333 года Ибн-Баттута указывает, что внутренний интерьер дома эмира Кутлуг-Темур: «... просторная приёмная и большинство комнат в ней построены и отделаны из дерева. Затем вошли в малый зал с деревянным позолоченным куполом и со стенами, украшенными разноцветным куском...»[4,-с.60].

Еще одной областью ремесла, развивающейся в тот период в Хорезме, было текстильное производство. По сообщениям авторов, в X - XIII веках карбос (хлопок), шерстяные ткани, ковры, хлопчатобумажная ткань «арзанж», производилась в Хорезме для внешней торговли [5,-с.180,216]. К этому периоду, помимо хлопчатобумажных и шерстяных тканей, выпускаются также шелковые ткани. В это время в Ургенче существовали мастерские по изготовлению натурального шелка [2,-с.102]. Это всё подтверждается в том, что производство шелковых изделий осуществляется не только в индивидуальных хозяйствах, но и в специализированных ремесленных мастерских.

Закария аль-Казвини (XIII век) вспоминает, что «женщины Гурганджа были искусными вышивальщицами», то Абдурашид Аль-Бакувий XIV-XV веках об умельцах золотошвейного дела Ургенча еще раз доказывает выше приведенные данные о том, что «женщины Ургенча шьют чудесные ткани золотыми нитками и иглой» [2,-с.102]. Эти данные свидетельствуют о развитии прикладного искусства – золотошвейного дела в Хорезме. Мастера-золото швей помощью вышивки золотой нитью, создавали тканые изделия, такие как вышитая одежда, дорожные сумки, все возможные тубетейки и платки, отделанная позолотой обувь, чехлы, кошельки, лошадиные потники.

В Хорезме металлообрабатывающее ремесло развивалось как одно из важных направлений. В памятниках начала XI-XIII веков по сравнению с VIII-X веками, очевидно, возросли виды, формы художественных металлических предметов и развивалась техника





обработки металла. В этот время особенно развивались обработки художественная металлов, что использовались различные технические методы, таких как литьё, резка, пунсоном, выкуривание узоров, золочение, нанесение золотого и серебряного покрытия [7,-с.23].

В прикладном искусстве появляются новые стили мастерстве изготовления художественных изделий. В этот период в металлических изделиях уменьшилось изображение природы, животного и стали преобладать украшения в новых стилях растительные, геометрические и эпитафические орнаментах. Художественные металлические изделия, украшенные на уровне произведений искусства, зафиксированы в относящихся к началу XI-XIII веков в городище Шахсанам (котёл), Айгельди (чаша), Каваткала (подсвечник) и в других зооморфных и декоративных предметах, в бронзовых зеркалах [7,-с.17-19].

Центры выработок меди и места их производства определены на поселений Актау (X-XIV вв.), Аччик тау (X-XIII вв.), Шейхжалийская гора (XII-XIV вв.), Занги - баба (XI-XIII вв.) расположенных на Султануиздаге [7,-с.10]. Рядом с выработками обнаружены обломки стенок печей, куски шлаков и следы жилищ рудокопов. Видимо, часть медной руды производилась на городище Джанпик кала XII-XIV вв.

Доказывающей находок о том, что металлические изделия приготовились местными мастерами, это является ковши- «тигель» из талькохлоритного камня. Они найдены в памятниках XI-XIII вв. Каваткале, XII-XIV вв. Джанпиккале, в руднике Казантау, где добывается талькохлоридный камень [6,-с.77]. По мнению специалистов, такие «ковши» в силу хорошей огнеупорности талькового камня могли использоваться в качестве тиглей при обработке железа и других производствах, связанных с высокими температурами.

Помимо добычи и переработки руды в XI-XIII вв. велись горные дело и в других сферах. Было обнаружено, что из месторождений Актау, Куянчик, Занги баба, Жамансай в горах Султанувайсадага добывали талькохлорид, сердолик, бирюзу и другое полудрагоценные камни [8,с.46]. Сырье первично перерабатывалось в том же месте недалеко от карьеров, а затем получали окончательную форму в ремесленных мастерских в городах.

В памятниках XI-XIII в.в. найдено бытовых и хозяйственных предметов, таких как котлы, сковородки, половники, шумовки,

мельничные камни, «харос»-мельницы, «ташнов»-крышка водосточной трубы, подкладки для колонн, плитки для полирования, украшения (амулет, бусины, вставки для колец), светильники, изготовленные из талькохлоридного камня [6,-с.77]. Некоторые из этих предметов были доведены руками умелых ремесленников до уровня произведений искусства. В частности, чайник, изготовленный из талькового камня и обработанный на тонком стиле, хранится в Музее Ичанкалы в Хиве, каменные плиты, украшенные резьбой XI-XIII вв. в Каваткале, висячая каменная подсвечка с восемью лучеобразными гранями найдена в памятнике Бограхан.

Автор XIII века Мухаммад ибн Мансур, приводит в сообщениях, что «добытый в Хорезме бирюзовый камень экспортируется в восточные страны для внешней торговли» [8,с.46].

По сведениям Султана Мухаммеда Балхи (XVI в.), в Хорезме в поздние средневековые продолжалась добыча, обработка бирюзового камня и его экспортировались для внешней торговли. Он отмечает существование пяти сортов бирюзы, а именно нишопури, газни, илаки, кирманий и хорезми [1,с.17].

Несомненно, добытые с Султанувайсадаге полудрагоценные камни, как бирюза, сердолик окончательно перерабатывались в городах ремесленниками в качестве вставок для перстень, оберегов и ювелирных изделий в памятниках XI-XIV вв. Каваткала, Джампиккала, Миздакхана [8,с.46].

Эти данные показывают, что в начале XI-XIII веков в Хорезме высоко развиты отрасли ремесленничества. В этот период Хорезм в международной торговле придает большое значение торгово-экономическим связям с Китаем, Монголией, Мавераннахром, Ираном, Ираком, Закавказьем, Поволжскими Булгарскими государствами и степными племенами.

Большое значение в развитии ремесленных отраслей имела сеть Великого Шелкового пути, связывающая Хорезм с Южным Туркменистаном (Хорасаном), Ираном, Ираком и арабскими государствами через пустыню Каракум. Помимо обслуживания международных торговых связей в памятниках Дарган, Садвар, Замахшар и Шахсанам, это дороги было важным фактором распространения некоторых ремесленных изделий (шелк, изделия из драгоценных металлов и стекла, люстры, минай – «поддельные люстры», «поддельные минай»).

Согласно рукописи «Таърифу шахру Хорезм», до завоевания монголов в Хорезме насчитывались 3013 караванных дворцов, 3013



бань, 4400 махаллей-кварталов, 1700 базаров. В них люди находили все необходимые вещи. В государственном масштабе насчитывались 1200 парфюмерных и косметических лавок, 1500 лавок красильщиков, 1900 баззоз (ткацких) цехов, 2500 скотобоен, 5500 пекарен. Кроме того, здесь были 1070 пунктов денежных займов (ломбард), 1400 сарроф (менял), 1300 кузнечных лавок, 1200 лавок медников, 1500 сапожных лавок, 1300 обувных, 1300 продуктовых лавок [3,-с.151-153].

Сведения, содержащиеся в произведении Улугбека (XV век) «Тарихи арбаъ улус» (История четырёх улусов), еще раз подтверждают, что вплоть до монгольского нашествия (1221 год) отрасли ремесленного производства в Хорезме были бурно развиты. Согласно труду: «после семимесячной осады и падения Ургенча, монголы убили 100 тысяч человек, отогнали в сторону Монголии 100 тысяч ремесленников и деятелей искусства» [1,с.329].

Эти данные свидетельствуют о том, что в XI-XIII веках в Хорезме были высоко развиты все отрасли ремесленничества.

Таким образом, данные и сведения подтверждают, что Хорезм был одним из крупнейших торгово-экономических и ремесленных центров на Востоке в период правления Ануштегинов. После нашествия большая часть хорезмских ремесленников, увезенных монголами, служила в строительстве, а также в подъеме ремесленной промышленности в городах Сарай Батый и Сарай Берке на Волге.

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# **GRAVE STRUCTURES OF THE POPULATION OF THE LOWER PART OF THE AMUDARYA IN THE ISLAMIC PERIOD.**

**(On the example of archeological monuments of IX-XIII centuries)**

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## **ABSTRACT**

*This article analyzes the burial structures of the Khorezm Muslim population in the lower reaches of the Amu Darya on the basis of archeological research sources. The materials under consideration and data obtained by other researchers (ethnographic data) are important for the generalization of research on the paleodemography of the population of Khorezm, to study the demographic structure of its population in different regions in different historical periods and to gain a closer understanding of many processes in Islam.*

**KEY WORDS:** *Kalmykkirilgan, Kirontov, Mizdahkon, Ashurmattepa, Tok Qala, Alma-Atishgan, burial structures.*

## **INTRODUCTION**

Ancient Khorezm is one of the lower reaches of the Amu Darya, which today includes the Republic of Karakalpakstan, the semi-autonomous region of northwestern Uzbekistan, the Dashoguz region of Turkmenistan and Khorezm region.

## **HISTORICAL INFORMATION**

The early period of Islam was an important stage in the history of Khorezm in the fate of the peoples and tribes living in the Khorezm oasis and is characterized by many problems, such as urbanization, development of trade and trade routes, the relationship between housing and the nomadic world.

The geographical location of Khorezm in the center of the Central Asian desert region had led to the oasis (and the state) having a special relationship with neighboring nomads and their associations. The geographical location of Khorezm in the center of the Central Asian desert region has led to the oasis (and the state) having a special relationship with neighboring nomads and their associations.

Therefore, the topography, burial types, and evolution of burial sites are important, and in some cases the only source for studying issues such as

family forms, cultural, and ethnic ties in ancient and medieval history of Central Asia. In this context, archaeological sources are of particular importance, while at the same time creating additional opportunities for the analysis of the problem of the expansion of Islam in Khorezm. Archaeological evidence of burials in the medieval Khorezm and surrounding nomadic Muslim cemeteries was first discovered in the late 1950s by A.V. Gudkova, E.B. Bijanov and M. Mambetullaev in the Tokkala cemetery [Bijanov EB, Mambetullaev MM. 1974. B. 46], Mizdahkon, Grantov [Khodjanizayov G., Yusupov N., Amirov Sh. 2002. B. 184] and in the monuments of Kalmykkirilgan cemetery [Mambetullaev M. 1984. B. 88] was continued.

## **RESULT**

As a result of the research, the main features of Muslim burial ceremonies were identified and a typological, chronological classification of Muslim tomb structures was established. The main features of burial ceremonies in medieval Khorezm According to the classification of tombs studied and documented by Khorezm archeological research, there are four types of burials, two of which are divided into subtypes.

**Type I.** Cut rectangles with burials in the pits. (Figure 1).



**Type II.** It is classified by burying it in a rare underground pit. (Figure 2). Graves of this type are divided into 3 groups depending on the method of covering:

1. Both surfaces are covered with brick.
2. Brick pillars have a flat surface.
3. The brick pillars are covered with flat brick tiles.

**Type III burials** include burials placed in a narrow burial pit cut directly to the bottom of a wider pit. (Figure 3). Depending on the form of covering this type of narrow tomb, we can distinguish 4 types:

1. Tombs covered with square mud blocks.

2. The rectangles are covered with mud blocks.
3. The rectangles are covered with mud blocks, one of which is inclined.
4. The tombs are lined with reeds wrapped in wooden sticks.

Remains of a wooden coffin were found in 16 of the 25 documented burials in the Mizdakhan mausoleum [Yagodin V.N, Khodjayov T.K. 1970. p.254].

**Type IV** is characterized by a cut chamber (lahad) on the southwest side of the burial pit. (Figure 4).

The most common type of tomb in this group is the second type of brick tomb. We can see similar tomb constructions in other regions of Central Asia during the Middle Ages. (Table 1).

**Table-1**

Types of graves	Cemetery monuments of the Islamic period of XI-XIII centuries						
	Mizdakhan necropolis	Toqqal'a necropolis	Kalmikkirilgan cemetery monument	Krantov necropolis	Ashrammat hill cemetery monument	Olmatishgan cemetery monument	From the total section
Type 1	25	-	-	-	-	-	25
Type 2	266	9	48	13	-	-	336
Type 3	99	158	10	29	1	1	298
Type 4	2	-	-	1	-	-	3
B-1	-	-	-	8	-	-	8
Total studied	391	167	58	51	1	1	670

The rarest are classified as burials in rectangular pits with vertical walls cut into the ground and simple rectangular, chamber (lahad) type tombs cut to the southwest side of the pit.

The oldest type of burial was tombs covered with square mud blocks, which were replaced in the XI century by tombs of the type of underground brick pits, which were rare, and existed in the XII-XIII centuries together with the first and fourth burials.

Right bank Mizdaxkon mausoleum tombs and burial method with flat brick tiles covered with clay bricks [Khodjaniyazov G., Yusupov N., Kdirniyazov M-Sh., Torebekov M., Avizova A., Saypanov B., Bagdasarova N. 1989, №3. B. 68] The residue is similar to a scraped burial structure. The method of burial on the right bank Mizdaxkon mausoleum tombs and flat brick tiles covered with clay bricks is similar to the Kalmikkirilgan burial structure. [Khodjaniyazov G., Yusupov N., Kdirniyazov M-Sh., Torebekov M., Avizova A., Saypanov B., Bagdasarova N. 1989, №3. B. 68]. V.N.Yagodin

said that these tombs date back to the second half of the VIII-X centuries. Unlike the Mizdakhan, the Kalmikkirilgan ruined tombs were built of baked bricks, not raw bricks. [Mambetullaev M. 1984. p.86]

Similarly, apart from the lower reaches of the Amudarya, the burials of the Khorezm Muslim population in stone boxes dating back to the 10th and 11th centuries are also known from the materials of the Kuva necropolis and the cemetery near Quyriktobe. [Bulatova V.A. 1965. pp. 139-146] . It can be seen that type 3 burials are also common, and the oldest burial structures of the Muslim population in Khorezm are also graves belonging to this category. [Nurmuhambetov B.N. p 92]. According to the Mizdakhan necropolis, tombs of this type appeared mainly in the second half of the VIII century and existed until the XI century. However, other cemetery monuments of the Khorezm oasis - in the necropolis of Tuqqala, Kalmikkirilgan, Ashirmat hill, Alma-atyshgan, as well as the necropolis on the mountain Grantau existed until the XI-XIV centuries.



[Yagodin V.N., Mambetullaev M., Yusupov N. 1973 Page 52], (Table-2).

**Table-2**

Monuments Types of graves	VIII century	IX century	X century	XI century	XII century	XIII century	XIV century
Type-1							
Type-2							
Type-3							
Type-4							

In graves, regardless of direction, the position of the buried is to the right, and the direction of the facial bones is also more stable. The burials have a south-westerly orientation, with the deceased lying “backwards”, some lying sideways, with the head facing “qibla” or upwards. Raw bricks and pieces of soil were placed on the back so that the deceased, who was placed in a side position, would not turn to the back. (Khismatulin, 1997: 77, 79, 89).

From the above, it can be seen that all types of burials in the medieval tombs of the people of the Khorezm oasis are fully consistent with these traditions in terms of the norms set out in the Muslim normative acts regulating funerals.

**DISCUSSION**

Khorezm cemeteries amaze with their unique burial structures. A. Khoroshkhin also paid attention to this. During his travels around Khorezm, he describes the surroundings as follows:

"Fields, gardens and extremely unique cemeteries, high monuments rising in the midst of green nature, adorn the road with variety."

In southern Khorezm, burials on the ground are predominant. They differ in terms of their size, structure, plan, building material, surface pressure and are divided into four types. (Kirantov, Kalmikkirilgan, Mizdakhan, Ashirmattepa, Olmatishgan). Graves are intended for single or group burial.

The most common type in Khorezm are tombs of different sizes, which are built of clay, brick (baked and raw), dome-shaped, some of which are flat. Another such type of earthen tomb is of particular interest in the ethnogenesis of the peoples

of Central Asia. (Snesarev G.P. Urgench., 2018. p. 157). This wooden coffin is made entirely of wood and planks. They are mainly designed for individual burials and they are also divided into two types. The first is a tall and wide wooden box (Mizdakhan), which, when installed in the cemetery, is covered with mud. The second - a thin, narrow and long box (Ashirmattepa, Almaty, Kalmikkirilgan, Kirantov) differs little from the coffin.

The first type is mixed in other cemeteries in large cemeteries. Boxes of this type were mainly used for young children and dignitaries. The second type of narrow, long coffins are mostly found in old cemeteries. These coffins barely stand on the ground. These coffins are very narrow in shape and can be placed on it only when the corpse is lying on its side. The wide and tall chests are its perfected form under the influence of the sagana and nigiris. It was not possible to use nails in the box of either shape. It is attached only by means of wood. In ancient times, chest-shaped coffins were made of mulberry wood as a sacred tree. (Snesarev G.P. Urgench., 2018. p.160).

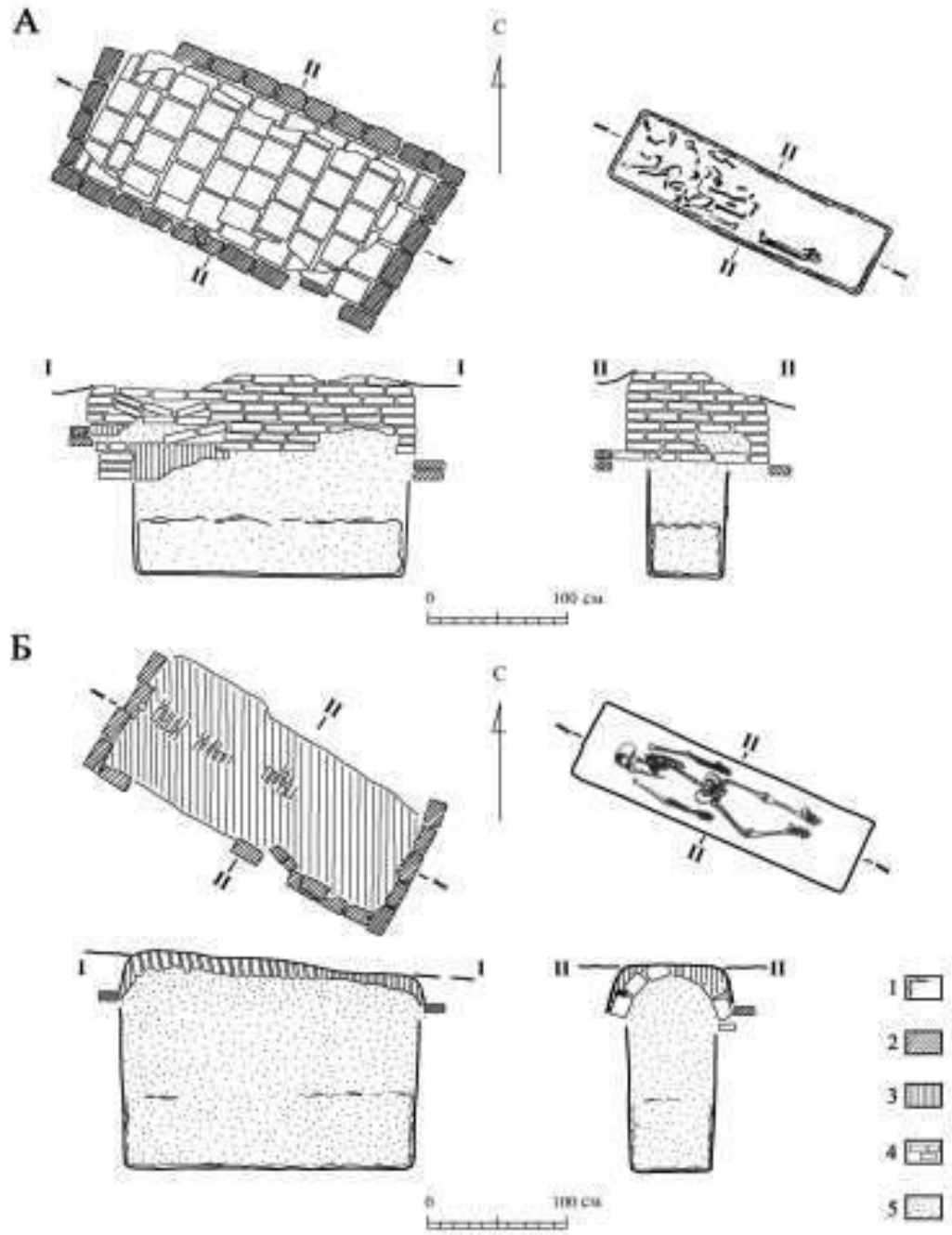
**CONCLUSION**

At the beginning of the VIII century, the influence of the Arab Caliphate in Khorezm increased, and from this period the interaction of Islamic and local cultures and the process of conversion of the people of Khorezm to Islam began. This had led to changes in the burial arrangements and facilities of the Khorezm population.



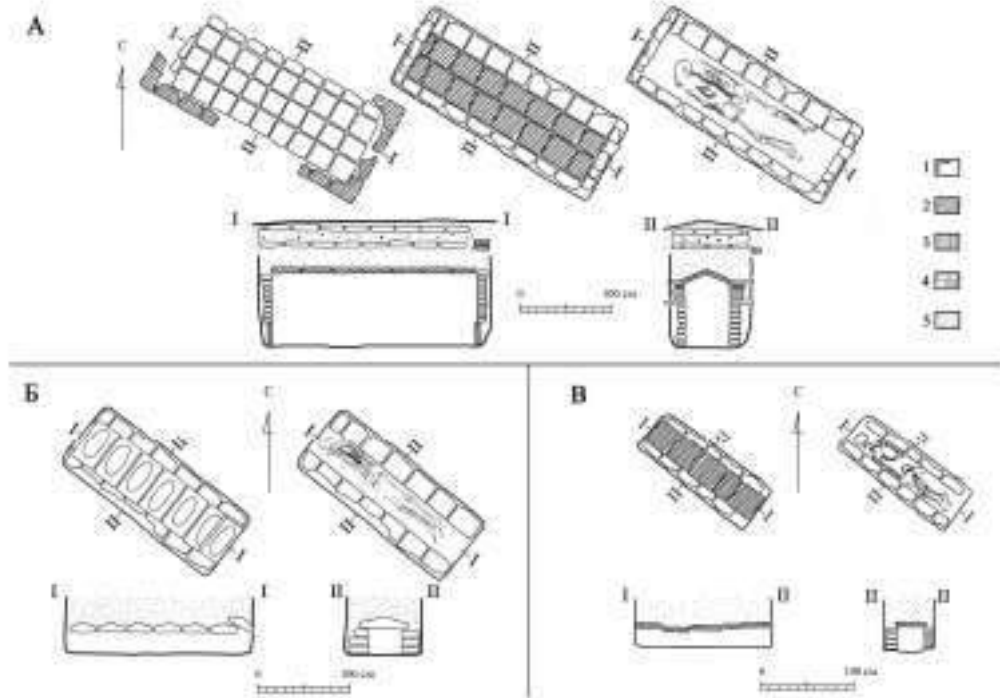
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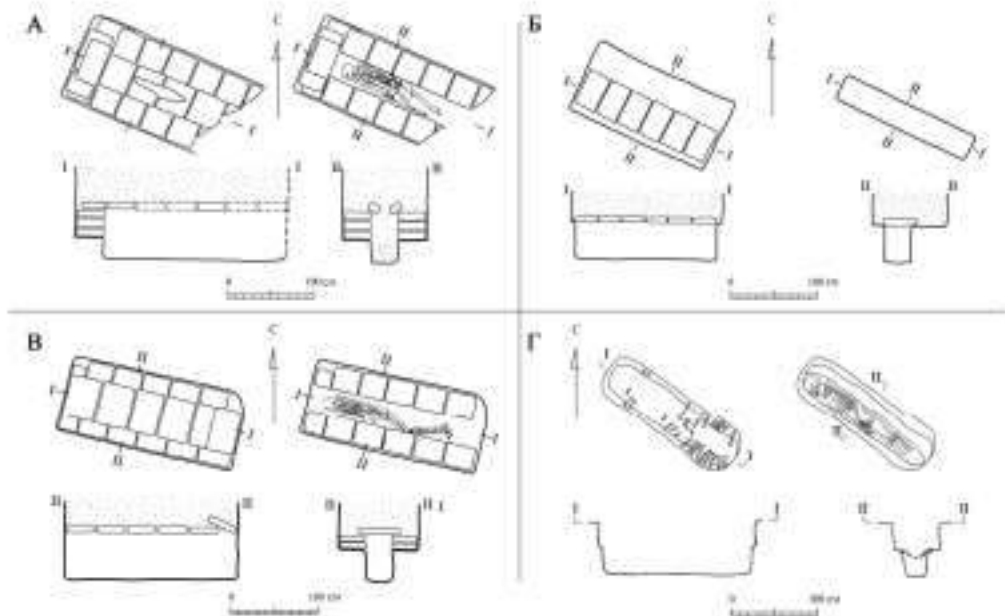


**Graves in cut rectangular pits.**

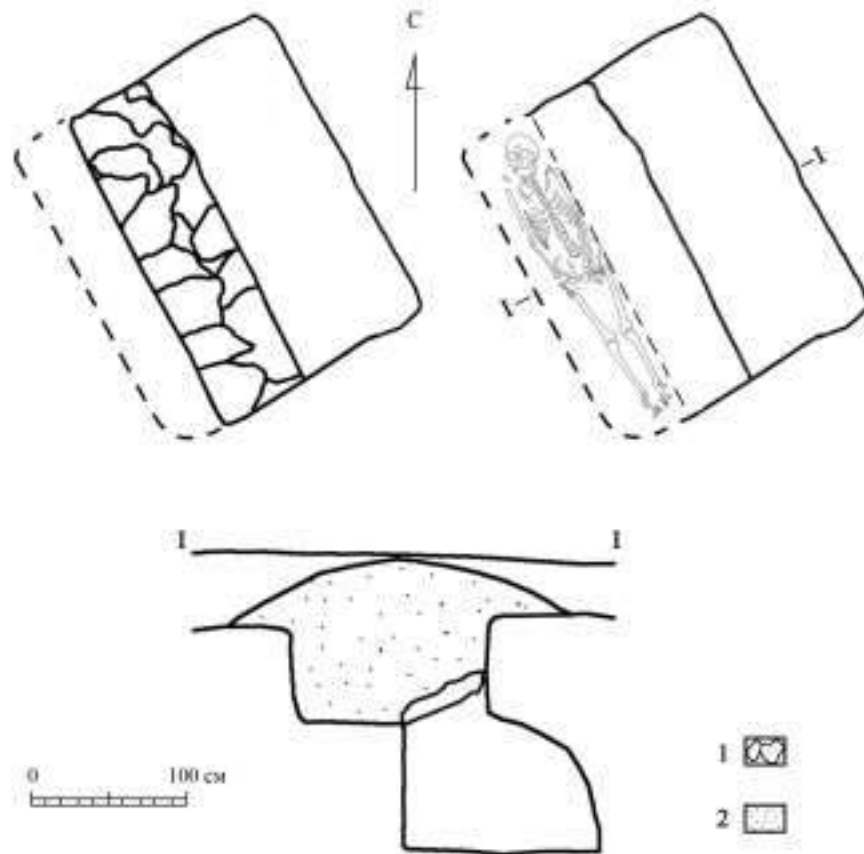
**Yagodin V.N., Khodjayov 1970**



**Type II tombs. Yagodin V.N., Khodjayov 1970**



**Type III tombs. Graves placed in a narrow tomb pit cut directly to the bottom of a wider pit**



**Type IV tombs. A cut-out chamber (lahad) on the southwest side of the burial pit. Krantau necropolis. №19-grave.**



## **TEACHING SPECIAL SUBJECTS ON THE BASIS OF INNOVATIVE EDUCATION TECHNOLOGIES AS A PEDAGOGICAL PROBLEM**

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### **ABSTRACT**

*In this paper the theoretical bases of innovation technology is described. An importance of modern pedagogical technology scholastic- perception process and their place in pedagogical technology are shown.*

**KEYWORDS:** *education, technological approach, innovation, modern pedagogic technology, effectiveness.*

### **DISCUSSION**

As our society moves towards a new path of development, great changes are taking place in the public education system. Because the system of public education, in particular, the educational work carried out in secondary schools, plays an important role in preparing the younger generation for the next generation. Therefore, the education and upbringing of the younger generation, the implementation of vocational training is a national issue of great social and political state importance. That is why this issue has always attracted the attention of progressive, intelligent and patriotic people in the society.

Because the development and future of any state and society cannot be imagined without educated and well-educated youth. Therefore, from the first days of national independence, special attention has been paid to the education of young people. In particular, along with educating young people, inculcating national ideas in their minds, educating them on the basis of the rich spiritual values of our people, the formation of moral concepts in them is one of the urgent tasks of today.

There is a wonderful saying among our people: "From the beginning of the child". It means the need to teach children to work from an early age,

to respect adults, to learn. That is why teaching the younger generation to take up various professions - has become a sacred tradition in the process of historical development.

The main purpose of the laws "about Education" and "about the National Program of Personnel Training" adopted in our country is to radically improve the educational process. The main task of general secondary schools is to teach the younger generation the basics of modern technologies, their preparation for production. The special role of labor education in the implementation of these tasks. And is important.

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 6, 2017 No. 187 "General secondary and o In accordance with the Resolution "On approval of state educational standards of secondary special, vocational education", "labor education" is now taught as "technology science" and changes are made to the program of technology science included.

According to the program, technology classes in secondary schools are conducted in two directions: "Technology design", "Service". The program has developed a number of science competencies to further enhance students' knowledge. It is known that the main idea of the national model





of training is to bring up a harmoniously developed person.

At the heart of the national model are personality traits. Therefore, improving the application of teaching methods to the individual is one of the urgent tasks of today. In this regard, it is advisable to make more extensive use of teaching methods and forms that develop students' independent thinking and working skills, including in labor education classes taught in secondary schools, especially in the classroom. Occupational education classes are one of the longest-running academic subjects in school. Labor education consists of the mental and physical actions performed by students under the guidance of a teacher - the process of labor activity, which ultimately provides them with knowledge about the tools, means and processes of labor and the practical skills needed to perform productive work in a particular field. It lays the groundwork for them to acquire skills and abilities. In other words, labor education is a subject aimed at developing students' personal qualities and thinking, which allows them to consciously choose a profession and participate in labor activities for the benefit of society and the individual. Therefore, it is necessary to make changes in the educational process, to create new ideas and improve the educational process, as well as to organize lessons based on them, in order to further enrich the students' views on professions.

Based on the above considerations, it can be said that it is expedient to conduct technology lessons in general secondary schools on the basis of innovative pedagogical technologies. Because innovative pedagogical technologies allow for the correct design of teaching processes, the interaction of teachers and students, especially to bring students to the center of the educational process, to further enrich their thinking, to form their mental abilities and for each process. Encourages an independent approach

In this regard, the esteemed President Sh.M.Mirziyoyev said: We will mobilize all the forces and capabilities of our state and society to make it happen,"he said. Therefore, it is expedient for us teachers to organize lessons correctly in accordance with the requirements of the current new era. It is our duty to bring modern pedagogical technologies into the educational process and use them in accordance with the purpose. What is the concept of "innovation" in the first place for this? What is "innovative education"? we need to clarify the questions.

Lexically, the term "innovation" means "innovation" in English. The term "innovation" refers

to a specific situation in the context. Innovation is an activity aimed at changing the internal structure of a particular system.

Innovative education (English "innovation" - innovation, invention) - the creation of new ideas, norms, rules in the learner, the natural acceptance of advanced ideas, norms, rules created by others relevant qualities are education that enables the formation of skills.

There are different interpretations in the literature to define the spiritual content of the concepts "New order is rule", "Innovation", "Innovation".

A new order is a rule, in a material sense, a positive and progressive innovation, an idea, activity, or material object that is new to the organizational system that accepts and uses that concept.

The terms "new order-rule" and "innovative process" are exactly the same, meaning the same thing. Since the advent of innovative educational practices, the introduction of innovations into it over a long period has led to the goal-orientation of the existing educational structure, sometimes partially, and sometimes large-scale change, improvement and improvement side by side to improve the quality in exchange for the introduction of elements. Importantly, the first President of the Republic of Uzbekistan I.A. Karimov gave a comprehensive scientific basis for the implementation of the national program, and in the second stage, "one of the important tasks is to provide the educational process with advanced pedagogical technologies."

Technology is a process that results in a qualitative change in the subject as a result of the subject's exposure to the object. Technology always involves performing object-oriented targeted actions in a specific sequence, using the necessary tools and conditions. For example, the conduct of practical training in labor education on the basis of new pedagogical technologies shows that the results are guaranteed. In order to carry out such pedagogical activity, it is important, first of all, that the teacher be rich in knowledge about pedagogical technologies and be able to use them properly in the educational process. Well, first of all, let's define the concept of "Technology". Technology consists of the Greek words technos - profession, art, logos - science. Technology means the skillful, artistic design of any process. It is a process that takes place within the system. In other words, it is a sequence of work. In technology classes, the teacher must be able to properly technologicalize the lesson, that is, to be able to design the topic in advance. The course process can achieve its purpose. It is better to first determine the content of the topic, then to choose the



appropriate and accurate goals, to choose the right equipment, to apply methods based on the purpose. methods should be able to reinforce students' theoretical knowledge based on that topic and develop in them practical skills and competencies. Usually, technology is associated with a particular production. Therefore, in the practical training of technology classes, students should be able to properly technologize the work they are doing.

As for pedagogical technologies. The introduction of modern pedagogical technologies in the educational process requires, first of all, the humane democratization of pedagogical relations. Any pedagogical technology applied without establishing such a relationship will not yield the expected effect. Democratization of the educational process leads to the creation of conditions for equalization of the civil rights of educators and learners, the choice of students and the free expression of their views and opinions. This is in accordance with the norms guaranteed by the Constitution of the Republic of Uzbekistan. It is characterized by the independence of students and the ability to direct them to a set goal without restricting creative learning activities, co-organization of educational activities, interest, taking into account their needs and encouraging free and active work. There are specific tools of pedagogical technology. They are different. Tools such as verbal, nonverbal, visual, audio, natural, and learning aids are different and are widely used individually or in combination.

Modern educational technologies serve to deliver the education system on the basis of state educational standards, curricula, syllabi and textbooks, which have a direction and volume in accordance with the established purpose. Conducting classes in technology classes using modern pedagogical technologies will further increase the effectiveness of the lessons. Because students will have the right to perform each practical lesson independently on the basis of pedagogical technologies learned, they will learn to use the allotted time effectively.

From the above, it can be concluded that in order to improve the educational process, it is the duty of every educator to bring modern pedagogical technologies into the educational process, to apply them in a purposeful manner. The importance of modern pedagogical technologies is that they realize the abilities and talents hidden in the student and cultivate in them a confident approach to their capabilities.

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## THE ROLE OF AZF GENE DELETIONS IN THE DEVELOPMENT OF MALE INFERTILITY

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### DISCUSSION

Infertility in marriage is one of the most important and complex medical, socio-demographic and economic problems. The frequency of infertile marriages in many countries of the world ranges from 8 to 29%, and in half of the cases, the cause is a male factor. According to WHO estimates, this figure reaches 15% (60-80 million pairs). At the same time, primary infertility is observed in 30% of spouses [8, 35, 42].

Studies of 3956 infertile couples in seven laboratories around the world have shown that male infertility is observed in 40% of cases [30, 39]. According to a report on studies conducted in 33 centers in 25 countries of the world, 10.7% of men in infertile marriages have azoospermia or oligozoospermia [5, 28, 19].

Modern diagnostic and medical care for infertility is based on fundamental achievements in the field of reproduction, which include: deciphering the mechanisms of hormonal regulation of the reproductive process, ultrasound diagnostics, endoscopic surgery, assisted reproductive technologies. However, in 8-10% of cases, it is not possible to establish the cause of infertility, which is associated with a large number of various factors that affect the reproductive process [6, 41]. According to some authors, in 30% of cases it is not possible to find out the cause of infertility, the so-called idiopathic infertility. Most likely, idiopathic male infertility is based on insufficiently studied genetic

mechanisms for the regulation of spermatogenesis [9]; a certain proportion of cases may be related to the pathology of meiosis, impaired differentiation and maturation of spermatids into a mature reproductive cell, etc. [36, 43].

The results of the initial medical examination and spermological analysis allow a preliminary assessment of the cause of the reproductive dysfunction in a man. Usually male infertility is classified based on the results of the semen analysis. In 2010, WHO reissued the standard protocol for the study of infertile couples. According to these recommendations, normal sperm counts should be as follows: sperm count  $15 \times 10^6$  / ml, of which more than 40% are motile, more than 58% are live, about 4% with normal morphology, and should not contain more than  $1 \times 10^6$  / ml leukocytes [45].

The processes of spermatogenesis can be negatively influenced by various reasons: diseases of the genital organs, unhealthy diet, hormonal imbalance, chemical and physical factors, allergization, the use of certain drugs, bad habits, and genetic defects [36, 38]. Studies have shown that genetic factors are clearly involved in the decline in male reproductive potential [10]. The frequency of cytogenetic abnormalities is estimated at 2.1 - 28.4% of cases in infertile men and only 0.7-1% among the male population as a whole [21]. According to other studies, genetic defects (mutations and chromosomal abnormalities) are observed in 30% of cases of male infertility [17, 28].



Mutations in the male genome lead to a change in the normal function of the genetic apparatus, as a result of this, disorders can occur at different levels: during the formation of genitals, spermatogenesis, maturation of sperm in the appendages, their transport in the reproductive tract and ejaculation, penetration through cervical mucus, capacitation, acrosomal reaction, fertilization of the egg, etc. [10].

Chromosomal abnormalities that cause infertility are divided into two types: changes in the karyotype in somatic and germ cells and meiotic disorders.

The incidence of karyotype disorders in infertile men is about 7% [17]. Chromosomal abnormalities are more often detected in patients with azoospermia - in 13.7% of cases (the majority is Klinefelter's syndrome) [23]. Sex chromosome abnormalities prevail in men with azoospermia, autosomal abnormalities - in patients with oligozoospermia [22].

Meiotic disorders are observed in 6% of men, and this frequency rises to 17.5% in individuals with oligozoospermia ( $\leq 1 \times 10^6$  / ml). To date, many genes are already known (A-MYB, AZH, BCLW, HPY, LVS, etc.) located on different chromosomes that are responsible for the process of spermatogenesis. And the violation of this process is due to a large number of mutations in the coordinator genes [2].

Chromosomal abnormalities in infertile males can be numerical or structural in relation to sex chromosomes (eg, 47, XXY) or autosomes (eg, in Robertsonian translocation) [23]. Among the factors of infertility, Y-chromosome microdeletions rank second after Klinefelter's syndrome. It should be noted that the cause of genetically determined male infertility associated with impaired spermatogenesis, in 10-15% of cases, is a consequence of structural abnormalities in the Y-chromosome.

Previously, it was believed that the function of the Y chromosome in mammals is limited to the control of sex differentiation, but in 1976 evidence was presented for the importance of the human Y chromosome for spermatogenesis. The Y chromosome, one of the smallest chromosomes in the human genome, is about 60Mb in size, 30 of which are in the euchromatin domains, and the rest is in the heterochromatin block in the distal part of the long arm, which can vary greatly in size in different individuals. In general, the chromosome is divided into three regions: the euchromatin short arm (Yp11), the euchromatin proximal long arm (Yq11), and the heterochromatin distal region (Yq12). Euchromatic

regions are not variable in size. The named areas are arranged in a mosaic pattern within the chromosome.

Thus, the human Y chromosome consists of about 60 million nucleotides, that is, it is much less than in other chromosomes, and 95% of the genes concentrated in this sex chromosome are responsible for the development of male characteristics and fertility [35, 37].

The first hypothesis on the correlation between Y-chromosome deletions and male infertility was put forward by Tiepolo L. and Zuffardi O. in 1976. Analyzing the terminal deletion of the Y chromosome in 6 sterile men with a normal phenotype and azoospermia, Tiepolo and Zuffardi hypothesized the existence of a male fertility gene complex in the distal region of the euchromatin part of the long arm of the Y chromosome (Yq11). This locus was named the azoospermia factor (AZF) [14].

Further cytogenetic and molecular genetic studies made it possible to construct a detailed map of the Y chromosome, including 43 deletion intervals. Currently, cytogenetic and molecular genetic methods can be used to diagnose macro- and microdeletions of the Y-chromosome, capturing the AZF locus, which can be detected in 1015% of patients with azoospermia and in 5-10% with severe oligozoospermia. It is known that the Y chromosome contains 220 gene regions; 104 of them are coding genes, 111 are pseudogenes and 5 genes with not yet clarified functions. 16 coding genes are located in the AZF region and are responsible for the manifestation of male fertility.

To date, more than 12 types of microdeletions have been identified in the AZFY chromosome region [12, 20, 29, 34]. Most of the microdeletions that cause azoospermia or oligozoospermia are located in the long arm, these microdeletions are too small to be detected by karyotyping. They can be identified using polymerase chain reaction (PCR).

Further work in this area revealed that there are three non-overlapping regions of the Y chromosome that play an important role in the process of spermatogenesis. These regions are AZFa, AZFb and AZFc and are located along the Yq shoulder from proximal to distal [30]. The fourth region (AZFd) was discovered later and assigned to region C [46]. Subsequently, for each subregion, candidate genes responsible for spermatogenesis disorders were identified: for AZFa - USP9Y (DFFRY) and DBY, for AZFb - RBMY, for the AZFc region - DAZ. The nucleotide sequence and size of each subregion were determined: AZFa about 800 thousand bp, AZFb - 3.2 million bp. and AZFc- 3.5 million base pairs. Unlike the candidate genes of





the AZFb and AZFc subregions, the genes of the AZFa subregion are represented on the chromosome by a single copy; therefore, even point mutations can cause impaired spermatogenesis and lead to infertility in men [33].

Chromosomal abnormalities and microdeletions of Y chromosomes in the Yq11 region are recognized as the genetic underlying in male infertility. As mentioned earlier, the genes that control spermatogenesis located in the Yq11 region are called the genes of the azoospermia factor (AZF) [11]. The azoospermia factor (AZF) and its subregions AZFa, AZFb, and AZFc are the main targets for molecular diagnostics [7, 19]. To date, the relationship between microdeletions of the AZF locus and the manifestation of azoospermia and oligozoospermia has been accurately established [20]. The frequency of microdeletions a, b, c of the AZF locus is as follows: microdeletion in the AZF c subregion is detected in 75-80% of cases; in subregions AZFb + c - 2022%; in the L2Ba subregion - 3-5% of cases [1].

Most of the literature indicates that AZFc deletions may be associated with azoospermia (54%) and severe oligozoospermia (46%); The histological assessment of testicular tissue ranges from Sertoli cell syndrome (SCS) to hypospermatogenesis. It is also considered possible that testicular damage caused by the deletion of AZFc can progress in patients with oligozoospermia, and azoospermia can develop with age [21].

Complete deletions of certain AZF regions are associated with various disorders of spermatogenesis, for example: deletions of loci of the AZFa region - with Sertoli cell syndrome, deletions of loci of the AZFb / AZF region with the absence of meiosis 1 and, therefore, with the absence of spermatogenesis cells or their underdevelopment. Deletions of the AZFc region loci lead to hypospermatogenesis, leading to severe oligozoospermia and azoospermia. It was also noted that microdeletions of the entire AZFa or AZFb regions predict a negative result during testicular biopsy and TESE, while with a complete deletion of the AZFc region, successful sperm retrieval is predicted [7].

Nevertheless, deletions of the AZFc region are common in patients with obstructive azoospermia or severe oligozoospermia, reaching about 70% of all cases [11]. The AZFc region contains 11 families of transcriptional units, expressed only in the testis. Five of them encode proteins, four pseudogenes, and two open reading frames [22].

The deleted in azoospermia gene DAZ is expressed in spermatogonia and encodes an RNA-

binding protein important for spermatogenesis. Four copies of this gene (DAZ1, DAZ2, DAZ3, DAZ4) are located at the AZFc locus [22, 23, 24]. Gene Y (CDY) encodes a protein containing histone acetyltransferase located in the nucleus of mature spermatids, where histone hyperacetylation occurs. The human Y chromosome has two identical copies of this gene in the AZFc region (CDY1A and CDY1B) and a pair of closely related genes in P5 (CDY2A and CDY2B) [25,17]. Gene Y 2 (BPY2) is specifically expressed in the testis and its protein product is involved in the development of male germ cells, or the development of male infertility.

Three almost identical copies of this gene are found on the Y chromosome [26]. Along with this, partial microdeletions at the AZFc locus were revealed, which to one degree or another affect the process of spermatogenesis. These deletions include changes in the gr / gr, b2 / b3, b1 / b3 and b3 / b4 genes, but the most significant is the deletion of the gr / gr region, which includes 2 copies of the DAZ gene and 1 copy of the CDY1 gene. These genes are the most important candidate genes associated with the process of spermatogenesis in the AZFc region. Recently, gr / gr deletions have been increasingly found in men with a diagnosis of infertility, suffering from impaired spermatogenesis to varying degrees [20, 27].

High structural variability of the Y chromosome, including deletions, duplications, and inversions [21], as well as its polymorphism, especially a wide range of Yq12, correlates with impaired reproductive function [22]. It should be noted that microdeletions and chromosomal abnormalities in the AZF region have become a clinically important indicator for assisted reproductive technologies (ART), such as intracytoplasmic sperm injection (ICSI), and are being successfully introduced into clinical practice [23].

Also, according to the literature, among the regions of the AZF gene, the frequency of deletions of loci of the AZFc region is 60%, combined deletions involving various AZF regions - 35%, and AZFa deletions about 5% [28].

Deletions of the AZF region are phenotypically different. They can be complete, that is, they completely remove one or more AZF regions, and partial, if the deletions do not completely cover any of its three regions.

Deletions of the AZF locus are associated with varying degrees of impairment of spermatogenesis - from a moderate decrease in its activity (hypospermatogenesis) or block of spermatogenesis to the almost complete absence of





germ cells in the seminiferous tubules - Sertoli cell syndrome (SCS). In almost all cases, complete deletions are de novo mutations and lead to severe azoospermia or oligozoospermia [29, 21].

It is considered possible that testicular damage caused by the AZFc deletion may progress and patients with oligozoospermia may develop azoospermia with age. However, in men with AZFc deletions, in about 71% of cases, it is possible to obtain mature spermatozoa suitable for artificial insemination, while in patients with deletions of AZFa and AZFb subregions it is impossible to obtain mature germ cells [30].

Deletions at the AZF locus can be complete, i.e. completely deleting one AZF region or more, and partial, if the deletions do not completely cover any of its three regions. In almost all cases, complete deletions are de novo mutations and lead to severe azoospermia or oligozoospermia [13].

No strict dependence of the degree and stage of impaired spermatogenesis on the localization and size of the AZF locus deletions was found, but a number of general genophenotypic correlations were identified [13, 22].

Deletions of AZFa and AZFb regions cause azoospermia in 2/3 of cases and more rarely phenotypically manifest themselves as oligozoospermia. On histological examination of testicular tissue, the AZFa deletion always manifests itself as SCS. Based on this, scientists believe that the genes of the AZFa region regulate the first phases of spermatogenesis or the activity of stem cells.

Variable impairments of spermatogenesis with deletions of the AZFb region indicate multiple functional activity of the RBMY gene or its combinatorial activity with other genes.

Consequently, patients with deletions of AZFa and AZFb subregions, which are associated with the inability to obtain mature germ cells (it is impossible to obtain spermatozoa during a diagnostic biopsy), should be recommended other ways of solving reproductive problems - donor programs or adoption [14].

Analysis of the literature showed that AZFc deletions can be associated with azoospermia (54%) and severe oligozoospermia (46%); The histological assessment of testicular tissue ranges from SCS to hypospermatogenesis. Moreover, tubules with different defects can be found in the same individual. It is also considered possible that testicular damage due to the deletion of AZFc may progress, and patients with oligozoospermia may develop azoospermia with age. However, in men with AZFc deletions in about 71% of cases, it is possible to

obtain mature spermatozoa suitable for artificial insemination [14, 15, 18].

The variable phenotype observed upon deletion of AZFb and AZFc regions can be explained by the following hypotheses [16, 31].

Deletions can affect the entire AZFb or AZFc region, or they can be minimal, capturing only one gene, gene cluster, or several STS markers. It is assumed that the severity of phenotypic manifestations directly depends on the size of the deletion. However, some cases refute this hypothesis [23, 40].

Each AZF gene has a homologue on the X chromosome (DBX, USP9X, RBMX) or on autosomes (DAZL1). The participation of homologues in the process of spermatogenesis is not observed; however, it can be assumed that their expression changes with deletions on the Y chromosome. The genetic background (other genes of the family) can also modify the phenotypic effect of existing deletions [3, 32, 44].

Currently, for men with a severe form of oligozoospermia, the only effective method of overcoming infertility is the Intracytoplasmic Sperm Injection (ICSI) method - the injection of sperm into the cytoplasm of the egg, and for patients with azoospermia - ICSI in combination with the extraction of testicular sperm using TESA or TESE testicles and from the resulting tissue, spermatozoa are isolated, with which the egg is fertilized later) [3, 4].

In some cases, the use of modern assisted reproductive technologies allows men with Y-chromosome deletions to have their own children. However, it should be noted that they have a risk of transmission of this deletion of the Y chromosome (in 100% of cases), as well as an increased risk of having children with mosaicism 45, X0 / 46, XY [26].

It should be noted that it is extremely important for infertile men to find out the presence of genetic defects before using assisted reproduction technologies to avoid the transmission of abnormalities to offspring and, in cases of impossibility of carrying out these manipulations to overcome the problem of male infertility, to recommend other ways of solving reproductive problems - donor programs or adoption.

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# **BIOLOGICAL FEATURES OF POPULUS ARIANA DODE L. IN THE CONDITIONS OF THE SOUTH ARAL SEA**

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## **ABSTRACT**

*The article is devoted to the study of the biological characteristics of Populus ariana Dode in the conditions of the Southern Aral Sea region. The literature covers the issues of afforestation and increasing the productivity of forest stands, an important role is played by fast-growing species, in particular turangils. In recent works, a number of authors of the "Key to Central Asian Works" for Karakalpakia identified two types of turangil P. pruinosa and P. ariana Dode.*

*Turangils propagated by seeds and vegetative-root offspring, weakly stem and root cuttings. We carried out vegetative propagation of P. ariana Dode in the natural thickets of the Rook Grove in the experimental plots of the Nukus State Pedagogical Institute named after Ajiniyaz. Disclosure of anthers and dispersal of pollen begins at the lower flowers of the earring and continues on the flowers located in its middle and upper parts. In general, it blooms quite a long time, up to 20 days. The growth duration and length of the annual growth in different shoots varies greatly within the same plant. The most intense growth is observed during the hot season in the spring-summer period. With a decrease in temperature, the growth rate also decreases.*

**KEY WORDS:** *growth and development, gardening, forest plantations, flowering and fruiting, lateral roots, aerial parts, lateral roots, branching, growth, generative shoot, leaves, branches, ovary, capsules, catkins, hairs, propagated by seeds and vegetative-root offspring, flowering and fruit setting.*

## **DISCUSSION**

Afforestation, landscaping and expansion of forest stands is an important problem for the Central Asian republics, as well as for the Republic of Karakalpakstan. In solving issues of afforestation and increasing the productivity of forest stands, fast-growing species play an important role in the privacy of turangils [2], [8], [9], [10].

Turangils belong to the Salicaceae family of the genus Populus. In Uzbekistan it reads 17 species, in Karakalpakstan there are 4 species of poplar [3], [8]. Of these, two species found in Karakalpakstan are called turangils, these are P. ariana Dode and P. pruinosa Schrenk [4]. In recent works, a number of

authors of the «Central Asia Work Guide for Karakalpakia» identified two species of turangil P. pruinosa and P. euphratica, in fact, only P. ariana Dode grows (Fig-1).

Based on the flora of Uzbekistan, P. Ariana we took this species. Leaves of branches with 10-16 sharp curved teeth, naked ovary, capsules on a short stalk, axis of an earring and peduncle with long, straight hairs. The species is very similar to P. diversifolia. It differs from it mainly in a bare ovary. General distribution: Central Asia, Iran, Western China.





**Figure 1: General view of P. Ariana**

Phenological observations were carried out according to the method of S. Ya. Sokolov [6], which meets the requirements of the study of plants. For phenological observations were taken 10 bushes of Turangil, in the natural thickets of the Rook Grove in the experimental sections of the Nukus State Pedagogical Institute named after Ajiniyaz, near the Amphitheater, the city of Nukus.

The rhythm of kidney formation was studied according to the method proposed by I. G. Serebryakov [5], S.Ya. Sokolov [6] in all types of turangil. To establish the moment when the kidney study is laid from June to October. Materials for the study were taken from all objects simultaneously in the middle and upper parts of the lateral shoots of the same plants in June after 10 days, July after 10 days, August after 10 days, September once a month. 8-9 year old plants were analyzed. Samples were fixed in 70% alcohol.

Vegetative propagation was studied by cuttings: a) green shoots, b) year-old shoots. In the years of our research (2017,2018, 2019), the swelling of the kidneys in the species studied by us was noted from the second decade of March, from the first decade of April to the third decade of November. For three years of observation, the earliest leaf bloom was in 2019, the average in 2018, and the most recent in 2017.

Autumn coloring and color change of leaves in the studied species of Turangil occurs at the end of September. Leaf fall occurs in late October and early November. This phenomenon in *P. ariana* Dode begins earlier, and in *P. pruinosa* Schrenk later than other species. The duration of the leaf emergence period before deciduous fall is 232 days.

With an early onset of spring and a higher air temperature, the growth of turangil begins earlier and ends in a shorter time. The duration of the growing season in *P. ariana* Dode is 239-242, in *P. pruinosa* Schrenk 244- 249 days.

A study of the flowering and fruiting of Turangil shows that in Karakalpakstan *P. ariana* Dode begins to bloom and bear fruit in a 4-year-old age.

The development of inflorescences of turangil begins simultaneously with the blooming of leaves. The beginning of flowering depends on the type of turangil and meteorological conditions of the year. In the first days of disclosure, flowers on the earrings of female *P. ariana* specimens are not identical in maturity: the lower five to six are larger and thicker than the upper. Two to three days after the opening of the earrings, the lower flowers bloom. The flowers that opened in the first days make up 20% of the total number of them in the earring, the next two or three days, the same number of flowers is revealed as on the first day. Further disclosure in the same sequence. The duration of flowering in one earring is 8-10 days.

The buds of *P. ariana* Dode on the branches are arranged sequentially, pressed to the branch, the number of buds is from 6 to 12. The generative buds of the studied species of turangil *P. ariana* Dode are laid in June. In Turangil *P. ariana* Dode, buds with male flowers fully formed on July 10, and buds with female flowers on July 1. At the same time, the size of flower buds: length 4 mm, width 2 mm, in *P. pruinosa* Schrenk length 3 mm, width 2 mm. Flower buds are laid and develop on the shoots of the current year and differentiate before the vegetation of the next year. Thus, flower stalks are always biennial.

The flower is naked, has only stamens and pistils. Stamens in one flower range from 10 to 25 pieces (Fig-2). In female flowers, the number of pistils varies from 18 to 28 pieces. Pestle has an expanded ovary, stigma narrowed with several lobes [1].



**Fig-2. P. ariana Dode single stamen flower**





Disclosure of anthers and dispersal of pollen begins at the lower flowers of the earring and continues on the flowers located in its middle and upper parts. In general, it blooms quite a long time, up to 20 days. This is due to a delay in flowering on some parts of the crown, which is explained obviously by different shoot growth energy. Soon after pollination and fertilization, the stigmas of the flowers turn black and dry, and the walls of the ovary turn into a leaflet box. It forms seeds that ripen in July 105-120 days after fruit set. The number of seeds in one box varies from 60 to 151 [7].

The nature of the habitat also affects the duration of the earrings and flowering. In the Rook Grove area near the Doslik canal, we observed early flowering in the turangil *P. ariana* Dode growing in the dry kidneys of the valley. Later flowering occurs in trees sprouting in the flooded parts of the valley, where the groundwater level is high and the soil is moist. Here, flowering trees in groves can be found for a long time, which contributes to the pollination of most of the flowers in earrings and abundant fruit setting.

The flowering and tying of the fruits of the Turangil belonging to different species differ in a small deviation with the period of flowering and fruit setting.

In 2019, kidney swelling in the studied species of *P. ariana* Dode Turangil began on March 10, when the average air temperature was 8.00.

Massive opening of the kidneys was observed in *P. ariana* Dode on March 20-26. The highest growth of ten to twelve forest plants of Turangil occurs in May. *P. ariana* Dode during this period provided 55% of the annual growth of all shoots. Growth duration and length of annual growth in different shoots vary greatly within the same plant. The most intense growth is observed in the hot season, in the spring-summer period. With a decrease in temperature, growth rates also decrease.

Propagated by seeds and vegetative-root offspring, weakly stem and root cuttings. Seed propagation of Turangil *P. ariana* Dode is most common both in natural conditions and in culture. Turangil seeds ripen in 105-120 days. Opening the boxes is accompanied by full or partial yellowing. Seed propagation was observed in the Amu Darya floodplain, where seedlings grow in the form of a ribbon, i.e. the bank of the river favors the seed reproduction of turangil. A. Usmanova shows that in laboratory conditions 70% of the soil emerges in the soil [7].

We carried out vegetative propagation of *P. ariana* Dode in the natural thickets of the Rook Grove at the experimental site of the Nukus State Pedagogical Institute named after Ajiniyaz. In the spring of 2018-2019, we conducted an experiment

with stem cuttings. To do this, cut stems 35-40 cm long and planted along the canal in the amount of 100 pieces. It should be said that the reproduction is very low, totaling 16%. The broadest reproduction is propagation by root offspring. Root-offspring propagation mainly occurs in the valleys. So in the Jackal tugai of the Nukus forestry on an area of 8 m<sup>2</sup>, 75 root offspring were recorded. *P. ariana* Dode is also found in household plots, among turangil thickets where melons and gourds are cultivated (Fig-3).



**Fig-3. Root seedling *P. ariana* dode**

In the conditions of Karakalpakstan, *P. ariana* Dode propagates by root branches in turangil groves, and also in the desert zones you can often see shoots emerging from the roots. The following example can be cited: currently, the eastern side of the Nukus Amphitheater is occupied by thickets of turangil. There are only 4 large trees that have grown over a period of 6-8 years on an area of 0.5 hectares, 279 seedlings, 4-5 year-old turangil bushes, in some places individual bushes sprouted through asphalt and grow on the banks of the canal.

## CONCLUSIONS

1. Based on the foregoing, 2 species of turangil *P. ariana* Dode and *P. pruinosa* Schrenk grow in Karakalpakstan
2. The highest growth occurs in May. In this period, *P. ariana* Dode turangil provided 55% of the annual growth of all shoots, and *P. pruinosa* 50%.
3. The beginning of flowering depends on the meteorological conditions of the year. *P. ariana* Dode begins to bloom after the beginning of the opening of the earrings for 2-3 days and lasts up to 20 days.
4. Generation of generative kidneys in the studied species *P. ariana* Dode occurs during June.
5. *P. ariana* Dode are salt and dry resistant and resistant to moisture deficiencies.



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# PRIMARY GEOCHEMICAL OREOLS IN THE ROCKS OF THE DOMESOZOIC FOUNDATION OF UZBEKISTAN (GEOCHEMICAL MAPS 1:1,000,000 SCALE)

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## ABSTRACT

*Geochemical prospecting for ores is based on the discovery of primary and secondary geochemical halos accompanying the manifestations of any, and not only industrial, ore mineralization, namely: deposits, ore bodies and deposits, small ore occurrences, zones of diffuse ore mineralization of all genetic types - magmatic, pneumatolytic, hydrothermal, metamorphogenic, sedimentary. Primary halos are recorded on the surface and at depth, secondary ones on the surface, as well as near it: below the raft - in water, above - in the surface atmosphere. Differ (Instruction-83, Reference-90 and other documents) types of geochemical halos, depending on the environment in which they are formed, and the corresponding methods for their identification. Increasing the efficiency of forecasting during regional geochemical works, interpretation and assessment of different-rank ore-generating geochemical anomalies in complex landscape-geological conditions, geochemical zoning of territories is given much attention in publications of leading geochemists of the Commonwealth of Independent States countries. At the same time, the technologies of geochemical zoning have not yet been regulated in Russia; in Uzbekistan, a small number of works have been carried out in this direction in the last 20 years.*

**KEYWORDS:** *geochemistry, metallogenic province, metallogenic region, pre-Mesozoic basement, mountainous and foothill areas, geochemical halos and anomalies, forecast, geochemical map, predictive metallogenic analysis of minerageny, ore content, minerals, promising positions.*

## DISCUSSION

Geochemical sampling covered the entire territory of Uzbekistan, but with varying degrees of detail. Most, 85-88% of the republic's area is covered with Mesozoic and Cenozoic sediments, with which exogenous deposits are associated. Pre-Mesozoic formations are an environment for localization of endogenous deposits, confined to the mountain systems of the Median (Chatkalo-Kuramin region) and South Tien Shan. Mountain heights with outcrops of pre-Mesozoic rocks occupy about 12-15% in area, the rest is in semi-closed and closed territories. In geological terms, areas of development of thick sedimentary strata are classified as closed. Territories of alternation of open (mountain-fold) and closed areas with a small thickness of the sedimentary cover are classified as semi-closed. Closed areas also include areas with a thick cover of

Aeolian deposits of various genesis (sands) and alluvial plains. Searches in closed areas using traditional geochemical methods are ineffective or ineffective; they are exhausted within semi-closed areas. In closed areas, searches are carried out using drilling and original geochemical methods based on the identification of various mobile forms of elements. For closed areas of a two-tiered structure with a Mz-Kz cover of sediments less than 500 m, the objects of geochemical prospecting methods from the surface can be both exogenous ore deposits of solid minerals and, in rare cases, endogenous sub-vertical occurrence, and for areas of development of sedimentary strata more than 500 m, only sedimentary deposits.

The geochemical study of Pre-Mesozoic formations (primary geochemical or endogenous lithochemical halos) is different in open, semi-closed and closed territories:



- within mountain heights, from the end of the 1950s to the present, geochemical work has been carried out by various methods, the urgent task of the modern stage is the search for non-eroded (hidden) deposits;

- near mountain heights, Quaternary proluvial and alluvial-proluvial formations of the foothill belt and a thin Mesozoic-Cenozoic cover are developed with a relatively shallow occurrence of the pre-mesozoic basement (up to 50-500 m). Within these landscapes, deep prospecting, short-length mapping drilling, deep geological mapping were carried out, but there are also underexplored areas;

- vast closed territories are located in areas with a deep (more than 500-1000 m) bedding of the fold-nappe pre-Mesozoic basement. Studied by wells during the State Geological Survey on a scale of 1:200,000, drilling for oil, gas, uranium, water.

Endogenous geochemical exploration is represented by three main directions: determination of the geochemical specialization of rocks; point and profile sampling within promising areas and fields, carried out in the process of prospecting, appraisal and exploration work, case studies; areal generalizing thematic works on the study of the pre-mesozoic basement of closed areas and within the outcrops of bedrocks of the pre-mesozoic folded base, materials of the GGK, GDP, provided with electronic databases or archival materials. In the open areas of mountain heights, in recent decades, large generalizations of lithochemical surveys were carried out on secondary dispersion halos and sampling of bedrocks, mineralized zones and ores based on the results of prospecting and appraisal work (Kasymov G.Zh., 2012). Therefore, there was no targeted need to create a sufficiently complete base for sampling the indigenous formations of open territories. When creating an areal database on the previously carried out work, they were aimed at collecting information on wells in semi-closed and closed areas for the purposes of geochemical zoning with elements of forecasting promising positions for noble, rare and non-ferrous metals.

According to the project, it was planned to create an areal database on previous work in the amount of 25,000 samples. In fact, an areal database has been created on the previously carried out work on testing the pre-Mesozoic basement in open and closed areas (by wells) within Western Uzbekistan in the amount of 28,800 samples. Automated processing was performed in Statistica and Golden Software Surfer programs for zones 10 (574 samples), 11 (20112 samples), 12 (8125 samples) for 6 elements - Au, Ag, As, Cu, Pb, Zn. In addition, a schematic map of the actual material and a multielement map with elements for forecasting perspective positions were built. Installation of maps is done in the CorelDraw program.

Multivariate statistical analysis. Multivariate statistical analysis was carried out in Statistica and Excel programs in order to study the general statistical features of the distribution of elements, approbation of the areal database before graphic processing, assessment of the regional background, additional editing of the database, preliminary selection of the scale of the contents of elements for constructing halos.

The concentration type of the sample is characterized by the mean, median, and mode. Uniformity-heterogeneity of the distribution of chemical elements is fixed by increased values of dispersion, standard deviation, asymmetry, kurtosis, and a range of contents (min-max). Let us recall the definitions of some terms.

The sampling mode is the value that appears most frequently in the sampling. The mode frequency represents the number of modal values in the sample.

The sample median is the value that splits the sample into two equal parts. Half of the observations are below the median and half of the observations are above the median.

Sample variance - the square of the deviation of the contents, calculated by the formula:  $s^2 = \sum (x_i - \bar{x})^2 / N$ , where  $x_i$  is the content of an element in the sample,  $\bar{x}$  is the average;  $N$  is the sample size (number of samples).

Standard deviation is a commonly used measure of the spread or variability (variability) of data and is the square root of the variance.

Skewness or coefficient of skewness is a measure of the skewness of a distribution. If the skewness is distinctly different from 0, the distribution is skewed, the normal distribution density is symmetric about the mean. The asymmetry of the distribution with a long right tail is positive. If the distribution has a long left tail, then its asymmetry is negative.

Kurtosis or more precisely, the kurtosis ratio measures the "peakiness" of a distribution. If kurtosis is significantly distinguishable from zero, then the density function either has a more rounded peak or has a sharper peak than the normal distribution density peak at kurtosis equal to zero.

The series of relative intensity, characterizing the geochemical spectrum of the studied objects, are ranked in decreasing order of average contents, normalized according to the values of the local geochemical background ( $J_{oth} = S_{med} / S_{fon}$ ).

Correlation, factorial and cluster analyzes were carried out in order to identify the leading geochemical associations of satellite elements and indicators of mineralization and indicator mineralization widespread in the area, which are integral characteristics of the studied objects.





Statistical analysis of regional samples for Eastern Ustyurt (zone 10) and Kyzylkum-Nurata region (zone 11, 12) was carried out.

Eastern Ustyurt. The sample for core sampling of pre-Jurassic basement wells includes 382 samples and contains the results of gold-spectral (gold-metric) analysis and semi-quantitative spectral analysis for 26 elements - Ti, Mn, V, Ni, Co, Cr, Pb, Zn, Cu, As, Ag, Mo, Sn, W, Li, Be, Ba, Sr, Ga, Zr, Yb, Sc. The contents of Sb, Bi, Nb, Ta are mainly below the sensitivity of the method and are present in the database at values equal to half the sensitivity of semi-quantitative spectral analysis; in this case, they were not included in the processing.

Determination of the regional background. In determining the geochemical specialization of rocks, as in the analysis of anomalous geochemical fields, the intensity of the manifestation of enrichment in chemical elements is important, which is estimated in relation to the regional background (fersma) or the system of world clarkes. Regional background abundances of elements were defined as a modal value from the background population. The area of background values was identified using the histogram of the element abundance distribution. Practice shows that most often we are dealing with polymodal distributions, in the conditions of which visual analysis of histograms is an effective technique for searching for geochemical thresholds. Typically, samples from the background population form the main peak in the histogram. Samples from the areas of removal and accumulation form minor peaks and are separated from the background population by significant minima. The minimum to the left of the background is classified as a washout threshold, on the right - the accumulation threshold or minimum anomalous. The value of the regional background for a number of elements (As, Sb, W, Bi, Be, Ta, Nb) can only be considered conditional, since their true contents in rocks are usually below the sensitivity of semi-quantitative spectral analysis, and the boundaries of the background region on the histogram are recorded only with the accumulation region.

The swing diagrams show the minimum-maximum values, the boundary values of the quartiles (25-75%) and the median, for some elements one can observe "outliers" into the accumulation area (Ti, Mn, Cu, As, Au, Ba, Sr, Zr, Ni). According to standard deviations, Pb, Zn, As, Au, Sc are distinguished, having the greatest deviations from the mean. The histograms of the distribution of the concentrations of chemical elements in the samples show the predominance of areas of their sub-background concentrations, while the area of removal is practically absent, and the area of accumulation is mainly represented by low concentrations and is the most representative

(approximately > 5% of the sample volume) for Au, Ag, As, V, Mo, Co, Mn. Analysis of histograms made it possible to select the area of the background distribution and to accept (in the working version) as the regional background the modal value of the element content. For most elements, background grades have insignificant differences with the average and median.

Compared to the Clarke of the Earth's crust, the regional background W, Ag, As has an analytical overestimation of the contents by 5-6 times, the regional background of Mn, V, as it seems based on the composition of the host rocks, has an analytical underestimation of the contents by 1.5-2 times, the regional background of a number of elements characterizes their excessive or deficient content: excess > 1.2 Mo, Be, Pb, Zr; deficiency < 0.8 Ti, Au, Co, Ba, Sc, Cu, Sr, Ni. The regional background Ga, Zn, Sn, Cr, Yb, Li has insignificant deviations from the Clarke of the Earth's crust and ranges from 0.8 to 1.2.

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# FORMATION OF LEADERSHIP IMAGE OF YOUTH ORGANIZATIONS ON THE BASIS OF FOREIGN EXPERIENCE - HR (HUMAN RESOURCES): THEORY AND PRACTICE

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## ABSTRACT

*This article highlights the importance of capacity building in the field of state youth policy, the study of best international practices in this area and its implementation in practice.*

**KEYWORDS:** *personnel, personnel service, public service, leadership, image, value, innovation, potential.*

## INTRODUCTION

The processes of globalization, the need for an innovative society, the development of science and technology, as well as the creation of many opportunities for young people, place a number of strains on society, such as quick decision-making, the formation of innovative thinking, intellectual development.

At present, in many cases, the use of human resources in state and government agencies, the division of their responsibilities and powers is not rational and effective.

Unfortunately, this situation is hindering the progress. If you look at an office, there are hundreds of people working there. If you look at another office, there is a lot of work, a lot of tasks, but there is a lack of hard working and responsible personnel.

It is time to put an end to this misallocation and irresponsibilities in working process. Every civil servant must clearly know his rights and responsibilities, or to put it rather roughly, to pull his own cart[1].

Today, in developed economies of the world, as the main work processes are performed by various robotized systems which almost substituted the human workforce in manual labor, employees are tasked with solving increasingly complex and intellectual problems. Therefore, it is clear that the employee must not only perform the tasks assigned to him with quality, but also constantly improve their

work skills, efficiency and introduce innovative methods.

At the same time, increasing and developing human resources in the field of youth policy plays an important role in the further development of the country. The modern model of state youth policy provides for the state to work closely with young people, interact with them and involve young people in public administration.

In this regard, the rational formation of human resources in the field of youth policy is especially important for the effective use of the talents and opportunities of young people in the development of the country.

## MAIN PART

Effective solution of the problems that the state and society facing requires from the leader thorough and comprehensive knowledge, true professional skills. But the attitude of citizens towards leaders, in which they see a true leader, largely depends on the image he has formed among the people. The term "image" is derived from the English word "image", which in Uzbek means appearance, image, emblem, beauty, celebrity, handsome, handsome, prestigious, influential.

"Spirituality. The Glossary of Basic Concepts defines image as "a specific synthetic image that arises in the minds of people in relation to a particular person, organization, or other social object, embodies information about the perceived



object, and encourages social behavior"[2]. There are a number of definitions of the term "image" in the literature, which are interpreted differently by the authors of the study.

Based on various definitions and descriptions, in our opinion, it is appropriate to define the image as follows: image is a way of presenting oneself to the society through information and communication means (television, radio, internet, etc.), social groups or socio-political activities and actions of an individual. is an individual image created for the purpose of evaluation and determination of status in society.

Often, talented and hard-working people with great potential cannot rise above the career ladder because they do not have the required public image. This failure is mainly due to a lack of self-confidence, an inability to adequately assess one's own strengths and weaknesses[3].

It has not been long since this concept was used in Uzbekistan. In the late 20<sup>th</sup> and early 21<sup>st</sup> centuries, the word began to appear on television and on various papers.

Today, many politicians, artists, athletes, entrepreneurs, intellectuals, students and other professionals have necessary knowledge about the concept of "image".

The main reason for this is that as a result of changes in the political system, freedom of speech, liberalization of the media, the socio-political spheres have become a field of competition between different parties and groups. Therefore, gaining people's trust has become one of the important tasks facing the leaders of the organization. In most organizations, the application of traditional methods in the formation of leadership image in executives hinders employee development.

Companies based on traditional methods of team management change very slowly and therefore cannot adapt to the demands of a rapidly changing business environment. The following aspects are typical for these enterprises:

-Lack of effective marketing departments and an established system of working with customers;

- The quality management system does not meet modern requirements;

- There is no cost audit, they are spread to all areas; - Low income;

- Low innovation activity;

- "Emergency" work, the impact of short-term work on quality;

- Priority of short-term tasks over long-term (strategic) tasks.

The use of new technologies in human resources differs from the services based on the traditional approach with the following features:

- ability to check the staff members at least once a year;

-Personnel service staff has professional training in the specialties of "psychologist", "sociologist", "lawyer" and "economist";

-The organization has its own values and code of conduct;

-The organization is not to employ incapable employees and the total number of such specialists is not to exceed 10%;

-Regular study of the labor market by the Personnel Service;

-Personnel service to promote and monitor the professional development of employees;

-Personnel service is to be used for revealing new methods of labor discipline management (incentives, benefits)

-Personnel Service is to conduct employee rating (KPI);

-Personnel service develops and submits proposals to increase the income of employees of the organization;

-Personnel Service implements programs on staff health;

-Personnel service - is responsible for errors in the selection of personnel;

-Personnel Service constantly cooperates with managers, heads of departments, territorial administrations and government agencies to form a quality personnel reserve;

Effective organization of work with employees in organizations today requires the application of well-thought-out strategies and tactics. Incentives for civil servants have a special place in the civil service.

Incentives for civil servants means a high appreciation of the activities of civil servants through the implementation of measures aimed at strengthening their motivation to perform their duties and, consequently, the efficiency of the civil service, as well as the implementation of measures established by law[4].

According to the Russian scientist D.M. Ovsyanko, incentives are important and especially important for civil servants to perform their duties conscientiously and successfully, long-term service used to perform tasks. Incentives are one of the main means of educating civil servants and strengthening service discipline[5].

During the reform period, the selection, placement and certification of civil servants will play an important role. In this case, the qualities of employees, such as professionalism, level of intellectual potential, initiative, are not enough to hold a public service position. His attitude to the reforms in the country and his readiness to participate



directly in the deepening of these reforms are important[6].

Attestation of young staff:

-In accordance with the relevant decision of the head of the organization, the Working Group will study the activities of regional (local) departments and units and provide methodological assistance;

-Analyzes the activities of responsible employees in the organization and the organization of work within its competence, and in the end to discuss in the prescribed manner the issue of whether to remain in office;

-Attestation of managers and responsible employees operating in the organizational systems is carried out in accordance with the developed Regulations.

The primary purpose of introducing certification is to determine the level of knowledge and skills of the employee, which can be assigned to the employee in any title or category, and so on. is one of the main conditions in determining[7].

Foreign experience.

The rapid reforms carried out in Uzbekistan over the past three years have earned a high level of recognition not only in our country, but also in our countries and abroad for their modern knowledge and experience of politicians living in developed countries.

There is a need for selfless and sought-after professionals with modern knowledge and skills in various fields and industries in line with the comprehensive reforms being carried out in our country.

It is worth mentioning the personnel policy in developed countries such as Australia, Japan, the United States and Singapore.

In Australia, unlike in other countries, the recruitment and transfer of civil servants is more detailed.

All matters relating to personnel management are dealt with by the Australian Civil Service Commission. This commission operates in accordance with the 1999 Civil Service Act.

A Center for Growth and Support has been set up within the Commission to examine and promote civil servants.

The Center assists agencies and their HR services in assessing the correctness or inappropriateness of staff selection, retraining or reassessment.

Australia is a country with one of the most transparent systems for forming and working with human resources. Candidates and civil servants seeking promotion may evaluate the activities of the Center for Work with Candidates and Civil Servants.

The state of New South Wales (NSW) in Australia is one of the states that has developed a successful personnel policy globally.

The local government of New South Wales has been working since 2014 with the Australian Civil Service Commission to develop values for civil servants. For this purpose, the following 6 points are taken as the basis of the value of the leading personnel:

1. Opportunity to contribute to the development of the region;
2. Be able to be part of a structure in which diversity is recognized and valued;
3. Be able to demonstrate their potential;
4. Being a part of something big (a system);
5. Growing up the career ladder;
6. Spend time on something that really matters.

In Japan, civil service appointments are based on competitive examinations. The Japanese Constitution enshrines the principle that citizens have equal rights to enter the civil service. The Law on Civil Servants (Article 33) stipulates that selection for the civil service is carried out in accordance with the personal services of the candidate, his professional training and business qualities, which must be determined through competitive examinations[8].

In Japan, human resources are the face of the company. Therefore, most of the largest companies are based on the principle of "employee mind - company mind". This principle is implemented in 4 steps.

1. Exchange of experience between employees;
2. Raising the morale of the company's employees;
3. Radical improvement of the internal environment among employees;
4. Conduct regular seminars and trainings.

Ninety percent of the largest companies in the United States claim that great results can be achieved through regular training and retraining of employees. They regularly train their staff at large and prestigious training centers at great expenses. According to the data, the General Electric training center alone employs more than 30,000-40,000 people a year.

In the United States, in the broadest sense, anyone who receives a salary from the federal, state, or local government budget for their work is considered a "government employee" or a "public employee." Therefore, the terms "civil service", "public service", "government service", which are widely used in American literature, are often used as synonyms[9].



Recently, along with the reduction of members of the state apparatus, a lot of work is being done to raise the prestige of work in the executive branch, to improve the image of the civil service.

For example, in 1995, Civil Servant Week was held to showcase the contribution of employees to the social development of American society.

The civil service in Singapore was officially established in 1955, but in fact its history dates back to 1819, when Singapore was first founded and colonized by the British Empire.

The civil service includes: president, prime minister, 14 ministries and 26 standing committees. The number of employees in the 15 ministries (including the Prime Minister's Office) is 65,000, and the number of members in the committees is 49,000. The legal privileges of state ministries do not belong to them, but they have great independence and flexibility.

Since these are the history of the civil service, the Civil Service Commission does not deal with the recruitment and promotion of staff to these committees, but they have different terms and conditions of service. Their reports are reviewed by the Auditor General of Singapore. The standing committees helped reduce the volume of civil service work.

Based on the activities of the Singapore Civil Service, 10 principles have been decided. The success and excellence of Singapore's civil service lies in the fact that these principles and practices are integrated into a single set and are supported by appropriate resources, well-thought-out planning, strict discipline and comprehensive guidance. Interaction and consistent execution are important elements of the Singapore system.

Singapore is one of the countries where market methods are used in calculating the salaries of civil servants. Therefore, the size of the salary is also quite large. Reporting to parliament in 1985 on the justification of the cost of providing the apparatus, the prime minister said, "I am probably one of the poorest, and probably the poorest, prime ministers of third world countries. There are different ways to solve this problem.

I propose our own path within the framework of an honest, transparent, self-justifying and feasible market economy. If you prefer hypocrisy over this path, you will face hypocrisy and corruption. It's up to you which one to choose." As a result of the proposed program, the salaries of civil servants have risen sharply, leading to a decline in the level of corruption in the country[10].

In a number of European countries, an official caught with a bribe is deprived not only of his position but also of his pension. The most influential cases of the fight against corruption can be seen in

the Scandinavian countries, a number of European countries (Luxembourg, the Netherlands, Switzerland, Austria and others) and Asia (Singapore, Hong Kong)[11].

Currently, the salaries of senior civil servants in Singapore are calculated based on the average salary in the business, and their monthly salary ranges from \$ 20,000 to \$ 25,000.

We can see that in the above-mentioned foreign countries there are services, agencies, commissions responsible for the formation of the personnel reserve for the civil service and working with them.

## CONCLUSION

Along with the implementation of personnel policy through the development of the image of leadership of employees on the basis of advanced foreign experience, it is necessary to constantly study the social security, labor motivation, performance status, professional competence and other aspects of the employee. This, in turn, leads to the effective management of personnel and the development of human resources, the formation of a pool of qualified personnel on a competitive basis, as well as the timely filling of vacancies by civil servants.

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# **ECONOMIC EFFICIENCY OF HIGHLY CONCENTRATED PHOSPHORUS AND COMPOUND FERTILIZERS FOR FINE-FIBER COTTON**

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## **ABSTRACT**

*The result of calculation economical efficiency different highly-concentrated phosphoric and complex fertilizers actualization experiment shows that the cost fertilization of seedbed 150 kg/g, P<sub>2</sub>O<sub>5</sub> dependently amount was 15,53 till 33,66 roubles. Clear income taken from fertilization consists of 75,27 up to 174,27 roubles. The largest clear income was taken on the variation where the polyphosphot ammonium, diamphos, ammophos and ammonized superphosphate were fertile ted. The spin off usage these fertilizers was accounted as 1 g amount from 67,73 up to 99,00 roubles. Cost effectiveness phosphoric complex fertilizers consist of 41,3 up to 54,7%. Here at the highest cost effectiveness was taken from fertilization, polyphosphot ammonium 54,7% and minimum 41,3 simple and 41,7% double superphosphate.*

**KEYWORDS.** *Highly concentrated, complex, polyphosphate, ammonium, simple, double.*

## **INTRODUCTION**

In the leading cotton-growing countries, there is a continuous search for effective ways, methods and methods of using cotton fertilizers, new integrated systems are being developed for the accumulation and preservation of early fruit elements in order to obtain an early and higher yield with good fiber quality that meets the requirements of world standards. For the scientific substantiation of the placement of plants in natural - climatic zones and regions, it is necessary to know the natural - climatic conditions and the degree of their favorableness for the cultivation of cotton crops. Climatic and weather conditions largely determine the yield of agricultural crops, the quality of products, the costs of its production, the peculiarities of agrotechnical and technical measures, and territorial specialization. By many natural and climatic factors,

the southern part of the Surkhandarya region of the Republic of Uzbekistan surpasses the US cotton belt and the cotton zone of North Africa, where fine-fiber cotton is cultivated.

The climate of the Surkhandarya region is sharply continental, which is expressed in large fluctuations in annual, seasonal and especially daily temperatures, as well as great dryness with a sharp contrast in the moisture of the seasons. The main part of the annual amount of precipitation is confined to the non-growing period during which about 52% of the annual amount falls, in March April 37%, summer and autumn are characterized by their complete absence, very low air humidity and high evaporation.

The sum of effective temperatures is + 2704-3056°C, positive for the growing season of fine-fiber cotton -5700-5920°C (Babushkin, 1968) [1] The





duration of the frost-free period is 266-272 days. Precipitation will be 127-160 mm, the air is extremely dry. Average annual relative air humidity is 8-12%. Despite the sharp continentality, the weather conditions of the Surkhandarya region can be considered favorable for the cultivation of fine-fiber cotton.

It should be noted that the fine-fiber varieties of cotton are drought and heat-resistant than the medium-fiber varieties.

Fine-staple cotton has a large fineness, longer strength than medium-staple varieties. Therefore, the yarn made from it turns out to be 1.5-2.0 times more durable, since due to the large fineness and strength of the fibers in the cross section of the thread (yarn), they fit more than in medium-fiber varieties of cotton with the same cross section. Thanks to these properties, more meters of more valuable fabrics are produced from the fiber of fine-staple cotton. So from the fiber of medium-fiber varieties with the fiber type, about 860 m<sup>2</sup> of calico is produced, while the fiber of fine-fiber varieties with type 1 fiber can be obtained over 1500 m<sup>2</sup> of cambric - cremon, which cannot be made from the fiber of medium-fiber varieties of cotton. [2] Thus, almost 2 times more fabrics are made from the fiber of fine-fiber varieties of cotton, and each meter of these fabrics is considered much more expensive than calico.

Due to these reasons, cotton - medium-staple varieties of cotton, depending on the type of drag, is paid by the state above the raw of medium-staple varieties by 1.2 - 2.0 and even 3 times [3]

In this regard, the President of the Republic of Uzbekistan and the government pay special attention to increasing the production of fine-staple cotton, which has especially valuable technological and economic properties.

This is evidenced by the presidential decree No. PF -5742 of July 17, 2019 and the decree of the Cabinet of Ministers of the Republic of Uzbekistan. [4] It should be noted that on soils where fine-staple cotton is cultivated for natural soil fertility, the yield of cotton 12 - 15 and grain 15 - 16 c / ha.

The use of nitrogen, phosphorus and potash fertilizers increases the fertility of irrigated soil makes it possible to obtain 35 - 40 and more centners / ha of raw cotton and 55 - 60 centners / hectare of grain. An increase in the productivity of cotton crops depends not only on the creation of an optimal nutritional regime on irrigated lands, but also on the temperature and humidity of the air, as well as the norm and ratio of NPK — nutrition, the density of plants and their varietal characteristics.

All of these factors are interrelated, therefore, when creating conditions for obtaining high cotton yields, it is necessary to maintain their optimal ratio. It should be noted that the growth of the economic efficiency of the production of cotton and other agricultural crops largely depends primarily on the rational and expedient use of mineral fertilizers.

At present, the possibilities of irrigated lands are far from being fully utilized. The level of farming is lagging behind modern requirements. The average yield of cotton and grain crops does not correspond to the possibilities of irrigated agriculture. And yet, in the south of the Surkhandarya region, there are large reserves for increasing the productivity of irrigated lands. Scientific data and production experience show that with the correct use of irrigated land and natural conditions, it is possible to get 35 - 40 centner / ha of raw cotton annually 60-70 c / ha of grain, 70-80 c / ha of grain crops.

Purpose of the study. The economic efficiency of fertilizers largely depends on the level of farming culture and the concentration of nutrients in the applied fertilizers. With the modern level of agricultural technology, the rational use of fertilizers and the timely, high-quality implementation of all agricultural practices contribute to an increase in efficiency.

The use of highly concentrated phosphorus and compound fertilizers eliminates the need for separate application of several types of fertilizers. In this regard, the economic efficiency of concentrated forms of phosphorus and complex fertilizers has an indisputable advantage over simple fertilizers, since it contains 2 - 4 times more nutrients. Thanks to this, labor costs for delivery, storage and their use are reduced, which is of great importance in conditions of labor-intensive agricultural processes. When preparing and applying complex fertilizers to the soil, 0.3 person per day is saved per 1 hectare of land area compared to the labor costs for applying an equivalent amount of single fertilizers. According to A.V. Peterburgsky and A.V. Postnikov, the use of various brands of nitrophosphate under the conditions of podzolic soils for potatoes and sugar beets, with the same increase in yield with an equivalent mixture of simple fertilizers, provided additional profit by 38.5 and 20.6 rubles, respectively. [6]

The calculations of the authors have established that in the state farm, where experiments were carried out with the use of nitrophoska on the entire area of potato planting (400 hectares), 15,816 rubles were saved.



## **MATERIAL AND RESEARCH METHODS**

The calculation of the economic efficiency of the use of various highly concentrated phosphorus and complex fertilizers for fine-fiber cotton was carried out by us according to the methodological instructions of the VIUA (N.N. Baranov and N.N. Mikhailov) and according to the standards of the Union of Scientific Research Institute of Agriculture, approved by the Ministry of Agriculture of the Uz SSR for 1970, the price list for chemical products of 1972 and recommendations to research institutes. [7]

To determine the cost of fertilizers, we calculated all the costs associated with their purchase and their use. These include the wholesale price of fertilizers, transportation costs, handling, storage, preparation prior to application to the soil. This also included the cost of the costs of harvesting, transportation, refinement and sale of additional harvest obtained from the use of fertilizers. In addition to direct costs, general and general production costs were also taken into account.

Research results and their discussion. The results of calculating the economic efficiency of various highly concentrated phosphorus and complex fertilizers in the experiment are presented in table 1, the data in table 1 shows that the cost of applying 150 kg of P<sub>2</sub>O<sub>5</sub> per hectare, depending on the forms of fertilizers applied, amounted to 15.53 to 33.66 rubles, net income was obtained from the use of fertilizers ranging from 75.27 to 174.27 rubles. The largest net income was obtained on the variants where ammonium polyphosphate, diamphos, ammophos and ammonized superphosphate were introduced. Additional profit from the use of these fertilizers per hectare ranged from 67.73 to 99.00 rubles, compared with the use of simple superphosphate.

The profitability of phosphate and compound fertilizers was 41.3 - 54.7 percent. At the same time, high profitability was obtained from the introduction of ammonium polyphosphate - 54.7% and the least from simple superphosphate - 41.3% and double superphosphate - 41.7%.



**Table 1**  
**Economic efficiency of using various highly concentrated phosphorus and complex fertilizers for fine-fiber cotton**

No	Experience options	Raw Cotton Yield 3-Year Average	Average yield increase from P2O5, c / ha	The cost of the increase in yield, rub / ha	The cost of phosphate fertilizers, including costs of transportation, storage, preparation and application to the soil	Expenses for harvesting and implementation of an increase in yield, rubles / ha	Total costs associated with the use of fertilizers, rubles / ha	Net income from applying P2O5, rub	Additional profit from the use of complex highly concentrated phosphorus fertilizers in comparison with simple superphosphate, rub / ha	Profitability%
1	Nitrogen potassium background	34,8	-	-	-	-	-	-	-	-
2	Background superphosphate simple	38,3	3,5	269,5	28,53	165,7	194,23	75,27	-	43,9
3	Background double superphosphate	38,9	4,1	315,7	28,69	194,1	222,79	92,91	17,64	41,7
4	Background ammoniated superphosphate	40,6	5,8	446,6	29	274,6	303,6	143	67,73	47,1
5	Background ammophos	41	6,2	477,4	33,66	293,6	327,26	150,14	74,87	48,8
6	Background ammonium polyphosphate	41,2	6,4	492,8	15,33	303	318,53	174,27	99	54,7
7	Background diamphos	41,6	6,8	523,6	30,81	322	352,81	170,79	95,52	48,4



## CONCLUSIONS

1. The economic efficiency of fertilizers largely depends on the level of farming culture and the concentration of nutrients in the fertilizers used.
2. The use of highly concentrated phosphorus and compound fertilizers eliminates the need for separate application of several types of fertilizers.
3. The economic efficiency of concentrated forms of phosphorus and complex fertilizers has an indisputable advantage over simple fertilizers, since they contain 2 - 4 times more nutrients.
4. When preparing and applying highly concentrated complex fertilizers to the soil, 0.3 person per day is saved per 1 hectare of area compared to the labor costs for applying an equivalent amount of single fertilizers.
5. Additional profits from the use of ammophos, diamphos and ammonium polyphosphate from 74.87 to 90.0 rubles in comparison with the use of simple superphosphate.
6. The profitability of phosphate and compound fertilizers was 41.3 - 54.7 percent. At the same time, high profitability was obtained from the introduction of ammonium polyphosphate - 54.7% and the least from simple superphosphate - 41.3% and double superphosphate - 41.7%.

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## CONCEALMENT METHODS FOR DRUG SMUGGLING MEANS AND PSYCHOTROPIC SUBSTANCES

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### ABSTRACT

*The author gives an opinion on the concealment of narcotic drugs and psychotropic substances during smuggling; all of these methods of concealment are examined in detail.*

**KEY WORDS:** *smuggling, methods of concealment, narcotic drugs, psychotropic substances.*

### DISCUSSION

The criminals pay special attention to concealing the smuggling of narcotic drugs and psychotropic substances, as an element of the commission of a crime.

Still G.G. Zuykov noted that the criminals "... the main attention is paid to concealment of the crime, not deciding to commit it until they think through and to the necessary extent take a set of measures aimed at hiding the fact of the crime or their participation in it" [1].

Thus, the essence of concealment of a crime is that the criminal intent of the guilty persons is not disclosed and their actions are not perceived as illegal. Various authors classify the concealment of smuggling of narcotic drugs and psychotropic substances in their own way.

According to M.M. Kolesnikova's methods of concealment of customs, crimes can be classified on the following grounds:

1) On the content side: a) by concealing information and (or) its carriers; b) by destroying information and (or) its carriers; c) by falsification of information and (or) its carriers; g) mixed methods;

2) In the form of behavior of the subject: a) carried out in an active form (for example, the destruction of traces at the crime scene, mental or other influence on witnesses with the aim of giving false testimony or refusing them, etc.); b) sold in a passive form (refusal to testify, evading appearance at the investigative body, etc.);

3) On the subject of execution: a) methods carried out by the subject of the crime; b) methods

carried out by another person who is not simultaneously the subject of a crime;

4) Depending on the number of entities acting as executors of the concealment method: a) methods performed by one person; b) methods performed by several persons;

5) Depending on their relationship with the method of committing the crime and their goals: a) a method of concealing a crime, the purpose of which is to contribute to the achievement of a criminal result (in the case of forgery of customs documents. In this case, a method of concealing a crime is included in the method of committing a crime; b) a method of concealing a crime, the purpose of which is to ensure evasion of criminal liability and (or) punishment of a person (s). Here, the method of concealment is beyond the scope of the method of committing a crime and is a relatively independent phenomenon in the mechanism of crime" [2].

I.O. Zhuk calls the following ways to conceal smuggling: use of special storage facilities; giving some objects the appearance of others; concealment of objects in the body, things for personal use, clothing [3].

In our opinion, ways to conceal smuggling, including narcotic drugs and psychotropic substances, are contained in the Criminal Code of the Republic of Uzbekistan [4].

It moving across the customs border of the Republic of Uzbekistan in addition to or with hiding from customs control; either with fraudulent use of documentation or means of customs





identification; either associated with non-declaring or declaring not by its name.

1. Movement of prohibited substances and substances outside designated places or at unspecified working hours of customs authorities in these places. D.V. Listikov shares the movement of goods in addition to customs control into: moving outside the place specified by the customs authority for goods and vehicles to cross the customs border, and without coordination with the customs authorities; moving to a place determined by the customs authorities for crossing goods and means of transport of the customs border, but not at the appointed time of customs clearance and without the consent of the customs authorities" [5].

According to the Customs legislation Republic of Uzbekistan, in order to ensure the security of the state and citizens, any goods (items, things, and so on) that enter the territory of the Republic of Uzbekistan, moreover, in various ways: by rail, air, water, road, on foot, including international postal items, as well as individuals arriving from other states, are required to go through customs control. However, criminals, taking advantage of the large length of the borders of the Republic of Uzbekistan, in some cases, the great remoteness of checkpoints and other conditions, sometimes move drugs, psychotropic, potent or toxic substances, as well as plants containing drugs or psychotropic substances, in addition to customs control.

The method of movement is selected depending on the terrain on which the state border of the Republic of Uzbekistan passes. It can be water, using individual personal watercraft, and automobile, if there are bypass country or other roads, and walking, in cases where this path is narrow, mountainous, hilly, marshy, wooded or having other obstacles that do not allow use any kind of transport or you need to go unnoticed by others. Considering these illegal actions of criminals, I.O. The beetle notes that in this case, people move objects across the border "without entering into legal relations in this regard with the state represented by customs authorities" [6].

However, in our opinion, it does not matter at all whether such persons enter into legal relations with the customs authorities or not. Most importantly, they violate public relations that ensure the basic economic interests of our country in general, and the safety of public health, in particular, that is, in this way, enter into legal relations with the state regarding the illegal movement of prohibited substances, substances and plants across the appropriate borders. Therefore, they move narcotic drugs and psychotropic substances in addition to customs posts, as they are

well aware of the unlawful nature of their actions. The largest amount of narcotic drugs, bypassing customs control, enters our country from Afghanistan along the so-called "northern route" through Tajikistan and Kyrgyzstan. This is explained by the fact that, according to the absolutely justified remark of V. Ivanov, the border between Afghanistan and Tajikistan is "largely transparent, caravans pass quite freely across the territory of Tajikistan towards Russia" [7].

2. Concealment from customs control the concealment of narcotic drugs and psychotropic substances from customs control is carried out using hiding places. There are several points of view regarding the concept of caches in the forensic literature. So, for example, O.N.Lopareva believes that a cache should be understood as a place specially equipped or adapted for the hidden storage of objects, documents, tools, traces of a crime and other objects that can act as physical evidence [8]. An almost similar definition of a cache is given by A.V. Synachev [9]. According to V.G. Prokhorova "a cache can be made, equipped or adapted" [10]. A.V. Prisekin and V.V. Yarovenko under the caches understand "the type of method of concealing a crime, consisting in concealing the subject or object of concealment, in a specially made, adapted or suitable place for this, in order to ensure its non-obviousness for the established circle of persons" [11].

In our opinion, it doesn't matter at all whether a particular place for a cache is redone, modified or made anew. The most important thing is that narcotic drugs and psychotropic substances can fit in this place in order to hide them from prying eyes, in our case, from the customs authorities, and give their actions to illegally move them across the border a completely unbreakable character. Such caches can be arranged in a variety of places: in hand luggage in bags, suitcases, backpacks, cases and so on; a second bottom is arranged, their walls and partitions between sections thicken; substances and means prohibited for import and export are mixed with other personal items, perfumes or cosmetics; additional pockets are sewn in clothes; various stripes; buttons having an internal cavity; constructive cavities of various household items are used for hiding places; in shoes, caches are arranged in heels, soles "on platforms"; various belts, both industrial and handicraft, are put directly on the body; bandages etc.

The intraactivity method remains a common way of concealing drug smuggling. Despite the fact that the number of detainees of the so-called "swallowers" of drugs began to decline [12], the number of narcotics illegally transported by them is



still large. In cars, caches suit: in the luggage compartment and spare wheels; between the seats of the car and under them; in the door; gas tank; in the dashboard; under the rear and front bumpers etc. In railway transport, technical cavities of wagons are used to arrange caches. A.G. Kharatishvili in passenger trains and on watercraft calls "cases of drug concealment in public places in order to make it difficult to expose specific individuals in the event of smuggling" [13]. Narcotic drugs and psychotropic substances are increasingly being imported and exported under the guise of fruits and vegetables. By fair remark V.Vladimirova and I.Yurasova, this type of camouflage is the most successful, due to the fact that "fruit and vegetable products whose origin (unlike industrial goods and raw materials) are easy to hide, and its features - mass, the need for quick transit, pungent odors - make it difficult to search screening events"[14]. At the same time, criminals can hide drugs among such products as: onions, carrots, cabbage, turnips and so on; in manufactured models of such products: apples, pears and so on; as well as in agricultural products themselves.

For example, citizen F. from the Republic of Tajikistan to the Moscow region in boxes with pomegranates transported heroin, which he placed in bags inside the fruit. In total, up to 10 kilograms of highly concentrated heroin was placed inside the fruit [15]. As for parcels, parcels, letters with which narcotic drugs and psychotropic substances cross the Republic of Uzbekistan border, caches can be arranged in toys, books, household items, writing products, canned jars and so on.

For example, Kemerovo customs officers found in a parcel from China in dummies of a stationary telephone set "ISA" and an external hard drive "3.5 HDD EXTERNAL ENCLOSURE" two plastic bags weighing 250 grams each. in each with a narcotic drug of synthetic origin (derivatives JWH-122 and TMSP-2201) with a total weight of 500 g. [16].

3. Inaccurate declaration or non-declaration consists in indicating inaccurate information in the declaration regarding the declared customs procedure, about the declarant, customs representative, the sender and the recipient of goods, on vehicles used to move across the border of the Republic of Uzbekistan, about the product being moved (its name, description, classification code of goods according to the Commodity Nomenclature of Foreign Economic Activity, the name of the country of origin or departure, description of the packages, including their quantity, type, marking and serial number, quantity in kilograms (gross weight and net weight) and in

other units of measurement, customs and statistical value, on the calculation of customs duties, the rate of customs duties, taxes, customs duties, the application of benefits for the payment of customs duties, amounts of calculated customs duties, taxes, customs duties, exchange rates established in accordance with the legislation of the Republic of Uzbekistan, on the foreign economic transaction and its basic conditions, on compliance with restrictions, on the manufacturer of the goods, on information confirming compliance with the conditions for placing goods under the customs procedure, on the documents submitted, on the person who made the declaration on the goods, the place and date of preparation of the declaration on the goods.

Inaccurate declaring as a way of concealing illegal movement of prohibited goods across borders should also be recognized as filing a declaration in violation of existing rules.

Such situations may arise when a declaration is submitted to a customs authority that is not authorized to register customs declarations or is not an authorized person; it does not indicate the necessary information to be entered; not signed or certified properly or not compiled in the prescribed form; in relation to the declared goods, no actions have been taken which must be completed before or simultaneously with the filing of the customs declaration.

As for the non-declaration of goods transported across the relevant borders, this method of concealment consists in the fact that the declarant is silent about the objects illegally transported by him or such a declaration does not fill out the declaration at all.

An example is citizen A. who from the city of Osh of the Kyrgyz Republic illegally moved by air to Moscow mixtures (preparations) containing heroin, acetyl codeine and 6-monoacetylmorphine, with a total weight of narcotic drugs of 995.11 grams contained in two briquettes, placed in low shoes, worn on it. At the same time, when passing through customs control at Domodedovo Customs, he deliberately did not indicate this drug in the customs declaration, did not present customs control, but proceeded through the customs control zone via the "green" channel, thereby not performing customs declaration of goods in writing [17].

4. Use of documents containing inaccurate information about the goods. Most often, such documents contain signs of falsification. Moreover, the falsification may concern both transport, transportation, commercial or other documents. The goods indicated in them may not correspond to the name, address of the recipient, etc. These



documents may contain information about fictitious products: when inspecting a truck delivering agricultural products from Europe, 400 cardboard boxes with bags of “contaminated poppy” weighing 25 kg were found, which according to the documents passed as dried fruits [18].

The documents may contain an underestimated or conversely, overestimated amount of agricultural products or other items (at Brest customs, when inspecting the cargo compartment of a road train traveling to Kazakhstan from Germany, more than 70 items of goods not listed in the accompanying documents were found, among which were a large number of anabolic steroids [19]), or other inaccurate information is contained.

Inauthentic documents confirming the authority of the person filing the customs declaration may contain information about the non-existent legal entity on behalf of which it acts, which can be either the recipient of the goods or moving them across the relevant borders; state registration of a legal entity, or state registration of an individual as an individual entrepreneur; on registration of the declarant with the tax authorities.

In the event that the natural person acts as the declarant, the documents proving his identity may be false documents: passports with signs of erasing, adding, re-sticking photos, replacing sheets or stolen or lost by the owners. Documents confirming the country of origin of the goods, as well as their accompanying documents: bill of lading, bill of lading, or other documents confirming the existence and content of the contract for the carriage of goods, may be false.

So, a citizen of R., when crossing the border of the Customs Union at the Bryansk Customs, presented a document stating that he was transporting drugs. However, in his car, behind the last row of seats, drugs were found containing potent substances - methandienone, dehydrochloride-tiltestosterone, testosterone propionate and mesterolone, a total of 126800 tablets and 4590 ampoules [20].

In determining the customs value of the goods being transported, forged contracts of foreign trade purchase and sale may be presented, invoice (invoice) containing false information, banking, other payment or insurance documents that do not correspond to reality, shipping and packing lists and other documents that are used in accordance with international treaties of the Republic of Uzbekistan in carrying out foreign trade and other activities and which, by virtue of a law, agreement of the parties or business customs, are used to confirm transactions involving the movement of goods across the customs border,

documents confirming the payment of customs payments and the right to privileges on their payment and others.

Since the customs declaration can be submitted both in writing and in electronic form, such documents can also be forged. This applies primarily to electronic signatures. In addition, some changes to the customs declaration may be made after this document has been certified by an electronic digital signature of the person authorized to put such a signature.

5. The use of counterfeit or other means of identification related to other goods. The identification of goods and vehicles is a set of measures applied by customs authorities aimed at establishing the conformity (identity) of goods and vehicles placed under the selected customs procedure.

Since quite often-narcotic drugs and psychotropic substances are transported along the customs border of the Republic of Uzbekistan together with any goods or goods, they are placed there after the relevant goods or goods are already in any vehicle.

And since the identification of goods or goods moved across the corresponding border is carried out by applying seals, stamps, digital, letter and other markings, identification marks, stamping, sampling and sampling, a detailed description of the goods, drawing up drawings, making large-scale images, photographs, illustrations, the use of shipping and other documentation, as well as in other ways, the seals on the doors of wagons or other containers in which the main cargo moves may not be applied in the proper way, the cargo itself may be falsified or digital, alphabetic or other identification marks that do not correspond to the goods transported.

So, for example, during the inspection of cargo coming from the Republic of Tajikistan, which was located in two vehicles, the North-West Operational Customs officers revealed that the manufacturer did not have a seal on the seal, and the seal itself was different in shape and size. When checking persimmon boxes inside these vehicles, 180 kg of heroin were found [21].

**In conclusion**, I would like to note that the use of search equipment is important in the activities of customs authorities in identifying crimes in the field of drug trafficking.

For the detection of caches for storing narcotic drugs, they use publicly and secretly the means of search technology of contact action (cats, probes, borax), and for the detection of caches of cavities of cavities - means of search technology of contactless action (metal detectors and X-ray television equipment).



Detection of drugs during transportation in freight wagons and containers by personal investigations is a labor-intensive and time-consuming process. Therefore, without the proper organization of operational work, achieving high results in this direction is rather difficult.

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# CONNOTATIVE MEANINGS IN PHONETIC VARIANTS OF VERBAL ROOT-STEMS (As an example of English and Uzbek languages)

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## ABSTRACT

*The connotative meanings of phonetically altered words in English and Uzbek languages are investigated comparatively in the article.*

**KEYWORDS:** *phonostylistics, phonopragmatics, connotative meaning, metathesis, prosthesis, epithesis, apocope, emotional-expressive meaning.*

## DISCUSSION

In general linguistics, including, in European and Uzbek one phonetic phenomena in language have been much completely and thoroughly interpreted and investigated. In this regard the scientific researches of I.V.Arnold, I.R.Galperin, V.N.Vasilina, Yu.O.Gafiatulina, V.I.Goverdovsky, L.T.Bobokhonova, Sh.Shoabdurahmonov, F.G.Iskhakov, B.Juraev, M.Mirtojiev, O.Umarxo'jaeva, R.Shukurov, J.Eltazarov, A.Haydarov and others are noteworthy [1, 105-117]. The names of phonetic phenomena, ways of formation, the place in the language and speech surface are speculated in detail in their works. But the information about the connotative meanings uprising depending on the pronunciation of phonetic phenomena in compared languages, their stylistic peculiarities is not almost found in the works of scientists whose names are aforementioned. In actual fact it has great importance to identify connotative meanings formed in the pronunciation of verbal and grammatical forms in English and Uzbek languages and use them in speech process. In this article we contemplate the connotative meanings produced with the pronunciation of phonetically modified words.

The modification of speech sounds come out mainly in two cases in both languages: 1) positional (according to its place) sound change; 2) combinatory (by interaction) sound change.

Positional sound modification is the change of speech sound depending on the position in the word. The combinatory sound change is the change

of speech sound with certain sound effect in the word during the speech.

Variations of speech sounds have the following kinds.

Generation of phonetic variants of the word occurs mainly in metathesis, prosthesis, epithesis, apocope and a number of other phonetic phenomena. One of them is metathesis.

The etymology of this word is related to the late Latin word "metatithenia" meaning to phrase. The word has two parts: "meta" meaning "beyond over" and "tethenia" meaning "to replace". Thompson L. notes that metathesis is common in Western dialects and occurs when children use new words in their speech. For example: pasghetti - spaghetti, asteiks - asterisk, calvery - cavalry, cumftable - comfortable, foilige - foliage, patty - pretty [2, 219].

In English linguistics, the term metathesis is the substitution of elements within a word or phrase. This can be seen in the following example: revelent - relevant, brid - bird. The consonants l and r and the vowels e and a are reciprocally substituted in these words.

While Crystal D. notes that "metathesis" is a substitution of sounds in a word in relation to word meanings [3, 291], Montler T. provides similar point of view and identifies metathesis on the phonological level only. For Montler, metathesis is a sound change that alters the order of phonemes in a word [4, 55]. In other words, metathesis is the process whereby a





sound hops out its proper place and appears in another position in the word.

In English fiction, the connotative meanings perceived from permuted words are also used in order to individualize the speech of various characters, to express their emotions and to delight the reader. This phenomenon often occurs in the speeches of different dialects.

As noted above, in case of metathesis in the word next to placed consonants interchange in Uzbek language also. As a result of this sound exchange, the word produces a variety of connotative meanings.

The metathesis is used in the belles-lettres to personalize the character's speech, while in the spoken speech it reflects some of the dialectic features. In some cases, it can also be used when there are problems with the pronunciation of the word. Such an application can produce a variety of emotions.

The phenomenon of sound exchange in compared languages, that is, metathesis gives different additional connotative meanings. From these connotative meanings, we understand the author's attitude not only to the addressee but also to the occurrence. In other words, a linguopragmatic relationship is expressed.

"When narrator expresses what he intends to be through the text in phonopragmatic trend, then some of the sounds of the words in the text structure are substituted for a specific internal purpose. The phonopragmatic aspect investigates whether the process of changing one of the sounds contained in a word with another serves some purpose" [5, 32–34].

**Канглум**, ғамларимнинг ашклари – **дайро** ... (И.Отамурод).

Hereinabove text the sounds **ў** – **а** and **и** – **у** are replaced in the word **канглум**, while in the word **дайро** the sounds **р** – **й** interchanged.

The pragmatic aim of changing the sounds in the words **кунглим** and **дарё** is to reflect the emotional dye in the ancient pronunciation of these words. Because those words have historically been used in a similar way.

In compared languages most of the words that have been phonetically altered are prosthetic phenomenon.

Looking at the etymology of the word prosthesis, this word is derived from the Greek word for "prosthesis" means standing in front, addition. In English language the occurrence of a prosthesis is caused by adding an additional letter (sound) or syllable at the beginning of a word. This can be done for several reasons. Sometimes, writers use **prosthesis** to emphasize the word. Sometimes, poets will use **prosthesis** so that the words adhere to the rhythm and meter of the poetry. This phenomena can be seen in the following examples: Far-afar,

moan-bemoan, weep-bewEEP, waken-awaken, frighten-affrighten. This phonostylistic phenomenon often facilitates the easier pronunciation of words in colloquial speech. The prosthesis, as in other languages, is used in English as an artistic description medium. The following examples from fiction illustrate the formation of different connotative meanings in the pronunciation of a word. For example: "Touchstone: I remember, when I was in love I broke my sword upon a stone and bid him take that for coming **a-night** to Jane Smile." (As You Like It, by William Shakespeare).

By adding a vowel sound **a** to the beginning of the word **night** in this passage, we can see that the prosthetic phenomenon took place, and the additional sensitivity, expressiveness of the word is increased.

This effectiveness can also be seen in the following excerpt from Edgar Allan Poe's poem:

– Thus much let me **avow** –  
You are not wrong, who deem  
That my days have been a dream;  
Yet if hope has flown away ...

The poet provided the rhythmic artistry of the poem by adding a vowel phoneme **a** to the beginning of the word **vow** in the first hemistich of the poem. The famous English writer and playwright William Shakespeare used prosthesis efficiently in his writings. Including, Tearing of papers, breaking rings **a-twain**,

Storming her world with sorrow's wind and rain.

We find an emphatic state in this passage by adding a vowel sound **a** to the beginning of the word **twain**.

In the following poetic passage, John Milton increased high expressiveness and rhythmic value of the poem by adding deliberately the sound **y** to the beginning of the word **chain'd**. For example, Yet first to those **ychain'd** in sleep,

The wakefull trump of doom must thunder through the deep ...

The same case can also be seen in the following poetic excerpt of Edgar Poe's poem:

– What though that light, thro' storm  
and night,  
So trembled from **afar** –  
What could there be more purely bright  
In Truth's day-star?

In this poetic extract the poet caused to exceed the sense or the value of the poem via giving more entire rhythmic efficiency and emotiveness to the poem by adding a vowel sound **a** to the word **far**. The main function of this medium is to provide a poetic sensitivity to the poem, at same time it



expressed a number of connotative meanings such as enhancing its musicality and melodiousness.

In contrast to the Uzbek language, furthermore adding a vowel sound and a syllable can also be pronounced to the fore of the word in English language. For example: – Old fond eyes, **beweep** this cause again ... (King Lear, by William Shakespeare).

Shakespeare W. formed the word **beweep** by adding the syllable **be-** at the outset of the word **weep** in this example and increased its effectiveness. This can also be seen in the following passage taken from his work “Tempest”: Prospero: I have **bedimm’d** the noontide sun ...

In this example rhythmic condition is created in the text of the sentence by adding the syllable **be-** to the word **dimm’d** in the word **bedimm’d**.

In the Uzbek language the phenomenon prosthesis is formed by adding only vowel sound at the beginning of the word. The addition a vowel at the beginning of the word is most commonly seen in words taken from foreign languages. Until the 30s of the last century it was common to pronounce adding one vowel, often the vowels **и, у** to the fore, when two consonants exist in the beginning of the words adopted from the Russian language. The following words such as **стакан – и стакан, списка – исписка, скамейка – искамейка, справка – исправка, стул – устул, рус – ўрис**.

A word accepted from a foreign language is preceded by a vowel, in order to eliminate the number of consonants before it. For example, **стадион – и стадион, стол – устол, штраф – и штраф**.

The connotative meanings such as the cultural level of the speaker and the inability to pronounce such words, inward emotion are expressed in the pronunciation of phonetic variants of prosthetic words in our speech. The emergence of pragmatic sense is associated with phonostylistic level with the help of adding sound through the speech.

Apparently, in both languages the prosthesis is used in belles-lettres and spoken styles, creating different additional meanings and emotions.

Epithesis is another phenomenon of phonetic variation in pronunciation. The term epithesis originated from Ancient Greek **ἐπιθεσις** - a putting on; “epi” upon + to place. The sound addition at the end of the word under a certain phonetic or morphological conditions of the sound that does not exist in the original form of a word [6, 527]. For example, **num – numb, whiles – whilst**. In English epithesis is often used in children’s and oral speech. Such words express the connotative meanings like

the emotion of characters and their specific speech features in the artistic image.

As noted above, there is also a case of epithetic pronunciation phenomenon i.e adding a vowel after two consonants at the end of the word in the verbal phonetic variants in Uzbek language. For example: **бланк – бланка, банк – банка, танк – танка, киоск – киоска, отпуск – отпуска**. Such phonetic variations occur mainly in the pronunciation of Russian words. The connotative meanings reflecting the speaker’s level of speech culture is clarified in the pronunciation of the aforementioned phonetic events.

Comparison of these two languages shows that the epithesis occurs in the result of adding a consonant sound at the end of the pronunciation of English words. In contrast to that, in Uzbek language the same stylistic phenomenon can only be formed by increasing a vowel sound after two consonants in the words taken from other languages. One of the phonostylistic phenomena used in speech is the apocope. **Apocope** comes from the Greek word **apokoptein**, to cut off, made up of **apo-**, from or away, plus **koptein**, to cut [7, 165]. In addition, the apocope in English also called end-cut and shorten. Apocope is also a rhetorical term for the omission of one or more sounds from the end of a word or a syllable. This can be seen in the following examples: **child – chile** [8, 413]. In this case the word **child** is pronounced as **chile**, that is, the consonant **d** is omitted.

Quite a few English words have resulted from **apocope**, among them **cinema** (from **cinematograph**) and **photo** (from **photograph**).

**Apocope** is a process that deletes word-final segments, including unstressed (reduced) vowels. In Middle English, many words, such as **sweet, root**, etc. were pronounced with a final **[e]**, but by the time of modern English, these final reduced vowels had been lost. We still see signs of final reduced vowels in the archaic spelling of words like **olde** [9, 413].

This can also be seen in the following examples:

– In many poor neighborhoods, the Sandinista Front has more street **cred** than the local youth gang. (Tim Rogers, "Even Gangsters Need Their Mamas." Time magazine, August 24, 2007).

– Season your admiration for a while with an **attent** ear. (William Shakespeare, “Hamlet”, Act I, scene 2).

– After he left the city, thousands of people toasted him with beer at a **barbie**, an Australian **barbecue**. (“Pope in Australia”, The New York Times, December 1, 1986).

As well as, human names often undergo



apocope for the purpose of speech frugality. The tune of this kind of “thriftiness” tends to express the connotative meanings of pleasure, caressing and love: Barb, Ben, Deb, Steph, Theo, Vince. (Bryan Garner, *Garner's Modern American Usage*. Oxford University Press, 2009).

Oliver Sacks declares the followings about **apocope**. He describes the apocope in his book “Favorite Words of Famous People”: “One of my favorite words is **apocope** – I use it (for example) in “A Surgeon’s Life”: “. . . the end of the word omitted by a tactful apocope.” (Anthropologist on Mars, Vintage, p. 94). “I love its sound, its explosiveness (as do some of my Tourettic friends – for when it becomes a four-syllable verbal tic, which can be impaired or imploded into a tenth of a second), and the fact that it compresses four vowels and four syllables into a mere seven letters” [10, 168].

From the aforementioned points of view, the apocope is an important phonostylistic means in the artistic image in which a number of connotative meanings, such as intense emotion, charm, admiration and love is expressed.

As in English, the apocope is also an important phonostylistic means in the Uzbek language. In Uzbek the apocope occurs in two reasons: 1. The use of double consonants at the end of the word and the attempt to get rid of it leads to apocope. For example, **баланд – балан, гўшт – гўш, хурсанд – хурсан, ғишт – ғиш, фарзанд – фарзан, пайванд – пайван**. The last one of two consonants at the end of these words have been apocopated. 2. The last consonant is exposed to apocope due to the emphasis on the last syllable of the multisyllable words. For example, **қизлар – қизла: , обрўй – обрў: , насвой – насво: , ҳамроҳ – ҳамро: , оллоҳ – олло: , гувоҳ – гуво:** the last syllables of the words were highlighted and therefore an apocope occurred in their final sound. Furthermore, the occurrence of sound at the end is often used to facilitate the pronunciation of words taken from foreign languages: **смета – смет, фабрика – фабрик, машина – машин, контура – контур, пирамида – пирамид, газета – газет**.

In all cases, apocope is typical only to imaginative and artistic language. The characters’ speech represents the connotative meaning of dialect in the artistic discourse.

The omission of speech sounds is a common occurrence in Uzbek dialects and express different connotative meanings in speech. Apocope is particularly active in the language of folk poems. This phenomenon can also be seen obviously in the text of epic poem “Kholdorxon”. For example,

Қистагандан қистади, йўл юрмоққа устади(р).  
Кўлда суқсур сўнади(р), ақлидан бегонади(р)  
[11, 101]. Therefore the consonant **r** is represented in brackets in the poem. The omission of this speech sound is caused by the need of rhyming, uniting one word to another in microtext. These phonetic variants served to express additional connotative meanings of rhyme and melodiousness in speech.

**In conclusion**, the prosthesis is formed by adding a single sound or syllable in English words, whereas in the Uzbek language this phenomenon takes place only by adding a single sound.

Epithesis is created by increasing a consonant in the pronunciation at the end of English words, in contrast to that, this case occurs only by adding a vowel sound after two consonants in the words borrowed from other languages into the Uzbek language.

In most of the phonetically modified words in the compared languages, there are a number of connotative meanings, such as aesthetic sensation, emotional colour, attractiveness, melodiousness, admiration, caressing, diminution, and love.

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## **CREATIVE DIRECTION OF THE EDUCATIONAL AND RECOGNITION PROCESS AT THE UNIVERSITY**

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### **ABSTRACT**

*In this article it is told about conditions of development of creative abilities of students. One of such conditions is the creative orientation educational and informative process in higher education institution. In article is given the analysis of literature on a problem. The following concepts are considered: personality, orientation, motive, interest.*

**KEY WORDS:** *creative abilities, personality, orientation, motive, interest.*

### **DISCUSSION**

The process of developing students' creative abilities is a complex of conditions, since isolated conditions cannot solve this problem effectively. The structure of the complex of conditions should be dynamic and develop depending on the complication of the training goals at each stage. In this case, the main changes will occur in the composition of the elements and in the nature of the interactions between them. At the same time, the functional focus remains unchanged. The relationships between the elements of the complex are not destroyed and prevail over external relationships.

Ensuring the creative orientation of the educational and cognitive process is one of the conditions for the effectiveness of the process of developing students' creative abilities.

It includes:

- motives of creative activity;
- cognitive interest.

The implementation of the outlined ways of searching for conditions leads to the need to turn to

the theory of personality. The concept of personality is one of the fundamental in modern human sciences. After analyzing the main approaches to the concept of "personality" B.F. Lomov wrote that "despite different interpretations of personality ... orientation stands out as its leading characteristic."

Orientation as the leading characteristic of a personality is distinguished by such scientists as: B.G. Ananiev, M.I. Dyachenko, A.N. Leontiev, K.K. Platonov, A.V. Petrovsky, S.L. Rubinstein and others.

The orientation of the personality is of great importance in the development of creative abilities. There are currently many approaches to targeting. For our study, the most relevant is the definition given by A.F. Esaulov. The orientation of the personality is defined by him as "a set of stable motives that orient the activity of the personality and are relatively independent of the current situations, the orientation of the personality is characterized by its interests, inclinations, beliefs, ideals, in which a person's worldview is expressed" [1]. The direction





includes a lot of components. The conditions that determine the direction include: the formation of needs, the development of motives, interests, positive self-attitude and self-actualization of the individual, etc. Let us dwell on the general characteristics of these concepts in the aspect of the problem under study.

For the purposes of our research, questions relating to the conditions for the appearance of a personality's needs for creative activity are especially important. From the point of view of modern psychology, the need is the state of the individual, created by the need he feels for the objects necessary for his existence and development, and acting as the source of his activity. Needs depend on the subject-social content, on the level of development of the economy and culture. Gradually developing, needs are more and more moving into the social sphere, mediated by objective activity. Needs are not only a prerequisite and result of actual labor activity, but also of cognitive processes. "Being cognized and accepted by the individual, as his own, personal, being comprehended by him, in connection with the present inclinations and interests, the social needs in the activity determine the individual's personal orientation towards mastering this or that activity, as a professional one, and after mastering, the professional motivation of this an individual as a person, a subject of a professional's activity"[2].

Needs are found in motives. The problems of the relationship between needs, motives and activities are being actively developed in Russian psychology and sociology. Any activity proceeds from certain motives and is aimed at achieving certain goals. The motive acts as an incentive to activity associated with satisfying the needs of the subject, a set of external and internal conditions that cause the activity of the subject and determine its direction.

In studying the process of motivation for learning, we will rely on a number of theoretical provisions related to the mechanism of formation of motivation in traditional learning (A.N. Leont'ev, S.L. Rubinstein, L.I. Bozhovich, P.M. Yakobson, etc.) and adhere to the provisions that the motives included in the educational activity of students are complex, heterogeneous, hierarchical motives, which implies the allocation of the main, dominant motive that affects the content, structure, characteristics and effectiveness of activities (V.G. Aseev, P. M. Yakobson, A. N. Leont'ev, N. M. Simonova, etc.).

There are various classifications of motives for learning activities. The most relevant to the subject of our research is a classification based on the allocation, in general, of a complex of motives that regulate educational activity, of two main types of motivation: motives expressing an orientation toward

learning as a process of cognition - internal motives of cognition (cognitive needs and interests) and motives that express orientation towards learning as a means of achieving goals not related to learning external motivation (for example, prestige, desire for recognition, authority, etc.). Internal, cognitive motivation is considered by most scientists as a specific motivation for creativity. Therefore, its formation acts as a necessary condition for the development of students' creative activity.

A high level of development of intrinsic motivation in the process of developing the creative abilities of an individual is in direct proportion to emotional reinforcement in a situation of successful creative activity and is an important condition for its course. S.Yu. Stepanov, I.P. Semenov in his studies note that the experimenter's efforts are aimed at "maintaining a psychologically comfortable atmosphere of search." Such an atmosphere in the process of conducting the experiment is created by emphasizing the difficulty of the problem being solved, reducing anxiety due to the possibility of failure, hints at the high status of evaluating the success of solving the problem, the desire to create an attitude to receive the correct answer, by all means, encourages the subjects to move to a productive personal position.

Five conditions for the activity of achievements are distinguished in the works of H. Heckhausen. "The activity should leave behind a tangible result, which should be assessed qualitatively or quantitatively, and the requirements for the assessed activity should be neither too low nor too high, ie. so that the activity could be crowned, but could not be crowned with success and, at least, could not be realized without a certain expenditure of time and effort. To assess the performance results, there must be a certain comparative scale and within this scale a certain normative level is considered mandatory. Finally, the activity must be desirable for the subject and its results must be obtained by him himself"[3].

Heckhausen also showed the importance of such a condition in enhancing the motivation for achievement, as the creation of the following evaluative cliché: "You can do better if ... you show more effort." In the assessment procedure, students were disaccustomed to ascribing failures to their poorly developed abilities, starting to attribute successes and failures to effort.

D. McClelland, analyzing the conditions for the formation of achievement motivation, combines the main shaping influences into four groups: the formation of the achievement syndrome, introspection, the development of optimal goal-setting tactics, interpersonal support. In the chain of conditions for achieving the goal, according to I.P.



Kaloshina, each subsequent component is a necessary condition that complements the system of conditions, up to the necessary and sufficient .. We fully share this point of view.

Essential for our study is B.I. Dodonov, four structural components of motivation: pleasure from the activity itself, the significance of the immediate result for the individual, the motivating force of reward for the activity, and the pressure of cash.

Cognitive needs, with the correct organization of the educational process, develop into cognitive interests - this is the main motivating factor in learning. Cognitive interest is a form of manifestation of a cognitive need, which ensures the orientation of the individual towards understanding the goals of Activity and thereby contributes to orientation, acquaintance with new facts, a deeper and more complete reflection of reality. Cognitive interest determines the search character of any type of activity, that is, it underlies the development of the student's creative activity at the university.

It is important to note the presence of interconnections between motives and emotions. L.I. Bozovic emphasizes that in those cases when the goals (or the adopted intentions) are carried out in a purely rational way, that is, in this process there is no counter affect with the intellect, then the corresponding functional neoplasms do not arise and the incentive force of consciousness is not realized.

Based on the analysis of the literature on the problem, observations of students, we consider it reasonable to include the formation of internal, cognitive motives, as a condition that ensures the formation of the creative orientation of training students of a higher educational institution of culture. Thus, the primary task is to identify and educate students, internal, cognitive motives that would reflect the personal meaning of learning, would be effective, conscious, would affect all types of student activities.

The interests of students are diverse in content (to the subject taught, to technology), in terms of stability, breadth of influence on activities. For the purposes of our research, the most important is the manifestation of professional cognitive interest - scientific and pedagogical interest, which is a pronounced orientation of the individual towards professional activity, which is based on research thinking, manifestation of volitional efforts, readiness for long-term intense work associated with independent actions when solving educational tasks.

Analysis of needs, motives, interests determines why this or that person is engaged in some kind of activity. But what exactly this activity will be, what a person will do - this characterizes his goals. In a specific activity, the system of motives "closes in" on

a specific goal, mediated by interest, which forms the content of this activity.

Depending on the goal, interest can be characterized by content, breadth, depth of stability, effectiveness. Further detailing leads to the allocation of a wide educational interest (changing the hierarchy of goals and objectives, their implementation); effective interest; content-procedural interest.

With a content-procedural interest, particular importance belongs to the desire of students to transform and improve cognitive activity, actively transform the material of educational subjects, to search and compare various ways of solving problems, to ways of actively transforming their own educational activities.

An important factor stimulating the scientific and pedagogical interest of students is the student's right to personal self-organization of education in accordance with their goals. It is necessary that each student clearly understand the purpose of the activity, the need and role of the methods and techniques of creative activity that are required to be obtained.

One of the conditions contributing to the formation of the creative orientation of students of musical specialties of the university of culture is also a favorable emotional atmosphere in the student collective, the mood for creative study and the introduction of innovations associated with increasing the creative abilities of the individual. Therefore, the teacher, before starting work, needs to identify the emotional mood of the student group. To do this, you can use the existing psychological methods (self-assessment of the emotional state, Luscher color test), as well as observations, conversations, questioning of students. Based on the results obtained, it is necessary to build a system of influences that create the most favorable atmosphere for students' activities by maintaining interest. The creation of a positive atmosphere in the learning process is also facilitated by situations of amusement, focus on creative activity, the use of various types of stimulation of interest in the learning process.

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# **ASSESSMENT OF PRINCIPALS' INVOLVEMENT OF STAKEHOLDERS IN SCHOOL IMPROVEMENT PLANNING IN PUBLIC SECONDARY SCHOOLS IN ANAMBRA STATE**

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## **ABSTRACT**

*The study assessed principals' involvement of stakeholders in school improvement planning in public secondary schools in Anambra State. Two research questions guided the study and two hypotheses were tested at 0.05 level of significance. The descriptive survey research design was adopted for the study. The population of the study was 4,883 comprising 257 principals and 4,626 stakeholders in the education sector. A sample size of 294 respondents was drawn using a multi-stage sampling technique. An instrument developed by the researchers titled "School Improvement Plan Questionnaire" (SIPQ) which was structured in two versions to suit the two sets of respondents (principals and stakeholders) was used for data collection. The instrument was subjected to face validity by three experts and an internal consistency reliability test was carried out using Cronbach's alpha method which yielded a coefficient of 0.84. Mean was used to answer the research questions while the t-test was used to test the hypotheses at 0.05 level of significance. The findings of the study indicated that principals involve stakeholders in prioritizing school needs and developing school plan outline to a high extent. There was no significant difference in the mean ratings of principals and stakeholders on the extent to which principals involve stakeholders in prioritizing school needs and developing school plan outline in state public secondary schools in Anambra state. Based on the findings, it was recommended that principals should continuously involve stakeholders in prioritizing school needs and developing school plan outline. This will avail principals the opportunity to organize school needs in order of importance so that a more demanding needs are met before the less demanding ones.*

**KEYWORDS:** *Stakeholders, Planning, School Improvement Planning.*



## INTRODUCTION

The basic framework of a quality educational system is one that succeeds in meeting the individual school desired goals and outcomes; one that is relevant to the needs of students, communities and the society; and also one that fosters the ability of students to acquire knowledge and the needed 21st-century skills. In a bid to actualize quality education in Nigeria, the Federal Ministry of Education (FME) in 2006, introduced School Improvement Plan (SIP). School improvement is the process of improving the way a school organizes, promotes and supports learning (Hopkins, 1994). It includes changing aims, expectations of organizations, ways of learning; method of teaching and organizational culture. According to the Federal Ministry of Education (2010), school improvement plan is that plan that shows the main things that the school wants to improve on and how those improvements are to be achieved. School improvement is an appropriate response to the current pressures for educational reform that focuses both on the learning needs of students and on establishing the appropriate organizational conditions within the school.

The aim of the school improvement plan is to improve the actualization of quality education at the secondary school level through the development of improvement plan by individual schools at the local level. According to Anambra State Ministry of Education (2013), the purpose of school improvement plan is to provide a sort of roadmap to guide schools and bring together the views of a wide range of stakeholders with an interest in education on how the school can improve, establishing common and agreed goals for the school, as well as setting a framework for monitoring progress and evaluating the impact of everyone's efforts. In line with this, Anambra State Ministry of Education in 2013, empowered her education sector by initiating school improvement plan at the state level, comprising of the six pillars such as the vision or long term goal of the school, analyzing the schools' current situation, prioritizing the needs of the school, developing or designing the plan, monitoring the progress and evaluation of the plan. The focus of this study is on the two most crucial pillars which are prioritizing the needs of the school and developing the school plan.

Prioritizing the needs of the school has to do with determining what area of need to tackle first owing to the fact that schools' resources of personnel, expertise, energy, time and money are limited. The needs and possibilities must be prioritized in terms of importance to the development of the school, in the

light of factors such as the current capacity of the school to address them and the current commitment of the school in dealing with them. In prioritizing the needs of the school, there is a need to understand the school's strengths and weaknesses. It is expected that the school looks at its resources, how they can be used and the impact on students.

Having agreed on the priorities, the next important stage is to develop an outline plan. As indicated in School Development Plan Initiative (SDPI, 1999), developing a school plan encompasses designing the structure of the overall school plan, devising action plans to address the stated priorities, drafting and compiling the component sections of the plan so that it can easily be communicated to the whole staff and presented to the management for approval; having identified in a systematic manner, the school's strengths, areas for improvement, challenges and opportunities. The school at this stage must not only keep in mind how their plan will improve students' learning, they must also ensure that their plans are not only manageable but also realistic in terms of cost. According to SDPI (1999), the priorities identified in the review are translated into specific objectives or targets and action plans are subsequently designed to achieve those stated objectives.

To ensure a quality school improvement plan, Federal Ministry of Education (FME, 2010) recommended that principals should involve stakeholders in school improvement planning processes in order to enhance the quality of such a plan as well as its effective monitoring and implementation. The principal as the administrator and chief executive of the school, should lead the process of school improvement planning in close co-operation with the various stakeholders as recommended by the Federal Ministry of Education (2010).

According to Gross and Godwin (2005), stakeholders are individuals or entities who stand to gain or lose from the success or failure of a system or an organization. The stakeholders to be involved in the school improvement plan as recommended by the FME (2010) include teachers, the students, community and parents/guardians. Principals' involvement of stakeholders in school improvement planning process according to Anambra state ministry of education (2013) and FME (2010) will; help to set out the school's vision for its future and how it intends to tackle its weaknesses with the aim of bringing about improvement to areas where it is mostly needed. This will in turn, help the school in successfully introducing positive changes in the school for improved teaching





and learning. Stakeholders' involvement will also enable the wider community to have a voice in the improvement of education. However, non-involvement of stakeholders in school improvement planning can result in poor infrastructural development, lack of community participation in school activities, and overall delay in school development.

The observable situation in public secondary schools in Anambra state appears to show that cases of examination malpractice, special centers, and other types of examination fraud are prevalent in most secondary schools in the state. There are also reported cases of poor academic achievement and performance as well as cases of indiscipline, lack of effective evaluation, monitoring and supervision in the areas of human relationships, personnel, facilities, equipment, and infrastructure in public secondary schools in Anambra state (Modebelu & Onyali, 2014; Mbonu, 2015). The overall consequence of this is that the educational system in the state appears to have ceased to be responsive to meeting the need of learners and the collective task of promoting national development. These situations, therefore brings to light a gloomy scenario that suggests principals' non- involvement of stakeholders in school improvement planning in secondary schools in Anambra state.

### **STATEMENT OF THE PROBLEM**

School improvement planning is one of the pillars that can be used to improve the quality of education in schools. However, there appears to be an insufficient exploration of the requirements which must be met such as; involvement of major stakeholders in school development planning processes. Non-involvement of stakeholders in school improvement planning can result in poor infrastructural development, lack of community participation in school activities and overall delay in school development. This seems to be the reason for the poor state of infrastructural development and undue delay in school improvement experienced in most of the public secondary schools in Anambra state.

Studies have continued to report falling standards in students' academic achievement and discipline, lack of effective evaluation, monitoring, and supervision in the areas of human relationships, personnel, facilities, equipment, and infrastructure in public secondary schools in Anambra state. These situations make one wonder if principals of public secondary schools in Anambra state involve stakeholders in school improvement planning. The problem of this study therefore is to assess principals'

involvement of stakeholders in school improvement planning in secondary schools in Anambra state.

### **PURPOSE OF THE STUDY**

The general purpose of this study is to assess principals' involvement of stakeholders in school improvement planning in public secondary schools in Anambra state. Specifically, the study assessed:

1. Principals' involvement of stakeholders in prioritizing school needs in state public secondary schools in Anambra state.
1. Principals' involvement of stakeholders in developing school plan outline in state public secondary schools in Anambra state.

### **RESEARCH QUESTIONS**

The following research questions guided the study:

1. To what extent do principals' involvement of stakeholders in prioritizing school needs in state public secondary schools in Anambra state.
2. To what extent do principals' involvement of stakeholders in developing school plan outline in state public secondary schools in Anambra state.

### **HYPOTHESES**

The following hypotheses were tested at 0.05 level of significance:

1. There is no significant difference in the mean ratings of principals and stakeholders on the extent to which principals involve stakeholders in prioritizing school needs in state public secondary schools in Anambra state.
2. There is no significant difference in the mean ratings of principals and stakeholders on the extent to which principals involve stakeholders in developing school plan outline in state public secondary schools in Anambra state.

### **METHOD**

The study utilized the descriptive survey design. Two research questions guided the study and two corresponding null hypotheses were tested at 0.05 level of significance. The study sample was made up of 294 respondents. The sample was drawn using a multi-stage sampling procedure. A researchers' developed instrument titled "School Improvement Plan





Questionnaire” (SIPQ) which was structured in two versions to suit the two sets of respondents (principals and stakeholders) was used for data collection. The instrument was face validated by three experts.

Reliability coefficient of 0.84 was obtained for the questionnaire using Cronbach Alpha method. Data obtained from the field were analysed using mean for the research questions and t-test for the hypotheses.

## RESULTS

**Table 1: Mean Ratings of principals and stakeholders on the extent to which principals involve stakeholders in prioritizing school needs**

	Principals (N=94)			Stakeholders (N=191)			Total (N=285)		
	Mean	SD	Remark	Mean	SD	Remark	Mean	SD	Remark
1. Articulating the needs of the school	3.37	.67	HE	3.40	.63	HE	3.39	.64	HE
2. Taking decisions on what the school need to do to improve	3.37	.67	HE	3.35	.62	HE	3.35	.64	HE
3. Drawing up the list of priorities of the school	3.28	.63	HE	3.21	.60	HE	3.23	.61	HE
4. Communicating the agreed priority as widely as possible to solicit widespread interest	3.20	.67	HE	3.10	.60	HE	3.14	.62	HE
5. Communicating the agreed priority as widely as possible to solicit widespread support	3.21	.64	HE	3.03	.66	HE	3.09	.65	HE
6. Screening the priority areas in the light of resources available in the school	3.22	.62	HE	3.12	.58	HE	3.15	.60	HE
7. Final adoption of the school priority areas	3.11	.63	HE	3.10	.53	HE	3.11	.57	HE
<b>Mean of means</b>	<b>3.25</b>	<b>.64</b>	<b>HE</b>	<b>3.19</b>	<b>.60</b>	<b>HE</b>	<b>3.21</b>	<b>.61</b>	<b>HE</b>

Table 1 shows the aggregated mean of means and standard deviation of 3.21 and .61 which indicates that principals involve stakeholders in prioritizing school needs to a high extent. The mean of means and standard deviation for principals (3.25 and .64) and stakeholders (3.19 and .60) show that principals and stakeholders perceived the extent to which principals involve stakeholders in prioritizing school needs to be high. The analysis of the individual items shows that

principals and stakeholders rated the principals' involvement of stakeholders on the seven listed items to be high with their mean ratings ranging from 3.11 to 3.37 for principals and 3.03 to 3.40 for stakeholders.

**Table 2: Mean Ratings of principals and stakeholders on the extent to which principals involve stakeholders in developing school plan outline**

	Principals (N=94)			Stakeholders (N=191)			Total (N=285)		
	Mean	SD	Remark	Mean	SD	Remark	Mean	SD	Remark
1. Drawing up the strategies for each of the agreed priorities	3.31	.72	HE	3.21	.64	HE	3.24	.67	HE
2. Articulating the range of possible activities	3.14	.67	HE	3.19	.70	HE	3.17	.69	HE
3. Disseminating the decisions to the wider community	3.03	.75	HE	3.08	.84	HE	3.07	.81	HE
4. Allocating resources for each priority areas	3.11	.77	HE	2.91	.73	HE	2.98	.75	HE
5. Assigning responsibilities for each activity	3.01	.66	HE	2.93	.81	HE	2.96	.76	HE
6. Determining when each of the activity would be carried out	3.04	.72	HE	3.10	.76	HE	3.08	.74	HE
<b>Mean of means</b>	<b>3.11</b>	<b>.71</b>	<b>HE</b>	<b>3.07</b>	<b>.74</b>	<b>HE</b>	<b>3.08</b>	<b>.73</b>	<b>HE</b>

As displayed in Table 2, the overall mean of means and standard deviation of 3.08 and .73 indicates that principals involve stakeholders in developing school plan outline to a high extent. The mean of means and standard deviation for principals is 3.11 and .71 and that of stakeholders is 3.07 and .74 indicating that principals and stakeholders perceived the extent to

which principals involve stakeholders in developing school plan outline to be high. The item-by-items analysis shows that principals and stakeholders rated principals' involvement of stakeholders in the six listed items to be high. Their mean ratings ranged from 3.10 to 3.31 for principals and 2.91 to 3.21 for stakeholders.

**Table 3: t-test comparison of principals and stakeholders' mean ratings on the extent to which principals involve stakeholders in prioritizing school needs**

Source of variation	N	Mean	SD	df	t-cal	t-crit	Decision
Principals	94	22.77	3.40	283	1.01	1.96	Not Significant
Stakeholders	191	22.32	3.40				

The result in Table 3 shows that the calculated t-value (1.01) is less than the critical value (1.96) at the alpha level of 0.05 and degree of freedom (df) 283. This is an indication that the difference in the mean ratings of principals and stakeholders on the extent to

which principals involve stakeholders in prioritizing school needs was not significant. Therefore the null hypothesis was not rejected.

**Table 4: t-test comparison of the principals and Stakeholders' mean ratings on the extent to which principals involve Stakeholders in developing school plan outline.**

Source of variation	N	Mean	SD	df	t-cal	t-crit	Decision
Principals	94	18.64	3.52	283	.45	1.96	Not Significant
Stakeholders	191	18.42	3.68				

The result in Table 4 shows that the calculated t-value (.45) is less than the critical value (1.96) at alpha level of 0.05 and degree of freedom (df) 283. This indicates that the difference in the mean ratings of principals and stakeholders on the extent to which principals involve stakeholders in developing school plan outline was not significant. Therefore the null hypothesis was not rejected.

## DISCUSSION OF FINDINGS

This study revealed that principals and stakeholders perceived that principals to a high extent involve stakeholders in prioritizing school needs by involving them in; articulating the needs of the school, taking a decision on what the school needs to do to improve, drawing up the list of priorities of the school, screening the priority areas in the light of resources available in the school and final adoption of the school priority areas.

The finding of this study is in line with the findings of Nemes (2013) who found that the school committees are involved in the whole school development planning. Contrary to the findings of this study, Chukwuma (2014) found out that there is insufficient involvement of relevant stakeholders, lack of experienced personnel and financial constraints were identified as problems encountered during strategic planning development. The findings of this study are not in line with the findings of Anin, Asuo, and Harreit in (2013), who found out that the stakeholders were never involved in the school development planning and implementation process. The reason for this difference in findings could be as a result of the existing gap in timing of both studies.

Prioritizing the needs of the school involves deciding what to tackle first, this decision would be better made when stakeholders are involved in this process. Principals should however, continue to involve the relevant stakeholders in drawing up school priorities for a quality plan development. The findings of the hypothesis indicated no significant difference in

the mean ratings of principals and stakeholders regarding the extent to which principals involve stakeholders in prioritizing school needs. The reason for this could be that principals and the stakeholders have the same perception of the extent principals involve them in prioritizing school needs.

Another finding of this study indicates that principals and stakeholders' perception on the extent to which principals involve stakeholders in developing school plan outline is high. This implies that public secondary schools in Anambra State involve the stakeholders in; drawing up the strategies for each of the agreed priorities, articulating the range of possible activities, disseminating the decisions to the wider community, assigning responsibilities for each activity, allocating resources for each priority areas, and determining when each of the activity in the school would be carried out.

The finding of this study is consistent with the findings of Kaylor and Gichinga (2014) whose results showed that effective communication is a key requirement for an effective strategic planning process. This simply means that for effective planning to take place, the people involved should be communicated from time to time. The result of this study is also in line with findings of Teresa (2014) that the extent to which schools were set goals and priorities focused on the whole issues that school development planning deals with, such as the extent to which schools organized necessary resources such as human power for school development plan implementation, and the degree to which principals and department heads are involved in plan preparation was found to be good.

However, the findings of this study did not agree with the findings of Jackson (2011) who found out that effective communication did not take place during the strategic planning process; hence the majority of the employees who participated in his study felt excluded in the whole process and contributed less toward the implementation of the plan. Also contrary to the findings of this study, the findings of Anin, Asuo, and Harreit (2013) showed that the stakeholders were



never involved in the school development planning and implementation process. The findings of the hypothesis indicated no significant difference in the mean ratings of principals and stakeholders on the extent to which principals involve them in developing school plan outline.

## CONCLUSION

From the findings of the study, it was concluded that principals of secondary schools in Anambra State highly involve stakeholders in prioritizing school needs and developing school plan outline to address identified development needs of the school.

## RECOMMENDATION

Based on the findings of the study, the following recommendations were made:

1. Principals should continuously involve stakeholders in prioritizing school needs. The involvement of stakeholders in prioritizing school needs will avail principals the opportunity to organize school needs in order of importance so that a more demanding need is met before the less demanding ones.
2. Principals also should continue to involve stakeholders in developing school plan outline. Principals' continuous involvement of stakeholders in this area will help principals in arriving at a detailed and clear school plan outline that will help in the achievement of school development plan.

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# DIGITALIZATION OF TEACHING AND LEARNING OF CHEMISTRY EDUCATION IN SECONDARY SCHOOLS IN ANAMBRA STATE: FOCUS ON IMMIGRANT TEACHERS

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## ABSTRACT

*The aim of this study was to examine the impact of digitization in teaching and learning chemistry in secondary schools in Anambra State. A descriptive survey research design was adopted. This approach was chosen because the researcher wants to study the impact of digitization in teaching and learning chemistry in secondary schools in Anambra State. The study population consisted of 6,342 teachers in six educational zones of the state. The sample included 634 science teachers in public secondary schools in Anambra state with 393 male and 241 female teachers. This represented 10% of teachers in public secondary schools in the six education zones of Anambra state. The data collection tool was a questionnaire developed by the researcher entitled: Digitizing Chemistry Teaching and Learning in Secondary Schools in the Anambra State Questionnaire (DCTLSSASQ). The results of the study showed that several digital devices required for teaching and learning chemistry in secondary schools in Anambra State were either unavailable or misused, as the results showed. The study recommended, among other things, the following: Teachers should be trained and retrained. As we are in the technological age, teachers should receive extensive training and retraining in the use, servicing and maintaining computers and other computing devices related to teaching. They should also receive adequate information on new techno-pedagogies and other teaching methods, as well as the latest innovations in ICT.*

**KEYWORDS:** Digitalization, Electronic Learning, Innovation, Teaching, Chemistry

## INTRODUCTION

Educational institutions have been in a constant state of change just like the society whose need these institutions seek to fulfill. In recent years, there has been various developments and innovations in educational policies that have had decisive influence in the Nigerian educational system. These changes can be seen in the form of introduction of new media, new

pedagogy, learning theories or the inclusion of techno-pedagogy. Today, we have come to experience another innovation coming to the fore in the educational landscape which is digitalization. Digital media is an integral part of the daily routine of most people. As a result, tablets, smartphones, laptops and the internet have become increasingly important in schools. Teaching with advanced approaches and digital devices





is one of the most viable strategies for simplifying concepts and promoting student performance and retention. Therefore, digitization is crucial for data processing, storage and transmission, as information of all kinds can be efficiently transmitted, compacted and integrated. For this reason, it is an ideal way to get information for many organizations around the world, including educational institutions. By deploying, using and supporting digitalization in teaching and learning, teachers and learners should benefit from greater convenience, convenience, portability, sustainability, security and accountability. However, they could also be limited by restrictions on teachers and learners. Human resources, finance, energy, security, location, connectivity, information to be digitized, hardware and software requirements, etc. In the Nigerian school system, Chemistry has been approved and accepted by the Nigerian government as a subject of study in the school curriculum and learning of Chemistry is beneficial to students at all levels of their academic pursuit. The Federal Republic of Nigeria National Policy on Education (2014) stated the main objectives of science subjects in secondary school curriculum as follows:

- i. Stimulation of interest and motivation of learners in advancing the study of science beyond secondary school level.
- ii. Achievement of competence and independency in students' learning of science.
- iii. Discover the place of science in career choice and development in science and technology as it relates to life.
- iv. Efficiency and resource conservation in their profession.
- v. Building of the required skills at the secondary school level in order to widen their knowledge of science.

For these objectives to be achieved, the teaching of Chemistry must be made more attractive and interesting to students, and one of the ways of achieving this is to digitize the teaching processes and strategies where learners can have access to materials that can help them explore the learning content so as to improve academic performance. Students are co-creators of knowledge no doubt, but more is expected of teachers who are guides on the side to be acquainted with the use various digital media required. In reality, today's teachers are digital immigrant, hence a lot is required to fully acquired the competencies and skills required to function effectively in a digitized classroom. Chemistry is a branch of physical science which deals with structure, properties and changes of

matter. Chemistry encompasses topics such as the properties of individual atoms, how atoms form chemical bonds to form chemical compounds, the interactions of substances through intermolecular forces that give matter its general properties, and the interactions between them substances through chemical reaction to form a to form other substance. Conceptually, the definition of Chemistry kept changing over the years due to researches, innovations and new approaches in teaching and learning of the subject. Eilks and Hofstein (2013) noted that the history of Chemistry education is a culture of dynamic innovation characterized by new approaches cum knowledge and skills. This of course included new methods, strategies and techniques of teaching. Colgoni and Eyles (2010) conceptualized science subjects in general and Chemistry in particular as broad based interdisciplinary programmes that need a range of integrated approaches. In this context Chemistry is regarded as an essential basis for many facts of our everyday lives, and has many unforeseen potential benefits for our future. Proper understanding of Chemistry enables us to explain the world around us.

The innovative approaches in teaching science also encapsulate digital techniques Chemistry. For example, a teacher can use video project to teach global warming for students to benefit maximally from the knowledge and skills. Eilks et al. (2009) noted the importance of the following digital techniques in teaching Chemistry: Video games, Team games, Role playing, question games, Puzzles, Discussion, Table top games, lets imagine games and Quizzes, these techniques can be digitalized and enhanced teaching Chemistry. Different types of technology can be used in the digital era to teach in the classroom. In this regard, Karehka (2012) noted that use of computer assisted learning in the classroom, smart interactive, white board, online media and online study tools are very effective in teaching various subjects.

## STATEMENT OF THE PROBLEM

The relevance of the knowledge of Chemistry to the sustainable development of any society is immeasurable. Chemistry has undeniably affected the entire human race in such a way that in order to survive, one needs adequate knowledge of Chemistry. The methods and facilities used by science teachers to teach science subjects especially Chemistry in senior secondary school are very important for the smooth, effective, growth and development of a humane society and the acquisition of scientific skills. Proper understanding of Chemistry enables one to explain the



world around us. This describes the basic necessity to teach and learn Chemistry which knowledge and skills remain dynamic in the face of the changing nature of the society. Accordingly, the approaches, methods, competencies and techniques of teaching Chemistry keep on changing. This calls for the need to employ innovative approaches in teaching Chemistry in the digital era which can be conceptualized in terms of information age within a period in human history characterized by the shift from traditional to digital revolution. Teachers' poor ICT competence and lack of confidence in using new technologies in teaching are two very significant determinants of their levels of engagement in ICT. Ironically, most teachers of Chemistry do not possess these required digital skills to function effectively in digital classroom owing to the fact that they were trained without these digital skills. The need to determine the extent to which teachers have adequate digital skills and the impact of digitization on the teaching and learning of chemistry is therefore central to this study.

### AIM AND OBJECTIVES OF THE STUDY

This study is aimed at examining the impact of digitization in the teaching and learning of Chemistry in secondary schools in Anambra state. Specifically, the study sought to;

1. Identify the digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state
2. Examine the impact of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state
3. Examine the extent of digital competencies of teachers in teaching Chemistry in secondary school in Anambra state
4. Determine the perceptions of teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state
5. Identify the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state
6. Examine the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state.

### RESEARCH QUESTIONS

The following research questions in line with the objectives of the study were raised to guide the conduct of this study:

1. What are the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state?
2. To what extent is the impact of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state?
3. What is the extent of digital competencies of teachers in teaching Chemistry in secondary school in Anambra state?
4. What is the perception of teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state?
5. What are the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state?
6. What are the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state?

### HYPOTHESES

The following research hypotheses were formulated to guide this study and were tested at 0.05 level of significance:

**H<sub>01</sub>:** There is no significant difference between the mean response scores of male and female teachers on the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state

**H<sub>02</sub>:** Significant difference does not exist between the mean response scores of male and female teachers on the impact of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state

**H<sub>03</sub>:** There is no significant difference between the mean response of male and female teachers on the extent of digital competencies possessed by teachers in teaching Chemistry in secondary school in Anambra state

**H<sub>04</sub>:** There is no significant difference between the mean response scores of male and female teachers on the perception of teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state

**H<sub>05</sub>:** There is no significant difference between the mean response scores of male and female teachers on the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state

**H<sub>06</sub>:** Significant difference does not exist between the mean response scores of male and female teachers on the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state.

**METHODOLOGY**

This study adopted a descriptive research design. This approach was adopted because the researcher intends to examine the impact of digitization in the teaching and learning of Chemistry in secondary schools in Anambra state. The population of the study consisted of 6,342 secondary school teachers in six education zones of the state. This comprised 830 teachers from Aguata, 1,694 teachers from Awka, 937 teachers from Nnewi, 989 teachers from Ogidi, 1,394 teachers from Onitsha and 498 teachers from Otuocha education zones respectively. The sample for the study comprised 634 public secondary school science teachers in Anambra state which consisted of 393 male teachers and 241 female teachers. This represented 10% of public secondary school teachers in the six education zones of Anambra state. The instrument for data collection was a researcher-developed questionnaire titled: Digitizing Chemistry Teaching and Learning in Secondary Schools in the Anambra State Questionnaire (DCTLSSASQ). The instrument was validated by three experts: two from the Department of

Curriculum Studies and Educational Technology (Science Education option) while one expert was from the Department of Educational Foundations (Measurement and Evaluation unit). These experts are lecturers in the Faculty of Education, University of Port Harcourt. A reliability coefficient of 0.88 was obtained for the instrument using Cronbach Alpha through the test retest method. The researcher administered the instrument directly to the respondents with the help of six research assistants. The research questions were answered using mean, standard deviation and rank order while the null hypotheses were tested at 0.05 level of significance using the z-test statistics. Tables were constructed in respect of the demands of the respective research questions, hypotheses and a criterion mean of 2.50 was used.

**RESULTS**

**Research Question One:** What are the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state?

**Table 1: Mean, Standard deviation and rank order of the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state**

S/N	ITEMS	Male $\bar{X}$	Female $\bar{X}$	$\bar{XX}$	SD	Rank	Decision
1	Projected lessons	2.30	2.34	2.32	0.21	13th	Disagreed
2	Video lessons	2.33	2.45	2.39	0.18	11th	Disagreed
3	Internet	2.50	2.51	2.51	0.12	8th	Agreed
4	Digital Whiteboard	2.10	2.12	2.11	0.21	19th	Disagreed
5	Desktop Computer	2.51	2.49	2.50	0.31	9th	Agreed
6	Personal Laptop	2.72	2.61	2.67	0.23	6th	Agreed
7	Multimedia Projector	2.48	2.49	2.49	0.17	10th	Disagreed
8	Video Camera	2.30	2.41	2.36	0.23	12th	Disagreed
9	Scanner	2.60	2.76	2.68	0.14	5th	Agreed
10	Clock Machine	2.10	2.31	2.21	0.18	16th	Disagreed
11	Printer	2.67	2.87	2.77	0.12	2nd	Agreed
12	Flash Memory	2.89	2.78	2.84	0.17	1st	Agreed
13	Modem	2.50	2.47	2.49	0.18	10th	Disagreed
14	Satellite Receiver	2.10	2.20	2.15	0.24	18th	Disagreed
15	Audio Tapes	2.30	2.22	2.26	0.21	15th	Disagreed
16	Software packages	2.72	2.81	2.77	0.12	2nd	Agreed
17	Visual Board	2.67	2.43	2.55	0.19	7th	Agreed
18	Local Area Network (LAN)	2.10	2.10	2.10	0.31	20th	Disagreed
19	Wide Area Network (WAN)	2.00	2.10	2.05	0.23	22nd	Disagreed
20	Internet services	2.60	2.73	2.67	0.18	6th	Agreed



21	ICT Laboratories	2.70	2.76	2.73	0.12	4th	Agreed
22	Satellite Receiver	2.10	2.04	2.07	0.23	21st	Disagreed
23	Zoom	2.40	2.24	2.32	0.34	13th	Disagreed
24	Google Classroom	2.22	2.10	2.16	0.28	17th	Disagreed
25	Coggle	2.00	2.01	2.05	0.36	22nd	Disagreed
	<b>Grand Mean</b>	<b>2.40</b>	<b>2.41</b>	<b>2.41</b>	<b>0.21</b>		<b>Disagreed</b>

Table 1 showed that the average mean score of respondents was 2.41 with a standard deviation of 0.21. Judging by the result, table 1 revealed that few items were excepted and overall mean fell short of the criterion mean of 2.5. Thus, respondents disagreed on the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state. By implication, it is obvious from the result

obtained above that digital tools and devices required for the digitalization of the teaching and learning of Chemistry are either not available or utilized by teachers in secondary schools in Anambra state.

**Research Question Two:** To what extent is the impact of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state?

**Table 2: Mean, Standard deviation and rank order of the impact of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state**

S/N	ITEMS	Male $\bar{X}$	Female $\bar{X}$	$\bar{XX}$	SD	Rank	Decision
26	The online learning/teaching is effective for learning all aspects of Chemistry	2.76	2.60	2.68	0.13	5th	High Extent
27	Digitalization develops student's analytical skills in Chemistry	2.87	2.68	2.78	0.10	1st	High extent
28	Digitalization raises students' motivation as well as helps them not to guess too much	2.56	2.78	2.67	0.14	6th	High Extent
29	Learning with digitized material supports the achievement of the learning goals	2.56	2.51	2.54	0.19	10th	Moderate Extent
30	Computer Based Test displays all diagrams and signs accurately in Chemistry	2.71	2.74	2.73	0.21	4th	High Extent
31	Digitalization provides students an infinite access to unlimited information of varying degrees	2.83	2.67	2.75	0.16	3rd	High Extent
32	It helps students study contents in a way that shows connection between subjects	2.55	2.58	2.57	0.21	8th	Moderate Extent
33	It allows students to use various kinds of technology to conduct research, communicate and create knowledge	2.77	2.74	2.76	0.20	2nd	High Extent
34	It enables students to collaborate with their peers and teachers	2.67	2.66	2.67	0.19	5th	High Extent
35	It makes a classroom environment resemble a work place	2.48	2.53	2.51	0.23	11th	Moderate Extent
36	It encourages very high and critical thinking	2.55	2.77	2.66	0.21	7th	High Extent
37	Enables teachers and students share accountability for learning and achievements	2.54	2.56	2.55	0.23	9th	Moderate Extent
	<b>Grand Mean</b>	<b>2.65</b>	<b>2.67</b>	<b>2.65</b>	<b>0.18</b>		<b>High Extent</b>

Table 2 revealed that the average mean set scores of male and female respondents' ranges between 2.51 (SD= 0.23) and 2.78 (SD= 0.10). The table also showed that all the items had mean above the criterion mean of 2.5. with item number 27 ranking the highest. Thus, respondents were in agreement that to a high

extent, digitalization impacts the teaching and learning of Chemistry in secondary schools in Anambra state.

**Research Question Three:** What is the extent of digital competencies of teachers in teaching Chemistry in secondary school in Anambra state?

**Table 3: Mean, Standard deviation and rank order on the extent of digital competencies of teachers in teaching Chemistry in secondary school in Anambra state**

S/N	ITEMS	Male $\bar{X}$	Female $\bar{X}$	$\bar{XX}$	SD	Rank	Decision
38	Teachers communicate information and express themselves through different mediational means	2.56	2.51	2.54	0.25	1st	Moderate Extent
39	Teachers are able to open software, sort out and save information on the computer, and other simple skills in using the computer and software	2.30	2.22	2.26	0.23	4th	Low Extent
40	They are able to download different information types from the Internet	2.51	2.53	2.52	0.20	2nd	Moderate Extent
41	Teachers organize information according to a certain classification scheme or genre	2.36	2.41	2.39	0.21	3rd	Low Extent
42	Teachers compare and put together different types of information related to multimodal texts	2.20	2.32	2.26	0.34	4th	Low Extent
43	Teachers take part in net-based interactions of learning, and take advantage of digital technology to cooperate and take part in networks	2.14	2.11	2.13	0.31	6th	Low Extent
44	Teachers develop something new by using specific tools and software. Remixing different existing texts into something new	2.01	2.16	2.09	0.34	7th	Low Extent
	<b>Grand Mean</b>	<b>2.30</b>	<b>2.32</b>	<b>2.31</b>	<b>0.27</b>		<b>Low Extent</b>

Table 3 revealed that the digital competencies of teachers in teaching Chemistry in secondary school in Anambra state was at a low extent. The data presented in Table 3 revealed the grand mean score of respondents to all items was 2.31 (SD= 0.27) which was below the criterion mean of 2.50. This clearly shows that science teachers especially those teaching Chemistry lack the digital competence, skills and

expertise to digitalize the teaching and learning of Chemistry.

**Research Question Four:** What is the perception of teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state?

**Table 4: Mean, Standard deviation and rank order on the perception of teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state**

S/N	ITEMS	Male $\bar{X}$	Female $\bar{X}$	$\bar{XX}$	SD	Rank	Decision
45	Digitalization makes teaching of Chemistry effective, efficient and easier	2.56	2.61	2.59	0.13	7th	Agreed
46	It introduces technological skills in permeating and practical ways that increases teachers' productivity	2.71	2.55	2.63	0.21	6th	Agreed
47	It further develops teachers' technological skills	2.88	3.00	2.94	0.11	2nd	Agreed
48	Digitalization improves teachers' teaching skills and fosters productivity	3.11	3.02	3.07	0.09	1st	Agreed
49	Delivery contents electronically helps to bring out the best from both teachers and	2.99	2.87	2.93	0.12	3rd	Agreed





	students							
50	Digitalization enables teachers to get the full attention of students	2.78	2.67	2.73	0.14	5th	Agreed	
51	Digitalization provides an opportunity for teachers and students to communicate at all times	2.87	2.68	2.78	0.16	4th	Agreed	
	<b>Grand Mean</b>	<b>2.84</b>	<b>2.77</b>	<b>2.81</b>	<b>0.14</b>		<b>Agreed</b>	

The data presented in Table 4 above revealed the mean response scores of the respondents to all items analyzed ranging from 2.59 (SD=0.13) to 3.07 (SD=0.09) which showed that the respondents accepted all the items. By implication, the results showed teachers have positive perception and awareness on the

digitalization of teaching and learning of Chemistry in secondary school in Anambra state.

**Research Question Five:** What are the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state?

**Table 5: Mean, Standard deviation and rank order on the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state**

S/N	ITEMS	Male $\bar{X}$	Female $\bar{X}$	$\bar{XX}$	SD	Rank	Decision
52	Digital devices are expensive to maintain	3.00	2.88	2.94	0.15	3rd	Agreed
53	Digital devices are expensive to acquire	2.81	2.99	2.90	0.18	4th	Agreed
54	The cost of internet subscription is not an impediment	3.10	3.02	3.06	0.11	2nd	Agreed
55	Software packages for drawing and labeling poses a challenge	2.70	2.67	2.69	0.21	6th	Agreed
56	Laboratory digital devices are readily available and affordable	2.10	2.11	2.11	0.32	7th	Disagreed
57	Lack of devices for accessing the internet	2.81	2.65	2.73	0.22	5th	Agreed
58	Power supply is not inadequate	3.11	3.20	3.16	0.11	1st	Agreed
	<b>Grand Mean</b>	<b>2.80</b>	<b>2.79</b>	<b>2.80</b>	<b>0.19</b>		<b>Agreed</b>

With respect to items in Table 5 which sought to find out from the respondents the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state, the grand mean score for all items which stood at 2.80 (0.19) exceeded the criterion mean of 2.50. Thus, respondents agreed to all the items as the challenges of digitalization to the teaching and learning of Chemistry except item number

56. Also, respondents ranked inadequate power supply as the most challenging factor to digitalization.

**Research Question Six:** What are the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state?

**Table 6: Mean, Standard deviation and rank order on the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state**

S/N	ITEMS	Male $\bar{X}$	Female $\bar{X}$	$\bar{XX}$	SD	Rank	Decision
59	Digital learning increases students' performance in Chemistry	2.55	2.70	2.63	0.22	5th	Agreed
60	Digitalization of the teaching and learning of Chemistry makes students self-motivated and more accountable	3.02	2.99	3.01	0.18	1st	Agreed
61	Digital learning tools involve educators and parents to a deeper extent	2.78	2.67	2.73	0.20	4th	Agreed
62	Digitalization of the teaching and learning of Chemistry is far more interactive and memorable than voluminous textbooks or one-sided lessons	3.01	2.75	2.88	0.17	3rd	Agreed
63	Digital learning tools and technology is rapidly increasing information sharing in the teaching and learning of Chemistry	2.56	2.67	2.62	0.22	7th	Agreed
64	Increasing students' employability with digital learning tools and technology	2.50	2.42	2.46	0.24	8th	Disagreed
65	Digital learning tools and technology enable educators to rapidly share information with other educators in real-time	2.87	2.90	2.89	0.12	2nd	Agreed
66	Digital learning tools and technology fill the gaps where traditional classroom teaching falls behind in the teaching and learning of Chemistry	2.53	2.72	2.63	0.30	5th	Agreed
<b>Grand Mean</b>		<b>2.74</b>	<b>2.73</b>	<b>2.73</b>	<b>0.21</b>		<b>Agreed</b>

The data presented in Table 6 revealed the grand mean response score of the respondents to all items analyzed was 2.73 (0.21) which showed that the respondents accepted most of the items except item number 64. Thus, respondents were in agreement to the prospects and benefits derivable from the digitalization

of teaching and learning of Chemistry in secondary schools in Anambra state.

**Hypothesis One:** There is no significant difference between the mean response scores of male and female teachers on the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state

**Table 7: Summary of z test on difference in mean response scores of male and female teachers on the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state**

Categories	n	$\bar{X}$	SD	df	z-cal	z-crit	p	Decision
Male	393	2.40	0.21	632	0.60	1.96	0.05	H <sub>0</sub> <sub>1</sub>
Female	241	2.41	0.20					Retained

Table 7 above showed that the z calculated value of 0.60 is less than the z critical value of 1.96 at 0.05 level of significance with the degree of freedom of 632. The null hypothesis was retained. This means that

significant difference does not exist between the mean scores of male and female respondents on the various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state.



**Hypothesis Two:** Significant difference does not exist between the mean response scores of male and female teachers on the impact of digitalization in

teaching and learning of Chemistry in secondary schools in Anambra state

**Table 8: Summary of z test on difference in mean response scores of male and female teachers on the impact of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state**

Categories	n	$\bar{X}$	SD	df	z-cal	z-crit	p	Decision
Male	393	2.65	0.18	632	1.26	1.96	0.05	H <sub>0</sub> Retained
Female	241	2.67	0.20					

Table 8 above showed that the z calculated value of 1.26 is less than the z critical value of 1.96 at 0.05 level of significance with the degree of freedom of 632. The null hypothesis was retained. Hence, Significant impact does not exist between the mean response scores of male and female teachers on the

impact of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state.

**Hypothesis Three:** There is no significant difference between the mean response of male and female teachers on the extent of digital competencies possessed by teachers in teaching Chemistry in secondary school in Anambra state

**Table 9: Summary of z test on difference in mean response scores of male and female teachers on the extent of digital competencies possessed by teachers in teaching Chemistry in secondary school in Anambra state**

Categories	n	$\bar{X}$	SD	df	z-cal	z-crit	p	Decision
Male	393	2.30	0.27	632	0.87	1.96	0.05	H <sub>0</sub> Retained
Female	241	2.32	0.29					

Table 9 presented above showed that the z calculated value of 0.87 is less than the z critical value of 1.96 at 0.05 level of significance with the degree of freedom of 632. The null hypothesis was accepted. This means that significant difference does not exist between the mean response scores of male and female teachers on the extent of digital competencies

possessed by teachers in teaching Chemistry in secondary school in Anambra state.

**Hypothesis Four:** There is no significant difference between the mean response scores of male and female teachers on the perception of teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state

**Table 10: Summary of z test on difference in mean response scores of male and female teachers on the perception of teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state**

Categories	n	$\bar{X}$	SD	df	z-cal	z-crit	p	Decision
Male	393	2.84	0.14	632	5.83	1.96	0.05	H <sub>0</sub> Rejected
Female	241	2.77	0.15					

Table 10 above showed that the z calculated value of 5.83 is greater than the z critical value of 1.96 at 0.05 level of significance with the degree of freedom of 632. The null hypothesis was rejected. Hence, Significant difference does exist between the perception of male and female teachers on digitalization of teaching and learning of Chemistry in secondary school in Anambra state

**Hypothesis Five:** There is no significant difference between the mean response scores of male and female teachers on the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state

**Table 11: Summary of z test on difference in mean response scores of male and female teachers on the challenges of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state**

Categories	n	$\bar{X}$	SD	df	z-cal	z-crit	p	Decision
Male	393	2.80	0.19	632	0.67	1.96	0.05	<b>H<sub>0</sub><sub>5</sub> Retained</b>
Female	241	2.79	0.17					

Table 11 presented above showed that the z calculated value of 0.67 is less than the z critical value of 1.96 at 0.05 level of significance with the degree of freedom of 632. The null hypothesis was retained. This means that significant difference does not exist between the mean response scores of male and female teachers on the challenges of digitalization in teaching

and learning of Chemistry in secondary schools in Anambra state.

**Hypothesis Six:** Significant difference does not exist between the mean response scores of male and female teachers on the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state

**Table 12: Summary of z test on difference in mean response scores of male and female teachers on the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state**

Categories	n	$\bar{X}$	SD	df	z-cal	z-crit	p	Decision
Male	393	2.74	0.21	632	0.24	1.96	0.05	<b>H<sub>0</sub><sub>6</sub> Retained</b>
Female	241	2.73	0.20					

Table 12 presented above showed that the z calculated value of 0.24 is less than the z critical value of 1.96 at 0.05 level of significance with the degree of freedom of 632. The null hypothesis was retained. This means that the mean response scores of male and female teachers on the prospects of digitalization in teaching and learning of Chemistry in secondary schools in Anambra state does not have significant difference.

technology skills and techniques, it appears that they are often reluctant to avail themselves of the opportunity to increase in their competence due to digital anxiety or phobia to master certain devices.

The impact of digitalization in teaching and learning cannot be over-emphasized. Digitalization entails processes where the teacher or learner uses digital equipment to improve their knowledge and skills. The findings of this study showed that respondents were in agreement that to a high extent, digitalization impacts teaching and learning. This finding is in line with Karehka (2012) who noted that use of computer assisted learning in the classroom, smart interactive, white board, online media and online study tools are very effective in teaching various subjects. This study further revealed that the digital competencies of teachers were generally at a low extent. This is attributed to the fact that secondary school teachers are not highly technologically skilled as these competences were lacking when entered the teaching profession.

Also, the results obtained from this study showed that teachers have positive perception and awareness towards the digitalization of teaching and learning. This finding proved that digitization generally goes a long way in having positive impacts in teaching and learning of Chemistry.

Furthermore, the findings deduced from this study revealed that respondents were in agreement on

## DISCUSSION OF FINDING

Considering that Chemistry is one the core science subjects taught in secondary school, it is imperative to digitalize its teaching approaches and methods by utilizing various digital devices. The findings of this study revealed that various digital devices utilized in teaching and learning of Chemistry in secondary schools in Anambra state were either not available or poorly utilized as evidenced in the results displayed above. It is obvious that technology in education is a comparatively new phenomenon and most teachers regarded as "digital immigrants" are not technologically skilled when they entered the teaching profession. Yet to effectively expand the range of instructional opportunities that can be offered to students, teachers must reach and maintain a certain degree of technological competence but when these teachers are provided the opportunity to learn new



the various challenges militating against the digitalization of the teaching and learning of Chemistry. A myriad of factors was identified with inadequate power supply appearing the most prominent amongst others.

Finally, it is revealed from the results of this study that the prospects of digitalizing the teaching and learning of Chemistry is enormous. This finding buttresses the fact that the more the application of digitization, the more effective the teaching and learning of Chemistry would be in secondary schools in Anambra State.

## CONCLUSION

Digitalization a relatively new phenomenon in education yet its application has expanded a wide range of possibilities and affordances to teaching and learning. Digitization is crucially important to data processing, storage and transmission, because it allows information of all kinds to be carried with efficiency, compactness and to be integrated. This is why it is an ideal way of preserving information for many organizations around the world and educational institutions inclusive. Digitalization makes teachers aware of the available technology and most teachers are already taking initiatives to implement them, some hitches no doubt could be encountered yet the benefits far out-weighs challenges.

## RECOMMENDATIONS

Based on the findings and conclusion of this study, the following recommendations are thus made:

1. Regular training of all teachers: Teachers should be trained and retrained in digital education.
2. As we are in the technological age, teachers should receive extensive training and retraining in troubleshooting, maintenance, and servicing of computers and other related teaching equipment. They should also be given adequate information on new techno-pedagogy and other teaching methods and recent ICT innovations.
3. Provision of adequate teaching materials, digital facilities and support services to ensure their relevance to the Nigerian situation.
4. Chemistry teachers should be encouraged towards the acquisition digitization tools and frequent exposure to modern improvements.
5. Secondary school administrators should partner with the government to remedy the issue of epileptic power supply in schools.

This is important because the ICT facilities and digital devices require power for their operation.

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## TECHNOLOGY OF SOCIAL AND PEDAGOGICAL WORK IN SOCIETY

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### ABSTRACT

*In the conditions of the modern world, which poses tasks of varying degrees of complexity for man and society, one of the conditions for their effective solution is the possibility of organizing human activity in such a way as to achieve the maximum possible result with the minimum expenditure of resources, funds and time. Such an organization of activity forms such a phenomenon as technology. This article discusses the technology of social and pedagogical work in society.*

**KEY WORDS:** *Technology, social phenomenon, pedagogy, pedagogical activity, social life, objects*

### DISCUSSION

The main object of the work of a social teacher is a person. This is as obvious as the fact that work in society was invented by the person himself in order to solve his own problems of existence in society. There are enough problems, and depending on the situation, whole groups or even social processes can become objects, but the final link to which all the activities of a social teacher are reduced is the same person, understood as a person. In pedagogical activity, there are the main types, forms, methods and technologies of work in society and with various groups of the population. The main task of this work is to show the role of technologies of pedagogical activity in society.

In the conditions of modern society, one of the urgent and significant tasks is the problem of effective social protection and support for various groups of the population. To successfully solve it, the joint efforts of specialists in various fields of activity are required, including professional social educators who are proficient in various technologies for solving social problems. At the same time, social workers can act as intermediaries between the individual and society (group, collective, state). The formation and development of such technologies will play a significant role in harmonizing the system of social relations in pedagogical activities and relations in society, overcoming social negativism and

strengthening social stability.

In the conditions of the modern world, which poses tasks of varying degrees of complexity for man and society, one of the conditions for their effective solution is the possibility of organizing human activity in such a way as to achieve the maximum possible result with the minimum expenditure of resources, funds and time. Such an organization of activity forms such a phenomenon as technology.

In modern vocabulary, both scientific and everyday, everyday, the term "technology" is used quite often and widely. At the same time, we are not always aware of how correct and justified the use of this term is in each specific case. It can be argued that the term "technology" is a synthesis of the ancient Greek words "techne" - skill, skill, and logos - knowledge, teaching. Thus, the simplest definition that can be given to the concept of "technology" will sound as follows: it is skill, art, the ability to make "artificial" things and related knowledge. From this definition it is possible to derive such important elements of technology as methods of activity, ways and methods of activity, necessary knowledge. In other words, technology is the ability to influence an object in any activity, where technology is the ways, methods and actions that help precisely, quickly, rationally achieve the chosen goals. With the development of pedagogical activity, ideas about



what technology is, change significantly.

In order for any of the processes of modern activity to be characterized as technological, the following conditions must be met:

1) the presence of an appropriate degree of complexity of the process of pedagogical activity; without this, it is impossible to divide it into relatively independent stages;

2) the availability of appropriate means for the implementation of pedagogical activities, allowing you to get the maximum result at minimum cost.

The characteristic features of the technology are as follows: Dismemberment of a specific process of pedagogical activity into internally interconnected stages, exercises, operations, procedures. This allows you to accurately determine the boundaries of the requirements for the subject using this technology, i.e. clearly indicate what the subject should and should not do at each stage. The simplest example is a recipe, which indicates the sequence of cooking. As a result, even the most inexperienced culinary specialist generally copes with the task at hand. Coordination and phasing of actions aimed at achieving the desired pedagogical result. This allows you to establish the internal logic of the functioning and development of the transformed object, which, in turn, makes it possible for the subject to build his own actions in such a way that allows you to get the most effective pedagogical result. Unambiguous performance of operations included in the technological chain. This is a decisive and prerequisite for achieving results that are adequate to the set goal. Unconditional fulfillment of all technological requirements allows the subject to obtain "at the output" exactly the result that was planned or assumed. And vice versa, the more significant the deviations in the subject's actions from the parameters prescribed by the technology, the more real and serious the danger of deforming the whole process. It can be argued that for modern pedagogical knowledge, the essence of technology is defined through two basic concepts: an operation and a procedure, where an operation is specific actions aimed at solving a specific problem, and a procedure is a set of certain necessary actions. Proceeding from this, we can offer the following definition of the concept of "technology" - it is a way for people to implement a specific complex process by dividing it into a system of sequential, interrelated procedures and operations that are performed unambiguously and have the goal of effectively achieving the goal.

Thus, technology is a specific algorithm for some kind of activity. Acting in a similar capacity, the technology allows, if necessary, to reproduce the process of pedagogical activity in various conditions. At the same time, the technology performs a number

of functions that are important and significant for the process of carrying out activities: regulates and directs the process in the right direction; controls the activities of the subject with the relevant standards, rules, regulations, technical conditions, etc.; guarantees the achievement of the specified properties, subject to the relevant conditions; ensures the rationality of the process of activity itself.

Being a necessary element of pedagogical activity, technology answers the question "how to do it", assuming the presence of a certain order, rules, norms, prohibitions, a chain of procedures and operations, stages of implementation in any form of activity. At the same time, there are also such types of pedagogical activity that are not technologized in nature. First of all, these include: affective actions, consisting of uncontrollable acts and operations (actions under the influence of fear, ecstasy, mass psychosis, etc.); activities carried out without the use of technical means or not focused on creating the final product in the form of material or spiritual objects (habitual, unconscious actions - rhythmic tapping with fingers, walking around the room, etc.

Being a part of the material world and the main space for human existence and life, society, of course, can and should be considered as one of the most important areas for the implementation of various technologies. It is the features and most important characteristics of society that make it possible to speak of the existence of social technologies as one of the varieties of this phenomenon.

The very term "social technologies" is included in the system of social knowledge in the 70s of the XX century. Initially, it denoted a system of specialized tools and methods used in social pedagogy and creating opportunities for rational activities. One of the first researchers to consider the problem of the formation of social technologies at the conceptual level was the American philosopher K. Popper. At the same time, the starting point of Popper's reasoning was that by the middle of the twentieth century, many macrosocial theories, as well as various socio-utopian theories and projects created on their basis to make changes in existing social systems, proved to be inconsistent as factors of fundamental and global reorganization of society. According to K. Popper, social life does not need a total transformation and the accompanying total violence. Improvement of the social system is possible in the process of gradual, "partial" work, i.e. social technology aimed at eliminating specific vices of social life. Based on this understanding, K. Popper defined social technologies as a way of applying theoretical conclusions for practical purposes and pointed to the existence of such varieties of this phenomenon as utopian, which are characterized by



the desire for total transformations of the social system in a revolutionary way, and partial, i.e. representing a methodology for solving a specific social problem.

Comparing these types of technologies, K. Popper identified the main advantages of partial technologies, in comparison with utopian ones. In his opinion, these include: 1) sobriety and balance in setting goals; 2) taking into account possible negative consequences; 3) caution and gradualism in transformations; 4) constant monitoring of their course; 5) the ability to timely eliminate the unforeseen consequences of their own actions; 6) the possibility of adjusting the activities of the entity to implement changes.

It is this part of the views of K. Popper, the further development of sociopedagogical research activities that became the basis for modern developments in the field of social technologies. The result of these studies is, among other things, the development of modern definitions of the concept of "social technology". With regard to modern social knowledge, we can talk about the existence of two main approaches to solving this problem. The first one considers social technologies as a specific system of knowledge that studies the processes of purposeful impact on social objects, substantiates and develops effective methods and techniques of such impact. At the same time, a variety of phenomena can act as a social object: a social group or a social institution, a social relationship or a social organization, etc. The second approach can be defined as "practically oriented". Within its framework, the concept of "social technologies" is interpreted as follows: it is a set of techniques, methods and influences on a social object, due to the need and need to achieve the set goals and obtain a given result.

The variety of social life and social objects, constantly emerging social problems and the possibilities for their solution form the conditions in which the emergence and existence of a wide variety of social technologies becomes possible. To arrange this set, their classification can be carried out. Social technology can be classified for a number of reasons. The most significant reasons include:... By the scale of the social problems being solved: universal social technologies; private social technologies.

The technologies of social diagnostics of the state of a social phenomenon can be classified as universal technologies, and specific technologies used in solving a specific problem, for example, the technology of pedagogical influence, can be classified as private ones. By level of social activity: global social technologies used on a scale of all mankind; regional social technologies that have an effect in solving problems in a specific region; national social technologies based on the peculiarities

of national traditions, psychology of mentality, etc.; state, allowing to solve a social problem within a particular state; municipal, etc. By the nature of the tasks being solved: functional social technologies designed to ensure the effective functioning of existing social systems in various spheres of social life; innovative social technologies aimed at ensuring the optimal transition of various social systems to a different quality; technologies for resolving social contradictions and conflicts, allowing to find and implement the most optimal ways and methods for solving such problems.

By the nature and content of the means used: organizational, administrative and administrative social technologies; social and legal technologies; medical and social technologies psychological technologies; pedagogical technologies, etc. It seems interesting to distinguish certain types of social technologies on such a basis as the purpose of functioning. In this case, we can talk about the following types of social technologies: social technologies focused on creation; social technologies focused on changing or correcting the conditions of the process; social technologies focused on destruction, destruction, extinction or anti-technology.

Thus, social technology is a controversial and diverse phenomenon. The solution to any social problem involves the use of a number of technologies in their interconnection and interdependence. Despite the aforementioned variety of social technologies, common to all technologies is the obligatory presence of a specific goal. Without a well-defined goal, there is no and cannot be social technology. Serving as a means of achieving a social goal - this is the main function of social technology. It is the goal that determines the content of social technology and its direction.

When defining the goals of specific social technologies of the NBH, make the choice of those changes in a person, group or society that can be achieved in the process of implementing this technology as accurately as possible. The main goals of social technologies can be: changes in the consciousness and psychology of the subject (pedagogical technologies); changes in certain areas of the social structure and social organizations (management technologies); changes in the system of subject-object relations (macroeconomic transformations). However, with all the variety of goals of social technologies, the ultimate goal of any of them is a person, his relationship with other people, the external environment and himself.



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## COMPETENCE APPROACH IN TEACHING ENGLISH

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### ABSTRACT

*This article discusses the issue of a competent approach in teaching English. The article provides information on the concept of competence and is based on its importance. This approach is illustrated by concrete examples and situations.*

**KEY WORD:** language, English, language features, competence, method, style of play

### DISCUSSION

Educational technology is a system of joint activities of students and teachers in the design (planning), organization, orientation and adjustment of the educational process in order to achieve a specific result while ensuring comfortable conditions for the participants. The competence-based approach is defined through the interpretation of the concepts of "competence" and "competence".

Competence is defined as:

1) The ability to do something well or effectively;

2) Compliance with the requirements for applying for a job;

3) Ability to perform special labor functions.

Competence means thorough knowledge in a particular area. The subject "English" has great potential for the formation of key competencies. According to A.V. Khutorsky's classification, there are 3 main types of competencies:

1) Key competencies: value-semantic, general cultural, educational and cognitive, informational, communicative, social and labor, competence of personal improvement;

2) General subject competences;

3) Subject competences.

The main means of forming key competencies in the study of a foreign language are various technologies, forms and methods. There are no completely incompetent forms and methods of educational work. But some forms by themselves do not work to develop key competencies:

- 1) Teacher's monologue;
- 2) Frontal individual survey;
- 3) Informative conversations;
- 4) Independent work with the textbook on the instructions of the teacher;
- 5) Film demonstration;
- 6) Traditional test.

Competence methods are those that have not only educational, but also life justification. It problematization of content in the context of today's and tomorrow's life of students, organization of extracurricular activities, use of competence-based methods and forms of training:

- a) Method of projects;
- b) Development of critical thinking;
- c) The method of debate;
- d) Game technology (language, role-playing games, dramatization);
- e) Case study;
- f) Problematic discussions;
- g) Pair and group work;
- h) Language portfolio;
- i) Use of audio-visual tools, multimedia technologies, Internet resources.

Competence methods and forms of training. Discussions, conversations, role-playing games of a problematic orientation, project activities are those activities that encourage students to think independently in oral or written form. Let us dwell in more detail on some competence-based methods and forms of training: Real, life, natural situations. Students should be able to solve real communication





problems:

1) Thank you for the lesson - "Thank you for the lesson".

2) Offer help - "Can I help you?"

3) Clarify homework - "What was your home task?"

4) To complain about the sneak, the offender - "He's been telling on me! He is a sneak".

Real communication begins with Classroom English.

Real communication is possible when creating a language environment, constant monitoring and situations of success:

1) Creation of a language environment  
Classroom English and Warming Up create many opportunities and situations for real communication. It is not enough to use phrases yourself, you need to ensure that students respond adequately to them.

2) Constant monitoring - Police - reception of mutual monitoring (the student keeps track of who spoke English and Russian more; Competition - reception in competition mode;

3) The situation of success - the principle "You can express it in English, even if you do not remember vocabulary and grammar." - one of the fundamental principles of the situation of success, as well as words of approval..

Dialogues - always a special attention and always a creative approach. Playing out dialogues and reading texts in English is different. Reading texts, you just memorize new words that, perhaps, will not be useful to you for everyday use. In dialogues, English speech is lively, most common, most often used. By acting out dialogues, you are talking to the interlocutor. In addition, complex phrases are usually not used in colloquial speech, so it will be easier for you to master new vocabulary by using it in dialogues. In addition, in the dialogues, you can include useful information on how, for example, ordering a plane or theater ticket by phone, how to make a purchase in a store, etc.

Variants of using the competence-based approach at the middle stage

1) Song and drawing lessons. Group work

1) Organized pair work - the basis for group work.

2) Situations should be interesting.

3) A clear task corresponding to the level of training.

4) Cards - helpers.

5) It is important not to interrupt students, to correct only mistakes that interfere with communication.

6) Conduct in a foreign language.

Collaboration gives a good stimulus for cognitive activity, for communicative work. Collaborative learning can help build skills, prepare

for complex activities with information - the project method. The design technique was introduced into the country in the 30s. The project method is a complex teaching method that allows you to individualize the educational process, enables the student to show independence in planning, organizing and controlling their activities. The project method allows students to show independence in the choice of topic, sources of information, the way it is presented and presented. The project methodology allows for individual work on a topic that is of the greatest interest to each project participant, which undoubtedly entails an increased motivated student activity. He himself chooses the object of research, decides for himself: whether to limit himself to a textbook on English (just by completing another exercise), or to read other textbooks provided by the school curriculum. However, children often turn to additional sources of information (special literature, encyclopedias), analyze, compare, leaving the most important and entertaining. The initial stage of work on the project - the introduction and discussion of the topic is offered in a regular lesson, in parallel basic vocabulary, grammar are given, children master simple sentences.

Practical work on the project begins at the stage of "Consolidating the material" and "Repetition" and becomes a harmonious part of a single learning process. One of the main features of project activities, in our opinion, is the orientation towards achieving a specific practical goal - a visual presentation of the result, be it a drawing, application or composition.

In teaching English, the project method provides students with the opportunity to use the language in situations of real everyday life, which undoubtedly contributes to better assimilation and consolidation of knowledge of a foreign language.

Project types: 1) monoproject, 2) a collective project, 3) oral and speech, 4) written, 5) Internet project. When working on a project, you need to take into account the information range, research, language aspect. Thus, the use of the competence-based approach makes it possible for the comprehensive harmonious development of the child's personality, the development of mutual responsibility, to improve the quality of learning based on the development of educational standards, the development of research skills in the learning process, and the preparation of an educational base for further education.

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## **ACTIVE METHODS IN TEACHING SOCIAL AND HUMANITIES DISCIPLINES**

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### **ABSTRACT**

*This article discusses the use of interactive methods in the teaching of social sciences and humanities. In the article, the author describes the active methods, proving that the transition to the course is based on modern requirements.*

**KEYWORDS:** *social sciences, humanities, active methods, game style, communicative methods, science features.*

### **DISCUSSION**

Teaching methods are a system of sequential interrelated actions of the teacher and students, ensuring the assimilation of the content of education. The teaching method is characterized by three features: it denotes the goal of teaching, the way of assimilation, the nature of the interaction of subjects of learning.

Teaching aids as an integral part of the material and technical equipment of an educational institution are a set of subjects that include educational information or perform training functions and are designed to form children's knowledge, skills and abilities, manage their cognitive and practical activities, comprehensive development and education.

The teaching method is a historical category, they change with the change in the goals and content of education. American educator K. Kerr identifies four "revolutions" in the field of teaching methods, depending on the predominant means of teaching (1972). The first was that teachers - parents, who served as models, gave way to professional teachers; the essence of the second is the replacement of the spoken word with the written one; the third introduced the printed word into teaching; the fourth, which is currently taking place, involves partial automation and computerization of training. An empirical approach to the problem of methods and teaching aids has led to a great disparity in the nomenclature of methods among different authors

without scientific substantiation of the number, consistency, necessity, sufficiency, classification principles and boundaries of application of teaching methods. Studies of teachers and psychologists have shown that the assimilation of knowledge and methods of activity occurs at three levels: conscious perception and memorization; application of knowledge and methods of activity on the basis of a model or in a similar situation; creative application. Teaching methods are designed to provide all levels of learning. Currently, teaching methods in the practice of many teachers ensure the assimilation of knowledge and methods of activity mainly at the first two levels. One of the reasons for the insufficient introduction of teaching methods that ensure the creative application of knowledge is the poor development of the theoretical concept of teaching methods, which is characterized by descriptiveness and empiricism. Active learning methods (ALM) are a set of pedagogical actions and techniques aimed at organizing the educational process and creating conditions by special means that motivate students to independently, proactively and creatively master the educational material in the process of cognitive activity.

The emergence of active learning methods is associated with the desire of teachers and trainers to activate the cognitive activity of students or to contribute to its improvement. In the educational process, three types of activity are clearly manifested: thinking, action and speech. Another implicit one is



the emotional and personal perception of information. Depending on the type of active learning methods used in the lesson, either one of the types or their combination can be implemented. The degree of student activation is considered depending on which and how many of the four types of student activity in the lesson are manifested. For example, in a lecture, thinking is used (primarily memory), in a practical lesson - thinking and action, in a discussion - thinking, speech and sometimes emotional and personal perception, in a business game - all types of activity, on excursions - only emotional and personal perception ... This approach is consistent with experimental data, which indicate that no more than 20-30% of information is assimilated during lecture presentation of the material, up to 50% during independent work with literature, up to 70% during speaking, and with personal participation in the studied activity (for example, in a business game) - up to 90%. The methods can be used both as independent pedagogical developments and in combination with traditional ones. There are also principles for the revitalization of traditional forms of education. Approaches to the systemic use of are outlined in the theory of Active Learning.

Most often, the following signs are distinguished: Problems. The main task in this case is to introduce the student into a problematic situation, to get out of which (to make a decision or find an answer) he lacks the available knowledge, and he is forced to actively form new knowledge with the help of the teacher and with the participation of other students, based on the known to him someone else's and his professional experience, logic and common sense. The optimal variant of a problematic task is one whose solution is ambiguous even for a specialist or teacher. Adequacy of educational and cognitive activity to the nature of future practical (job) tasks and functions of the student.

This is especially true for questions of personal communication, service and official relationships. Thanks to its implementation, it is possible to form an emotional and personal perception of students' professional activities. The approaches to the implementation of this feature are most fully described in the theory of contextual learning.

Therefore, this feature is also interpreted as the implementation of contextual learning. The core point of many forms of conducting classes using active learning methods is collective activity and discussion form of discussion. This feature does not deny the individualization of teaching, but requires its intelligent combination and skillful use. Numerous experiments on the development of the intellectual abilities of schoolchildren have shown that the use of collective forms of education had an even greater

influence on their development than factors of a purely intellectual nature. The requirement for the organization of educational and cognitive activities, taking into account the individual abilities and capabilities of the student. The sign also implies the development of self-control, self-regulation, and self-learning mechanisms in students. Research of the studied problems and phenomena. The implementation of the feature allows to ensure the formation of the starting points of the skills necessary for successful self-education, based on the ability to analyze, generalize, and creatively use knowledge and experience.

Immediacy, independence of interaction of students with educational information. In traditional teaching, the teacher (as well as the entire set of didactic tools used by him) plays the role of a "filter" that passes educational information through himself. When learning is activated, the teacher moves to the level of students and, in the role of an assistant, participates in the process of their interaction with the educational material, ideally the teacher becomes the leader of their independent work, realizing the principles of cooperation pedagogy.

The activity, both individual and collective, both independent and regulated educational and cognitive activity of students, is developed and supported by the motivation system. At the same time, among the students' motives used by the teacher are: Professional interest. The creative nature of educational and cognitive activities. Competitiveness, playfulness of the lessons. Emotional Impact. In the context of the problematic content, creative nature and competitiveness of activity, there is a rapid, sharp introduction of the body's reserves. The emotions that arise in this case activate, induce a person, initiate his focus on the performance of activities.

Today there are different approaches to the classification of ALM. As distinctive features, the following are used: the degree of activation of listeners, the nature of educational, cognitive and play activities, the way of organizing play interaction, the place of the classes, their purpose, the type of simulation model used, and many others. By the nature of educational and cognitive activity (this classification is most often used), active learning methods are divided into: imitation methods based on imitation of professional activity, and non-imitation. Imitation, in turn, are divided into play and non-play. At the same time, the analysis of specific situations (ACS), analysis of the manager's business mail, actions according to instructions, etc. are referred to non-play methods. Game methods are divided into: business games, didactic or educational games, game situations and game techniques and procedures. trainings in an active mode. In this case, the means of implementing individual, single principles are



referred to game procedures and techniques. First of all, various forms of activating lectures and other traditional forms of education, playing pedagogical techniques, individual means of activating. For example, a lecture using the method of analyzing specific situations in the form of an illustration carried out by a teacher, a lecture with planned errors, a lecture for two, a problem lecture, a creative task - realizing the principle of problematization; lecture press conference, lecture-discussion, lecture-conversation - the principle of dialogue.

Game situations seem to be a means of implementing two or more principles that do not coincide with a business game (in terms of quantity) composition of elements and do not have a formalized structure, rules of behavior on the playground, regulations. An example of a game situation can be considered discussion sessions conducted in an expanded form, with unplanned speeches and opposition, when it is not known in advance who and in what capacity (speaker, critic, provocateur) will participate in the discussion. As well as situations used for role-playing games, theatrical games, simplified management trainings, etc. If the game situation is used as a basis, but the activities of the participants are formalized, that is, there are rules, a rigid assessment system, a procedure for actions, regulations are provided, then we can assume that we are dealing with a didactic game. Business games, respectively, include methods that implement the entire set of elements, and, consequently, the whole complex of activation principles characteristic of active learning methods.

Non-imitative methods are understood as an internship in the workplace, programmed training, problem lecture, graduation work. By appointment, there are: motivation of cognitive activity, communication of educational information; formation and improvement of professional skills and abilities; mastering advanced experience, monitoring learning outcomes. By the type of activity of the participants in the search for solutions to problems, methods are distinguished based on: ranking according to various signs of objects or actions; optimization of processes and structures; design and construction of facilities; the choice of tactics of action in management, communication and conflict situations; solving an engineering and design, research, management or socio-psychological problem; demonstration and training of skills of attention, invention, originality, quickness of thinking and others.

According to the number of participants, there are: individual, group, collective methods, as well as methods involving the work of participants in dyads and triads. The venue is distinguished: classroom and non-classroom, field, excursion. By

the principle of using computer technology - manual, (without using VT); computer games - computer games; and games with computer software.

Structure. There are four structural groups of elements of play activity that take place in the implementation of all forms and methods of active learning. Problematic content. The simulation model is the main, central element of the business game. If we consider the whole range of methods of active learning, then at the basis of other game forms, instead of it, creative (or problematic) tasks, situational tasks, problem questions can be used. The second element in the implementation of problematic content is the game environment. The structure, elemental composition of active learning methods, the organization of the participants in the game action. This element of the game is reflected in the way teams are formed, and in the definition and distribution of roles. Game interaction. The order, type and methods of actions of the participants determine the rules, which are described separately or in the scenario of the game. The conditions in which the game interaction takes place is called the game environment.

Methodological support. The requirement for the formation of a didactic model of a game action, the implementation of the principle of two-dimensionality is fulfilled in the implementation of all the game elements listed above, but such game elements as immersion, reflection and the assessment system serve only for didactic purposes. They ensure the success of the game action and therefore best meet the didactic goals of the game. The totality of all game elements in terms of their didactic orientation is interpreted as a game model.

Problem solving, the choice of appropriate behavior in a variety of conditions with unpredictable events is now an urgent problem of human life. Such situations are typical for a dynamic society. Consequently, in the IPC it is necessary to create an education system in which these conditions would be modeled for the development of ways to resolve problem situations. The content and process of postgraduate education should be both adaptive and heuristic and creative. In this case, it is possible to combine different types of training: program, problem, developmental. The implementation of the activity content of postgraduate education is possible with the wide inclusion of active teaching methods (ATM) in the educational process.

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## ALISHER NAVOIY VA MUHAMMAD FUZULIYNING “LAYLI VA MAJNUN” DOSTONI BOSH QAHRAMONLARI PORTRETIGA CHIZGILAR

**Yulduz Abdulhakimova**  
*ToshDO‘TAU Doktoranti*

### ANNOTATSIYA

*Maqolada Alisher Navoiy va Muhammad Fuzuliy “Layli va Majnun” qiyosiy tahlili haqida so‘z boradi. Ikkala dostonning farqli va o‘xshash tomonlari tahlil qilingan. Alisher Navoiyning “Layli va Majnun” dostoni Fuzuliyning “Layli va Majnun” dostoni uslub jihatdan qanday farqlanishi to‘g‘risida fikr yuritish bilan bir qatorda, badiiy tahliliga ham e‘tibor qaratilgan.*

**KALIT SO‘ZLAR:** *syujet, kompatsiziya, mezon, doston, g‘azal, muxammas, portret, janr, dinamik portret, mujgon, tahlil.*

Alisher Navoiy va Muhammad Fuzuliy “Layli va Majnun” dostonlari yaratilgan vaqt bir-biridan unchalik uzoq emas. Jumladan, hazrat Navoiy o‘z dostonini 1484 yili yaratgan bo‘lsa, Fuzuliy “Layli va Majnun”i 1536-1537 yillarda vujudga kelgan. Yaratilishida yarim asrdan sal ko‘proq muddat farq bo‘lsa-da, har ikki doston syujeti va kompozitsiyasi, ijodkorlar uslubi va yondashuv mezonlari bir-biridan farq qiladi. Alisher Navoiy “Layli va Majnun”i Nizomiy-Ganjaviy va Xusrav Dehlaviyning shu nomdagi dostonlari bilan qiyosiy o‘rganilgan. Nizomiy va Fuzuliy dostonlari qiyosiy tahlili bo‘yicha ham bir qancha tadqiqotlar yaratilgan. Biroq Alisher Navoiy va Muhammad Fuzuliy dostonlar io‘zaro muqoyasa etilgan emas. Bu esa, o‘z navbatida, ushbu ikki mutafakkir asarlari qiyosiga bag‘ishlangan tadqiqotlar yaratilishi zarur ekanligidan dalolatdir.

Muhammad Fuzuliyning dostoni Alisher Navoiyning “Layli va Majnun”idan kompozitsiya jihatidan bir muncha farq qiladi. Jumladan, ulug‘ ozarbayjon shoiri dostonni hazrat Alisher Navoiy kabi masnaviy janrida bitgan bo‘lsa-da, biroq o‘rni-o‘rni bilan boshqa janrlarga – g‘azal, murabba‘, ruboiy, soqiynoma kabi she‘riy shakllarga ham murojaat etadi. Bu uslub, birinchidan, dostondagi badiiy tasvirning ta‘sirchanligini oshirishga xizmat

qilgan bo‘lsa, ikkinchidan, yangi she‘riy shaklga o‘tilishi orqali kitobxonning fikr o‘zanini masalaning mohiyatini yanada chuqurroq anglash sari burib yuboradi. Uchinchidan, kitobxonning asar qahramoni ahvoli ruhiyatini yaqqolroq his etishiga yordam beradi.

Asar kompozitsiyasining bu tarzda tuzilishi Fuzuliyning o‘ziga xos ijodiy metodi talablaridan kelib chiqqan, deyish mumkin. Qolaversa, shoir yashagan davr dostonchilik ana‘analari ham shunday yo‘l tutishni taqozo etgan bo‘lishi haqiqatga yaqin. Ikki doston qiyosiga kirishar ekanmiz, avvalo dostonning bosh qahramonlari Layli va Majnunning portretlari qiyosiga e‘tibor qaratmoqchimiz.

Nazariy adabiyotlarda: “Portret epik asarning kompozitsion unsuri bo‘lmish tavsifning bir ko‘rinishidir. Shartli ravishda statik va dinamik portret turlari farqlanadi. Statik deyilishiga sabab shuki, portretning bu navida personajning tashqi qiyofasi syujet voqeasi to‘xtatilgan holda ancha mufassal, detallashtirib chiziladi. Odatda bunday portretlar personaj asar voqeligiga ilk bor kirib kelgan pallada beriladi. Dinamik portret deganda esa mufassal tasvir emas, balki voqea va dialoglar tasvirida, ya‘ni harakat davomida berib boriluvchi



personaj tashqi ko‘rinishiga xos ayrim detallar nazarda tutiladi. Bunday portret detallari (yuz-ko‘z ifodalari, tana holati va harakati, qiliqlari) ko‘proq remarkalardan joy oladi va personajning ayni paytdagi ruhiy holatini ifodalashga xizmat qiladi<sup>1</sup>.

O‘zining rang-barangligi, tasvirlarni badiiy jihatdan sayqallab, go‘zal tarzda ifoda etishi bilan ajralib turadigan Alisher Navoiy ijodida, xususan buyuk adibning “Layli va Majnun” dostonida portret va xarakter epik tasvirni ifodalashda muhim o‘rin tutadi. Ijodkorning tasvir uslubi o‘ziga xos. Shoir mazkur dostonida portret va xarakterni shunday yoritib berganki, asar qahramonlari o‘quvchi tasavvurida o‘zining individual xususiyatlari bilan yaqqol namoyon bo‘ladi.

Masalan, Alisher Navoiy o‘z asarlarida ayol qahramonlarning zohiriy va botiniy go‘zalligini shu qadar yuksak badiiy did va mahorat bilan tasvirlaydiki, shoir asarlari bilan tanishgan o‘quvchi buni chuqur idrok etadi. Hazrat Navoiy “Layli va Majnun” dostonining XI bobida Layli portretini yorqin tuyg‘ular va samimiy chizgilar orqali quyidagicha ifoda etadi:

**Mujgon safining qaro balosi,  
Ko‘zlar uza soyaning qarosi.  
Yo‘q soyaki, to‘rt saf chekib zang,  
Majmui libosi surmairang.  
Ochquncha yumub ko‘z ul sipahitiz,  
Bir biriga tegib qilurg‘a xunrez.  
Dema bu sipahni haylu hindu,  
Chin dashti kiyiklariga mundu <sup>2</sup>.**

Ya‘ni saflanib turgan kipriklari qora balodek, balki ko‘zlari uzra qora soyadek, soyadek ham emas balki surmarang libos kiygan lashkarlarning saf tortib turishidir. Ul pari ko‘zlarini har ochib yumganda bu lashkarlar qon to‘kmoq uchun bir birlariga tashlanadilar. Yo‘q ular hind lashkarlari emas. Chin dashtining ohulariga qo‘yilgan qopqondir.

Muhammad Fuzuliy esa, Layli husni ta‘rifini quyidagicha keltiradi:

**Abrusi hami baloyi ushshoq,  
Ham juft latofat ichra, ham toq.  
Har kiprigi bir xadangi xunrez,  
Paykoni xadangi g‘amzai tez.<sup>3</sup>**

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<sup>3</sup> Мухаммад Фузлий. Лайли ва Мажнун. Баку, 1958.

Ya‘ni uning kamon qoshlari oshiqlar uchun balodir. Uning har bir kiprigi qon to‘kuvchi kamon o‘qlaridek. Har boqishda u kamon o‘qlari paykonidan shiddat ila uziladi.

Laylining otasi qizini nihoyatda sevganidan, uning kamolotga erishishini istaganidan o‘z qabilasida Layliga maktab ochib berdi. U maktabga Qays ham keldi. Ammo u vaqtda Layli betob bo‘lib yotgan bo‘ladi. Ma‘lumki, betoblikda kishi husnida o‘zgarishlar bo‘ladi. Bu o‘rinda hazrat Navoiy Layli husniga quyidagicha ta‘rif beradi.

**Layli demay, ul buti parizod,  
Bir oriza birla erdi noshod.  
Tab‘ida quyosh kibi harorat,  
Ayshiga solib erdi marorat.**

Layli demay, ul oy yuzli parizod jismiga quyosh kabi harorat aziyat berib, guldek taniga xastalik chang soldi. Shu sabab, uning oppoq yuzi qizil guldek tovlanadi. Uning jismidan oqqan ter ter emas, balki gulobdir. Shu sabab, ul oy yotgan xona gulobxonaga aylangan.

Layli obrazini adabiyotshunos olim Aziz Qayumov quyidagicha tahlil etadi: “Laylining xush isli, oq va sarg‘ish tusli gul (jasmin) singari jismini isitma otashi gulgao‘xshatib qo‘ygan. Bu guldand taralgan ter qiz yotgan uyni gulobxonaga aylantirgan. Isitmao‘ti bu nafis pardalargao‘ralgan g‘unchadan zarra – zarratob paydo etmoqda. Mijozida harorat kamaygudek bo‘lsa, titratma kuchayadi. Oq terak tong shamolida silkinganidek qizning shamshod qomati bu titroqda qaltiraydi.”

Fuzuliy Laylining peshonasidan oqqan terni Chin daryosiga mengzaydi:

**Daryoyi balo jabini poki,  
Chin junbushi mavji sahmnoki.  
Chashmi siyaxina surmadanor,  
Hindusina surma ham giriftor.**

Sanamning peshonasidan oqqan ter, Chin daryosi mavjlangani kabi dahshatlidir. Ko‘zlariga surma tortilgan. Ammo surma ham uning qaro xoliga asir bo‘lgan.

Natan Mallaev o‘zining “So‘z san‘atining gultoji” kitobida Laylining portretini quyidagicha tasvirlaydi: “Layli tashqi qiyofasi bilan ham, ma‘naviy dunyosi va xulq atvori bilan ham nihoyatda go‘zal qiz. U g‘ayrat bilan o‘qiydi, bilim oladi, fazilatiga fazilat qo‘shilib boradi. Layli fazilatlarini

Мухаммад Фузлий. Лайли ва Мажнун.Т.: G‘afur G‘ulom, 1968 Bundan keyingi iqtiboslar shu manbadan olinadi



bilan muhiti saviyasidan yuqori ko'tariladi. Sevgi uning ma'naviy dunyosini yanada boyitadi, to'ldiradi."<sup>4</sup>

**La'lida yig'ib zaxirai jon,  
Og'zi suyi anda shirai jon.  
Jon topibon ulkio'psa oni,  
Mundin debon obi zindagoni.**

Ul parining lablari hayot berguvchidir. Yo'q faqat hayot berguvchigina emas, ham jondan ayirib ham jon baxsh etguvchidir. Og'zining suvi jon shirasi bo'lib, undan kishi hayot topadi. Shu sababli u obihayotdir. Ikki qizil labi shu jon suvlarini quyib berguvchi qadah bo'lsa, iyak ostidagi baqbaqalari "Jon" so'zining "nun" harfidir.

Muhammad Fuzuliy:

**Ruxsorina rangi g'ozadan nang,  
Hargiz anga g'oz vermamish rang.  
Ko'z mardumagindano'lsa holi,  
Ko'z mardmagio'lurdi holi.  
La'lu duru go'starardi har dam,  
Avroqi gul ichra iqdi shabnam.**

Uning uyatdan qizargan yuzi xuddi upa elik surgandek. Gulbarglari ichida shabnam marvarid donalari kabi sochilganidek, uning lablaridan ham shunday durlar sochiladi. Laylining go'zalligi ko'rgan ko'zni qamashtiradi, dilni yayratadi. Boisi, uning yaratilishi ishq, asli ishqdir. Alisher Navoiy Laylining nafaqat jismi balki ismi ham nihoyatda go'zal ekanligini ta'kidlaydi:

**Yo'q ikki sochi tuniga g'oyat,  
Ya'ni iki layli benihoyat.  
Andin bo'lib oti jilvaoroy,  
Andoqi Barotu qadr aro oy.**

Uning sochlari shu qadar uzun va qoraki, xuddi intihosiz qora tungao'xshaydi. Bu shunday tunki, (barot) qadr kechasidek qadrlil va qutlug' tundur.

"Barot u qadr (qadr ramazon oyi ichida bo'lib, "Laylat ul qadr" [qadr kechasi] deb ataladi.) Bu ham barotga o'xshash qutlug' tun hisoblanadi. Oylarning ikki qutlug' kunidir."<sup>5</sup> Ikki ijodkorning mahorati Majnun portretining yoritilishida yanada mukammal va go'zal namoyon bo'ladi. Layli ayol kishi bo'lganligi sababli uning husni ta'rifi ancha oson va o'xshatishlarga boy qilib ko'rsatiladi. Majnun portreti qiyosi esa, tabiiyki, uning ruhiyati bilan uyg'un ravishda yanada ochiladi. Sababi, Majnun

ichki va tashqi olami bir bo'lgan inson obrazidir. Uning siyrati ham surati ham ishqdir.

Hazrat Navoiy dostonning 10-bobidan asosiy qismni boshlaydi. Bu bob Majnunning tug'ilish ta'rifi bilan boshlanadi. Bani Omar qabilasida uzoq kutilgan farzand Qays dunyoga keladi. Qaysning tug'ilishi, o'sishi tasvirida ham ilohiy taqdir sezilib turadi. Tug'ilgandan ishq olovi bilan yo'g'rilgan Qays o'tga talpinadi:

**O't ko'rsaki ,mayl etib nihoni,  
Ishq o'ti tasavvur etib oni.**

Otasi bu durni topganidan faxrlanib, ko'p gavharlar sochib, tortiqlar berdi. Bir necha doyalar uni boqib asradilar. Qimmatbaho matolar bilan yo'rgaklab, g'uncha kabi ko'plab liboslar bilan o'radilar:

**Hifz ayladi oni necha doya,  
Har nav' ishidan toparg'a voya.  
Chirmab yana kishu os birla,  
G'uncha kibi yuz libos birla.**

Dostonning keyingi o'rinlarida Qaysning portreti chizgilari tabiat bilan uyg'un holda tasvirlanadi: "Sayr chog'i Layli bir tup gul ichiga kirib qoldi. Bu yerning to'rt tarafi gul shohlari bilan o'ralgan bo'lib, yoqalarini chok qilib, o'z holiga zor va besabru qaror yig'lar edi". Navoiyning ishq haqidagi tushunchasi insonning ilohiy fayzdan bahramandligi bilan bog'liq e'tiqodiga asoslangan, ya'ni haqiqiy muhabbat faqat pokiza insonlar qalbidangina joy olishi mumkin. Majnun qalbidagi ana shu ishqning siyratini ziynatlab, suvratiga ham go'zallik baxsh etgan. Alisher Navoiy ham Majnun portretini shunday ulkan muhabbat bilan yaratadiki, bu obraz qiyofasi o'zining yagonaligi, betakrorligi, takrorlanmasligi bilan boshqa obrazlardan ajralib turadi.

Muhammad Fuzuliy ham Majnun portretini yaratishda o'ziga xos yo'ldan boradi. Dostonlarning voqealar rivoji o'xshash, obrazlar uyg'un, ammo ifoda o'zgacha. Hazrat Navoiy Majnun obrazini shunday ta'rif etadiki, qahramonning ruhiy holati, xarakteri, portreti bir-biri bilan uzilmas zanjirdek bog'lanib keladi. Bu o'rinda zukko kitobxon ideal oshiqni tasavvur etadi. Muhammad Fuzuliy esa Majnun obrazining talqinini qisqa va lo'nda keltiradi va uni bir o'qishda anglab olishga qiynalmaysiz. Masalan:

**Bar verdini holi bog'i maqsud,  
Ochildi guli hadiqai jud.  
Chun va'da erishdi tug'di bir oy,  
Xurshid ruh ila olamoroy.**

<sup>4</sup>Маллаев Н. Сўз санъатининг гултожи. –Тошкент: Ф.Фуллом нашриёти, 1991

<sup>5</sup>Навоий асарлари луғати. Тошкент,1972, Б. 94.



Majnunning ota-onasi farzandsizlikdan qiynalib, Allohdan tunu-kun farzand so'raydi. Ularning nolalari qabul bo'lib, Alloh ularga farzand nasib etadi. Bu inoyatdan bag'oyatda shod bo'lgan ota-ona tuhfa tarqatadilar. Dostonda keltirilishicha, ularning bog'ida ham nihoyat bir go'zal gul yuz ochdi. Bir nafis chechak bo'y taratdi. U inson farzandidan ham ziyoda, uning nafis jismi ishq nuridan jilolanib turardi. Nurdirkim, olamni yoritib, isitib turguvchi bir olovdur.

**Majnun kamolda yetuk bir farzand edi:  
Xurshid kibi kamola qobil,  
Iso kibi tiflikda komil.**

Ammo Majnunning dili xufton, xayoli vayron edi. Ishq uning qalbini ziynatlagan bo'lsa, shunchalik azob domiga tortib borayotgan edi. Shu sababli yutgan har yutum suti sut emas qon, onasining ko'kragi uning ishq olovidan kuygan jismi qarshisida paykon yanglig' turardi.

**A'zosi ne dib alila afgor,  
Aylardi mudom nolavu zor.  
Sut ichsa sonurdikim, ichar qon,  
Emchak ko'rinurdi unga paykon.**

Majnun portretini o'rganishga kirishar ekanmiz, qahramon tasviri berilgano'rinlarda uning tabiat bilan, atrofidagi yaqinlari bilan bo'lgan munosabatlaridan kelib chiqib ham, Majnunning xayoliy siymosini chizishimiz mumkin. Masalan, Fuzuliy Majnunning ichki olamiga oid tasvirlarni quyidagicha keltiradi:

**Oxir kuning avval aylayub yod,  
Oqitdi sirishku qildi faryod.**

Majnun o'zining dardi qanchalar ulug' va bu ishq dardiga faqat sabr qilish bilangina chora topishi mumkin ekanligini yaxshi anglardi.

Bir so'z bilan aytganda, Hazrat Alisher Navoiy ham, Muhammad Fuzuliy ham Layli va Majnun portretini ifoda etishda nihoyatda go'zal va yorqin tasvirlardan foydalanadi. Ikkala dostonda ham qahramonlarning nafaqat zoxiriy, balki botiniy go'zalligi yetuk mahorat bilan tasvirlanadi. Majnun portreti negizida kamolga yetgan ishq, komillik kuyilansa, Layli tasvirida ilohiy mazharga xos sifatlar yetakchilik qiladi.

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# THE ROLE OF ANCIENT BACTRIA AND MARGIA IN THE ESTABLISHMENT OF ZARDUSTIYA

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## ABSTRACT

*The article analyzes the role of Zaratustra in the development process of early countries in Central Asia. In addition, there given some statements on early cities to come into existence in Central Asia, especially, in Old Bactria and Margiana.*

**KEY WORDS:** *early statehood, Zoroastrianism, Old Bactria, Margiana, ancient religion, Avesto, Gat, Gava, the culture of Tozabogyob, Kuzalikir, Aryanam Vayja*

## INTRODUCTION

Zoroastrianism was formed in a certain period on the basis of certain procedures. The emergence of religion, its formation on the basis of a special system, will be necessary to gain the trust of the people in society and to strengthen the ideological and political power. According to Democritus and Epicurus, there will be no gods and goddesses in society. Man irrigates his thinking with spiritual help in order to overcome the obstacles that appear in front of him. As a result of the incorporation of religious belief into a particular system, its form of ideological governance emerged, and these processes began in connection with the formation of urban culture in Mesopotamia. A similar situation gradually spread to the southern regions of Central Asia, including the countries of Ancient Bactria and Margiana. Religion originally served as a spiritual link between natural disasters, eternity, and materialism beyond the reach of the human mind. In this, only the ideas of good and evil prevailed, and religious faith played the role of protection against evil, against the dark forces. Sacrifices were made by believing in gods who were the epitome of goodness. The gat, which is considered to be the oldest part of the Avesto, has been abbreviated to this day, making it difficult to study it perfectly.

## MATERIALS AND METHODS

From the XVIII century, the Avesto began to be studied as a separate object of study. Boys [Boys

M, 1987], E.A. Doroshenko [Doroshenko, 1982], I.M. Dya-konov, M.M. Ishakov [Boynazarov, 1991] and other scientists. Scholars trace the origins of Zoroastrianism to the Iranian territories, emphasizing that the Achaemenids were the state religion. Also, the religion of Zoroastrianism and the homeland of the "Avesto" is Khorezm. There are also ideas about the origin of religion in BC. The scientific idea that it does not go beyond the VII-VI centuries appeared in science. Despite several years of research on Zoroastrianism and the history of the Avesto, the debate is still ongoing. In particular, the origins of the Gats, an ancient part of the Avesto, are still unresolved. The origin of Zoroastrianism and the Gats, based on the Avesto texts, led to different views on the place and time in which the religion originated. In the scientific literature of the 80s of the XX century in the formation of the "Avesto" appear western and eastern directions. Proponents of the western direction note that the Avesto originated in the Mediterranean region and spread to the east, claiming that Zarathustra came from Atropoten (Azerbaijan) or Rag in Media. There is information about this in Beruni's work "Monuments of the past" [Beruni, 1957. T.I. - p. 89].

East line supporters such as E.E. Bertels, S.P. Tolstov, V.I. Abaev, I. Markvart, Yu.A. Rappoport, M. Ishakov, M.M. The Mahmudovs claim that the Avesto originated in ancient Khorezm. Also, as a result of the study of the customs, burial customs, religious system of the Iranian-speaking peoples by world scholars, the ideas of the emergence of



Zoroastrianism in Iran and its transformation into a state religion prevailed [Boys M., Lelekov L.A. Avesta in modern science...; Lelekov, 1991; History of the Tajik people. T.1; History of ancient Vostoka, 2002. - p. 422; Doroshenko, Makovelskiy,]. These scientific approaches do not take into account the fact that in the Achaemenid state in the regions where eastern Iranian languages were widespread, i.e. among Bactria, Margiana, Sogdiana, Arela, Khorasmians, they began to form from the Bronze Age, because at that time Protestant temples in these areas had not yet been opened. Moreover, at that time, linguistics and analysis of written sources played a key role in thinking about Zoroastrianism and the creation of the Avesto. Reliance on archeological sources has become a secondary source.

In the Avesto's book Videvdat, the historical process in Aryanam-Vayja, the first of the lands created by the god of goodness Ahuramazda, is studied in connection with the Early Iron Age, and the roots of Zoroastrianism are traced to the herding community according to the Avesto. The first of the 16 states created in Ahuramazda is said to be the plains between the Ranha and Wahvi rivers in the Aryanam-Vayja Avesta. Linguists interpreted the rivers mentioned in the Avesto as the ancient name of the Ranha-Volga. For example, according to Markwart, the Volga was originally called Ranha. Eranvej was the range between Ox and Yaksart. According to Andreas, Eranvej is Khorezm (Hvarism), Benvenist and Herzfeld continue their ideas and later claim that Khorezm was the first homeland of the Aryans. Nürberg puts forward his hypothesis that Eranvej is Khorezm, the place where the Gat community originally originated, and as a result of their conquest of new lands along the Amu Darya, this place became the sacred mythical land of the Zoroastrians. Eranvej and Turan are one country - Turkestan. This place became a paradise and later became an uninhabitable place, forcing the Aryans to take over another land, i.e. the land of the Aryans became Turan, the land of species that was not the land of the Aryans. Academician A. Askarov's opinion is correct. The ancient inhabitants of Khorezm, the Amirabods engaged in agriculture, the Kuisoys engaged in cattle-breeding did not build any monumental structures until the VI century BC, i.e. before the arrival of the Khorasmian tribes.

Under the pressure of the Achaemenids, the Khorasmians settled in the lower reaches of the Amudarya in the Helmand Valley, and as a result of the flourishing of sedentary farming culture, monumental towers surrounded by complex defensive walls such as Kozalikir and Qalaliqir were erected [Askarov, 2004. - P.7]. Indeed, in the 50s of

the XX century, the discovery of the monuments of Kozalikir, Qalaliqir, Koykirilganqala, the inclusion of the ideas of "Avesto" in the strong religious beliefs in the oasis is clearly reflected in the construction of archeological materials and monuments [Tolstov, 1948. - p.102-132].

## RESULTS AND DISCUSSIONS

However, since the Bronze Age, the Khorasmians had cultural contact with the people of Ancient Bactria and Margiana and mastered a high culture of farming [Askarov, 2004. - p.76-84]. Their location in the Khorezm region and the important role of Zoroastrianism in the formation of the first state associations led to the formation of city-states such as Kozalikir and Qalaliqir. Beginning in the 1930s, the study of the ideas of the Avesto on the example of archeological materials led to the confusion of the historical conditions of the Early Iron Age with the historical conditions of the Bronze Age. However, the current archeological evidence shows that the emergence of Zoroastrianism in the territory of modern Khorezm is not older than the VI century BC. This evidence shows that the Khorezm oasis was an important region after the VI century BC as a prosperous region of Zoroastrianism. Given that Eranvej also includes the northern parts of the present-day Aral Sea, the Bronze Age monuments discovered here, including the Tozabogyob culture and the Tagisken cemetery, have shed some light on the subject. Archeological excavations carried out by Russian FA scientists have uncovered the Sintashta and Arkaim archeological complexes in the south-eastern region of the Ural Mountains, which were monuments of the Bronze Age. Academician V.M. Masson notes that the first migration of the Andronovo culture began in the Tozabogyob culture and along the Aral Sea, between the Amu Darya and Syrdarya rivers, in southern Turkmenistan, i.e. in the Murgab oasis and the basins of the south-eastern Zarafshan River [Complex Society of Central Eurasia ..., 1999. - P. 72]. Indeed, according to M. Boyce, the earliest roots of the religion originated among the fire-loving herdsmen, who began to take shape 3,500 years ago as the religious beliefs of the people of the Asian desert. Therefore, the founder of religion, Zarathustra, assumes that he lived in the distant past, that is, between 1500-1200 BC. His followers also forgot when and where Zarathustra lived. The religion he founded was the state religion of the three great Iranian empires from the 6th century BC to the 7th century AD [Boys M., ... - S. 3-6]. His views on the first of the countries mentioned in the Videvdat was Aryanam-Vayja [Reader on the history of the Ancient East ..., - p. 71-73], the area where the original Zoroastrian communities were formed,



inhabits the Aral Sea and its northern regions. The long winters here and the scarcity of pastures are inconvenient for livestock, forcing these communities to move south. They searched for new lands and moved to the country of Gava (Sogdiana) in the Zarafshan valley, which they "created" in Ahuramaz [Boys M,... - S. 72], to the country of Mouru (Margiyana) in Southern Turkmenistan [Reader on the history of the Ancient East ..., - p. 71-73], The country of Bakhdi (Bactria) in the territory of Southern Uzbekistan [Reader on the history of the Ancient East ..., - p. 71-73]. Hence, the first Gath communities of Zoroastrians were the desert peoples, and the earliest notions of Zoroastrianism emerged among these communities, and from the Bronze Age onwards, they began to take the form of an official religion among the settled population. Accordingly, the archeological materials of the material culture of Arkaim and Sintashta, Sopolli, Dashtli, Tugalog, Gonur cultures require a philosophical approach from a historical point of view. This is due to the fact that the customs of the land and culture associated with the burial of corpses, namely, the fire-worship at the village level, and later the city-state proto-Zoroastrian temples, gave rise to the materialism of the countries mentioned in the Avesto. creates opportunities for formalization. The materials of the ancient monuments of Bactria and Margiana show that in the Bronze Age there were significant socio-economic radical changes in human history. As a result of the separation of agriculture from animal husbandry, there was a division in the peoples, which originally had one ethno-cultural stratum, and in the Bronze Age there were two cultural and economic forms in the peoples of Central Asia. The first roots of Zoroastrianism began to appear in the bosom of primitive communities before the cultural and economic division took place. The period in which communities began to move from subsistence farming to productive farming coincided with the Eneolithic period in Central Asian conditions, when domestic animal husbandry played a major role in economic life. Therefore, the idea in the Avesto, that is, that the main symbol of wealth is defined by livestock, religion first appeared among the herdsmen [Reader on the history of the Ancient East ..., - p. 8], was motivated to consider it reasonable. Archaeological excavations in ancient Bactria, Sogdiana, and Margiyana since the 1970s have clarified the notion of monumental Zoroastrian temples and the Dahyupati state administration.

## CONCLUSION

In conclusion, we can say that the idea in the Avesto was the main symbol of wealth defined by livestock, religion first appeared among the herdsmen

was motivated to consider it reasonable. Archaeological excavations in ancient Bactria, Sogdiana, and Margiyana since the 1970s have clarified the notion of monumental Zoroastrian temples and the Dahyupati state administration.

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## **REVIEWS OF CENTRAL ASIAN ROCK ANALYSIS (On the example of Zarautsoy rock paintings)**

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### **ABSTRACT**

*New stone paintings were found in the streams around the Zarautsoy rock paintings. These stone paintings are characterized by bronze and iron periods. This proves that Zarautsoy rock paintings are ancient.*

**KEY WORDS:** *Zarautkamar, Zarabog, Gadoytopmassoy, Shalkonsoy Uzbeksoy, Karabogsay, Qizilolma, Dara, trap, Middle Ages*

### **INTRODUCTION**

Among the examples of cultural heritage created by the peoples of Central Asia, rock paintings are the most valuable sources, which are works of historical art inscribed on stone. To date, the location of more than 300 rock paintings in the Central Asian region has been identified and recorded. About 180 of them are located in Uzbekistan. Nevertheless, of all the rock paintings found in Central Asia, the most ancient and uniquely vital work of the Zarautsoy monument still deserves attention and recognition.

### **MATERIALS AND METHODS**

Zarautsoy art monument became known to science in 1939. In the study of Zarautsoy

I.F.Lomaev, G.V.Parfyonov, A.Yu.Roginskaya, A.S.Kirillov, A.A.Formozov, A.P.Ivanova, V.K.Sandul, Sh.Ismoilov and A.Kabirov M. The Khojanazarovs did a great job. Zarautkamar Cave is located at the level of Zarautsoy on the slopes of Kuhitangtog and is part of the mountains in the south-western part of the Gissar mountain range. It is located in the northeastern foothills of Kohitangtog, 110 km northwest of Termez in the Sherabad district. Zarautsoy is administratively part of the Surkhan State Reserve in Sherabad district. It is located 30 km northwest of Sherabad, Surkhandarya region, 5 km south of the village of Zarautsoy Kizilolma, and its altitude is 2000 m above sea level. (Figure 1)





In 1940, the Moscow-based *Vestnik Drevney Istorii* described it as the first find in Central Asia of ancient beautiful rock paintings. The documents of the expeditions conducted during the Second World War (1943, 1945) examined 264 photographs in 26 belts. G.V Parfyonov, who conducted research in Zarautsoy, initially identified and described 48 different figures. G.V Parfyonov determined the age of the small bull figures found in the lower chamber as the Madeleine period of the Upper Paleolithic. G.V Parfyonov tries to prove that the main paintings of Zarautsoy are the product of the work of Paleolithic artists. A.Yu. Roginskaya also supports his views. Even the participant of the expedition, the artist A.Yu. Roginskaya, originally published a pamphlet "Zarautsoy" in Russian in 1950. Zarautsoy's paintings are the product of Stone Age art, a rare example of rock art in natural color. There was a debate in scientific circles in Moscow about the period of creation of the color image of Zarautsoy. Zarautsoy rock paintings contain interesting images: images of people wearing masks. Of the 25 people pictured, 19 are people wearing masks. The masks had wide conical caps and an ostrich look.

## RESULTS AND DISCUSSIONS

Researchers who have studied these images have different interpretations. Hunters used wild spruce blankets to encircle wild bulls grazing in the pine forests and then shoot them. A. Kabirov notes that in the past, when masked people approached an animal during a hunt, in order not to frighten them,

they tied the animal's skin on it and a horn on its head and entered its image. Some tribes still use hunting as their main occupation. A similar scene can be witnessed in Zarautsoy. Between Zarautsoy's paintings the interior is covered with dots. The image of the circle can also be interpreted as a trap. In 1964, AA Formozov tested samples of minerals of the Zarautsoy River in a color similar to ancient paintings near the cave and examined them in the laboratory of the Institute of Geology of the USSR Academy of Sciences in Moscow. The paint consists of quasi-sulfur and ferruginous cement with a high iron content of 24-32%. A.A. Formozov expresses the reasonable opinion that the bows and dogs in these paintings could not have existed before the Mesolithic period. AP Okladnikov also agreed with the above opinion that the presence of arrows in these hunting scenes is a Mesolithic period. Indicates that it is possible. After all, the bow and arrow rose to the level of the main weapon of hunting in the Mesolithic. AA Formozov noted that the oldest paintings of Zarautsoy are typical of the Mesolithic, Neolithic and Eneolithic periods.

In 1970-1980s, Uzbek archaeologists such as J. Kabirov, M and The Khojanazarovs conducted research in Zarautsoy. The latest research documents (photographs, images and copies of records) were conducted by Khojanazarov. Khojanazarov identified 8 caves instead of 27, as previously done by Formozov, Khojanazarov identified 3 groups that differed in color, repertoire and style in Zarautsoy and stated that they corresponded to the Mesolithic and Bronze Ages. From ancient times the





Zarautkamar cave and its surroundings have been associated with religious ceremonies. Before hunting, our ancient ancestors worshiped these Zarautsoy rock paintings, Zarautkamar cave was considered a sacred place. In 2015, another important innovation was made in the study of the history of primitive art in Surkhandarya. Sh.B. Shaydullaev and The Uzbek-Czech international archeological expedition led by L. Stancho who has found new stone paintings near the village of Zarabog, 10 km from the mountainous Zarautsoy in the Sherabad district. As a result of our research, in 2015-2019, near the village of Zarabog from 7 streams: Gadoytopmassoy, Tapaqiyasay, Kayritsay, Karabogsay, Kampirtepasay, Shalkonsay and new paintings engraved on stone from the



Uzbeks. These rivers connect the villages of Karabakh, Kayrit, Shalkan, Kampirtepa and Qiziloma. Zarautsoy starts from Kohitangtog and leads to Karabakh village. It flows from Karabakh to the Sherabad River. In spring, the river is flooded. In 2 streams near Zarautsoy, new rock carvings were found. Uzbeksay is located in the south-western part of Zarautsoy, 1 km away. Starting from the Uzbek village of Kyzyloma, It is connected with the village of Zarabog and the Karabakh mountains. Karabakh is located in the same stream as Zarautsoy. Zarautsoy starts in the big mountains and ends in the hills. Karabakh starts from the hills and goes to Maidonsay. The pictures found in Karabakh show more pictures of mountain goats. (Figure 2)



New paintings found in the streams of the Zarautsoy area indicate that the Zarautsoy rock paintings are ancient. As for the chronology of Zarautsoy rock paintings, they are paintings from the Mesolithic to the Middle Ages. The reason is the pictures drawn in each period. If we pay attention to the articles of Z. Jasieviks and A. Rozvadovsky, Zarautsoy tried to prove that the rock paintings belong to the Middle Ages by connecting them with ethnography. True, there may be ethnographic similarities, but pictures painted with red pigment are different. For example, we can see that the pictures of the hunting ceremony are ancient.

Pictures are drawn here in each period. Medieval Arabic writing and paintings can also be found in these paintings. Based on the above information, we can conclude that Zarautsoy rock paintings serve as an important source in the study of the history of primitive art in Central Asia.

## CONCLUSION

In conclusion we can say that it is time to re-examine the Zarautsoy rock paintings on the basis of modern requirements. After all, the last expedition was carried out in the 70s of the last century, and the main work consisted of copying from pictures to

transparent paper. Today, however, sensitive and extremely powerful electronic cameras have emerged. Lights, on the other hand, allow you to re-take photos, discover new images that were previously unknown. In modern laboratories, we can analyze images painted with stone and red pigment, but also add more precision to its period. New stone paintings were found in the streams around the Zarautsoy rock paintings. These stone paintings are characterized by the Bronze and Iron Ages. This proves that Zarautsoy rock paintings are ancient.

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# KADIR HABIB “EARTH” AND “THE QUR’AN THE IDEA OF THE FAIRY TALE” THE MAN IN THE MIDDLE”- THEMATIC FEATURES

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## ABSTRACT

*When we begin to analyze a work of art, we must first be able to distinguish between what is depicted and what is perceived artistically. For some reason, in literary works, these two do not always coincide: one can be perceived as something else without a description. Therefore, the content of a work of art is understood in the unity of the described and perceived. In the works of Qadir Habib, we also encounter the fact that what is depicted and perceived is not exactly the same. This, in turn, shows the skill of the writer.*

**KEY WORDS:** land, land reform, government, owners, poor, evil, kindness.

## INTRODUCTION

The author will enrich with his personal experience the individual facts accumulated by him on the basis of a certain idea, enrich them, enrich and generalize, inherent in many. That is, based on a clear idea, the writer breaks down, sorts, sheds, generalizes individual things in life and creates something alive, natural and unique beautiful. The created work (leaf) clearly demonstrates to the reader before his eyes, completely captures the reader's imagination.

## MATERIALS AND METHODS

One of the stories belonging to Kadir Habib, is a story "زمین" "earth" - "earth". The story tells about the land reform carried out in the second quarter of the XX century during the time Of the democratic Republic of Afghanistan, and the conflict of owners who oppose it. The reader, reading this story, can conclude that he needs it in accordance with his age and worldview. In other words, this story of the writer is among the works that are considered interesting for people of all ages. But, as a literary critic, our main task is to give the reader a complete analysis of the veracity of this story, it has a deep essence, a hidden idea.

In the story "earth" images of heroes are given, from a simple representative of the Afghan people to a representative belonging to the burakrat class, and it is clear that the writer has set himself firm goals. In particular, political, social, economic, and spiritual goals also wanted to convey to the

reader such ideas as equality, patriotism, and the desire for justice. It is not surprising that the main literature that we analyze is also called the story "Earth".

The main theme in the story is about the earth. That is, the heroes of the work will be a lot of land owner named Molek Kamoliddin. He also has a wife, ikta, a servant who portrays herself as a dark person, but at the same time a sad person. The government wants to pull univerov. And Molek Kamoliddin wants to keep his land from the government. In this story, the writer is so engrossed in mystery that a character whom the reader considers a positive hero suddenly turns out to be a negative hero, and an event that he considers a good deed is manifested in evil intent.

ملک کمال الدین در طول چهل و دو یا چهل و سه سال عمر پر ماجرایش هیچگا مانند آن شب خودرا درمانده و تنها حس نکرده بود. [1,].

*"Molek Kamoliddin did not feel tired and helpless like that night in his life full of conflicts until he was 42 or 43 years old."*

This section describes how the hero of our story got into an inverted situation. The author hides from the reader his original purpose when he begins the work with these lines. Negative characters are portrayed as positive characters, as supposedly people who have been subjected to the cruel injustice of life.

That is, Molek Kamoliddin will forcibly own a large land and will go against the just decision of the government and will take revenge on impious,



pious people, that is, positive heroes for his benefit. And the government wants to take away the land they illegally occupied and make it fair for the poor, poor, Landless, unemployed common people. The person who did this was a character named Gul Mohammed, a representative of the party. (It should be noted that the epigraph of this work tells that the story was written for the twentieth anniversary of the favorite party). The story clearly shows that Qadir Habib condemns the traditional customs characteristic of the middle Ages in Afghanistan. The harsh living conditions of the common people, the recklessness of people who fell into the abyss of injustice, were expressed by the writer in a sad way. The perception of the main idea behind these images refers to the reader himself.

بیست و هشت ساله بود و سخت تیز هوش و باغمهای زورمند زندگی آنقدر بغل داده و بالیده بود که قامت کشیده و شانه های بردارش به سختی در پیراهن کهنه ملک کمال الدین جای میگرفت. [2]

*"Ему было 28 лет. Из-за того, что он значительно потерял здоровье из-за беспокойства о суровой жизни, егогибающиеся плечи едва уловили старую рубашку Молека Камоллидина."*

This passage describes the situation of Hanif, who was sentenced to a hard life. In these sentences, the writer pointed to the condition of a simple Afghan boy who had to endure the agonizing trials of a ruthless life.

Through this story, the writer seemed to want to show the reader the inevitability of the victory of good over evil. While reading the story, the reader searches for answers to the questions under the puzzle from beginning to end. Hussein, the possessions that accompanied all the weapons, the human helpers needed by the Uzi, when Kamaliddin began the task he had set for himself, nothing was visible along the way. Among the people who followed him was his servant named Hanif, who had been orphaned by his father since childhood and lived painfully with his mother. The author used such word games in the story that at the end of the work everyone goes to Hanif. That is, Hanif decides the fate of the story.

هنگامی که ملک ماشیندار را از دست نادر گرفت حالش اندکی به جا آمد و دلش آرام گرفت و آنگاه سرفه بی کرده با غرور نیم نگاهی به همراهان خود افکند. نادر گفت:

ملک سر گروپ اس. امر ملک امر مه س امر مه امر قوماندان اس. عملیات که خلاص شد سلاح هر کس پیش خودش. مسولیتشام در گردن خودش. فامیدید؟ حالی دگه برین حق تالا یارتان. [3]

*"Molek felt a little calm as he took the gun from redir's hand. A little, but with pride*

*reflected on his face, he caught the eye of his companions, coughing.*

*Nodir said:*

*- Molek is the leader of the group. The MEC command is my command, and my command is the command line. When the plan ends, each person's weapon is in front of them, and the responsibility lies around their neck. Do you understand? May Allah be your companion."*

This Fragment describes that he was caught by a government employee named Nodir Molek Kamoliddin, who provided a rare molecule with a weapon, commanded the molecule, and gave it the most important weapon-a pistol. In this part, Qadir Habib criticized them for demonstrating to property owners and unfair government officials who oppose the political situation in the state.

Molek Kamoliddin and his assistants as 4 warriors who want to kill Gulmahmud and destroy his decisions reach the castle where Gulmahmud lives. Upon arriving at the fortress, Molek Kamoliddin orders Hanif to enter Gulmahmud's house, which exceeds the fortress wall, and gives him a command pistol in his hand, ostensibly handing over command to him, ostensibly trusting Hanif with his entire life. Hanif finds the strength not to touch the heart and almost jump over the wall. He had to jump over the wall, find out the situation inside, and open the gate for those outside. Once Hanif is superior to the wall, Gulmahmad listening to their conversation, looking out the window of the house where he sits with his family.

زنش خندید:

-زمینشه که میگیرین بی احترامی نیس؟ دق نمیش؟

گل محمد به قهر شد:

تو چتیات مگی زن! زمینشه از روی قانون

حکومت میگیریم از روی کتاب خدا میگیریم... کدامشان کت قوالی زمین از شکم مادر بر آمدن؟ مه امی زمیناره دموترقای گرمی کت عرق پیشانیم او ندادم. یادت رفت؟ حکومت دیروز چشمش کور بود نمیدید. بر مفت خوار میداد مگرم حالی بر کسی میته که حقش اس انصاف خدایی خوده امی قانون اس. کت امی شکمت چند دغه پیش چشم از حال رفته باشی؟ آخر مام اولاد آدم استیم. مام زن و اولاد خوده دوست داریم؟ دق میشن دق شون زاریشان بتترقه مگرم مه گپ حزب خوده دوست دارم او ره ده زمین نمندازم. تالی ار چی گفته کدیم ضرر ندیدیم از ی بیبا دام میکنم توکلم به خدا... [4]

*"The wife laughs:*

*- Disrespect if you take the land? Don't get upset?*

*From the wrath of Gul Muhammad:*

*"What are you saying, wife? We take the land by the law of the government, based on God's book. Some of them lowered the mother from her belly from the ground. Didn't I water these places with my forehead skin in the heat? Remember? Yesterday, the government's eyes were blind, did not see, gave them to the Tekin*





people. It's good that now it gives the person who has the right. In this case, how many times have you been unconscious in front of me? We are also a human child, and we love our family. Let the sadness melt away. But I love my party, I don't leave an offer on the ground. We were not harmed in deciding the fate of each case. Now I'm setting a trap for them. I rely on God."

In the above passage, Gul Muhammad explained to his wife what actually happened. As this example shows, the Afghan government has for many years violated the rights of ordinary people and supported a layer of property owners. And thanks to such just and humane, humane, humane, intelligent people as Gul Muhammad, the truth was solved. It is not a mistake to say that Qadir Habib was able to deliver this to his reader.

While listening to the conversation, he learns the true truths. Gulmahmud lived a quiet life with a 3-year-old child and a pregnant wife. It was as if he had clarified the original reality during the conversation with his wife while answering the questions asked by his wife. One by one, he explains to his wife that the reason why all violent landlords take away extra land from them is that they want to give these lands to widows to poor, simple, poor, landless people. At this time, people who divide the land received from the owners begin to read the list with the name. We also noted above that Hanif ZIM listened to all this. While reading the list gulmahmad hears that Hanif has its name in the list. In these moments, he understands what the main thing is. Then he is embarrassed to do what he firmly thinks. Now, when he opens the door to those outside, he thinks that everything will be destroyed, the property will reach the head of Kamoliddin Gulmahmud and his family, that he and other poor people like him will again be left without land, oppressed. He finds the strength. After opening the gate, a man approaching the house of Gulmahmud, who is pursuing evil goals, shoots Kamaliddin with a gun that he gave him. He is startled by what he has done, and begins to wander down the street until he feels a strange humiliation, a release, until his head is sewn into the sky by lustful footsteps.

در همان حال دستهای لرزان سپیدارهای سالخورده ده به دعای سلامتی خنیف بلند بود. [5]

- *At the same time, the trembling branches of the village poplars prayed for Hanif's health.*

When the work was finished with these words, we were struck by the fact that it hides some meaning. It's as if this very statement revealed all the secrets to us. Look at the skill of a writer who doesn't reveal it until the last moment of the story. At the end of the story, all the secrets are revealed. The negative

characters turn into heroes, and the positive-negative characters, negative-positive characters. And the character depicted as cowardly, indecisive, becomes the hero of the whole village.

"The skill of the writer," writes I. Sultan, says that the idea is to find words and phrases that can most accurately and vividly express the described subject and mental state." "A wonderful feeling in the language of the writer, when they hit the shaft, when they do not find warm, attractive words that give them the reader's pleasure, the language of the writer is not truly artistic, any creative plan also becomes Haifa" (p. Kodirov, "thoughts", p. 128). Indeed, Qadir Khabir used such word games that at the last point in the story "Earth" everything will be revealed. In this story, the author has put forward g'oya to show the reader that evil is bound to face the devil one day. Also in this story, Qadir Habib, as if, leads a righteous life, does not oppress Targ'ib.

Although literary studies study the artistic heritage of Qadir Habib, the mastery of word usage and stylistic aspects, the compositional construction of his works and the analysis of ideological trends, based on the requirements of the time, we still cannot say that they fully study the artist's contribution to artistic thinking. Of course, there are certain reasons for this. In particular, when studying works of art, little attention was often paid to the extent to which pictorial art prevailed, and to what extent they contributed to the formation of a creative style, the emergence of artistic and aesthetic ideals.

Although literary studies study the artistic heritage of Qadir Habib, the mastery of word usage and stylistic aspects, the compositional construction of his works and the analysis of ideological trends, based on the requirements of the time, we still cannot say that they fully study the artist's contribution to artistic thinking. Of course, there are certain reasons for this. In particular, when studying works of art, little attention was often paid to the extent to which pictorial art prevailed, and to what extent they contributed to the formation of a creative style, the emergence of artistic and aesthetic ideals.

The author's interest in national traditions, traditions, and ceremonies is also noticeable. N.Yarachova *lingvokulturologischeskom* explores these national-cultural aspects. [6, p.139] National clothing of heroes: red shirt, forehead, jewelry from ancient coins, which will be described in detail.

منیسه چادر یاشمنی خود را از سر گرفت و با عجله [7, p.40] دور دست شوهرش پیچید.

"Munisa took the purple scarf from her head and covered her husband's hand".

The writer's attitude to each type of





nationalism indicates his romantic inner world. "Enjoying national identity" is one of the characteristics of romantics. But in the works of Kadir Habib, in contrast to the usual romantic concept of the individual remains high. It is obvious that in his work the romantic worldview of the national sample is combined with epic traditions.

## RESULTS AND DISCUSSIONS

Another story that demonstrates the skill of Qadir Habib is called "Baradari Koroni" – "the man who put the Koran in the middle." With this story, the writer raises to the sky such concepts as patriotism, humanism, love, loyalty. In the story "The man who left the Koran", the writer showed how Patriotic the Afghan people are. In work, the doctor and his wife Bilkis live in Kabul. They are described as a young family that respects, loves each other, constantly makes decisions together, and lives a sweet and sweet life by mutual consent. Bilkis' mother, sister, and other close people live in America, and they also invite them to live in America. Bilkis agrees to this offer, but the doctor does not agree. The development of events in the story is also being conducted to address this issue. The doctor is described as a man who builds his country, profession, and wife more than his soul. It was thanks to this character that the writer embodied the image of the ideal Afghan guy. The doctor also takes care of his wife and will always live with her in peace. As the Qur'an vows to end Karim, he is also dying in his profession and always tries to treat his patients responsibly. When his wife suggests that he go to America, he can't afford to leave his homeland, his mother's land. His wife Bilkis tries to persuade her husband to do anything.

بلقیس نگاه غضبناک و ملامتبارش را در چشماهای  
داکتر پاشید اما چیزی نگفت و رویش را به سوی دیگری دور داد.  
ابروهای داکتر پر چین شد:

طفل نشو بلقیس! چند صباح پس ما در میشی...  
چشم و گوش ته واز کو. مثل یک مادر عاقلانه فکر کو. [7]

"Bilkis got angry and threw his  
egregious looks into the doctor's eyes, but hitch said  
nothing, and he turned to face the other. The doctor  
said that the eyebrows stick out:

*Don't be a little child! This has been the  
case for several days now. Hungry eyes. Just think  
intelligently, like a mother."*

The doctor believes that the place where a person was born and grew up is his native land, and his departure is a betrayal of the Motherland and the people. And his wife, on the contrary, had the idea that the Earth would remain her homeland if a person lived well and lived a full life. Therefore, Bilkis tries to return to America, abandoning their homeland.

سکوت سنگینبیر اتاق خیره شوده بود و هر چندگاه

بعد یکبار از دور دستها سدای فیر تفنگی تا پشت ارسی میرسید و  
ارامش اتاقرا بر هم میزد و بار دیگر غبار سکوت فضای اتاقرا می  
انباشت. داکتر از کنج چشم به بلقیس نگریست که در سقف اتاق به  
جایی خیره شده بود و قطرات اشک از دو گوشه چشمش به اشاره  
کرده گفت:

-عصبانیت و گریه برت خوب نیس. تو چرا نمی  
خایی که گپ دل مه بفا می بلقیس؟ [8]

*There was a great silence in the room,  
and each time the sound of a rifle shot was heard  
through the window and broke the silence of the  
room. The doctor looked at Bilkis in private. Bilkis  
sat in the attic of the house, tears dripping from the  
edges of both eyes. Hand in hand, Bilkis wiped away  
his tears, pointing at the dogar in his nose:*

*"You can't afford to be nervous and cry.  
Why don't you understand what I'm saying, Bilkis?"*

## CONCLUSION

In General, this example shows the state of the heroes of our story. Qadir Habib reminded his reader of the unrest in Afghanistan in connection with the shooting incident given in the fragment. He described how the Afghan people, along with their family problems, have to get used to such unrest in their countries. This shows how educated, patient and Patriotic the Afghan people are. A sense of patriotism can be inherent in every nation. But the patriotism of Afghans is unusual. In particular, the heroes of our story also know that it is right to leave it because of the hardships on their land and start a peaceful life in another peaceful area. But they prefer to stay in Afghanistan because of their love for their Homeland, their peoples, and their native land. For them, especially for the heroine of our story, the doctor, it seems to be a betrayal, Dec's betrayal of himself, abandoning his countrymen, the land he needs.

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قديرحبيب "برادر قرآنی" داستان."زمین" قديرحبيب  
*The story of "Earth, "The Man Who Placed the Quran  
in the Middle." P.152*

قديرحبيب "برادر قرآنی" داستان."زمین" قديرحبيب  
*The story of "Zamina", "The Man Who Placed the  
Quran in the Middle." P.156*



## **PERIOD AND EDUCATION OF THE NATIVE LANGUAGE**

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### **ANNOTATION**

*Language is a means of communication between people, it is a unique cult given to humanity. Education of the native language in all corners of the world has always been considered as one of the most important processes of raising a human child by a human.*

**KEYWORDS:** *native language education, information communications, innovative technologies, dictation, the syntax of speech.*

### **INTRODUCTION**

In the history of mankind, in ancient schools, which were considered a primitive of the great institution called a school, that is, at the beginning of the third Millennium BC, various sources mention that one of the two pillars of the first education was the lessons of the native language (the second-mathematics). This means that for at least five thousand years the native language has been taught in certain systematic lessons. We can say that since then, the human mind has not ceased to teach the child to their native language and since then to look for the most convenient and effective ways to learn it.

### **MATERIALS AND METHODS**

The new socio-economic conditions that arise as a result of the steady development and gradual improvement of tamaddun open up great opportunities for further improving the effectiveness of training, and certain rules, of course, stagnate as the most acceptable method of training, become outdated. Because of the new socio-economic conditions, new methods of teaching will be sought. In short, native language education (education in General) is a kind of process that develops and improves regularly in accordance with modern needs.

By the end of the twentieth century and the beginning of the twenty-first century, humanity had reached such a high stage of development that the relations and interdependence of this Pallas with various remote States and peoples of the Earth changed dramatically in terms of quality and quantity, that, admittedly, the scale expanded as much as one might think. There is no doubt that these large-scale processes, called globalization, which lag behind dogmatic concepts of intensity, have a number of incomparable aspects that give comparative power over universal progress. Naturally, the driving force behind all the renewal and progress in the world during this period is information technology. Today, there is practically no sphere in the world that has not been penetrated by information and communication technologies. Of course, as important and majestic a front as education, which is the basis of any progress, cannot remain outside of these processes. This is a fact that is fully recognized by the world community.

In modern teaching of the Uzbek language, special attention should be paid to the national mentality, national values, traditions and age-old traditions. The author's interest in national traditions, traditions, and ceremonies is also noticeable. N.Yarashova, R.Yusubova lingvokulturologicheskoy



explores these national-cultural aspects. [1,p.139] Since the native language is the spirit of the nation, it was taken as a basis in its education and found its expression in textbooks. For example, in grade 7, special attention will be paid to the study of speech types in accordance with the goals of expression, the creation of texts, work on the text, the formation of competencies that correspond to our national values, traditions and centuries-old traditions, and their practical application in professional and social activities. In the study of the text of "Vatan" given in the textbook of a native language, it is necessary to understand what a homeland, a sense of homeland, love of country, in General, the word "Watan", as noted in the text, absorb the concept of "love of the Motherland is faith", indicate the educational purpose of the lesson to educate students in the spirit of love and devotion to the Motherland, to absorb such a sacred and a sublime feeling of love for the Motherland mother to keep the Home and to make its full appeal to the slander pursues the educational aims. This means that when teaching language education, it is necessary to pay special attention to the national mentality, national values, compliance with our traditions and age-old traditions, and the formation of competencies for the practical application of methods in professional and social activities. Modern, innovative pedagogical technologies play an important role in the development of language education. Therefore, even those who are responsible for language education always stand on a break. The most serious of them is the formation and improvement of teachers' spirituality. And the best educational technology in this direction, based on modern knowledge and applying it in specific conditions, is able to direct students to appropriate goals, support independent and creative initiatives in them. True to the profession, a teacher should always take care of the phonetic race of his speech in order to create an impeccable and valuable image of the teacher in front of his student, to preserve it.

## RESULTS AND DISCUSSIONS

Our country has also adopted a number of policy documents on the accelerated and consistent implementation of information and communication technologies in various spheres of society at the direct initiative of the country's leader, and concrete practical work is being carried out to fulfill the instructions in these documents. In Uzbekistan, of course, it is difficult to find an educational institution that has not been penetrated by computer technology and is not equipped with such equipment. In General, information and communication technologies are used in language education.

In native language education, effective and rational use of information and communication technologies, innovative forms of lessons, as well as ensuring the harmonization of this education and language education is noted.

## DIGITAL DICTATION

One of the innovations of innovative pedagogical technology is digital dictation. These dictation lessons in the native language open the way to the integration of science with mathematics, while developing the intellectual abilities and independence of students in the classroom. The use of these dictations, in particular, when studying sections of linguistics, allows readers to interpret and independently understand the grammatical features of speech. Based on this, in order to organize grammatical phenomena in the Uzbek language and their relation to the study, the reader can recommend repetition in digital dictation.

The following dictation can be done by drawing readers' attention to the simple syntax of the sentence in the process of learning. At the beginning, the dictation words are pronounced expressively. After each word in parentheses, the task is to find the specified number of grammatical properties of these words based on the given numbers. Depending on the number of students in parentheses, after writing the dictation, the spelling of events related to this grammatical term is set.

## DIGITAL DICTATION USING A SIMPLE EXPRESSION

### Sample:

Vernacular (4) syntax (5), the expression (5), shouting (4), introductory words (3), phrase (3), types of simple sentences (5), types of sentences by purpose sentences the expression (5).

Phrase (5):

- 1) the phrase - a phrase is formed from the connection of separate words in speech;
- 2) phrase - must be at least two independent words;
- 3) phrase - these words must match the meaning;
- 4) phrase - one of the words follows the other, that is, obey;
- 5) word combination - auxiliary and auxiliary words should connect independent words and parts.

Summing up, we can say that such samples of digital dictation will undoubtedly be very useful in determining the vocabulary richness of students, expanding their ability to work on a word, and developing an independent Outlook of thinking.

Knowledge of the content of each word forms students' desire for knowledge, increases their interest in science.

For example: skip the exclamation subject.



1. explain that a consonant is a word that is not grammatically related to a preposition, write, or punctuate.

2. Formation, education of a respectful attitude, ability to reason, respect the person to whom the speech is directed.

3. Development of the reader's thinking, repetition of the previously mentioned topic.

Meaning: exclamation, introductory - these are words that do not come into contact with a part of speech. About them, the third group instructs students to make sentences with these words, say introductory, exclamation words, and explain their additional meaning, which they add to the content of the proverb.

My God, come to this dream. Go to this dream. Safarian, where are you going?

You need to explain the difference in the content of these phrases.

Last task: Zarifa read a book. Zarifa, book arrow. in a sentence of type, an adverb function is set, signs are requested, and the difference between consonants and possession is required to be explained. Possession is completely different, and exclamation is a word that has nothing to do with the possessor, and the meaning of the vowel is revealed at the moment of speech.

Uzbek language classes based on innovative pedagogical technologies not only increase the effectiveness of language education, but also become an integral part of it. A teacher who organizes classes with the participation of modern technical means will quickly get a clear idea of the students' knowledge, attitude to friends, culture of treatment, sphere of thought, richness of words, and speech potential. Lessons based on innovative pedagogical technologies create conditions for making decisions about equal, friendly relations between students and teachers. The reader feels at ease in the classroom, shows interest in classes, passion for verbal art, and encourages creativity.

Our Methodist teachers develop new and new tools to improve the effectiveness of lessons, based on modern teaching tools and methods of their implementation in the educational process.

O.Saidakhmedov in the article "universal model in language education – the use of an intellectual map" revealed the essence of the technology for creating an intellectual map: "... one of the universal models is the smart card.

Intelligence is an excellent tool for conducting map shows, making decisions, planning your time, remembering a large amount of data, mental attacks, introspection, developing complex projects, self – learning, development, and solving similar problems. The first experiments on the use of smart maps in textbooks were conducted by Tony

buzen. T. Buzen in his work "Supertinking" (higher thinking), in which intelligence determines the details of the map:

1) the main idea, problem, or word is placed in the center (this is in the form of an image, symbol, or word);

2) images should Express a Central opinion;

3) each network should be marked with different colors;

4) only colored pencils or markers are used when making the map;

5) main networks are linked to the main understanding in the center, while small networks are linked to the main networks;

6) only one keyword is written in each network;

7) it is desirable to use associative concepts when drawing up an intelligence map.

Applications of smart cards:

- creating clear and understandable lecture notes;

- achieve maximum efficiency when reading books/textbooks;

- writing research papers, term projects, and theses.

As part of your training, you can use the smart card to perform the following tasks:

- taking notes of lectures by listening;;

- writing articles / essays / term papers;

- analysis / understanding;

- memory.

Using the map allows you to:

a) promote the author's ideas well;

b) the ability to see logical errors and contradictions made by the author;

g) For the best analysis of the text;

e) fill in your thoughts.

Sometimes you need to remember some information (for long-term memory). Smart maps also help you do this, so you can remember 100 keywords instead of 100 pages of text. The map must be repeated several times so that it is stored in long-term memory. As a result, the learned material is strengthened in long-term memory.

In addition, smart maps allow you to collect all the information on one sheet in one eye. He does not pay attention to the pros and cons of a particular solution.

## CONCLUSION

Summing up, we can say that one of our necessary works is not only knowledge of the Uzbek language, but also understanding of the essence and phenomenon. Because in the process of knowing the essence of the phenomenon, the imagination of a person becomes broad, correct and clear. A unit of theory and practice will also be implemented. As a result of this approach, creative thinking is adjusted correctly. And using this opportunity requires experience and skill from the native language





teacher. This skill is effective only if modern innovative technologies are used correctly.

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# OUR CAPABILITIES IN FORMING THE TERMINOLOGY OF OFFICE WORK IN THE UZBEK LANGUAGE

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## ABSTRACT

*This article discusses internal and external sources of sector records management in the Uzbek language, their capabilities, characteristics and features, explains that the words related to the field office in the Uzbek language, representing a certain item and the concept of clerical, anciently used in the Uzbek language are common words that are part of the wealth of the Uzbek literary language. Referring to the works of Mahmoud Koshgari “Devonu lugoti Turk”, Yusuf Khos Hajib “Kutadgu Bilig”, Alisher Navoi “Muktamatul dictionary”, as well as Babur “Baburnoma”, it was noted in detail that they contain many words and terms directly or indirectly related to the office work of that time, and some of these words are based and proved on examples that currently serve as the basis for the formation of document names. It was also noted that dictionaries compiled in the language of these works show how a number of terms of office work in various fields of science have developed and developed, which indicates that a specific state system, the order of office work and documents, their style and vocabulary have been developed in Central Asia since ancient times.*

**KEY WORDS:** *internal capabilities, external capabilities, documents, office work.*

## INTRODUCTION

The terminology of the modern Uzbek literary language was formed on the basis of the centuries-old historical development of the Uzbek people and came to a modern form. Therefore, the terms in it coincide in different periods of origin and time of formation.

## THE MAIN PART

As you know, the composition of the dictionary of the Uzbek language consists of its own layer and the learned layer. Also, the sphere of terminology that makes up a certain part of our language, including the sphere of office work, has its own words and learned words of the Uzbek language. The internal source is the native layer of the Uzbek language, which includes words of the Uzbek language common to the Turkic languages, and words made on the basis of specific laws of the language, with internal capabilities.

In every language of the world, including Uzbek, the main source of the vocabulary of this language is the common language. Terms are usually formed from root words and base words. In this

process, the national language uses ready-made models (forms) of word formation methods that exist in the language, while other languages use words based on these models, adapting them to their models. [1]

Speaking about using the internal capabilities of the native language in enriching the terminology of office work, we should pay attention to the three cases mentioned above. First of all, each specific language, including Uzbek, will contain words related to the field of office work, representing a specific subject and concept in office work. These are common Turkic words that have been used in the Uzbek language since ancient times and are considered part of the richness of the Uzbek literary language. The second group of words related to the sphere consists of terms that are directly, not indirectly, related to office work, related to administrative-legal, socio-political, economic and other fields of activity, but are actively used in the field of office work. Finally, vocabulary units formed using various affixes to express concepts of office work are also an internal source of enrichment in this area.



Thus, a certain part of the terms of office work in the Uzbek language is made up of Turkic, that is, common Turkic words. The value of ancient written sources is extremely high when such words-terms appear, they are enriched, converted and brought to the present time in a certain amount. Such rare sources are the works of Mahmoud Kashgari "Devon lugatit Turk", Yusuf Khos Hajib "Kutadgu Bilig", a huge heritage of Alisher Navoi, in particular, "Maktabatul slavetin", "Moonshot", "Wakfu", "Baburnama", a number of historical works, Agahi.

In the work of the great komusian scholar Mahmud Koshgari "Devonu lugoti Turk", which is a joint monument to the Turkic peoples, there are many words and terms directly or indirectly related to the office work of that time, the main of which are:

*алим* – "the scientist borrowed debt" (17) [4], *алимчи* – "creditor" (17), *алимфа* – "the writer with the Turkish letter to the king" (17), *аркучи* – "mediator" (25), *барӣ* – "promise Covenant" (59), *бэ* – "king" (62), *бэклик* – "kingik" (69), *битигу* – "the debt" (70), *битик* – "borrower" (70), *битимегучи* – "bytovoi" (70), *будун башғанӣ* – "services team, the President" (76), *јарли* – "distribution" (116), *јарли* – "sailing line, the command" (116), *јумушчи* – "king, mediator" (141), *кэңаш* – "council" (154), *кэңашлик* – "consultation" (154), *кэңашисиз* – "without consultation, without council" (154), *күнлук* – "cobbler" (174), *күсүргэ* – "into the papers folder" (176), *манчу* – "salary" (178), *мараз* – "hired worker" (179), *мујанчилік* – "mediation" (180), *орду башӣ* – "the man in the service of kings" (186), *орунчак* – "deposited" (187), *оғур* – "II state, Station; IV cost; evaz, head-to-head" (191), *өтүнді* – "firewood, delivery" (201), *өтүнч* – "debt (ўғуз.)" (201), *сағ* – "message" (201), *самӣ* – "trade, commerce" (210), *самғуч* – "vendor" (211), *сэјиш* – "payment" (216), *тавар* – "brand" (240), *тајану* – "mediator" (242), *тамға* – "seal" (246), *тамғали* – "sealed" (246), *тануқ* – "witness" (247), *тануқлук* – "testimony" (247), *тархан* – "king" (252), *тэғшүт* – "place of residence" (259), *тэргі* – "salary" (264), *тифрақ* – "messenger, running" (267), *тирик* – "assembly" (271), *тирнәк* – "meeting place of people" (271), *төрү* – "I law, rule, justice; II picture, custom" (279), *тутруғ* – "testament" (286), *тутуғ* – "strangling of the voice" (287), *туғрақ* – "khan's seal (ўғуз.)" (289), *уқа* – "guarantee, guarantee" (309), *үлүк* – "share" (313), *хақан* – "king" (318), *хумару* – "I inheritance; II memorization" (318), *кур* – "career, level-chin, color" (377) and so on.

At the same time, the dictionary also contains verbs such as *ўаздӣ*, *бимиди*, *билди* /

*билдирди*, *көчүрди* which currently serve as the basis for the formation of such document names as *writing*, *notification*, *extract*.

It is interesting that out of more than 90 words designated in this dictionary as involved in the conduct of business, only one word – *Amir* (variant – *hamir*) is Arabic, the rest belong to the General Turkic layer. One of the reasons for this can be explained by the fact that the purpose of Mahmud Kashgari in compiling this dictionary is to reflect only the Turkic vocabulary of that time.

One of the rare written monuments that is not inferior to "Devon lugoti Turk" is the work of Yusuf Khos Hadjib "Kutadgu Bilig", which is important in the formation and development of the terminology of office work in the Uzbek language. In the explanatory dictionary compiled on the basis of a comprehensive study of this work, we found more than 120 words and terms that are directly and indirectly related to office work [3]. Unlike "devonu lugotit Turk", this word is a term in which there were 35 Arabic and 3 Forsh words among the terms. In the dictionary, therefore, in the work "Kutadgu Bilig" the main words-terms are:

*арічи* – "treasurer, silk clothing and fabric keeper" (18), *аяғ* – "address, nickname" (21), *алим* – "bait, scientist, what to take" (25), *amanat (a.)* – "deposited" (28), *асир* – "profit" (40), *асчи башӣ* – "chief programmer" (42), *ағунчи (s.+ чи)* – "king" (52), *badal* – "thereupon" (57), *barat* – "rank" (61), *baschi* – "head, chief" (63), *baslir* – "chief" (64), *beg* – "king" (66), *beglik* – "kingik" (67), *bilig* – "knowledge, science" (71), *bitig* – "book, record, letter, document" (73), *bitigchi* – "secretary" (73), *bitigü* – "pen, writing gun" (74), *bodun* – "people, population, people" (76), *buyruq* – "command, command, decision, position, rank" (81), *čarri (бее)* – "palace title" (88), *čawli (бее)* – "palace title" (90), *čiqiš* – "I chorus, Chor; II harajat, hrac" (94), *da'va (a.)* – "claim" (96), *daftar (ф-м.)* – "book" (97), *davat (a.)* – "tile" (97), *elči* – "ambassador, messenger" (103), *elig I* – "king" (103), *fariza (a.)* – "obligation, duty, obligation" (120), *hažib (a.)* – "palace usher" (127), *hužžat (a.)* – "proof, document, proof" (129), *yalavač* – "ambassador" (147), *yarlir* – "order" (156), *yarmaq* – "money, money" (157), *yoriq I* – "road, way of life, Fe'l-at-heart, walking" (174), *yosun* – "yosh, the rule, the picture, the habit, the principle" (175), *yumuš* – "I doing business; II ambassadorship, mission of ambassadorship" (178), *yumušči* – "I worker, servant; II Messenger, ambassador" (178), *караб (a.)* – "paper" (183), *malik (a.)* – "king" (215), *manzil (a.)* – "location, accommodation" (216), *miras (a.)* – "heritage" (221), *muhtasib (a.)* – "order holder" (222), *musannif (a.)* – "writer, developer" (227), *nizam (a.)* – "regulations,



order" (233), *oqirchi* – “messenger, herald” (239), *qalam* (a.) – “stone cutter” (261), *qararu I* – “control, reserve” (265), *qazi* (a.) – “qadi” (272), *qumartqu* – “written will” (287), *rayosat* (a.) – “management, management” (291), *saqish* – “calculation” (295), *satirchi* – “trader” (297), *sawchi* – “ambassador, messenger” (297), *shariat* (a.) – “islamic court” (309), *tamra* – “mark” (314), *tamrach* – “self-important” (314), *tanuq* – “evidence” (316), *tapruchi* – “employee” (317), *tapir* – “accomplishment” (318), *tasnif* (a.) – “classification” (321), *tilmachi* – “translator” (335), *tora* – “law and order” (343), *tutur* – “strangling of the voice” (349), *tutus* – “dispute, jancel” (354), *vasiyyat* (a.) – “testament” (373), *vazir* (a.) – “lecture” (373), *vilayat* (a.) – “region, district” (373), *xabar* (a.) – “news” (374), *xat* (a.) – “letter, writing” (376) and so on.

*aiichi* – “treasure, Keeper of silk clothing and fabrics” (18), *ar* – “title, nickname” (21), *alim* – “mining, scientist, thing to get” (25), *savings* (a.) – “Deposit” (28), *asir* – “profit, profit, NAF, income” (40), *aschi bash* – “chief programmer” (42), *ajunchi* (S.+ Chi) – “ruler, Jahangir” (52), *Badal* – “Badal” (57), *Barat* – “rank” (61), *Bauchi* – “chief, chief” (63), *basli* – “chief” (64), *beg* – “Bek, ruler” (66), *Beglik* – “beklik, rule” (67), *knowledge* – “knowledge, science” (71), *bitig* – “book, letter, letter, document” (73), *bitigchi* – “Secretary, Mirza” (73), *bitigu* – “pen, written weapon” (74), *bodun* – “people, population, people” (76), *order* - “order, Order, decision, position, title” (81), *chai* (beg) - “title of the Palace” (88), *chawli* (beg) – “title of the Palace” (90), *chikish* – “I am out, measure; II Cost, output” (94), *claim* (a.)- “claim” (96), *notebook* (F-T.)- “notebook, book” (97), *davat* (a.)- “ink” (97), *elchi* – “Ambassador, correspondent” (103), *elig I* – “ruler” (103), *fariza* (a.)- “duty, duty, obligation” (120), *hajib* (a.)- “khozhib” (127), *khujat* (a.) – “proof, document, proof” (129), *ylavač* – “Ambassador” (147), *yarli* – “order, decree” (156), *Yarmak* – “money, money” (157), *yoric I* – “leadership, lifestyle, character, behavior” (174), *yosun* – “Yusin, rule, picture, habit, principle” (175), *yumush* – “I yumush, ish; II Embassy, mission of the Embassy” (178), *yumushchi* – “I am an employee, a servant; II messenger, Ambassador” (178), *kaḏaḏ* (a.) – “paper” (183), *Malik* (a.)- “Malik, ruler” (215), *address* (a.)- “address, residence” (216), *inheritance* (a.)- “legacy” (221), *muhtasib* (a.)- “Keeper of order” (222), *musannif* (a.)- “writer, compiler” (227), *Charter* (a.)- “Charter, order” (233), *okichchi* – “Bulletin, jarci” (239), *Kalam* (a.) – “pencil” (261), *kara* I - “control, inspection” (265), *kazi* (a.) – “Kozi” (272), *kumartku* - “will, inheritance” (287), *rayosat* (a.) – “management, management” (291), *sakish* – “accounting” (295), *satirchi* – “trader” (297),

*sawchi* – “Ambassador, messenger” (297), *shariat* (a.) – “Sharia” (309), *tamra* – “Tamga” (314), *tamachi* – “tamgachi” (314), *tanuk* – “witness” (316), *tapruchi* – “servant” (317), *tapir* – “service” (318), *classification* (a.)- “classification” (321), *tilmachi* – “translator” (335), *tora* – “law-rule” (343), *tutur* – “pledge” (349), *tutus* – “conflict, scandal” (354), *Testament* (a.)- “Testament” (373), *vizier* (a.)- “vizier” (373), *Vilayat* (a.)- “region, district” (373), *Khabar* (a.)- “message” (374), *letter* (a.)- “letter, letter” (376), etc.

One of the sources that played a significant role in the formation and development of the terminology of office work in the Uzbek language is the work of the classic Uzbek poet and statesman Zahiriddin Muhammad Babur “Baburnoma”. Being well-informed in the field of literature, linguistics, politics, military art, medicine, geography, botany, Zoology, Metrology and other Sciences, Babur in his work applied many terms in these areas, in the necessary places gave them sound scientific explanations. As the head of state, he paid great attention to the correct management of office documents, including the correct use of words and terms in them, since he directly managed Affairs (office work)Devon's. As a result of studying two explanatory dictionaries [5,6] created in the baburnoma language, we found that it used more than 160 words and terms related to office work.

It should be noted that for the period since the creation of the work “Kutadgu Bilig” “do” Baburnoma” terms of office work have increased due to dictionary units that have mastered other languages. Compare: if in “Kutadgu Bilig” there were 35 Arabic, 3 forshan words, then in “baburnam” the ratio changed as follows: 80 Arabic, 24 forshan, 6 Mongolian and 2 Indian words were associated with office work. In addition, there are hybrid terms formed from combining elements of Arabic, Persian, Turkish languages such as arsecast, Armani, grace, property, cash, and nomaru, itabashi, parvonachi, tahsildar, fatema, hisonce. This situation indicates the growing influence of Arabic and Persian in General in the Uzbek language and in some terminological systems.

In the works of Alisher Navoi, we see that among the terms related to the conduct of tertiary business, Arabic and Persian words are even more predominant.

Since words related to the office work of those times were widely and actively used, some of them also mastered other languages. Russian Russian, for example, uses the words “pencil” and “label”, which are also borrowed from the original Turkic language, made from the words pencil – Kara dash (black stone) and mastered in Russian in the form of a pencil. The label is borrowed from the Turkic word





"label". The label was a privilege granted by Khan and meant" document". Currently, this word has entered the Russian language in the form of "labels" and means "label". The strong influence of the Arabic and Persian-Tajik languages also affected the consumption of words related to office work in Turkish. For example, names such as label, command, tarkhanstvo (darxonlik) and a number of other documents are purely Turkish, some of which are still used.

Alisher Navoi, in his essay "Debatsamatul-dictionary", writes about the affix-Chi: "there is another tradition that at the end of some alphabet" CH, and "Chi" lafzidur, arttur either to indicate a profession or profession; this is in Persia jauktur, but they also speak Turkish. In the career of andocchi, Kurchi and Aquarius, hizonachi and mallards, and riders, and spear, and glory, and Countryman, and elephant, and octopus-this is a multi-faceted. In the craft and craft of andokki, poultry and borscht, and Builder, and tamgachi, and jibachi, and instructors, and halvachi, and sailors, and sheep. Andoche in bird hunting is istilah of border, andoche, goats and Cuvee, as well as tornaci, deer and zvucnici, grade latsida. And many of them speak Turkish." [2]

This phenomenon shows that even at that time it was about internal capabilities. Jasmine words formed on the basis of an internal source, that is, their own internal capabilities of the language, also form a certain part of the terminology of office work. There are three pronunciation States in the Uzbek language. Linguists N.Yarashova, R.Yusubova also in his research expressed their opinions about it [1, p.128]. Based on this opinion, we have divided the Jasmine terms into three:

1) words formed from the original Uzbek words using Uzbek suffixes: Association, graduate, head, management, violation, order, customer, Department, graduate, participant, manual;

2) a borrowed word + words formed from the Uzbek word in the form of an engine. It, in turn, is divided into several types:

- Tajik word + Uzbek Supplement: witness, disabled person, warning.

- Arabic word + Uzbek Supplement: Ministry, succession, statehood, victim, performer, explanation, without signature, without accounting, economist, guarantor, without position, worthy, consultant, without knowledge, independence, controller.

- terms formed using Uzbek suffixes from baynalmak words: archivist, birzhach, laboratory assistant, agent, passport, certified, postman, cashier;

3) words formed from proper and borrowed words using other language means: archivist, shareholder, employee, official, scientific, reference,

notification, act, printed, ordered, registered, confidential, directing.

This means that although one of the components or components of the word jasma originally belongs to another language, but if jasma (jasma) was created in the language itself, this word is a word that has its own layer.

## CONCLUSION

In General, the works of Mahmud Kashgari, Yusuf khosib, Alisher Navoi, Zahiriddin Muhammad Babur and other scientists, dictionaries compiled in the language of these works, various fields of science indicate how the terms of office work were formed and developed, which indicates that a special state system, the order of office work and documents, their style and vocabulary developed in Central Asia since ancient times.

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## PRICE EXPRESSION IN THE SEMANTICS OF SOCIO-POLITICAL TERMS

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### ABSTRACT

*This article discusses the valuation semantics, which will be present in the substantive structure of socio-political terms. Some socio-political terms are regarded as emotional vocabulary. However, it is worth talking not only about the presence of emotionality or expressiveness in the semantics of such socio-political units, but also about a certain price semantics in them. A socio-political term can be formed on the basis of a social event or a social assessment of the phenomenon. A number of socio-political terms are used to Express positive or negative reality, the name of a person. A conceptual assessment in the meaning of such terms exists as a possibility at the language level. Ideological evaluation in the meaning of a socio-political term refers to the connotative term of the word. According to its ideological meaning, the semantics of the term expressing a positive assessment can be attributed to a negative assessment, or even to a negative one.*

**KEY WORDS:** *socio-political terms, assessment, conceptual assessment, rational assessment, ideological assessment, connotative sema.*

### INTRODUCTION

One of the main areas of research devoted to the study of socio-political vocabulary is the assessment of the semantic structure of socio-political units, in particular the ideological evaluation component, but there is still no consensus on the role of this semantic component in the structure of the content of socio-political lexemes. In this article, we will talk about the characteristics of the evaluation expression, which is included in the semantic structure of socio-political terms.

### MATERIALS AND METHODS

As is known, the lexical meaning does not consist of an indivisible unit, but has a component part [8, 48]. In linguistics, there are several types of parts of the semantic structure of a word: denotative, connotative, signative, informative, emotional, expressive, etc. [8,66-68]. Most often, three main organizers of the structure of lexical meaning are recognized: conceptual (rational, signative), denotative (empirical), and connotative (pragmatic) meanings. In most cases, conceptual and denotative semantics are not singled out separately and are collectively considered as "descriptive or denotative macro components that complement the content of

the main meaning, in contrast to connotative ones that provide basic information about the subject"[3,16].

So, the lexical meaning of a word has a structure consisting of two main components: denotative and connotative meanings. Denotative meaning-a member of the meaning that represents the object and concept [9,3]. It is not a concrete or abstract entity, but a General concept of it, that is, it is a class of objects United by certain features highlighted in the name [5,10]. Connotative meaning is an expressive, stylistic relation to denotative meaning [17,51], which arises from the speaker's desire to Express their attitude to objective reality. Connotation is the additional semantics surrounding it, attached to the denotation [5,8]. All independent words in a language may not have a connotative expression, without having a denotative meaning.

As you know, the structure of connotation distinguishes emotional, expressive, stylistic and evaluative meanings. Often the emotional and expressive SEMA are considered together, applying the emotional-expressive term to it [15,162]. Some linguists believe that we should talk about the emotional-evaluative component as the only meaning, given the strong dependence and



connection of emotional and evaluative meanings in the meaning of the word. The fact that the General characteristics of these elements are a means of influencing the addressee may lead to this conclusion. Nevertheless, emotions and evaluations strongly depend on the connotative macro component, but they are different semantic components [12,7]. That is, evaluation is a form of expression of value (value) related to a particular object or phenomenon, and emotion is an expression of feelings, experiences of the soul, experiences, experiences of the speaker in relation to a particular object or phenomenon [13,62].

One of the connotative macro-component seeds is the price seed, which is allocated as a separate category. A. A. Karamova describes the assessment as follows: "an assessment is a positive or negative description associated with the recognition or non - recognition of an item's assessment in accordance with certain evaluation criteria [3,130].

Sh.Safarov is right with the following thoughts about the emergence of evaluation: "evaluation is formed in the process of determining the relationship of the subject-object to the subject at the initial place, i.e., the value, attention, quantitative and qualitative decomposition of the subject by the subject. In this process, the subject compares the estimated characteristic of the object with an ideal sample or norm and gives a ratio to what extent it meets or deviates from this norm. Finally, the score that passes through all the "dimensions" is reproduced through the front side symbol " [11,85]. In our opinion, in the semantics of socio-political units, we should also speak not about the presence of emotionality or expressiveness, but about a specific price semantics. "Neither Marxist, Communist, friend, enemy, crime, lie, slander, brotherhood, guard, equality, freedom, justice, etc. words that do not have either emotional evaluations in General, or elements of emotional evaluation, can not be evaluated as emotional vocabulary, characterized by the expression of a positive or negative attitude to the elements of evaluation. The vocabulary of this type does not Express the emotional attitude of the narrator to the phenomena they represent, although they seem to have an emotional character, a "sign", and should be considered as a vocabulary that names events that from a social point of view can be positively or negatively evaluated, condemned or, conversely, deserving of praise in society" [15,161]. Social and emotional assessment differ from each other, and social assessment, such as emotional assessment, is also included in the semantic structure of the word [1,36]. Linguists N.Yarashova, N.Sadinova, R.Yusubova also in his research expressed their opinions about it.

Instead of a location in the price classification structure and a phrase, it is acceptable to stop. Since in linguistics assessment was analyzed on different grounds, several classifications emerged: at the level of objective and subjective attitudes – General and private assessment, by nature – rational and emotional assessment, and by semantic structure – conceptual and connotative assessment [4,130].

In a number of works, it is recognized that the semantics of evaluation also refers to the denotative-significative component of the lexical meaning of a language unit. V.N.Telia points to two types of evaluation – rational and emotional-based on the location in the word. These types of evaluation are divided into two semantic poles, where rational evaluation refers to the descriptive direction of meaning (denotative macro component), and emotional evaluation-to the connotative macro component [14,31]. The assessment can be objective and subjective in accordance with the expression [16,25].

So, evaluative semantics is a term that is included in the semantics of a word, which occupies a different place in the semantic structure of the word: objective, i.e. conceptual assessment and subjective, i.e. connotative assessment. Conceptual assessment is also called rational assessment and is based on logical thinking about the meaning of the subject [3,51]. In other words, a rational assessment is based on information about the features of the subject [10, 9]. I. A. Sternin notes that "bezori, in itself, is an expression of a denotation that is negatively evaluated by the society (society) against racism, which is an evaluative denotation in the semantics of words, and that connotation does not exist " [13,39]. Rational assessment is intended for a scale of generally accepted norms and patterns that exist not only at the level of socio-cultural levels, but also at the level of individual spheres of human activity [2,88]. I must say that the conceptual assessment of socio-political lexemes has not been sufficiently studied in linguistics. Research in this area was mainly limited to issues of ideological connotation in the semantics of socio-political lexemes.

A specific socio-political concept, therefore, the term can be formed on the basis of a social event, an assessment of the phenomenon by society. The relation in a term formed on the basis of a subjective relation passes to the objective level after the term in this sense enters into consumption – this becomes the name of this concept. For example, a number of socio-political terms in the Uzbek language, such as nationalism, paperwork, bribery, prikaznichestvo, invasion, serve to Express the negative reality, the name of the individual. A conceptual assessment in the meaning of such terms exists as a possibility at



the language level. The presence of such a conceptual assessment in the denotative meaning of a socio-political lexeme often allows you to activate the connotative meaning. That is, a word with a clear assessment becomes a means of expressing an emotional attitude in a speech situation.

Naturally, the method of management, the situation in the management system, or the estimated attitude of the language owner to the subjects of management. This relationship is also expressed in language units. For example, there are various forms and methods of governance, such as anarchy, dictatorship, totalitarianism, despotism, aggression, bureaucracy, management system, or conceptual evaluation of terms that characterize the behavior, character of the subject of politics, such as the current situation and behavior in society, fascism, Semitism, chauvinism, genocide, Freemasonry and ideology, dictator, aggressor, bureaucrat, saboteur, plutocrat, fascist. In the Uzbek language is also an object of assessment are socio-political terms the next important group:

1) the current situation and behavior in society: vertigo, separatism, violence, bribery, paperwork, tobacco Smoking, localism, tolerance, conspiracy, stagnation, brotherhood, shagginess, censorship, autocracy, shagginess;

2) Freemasonry and ideology: racism, nationalism, akidaparism;

3) human behavior in society, its characteristics: politician, conqueror, soldier, spy, racist, bald, mankurt, superest, colonist.

With regard to the socio-political realities, the linguistic evaluation is expressed in native words, in particular, in clear words. In terms of the estimated situation,

- Chilik - Arcelik,- no,-Chicken - mince - Simple - parvar the effective use of the possibility of such affixes. For example, chilika: the kinsman family, the family-kinship, grasshopper; - Arcelik: she gingercreek;

- grey: clerk, wallet, company man, Gangbang, politician, protester, there without; - Chickens: the bribe, takingor; -foros: patriotism, patriotism; -fan: official, interested, personal, ignorant, noble, formal; -parvar: nationalism, patriotism, enlightened, people against.

As an organ of the connotative component of the word Gox, Gox has been named by researchers in various terms of social assessment, which are considered by researchers as separate macro-components: social assessment, socio-political assessment, political assessment, ideological assessment, connotative assessment, etc. In addition to researchers who, based on the influence of ideology on socio-political terms and words, recognize a relevant assessment in its semantics as an

ideological assessment, we also use the term ideological assessment.

Today, ideological evaluation is recognized as a separate type of evaluation [3,77] or connotative meaning is considered as organic. Ideological evaluation in the meaning of the socio-political term, in our opinion, refers to the connotative term of the word.

Ideology is a system of ideological and theoretical views and their implementation, expressing the interests of a particular social group, class, nation, society, state, desires and goals-positions [7, 185].

A term that has an ideological assessment is accepted by a certain social group, strata, state, nation, or members of society as a term for their socio-ideological views, political beliefs, interests, desires, and expressions of will as a concept of positive or negative reality, phenomenon, or object.

The emergence of an ideological assessment in linguistic unity can be associated with the emergence of a variety of opinions in society. Such semantic units are divided into conceptual names that correspond to the interests of the social group or, conversely, represent the opposite polar interest. In addition, depending on the profession, age, level of knowledge of a person, what kind of person is a representative of society or class, socio-political consciousness and worldview, terms can have different (neutral, positive, negative) evaluation.

The ideological assessment was especially clearly manifested in the meaning of socio-political terms during the existence of the former system. The politics of this period focused on the consciousness of the people to impose their political ideas and "beliefs".

The ideological assessment of socio-political terms is reflected, in particular, in dictionaries. The ideological assessment is reflected either in the definition, by reference, or in illustrative examples. In the comments, along with such sentences as "in bourgeois countries", "in classical society", "anti-democratic", "formalistic", such words as "blasphemous", "hostile", "reactionary", "lifelong", "progressive", "excessive", "refined" were used. For example,

Anti-Semitism is the policy of the imperialist bourgeoisie in inciting national and racial hostility against Jews, a form of racial chauvinism.

The ideological assessment is hatred. (hate), manf. (minus), negation. (negative), reflected by stylistic features such as.

According to its ideological meaning, the semantics of the term expressing a positive assessment can be attributed to a negative assessment, or even to a negative one. "It is natural that serious changes occur in the historical turns of



the state and society, especially in the denotation and connotation of socio-political words. In connection with the creation of a completely new system of statehood in our country, Society, Politics, and Economy have radically changed and updated.. such deviations in the semantics of socio-political words of the Uzbek language also led to changes in the poles of the evaluative connotation” [6, 28]. At the time when our country was dependent on the Shuro ideology, the meaning of such terms as Soviet, socialism, communism, and the Communist party was perceived as a positive concept, applied in a neutral context, and today they have become negative ideologically colored lexemes. In addition, the ideological assessment is reflected in the semantics of such words and stable combinations as Shuro, postcolonial, red Empire, Red structure, which are currently often used in scientific and journalistic literature.

## CONCLUSION

Summing up, we can conclude that the “shell” of consciousness can form socio-political terms that have a positive or negative assessment, based on the socio-political situation or the social attitude of the linguist to the subject, in accordance with social interests and norms. Either the semantic structure of units will contain an ideological assessment, which will be evaluated positively or negatively from the point of view of the ideology of a particular social group – in society, phenomena corresponding to ideals will be condemned or, conversely, expressed.

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## THE SEMANTIC STRUCTURE OF COMMON UNITS AT THE UZBEK LANGUAGE “FAITH”

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### ABSTRACT

*This article discusses the semantic structure, components and elements of the linguistic category “spirituality”, the semantic structure units that compose them, the spiritual type of the lexeme “faith” and forming their tokens.*

**KEY WORDS:** Spirituality, faith, religion, national faith, dianat, spiritual faith and secular faith, conscience, religious faith, ideology.

### INTRODUCTION

Today, the economic, political, scientific and technical growth of mankind is growing. Among these elevations is the spiritual elevation of the individual, which occupies an invaluable place in the life of mankind. Therefore, in the work carried out in the field of language learning and education, the spiritual improvement of people is important. After all, it is then that "language is a symbol and guardian, enricher and transmitter of spirituality" [1, p.33]. In this process, a special place is occupied by linguistics, which requires an approach from the point of view of increasing the spirituality of society and the individual.

### MATERIALS AND METHODS

The formation and implementation of such a mechanism should be considered by every specialist. In this regard, we can say that one of these mechanisms is Linguistics, which has been formed in recent years in our linguistics. Linguistic research

forms the linguistic base of an integrated system that serves for education and upbringing, focusing on a specific result. “Every day, the scientific and practical foundations of solving the problems of personal spirituality and educating the younger generation, who are the creators of the future, are being revealed more and more deeply” [1,p.33]. The essence of the content of lexemes, the definition of their common and distinctive features contribute to the development of personal spirituality, personal improvement of the younger generation.

The system-structural orientation of linguistics is determined by the disclosure of the essence, structure, components and elements, the essence of the linguistic category “spirituality” in the Uzbek language. As elements that make up the system of “spirituality”, we can distinguish the following.





Atov units that make up the "spirituality" system"					
MORALITY internal system	CONSCIENCE internal system	RELIGION internal system	ENLIGHTENMENT internal system	RELATIONSHIP internal system	INDIVIDUALISTIC STRESS Not strong-tasting internal system
Professional ethic	The concept of shame, or-shame	Religious beliefs	Improvement of education and training system	Attitude of a person to existence	Moral improvement
Service moral	The concept of regret	Secular faith	Formation of literature and art	Attitude of the individual towards development	Mental improvement
Family ethic	The concept of moral satisfaction	Spiritual beliefs	Understanding religious enlightenment	Attitude of a person to a person	Scientific improvement
Ethics of diplomacy	The concept of diyanat's existence	Political beliefs	Understanding of society and human enlightenment	Attitude of the individual to himself	Improvement of the worldview
Behavior ethics	The concept of the existence of moderation	Ideological conviction	The prosperity of god and the appreciation of the peace of the country	Attitude to the spiritual heritage	Intellectual improvement
Ethics of literature and art	The concept of the existence of justice	Pedagogic faith	Promoting the idea of national independence	Attitude to material heritage	National- Educational Improvement

In the Uzbek language, one of the most important branches of the lexical and semantic category "maynaviyat" is the concept of "faith". It means firm confidence in a certain idea, teaching. For the formation of faith, first of all, there must be the idea itself, the teaching. It comes from the inner "me" of each person and "reflects the interests of people and social groups in ideas and teachings" [2, p.295]. Each epoch has its own views, ideology, political, social, religious and spiritual beliefs.

Before proceeding to the analysis of semantic structural features of semantic units of atoms with the General semantics of the Uzbek language "faith", it should be said that the term faith in the Uzbek language has been in development, change for several centuries, and in the years of stagnation-in "adaptation". However, in the Lyceum consciousness of our people, Mukim lives, preserving his nationality and purity.

"Of new directions in world linguistics, which examines the integral relationship of the language of fiction with speech, society, culture, national thinking and values, poses urgent challenges to science. [3.p.405]

The transformation of secular and Divine ideas into beliefs led to the formation of religious and secular beliefs, to the fact that the secrets of the

world order were reflected in the minds and thinking of people in combination with religious beliefs in the embodiment of secular knowledge, laid down in the basis of reason and experience. Despite the fact that in some literatures that reflect the years of stagnation, there is no place for the concepts of religion, nationalism and national worldview reflected in the concept of "faith", its true essence, Faith, which is the core of the spirituality of the nation and the individual, lives forever in the hearts of the people. Because our people can distinguish an inhuman faith that contradicts the interests of national development from our national and spiritual faith based on universal ideas. Where secular and religious faith are properly formed, there will be a truly human life, and in the process of fighting for faith, for the triumph of great ideas, a person's personality is formed, which becomes a creative force.

These processes strongly contribute to the protection and elevation of national beliefs. It determines the emotions, will and worldview of a person, manages them, motivates a person to be active and productive. "Faith is, first of all, stable concepts, generally accepted theories and views that are considered the most important and paramount pills, which are formed by a person (team, group, society) on the basis of a firm belief, without



hesitation, doubt, without hesitation in certain ideas, assessments and norms" [4, p.133]. These beliefs may be different. A religious or secular or spiritual belief that results from the interaction of the two. The General semantic concept of "faith" allows for a deeper interpretation of the spiritual nature of this atom, based on an indissoluble analysis of the semantic composition of the unit token.

The allocation of common and distinctive features of the semantic structure of the lexeme "atikot", which is part of the vocabulary of the Uzbek language as an integrated system of lexemes denoting spiritual beliefs, their features, their own and figurative meanings, and lighting lexeme inter-religious relations are important in determining their linguistic values.

Accumulation of common semantic units in the semantic domain "Faith", reflection on their General and particular properties is carried out on the basis of internal meanings. The spiritual group "etikod", evaluated as a separate Microsystem of the Uzbek language vocabulary, has its own characteristics and patterns in lexemes and their semantic structure. Along with the variety of semantic structure of lexemes expressing beliefs and related concepts that are actively used in the General historical layer of the Uzbek language, one can also trace various semantic subtleties.

The concept of "etikod" is described in new explanatory dictionaries and philosophical and comic dictionaries of the Uzbek language, taking into account various approaches and worldview of the Uzbek national character. This concept can be divided into types in the form of faith in religious, secular, political, and social phenomena. below we will consider the semantic structure of some of the lexemes included in this system.

1. **Religious faith** "the divine power that manifests itself as an object of religious worship and faith is the Creator". Religious faith is a phenomenon that is directly related to the divine views of each nation. Its essence includes a wide range, which is not only unrelated to the true desire for the absolute. In particular, "one of the important obligations of religious faith is to actively participate in solving existing problems in the life of society for each person, to establish friendly relations between people, to ensure that feelings of calm and tolerance become a habitual necessity in our daily life." The belief in such content testifies to the identity of each nation.

Initially, we preferred to divide the spiritual group of religious beliefs into internal groups.

a) **faith in the Creator**: the content of this spiritual type is based on the lexemes of Allah, mercy, religion, angel, dienath, akida, akoid, Duala,

cult, guidance, nazr-niez, Malika, Faith, Nabi-yor, Azalea, and eternity.

All these tokens will belong to the religious faith through the slot "faith in the Creator".

b) **spiritual beliefs**: ancestral spirit, living spirit, Yod of ghosts, resurrection, sacrifice, edification, worship of the ancestral spirit, reflection on the soul and soul, remembrance of ghosts, worship of ghosts, ask for their blessing, patronage of spirits.

Atov in this group, which arose as a result of the past, customs, beliefs of the people, are United in a religious faith through the slot "spiritual Faith".

c) **spiritual Faith**: spiritual perfection and spiritual improvement of people is one of the most important features of today. In this sense, our spiritual faith serves to show the specific national and spiritual characteristics of the nation. Achieving this attribute is determined by a full understanding and compliance with the essence and meaning of the following tokens.

Attention, love, respect, reverence, reverence, compassion, compassion, devotion, tolerance, compassion, compassion, a complete understanding of the lexemes of faith and their semantic essence are important for illuminating the semantic composition of faith.

Lexemes of sincerity, love, attention, kindness, devotion, respect, love, devotion, reflecting our spiritual beliefs in the minds of members of the Uzbek linguistic society, occupy one of the places in the group and are a unifying sign in the sense of "benevolent attitude" to the units of atoms with the General meaning of "Faith". The religious and secular meanings of these tokens are considered one of the most important concepts and call people to calmness, friendship, sincerity, mutual trust and faith. These units belong to the group of "moral beliefs" with the semantics "kindness".

e) **ideological beliefs**: in the Uzbek national culture, Hamada is an important concept of the sacred family, peace of the country, love for parents, contributes to the formation of an ideological image, forms a group of "ideological beliefs". These include the following units: truth, justice, Conscience, faith, sincerity, andisha, justice, perfect man, evolution, family, moral values, ethical norms, healthy environment, parents, relatives, day-neighbor, peace of society.

## 2. Faith received in a secular way.

Faith acquired in a secular way is directly related to our material life and is formed based on the character, worldview of people, their attitude to life, and human duty. Faith acquired in a secular way is divided within itself into these types.



a) **national faith.** In the formation of each individual population, national faith is important, in which the following concepts should be formulated: peace of the country, well-being of the people, social cooperation, national idea, national spirituality, kindness

c) **educational beliefs:** education is a belief aimed at increasing the level of knowledge of people based on educational, economic, political, religious, philosophical concepts that include the following words: ideological activity, education, knowledge of the future, knowledge of prospects, confidence in the future, purposefulness.

d) **belief in the individual:** in human society, there is a belief in a person to glorify, appreciate, show compassion, respect in accordance with the position of people in life, in the family, in society. They are found in the following manifestations: faith in folk heroes, faith in parents, faith in mentors, faith in a friend, faith in Jorg

a) **material belief:** faith in wealth is faith in the world, enjoyment of natural phenomena, faith in the earth, faith in the improvement of material life.

**3. Political beliefs are formed based on socio-political events:**

a) **tolerance:** mutual respect and trust, interethnic harmony, faith in the nation, interreligious tolerance, cooperation as a community,

b) **family-seed faith:** faith in seed elders, faith in the father, Faith in the mother, Faith in close relatives

**4. Belief in the phenomena of society.**

a) **axiomatic belief:** belief in the stars, divination, attachment, astrology

b) **hunting beliefs.** In the old days, the belief that animals come to life after death, formed its basis, goes back to this totemism. An example of this is a tribe whose seed can be named after some animals. In particular, licences, Wolf seed, offspring Lucina.

c) **astral beliefs.** Faith associated with the worship of heavenly bodies and phenomena, as well as related magical acts. At a certain level, it can be found in all Nations. For example, the possessive, dependent, prophets, fortune-telling, divination, the cult of nature.

The above sections give an idea of the diversity of the concept of "faith" in the Uzbek linguistic landscape of The universe. The belief shows that the spiritual group in the language is unusually mirror-like and colorful in meaning. In the Uzbek language, the semantic structure of religious and semantic lexemes has a special nature; in the spiritual structure of lexemes, the secular and religious meanings of faith serve to unite them into a certain group.

## CONCLUSION

One of the main tasks of today is the education of students with pure human feelings, the formation of concepts of national faith and related associations, the principles of respect for other people's views. Thus, one of the important factors in improving spirituality is the correct understanding, understanding and explanation of the essence of the content of secular and religious lexemes. After all, spirituality is one of the reliable means of exalting every nation and people.

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## **STRUCTURAL AND DECODING COMPLEXES AND SIGNS OF THEIR IDENTIFICATION IN THE MALGUZAR AREA (MALGUZAR MOUNTAINS)**

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### **ANNOTATION**

*During the work, it was found that the main role in the distribution of mineralization belongs to structures of II-III and higher orders relative to the deep fault. The identified potentially promising zones were identified based on the results of integration, available information on the ratios of the KS channels, as well as the spectral signature of minerals and rocks.*

**KEYWORDS:** *interpretation, remote sensing, ring structures, structurally decoded complexes, intrusive complexes, criteria, prospective areas, tectonics, interpretation, digital processing, color anomalies.*

### **DISCUSSION**

Regional gold-ore zones of the Nurata region with industrial gold mineralization (the Charmitan, Guzhumay, Marjanbulak deposits) continue in the ore-bearing structures of the Malguzar mountains, where no gold ore objects that are profitable for mining have yet been identified.

The systematization and generalization of materials on the gold content of the Malguzar mountains makes it possible to recommend the continuation of prospecting works aimed at revealing hidden gold ore objects. The highest probability of discovering industrial gold mineralization is associated with regional ore-bearing structures, first of all, with the Kattasay mineralized zone. The Kattasay mineralized zone is an extended ore-controlling structure of the type of crumple zones, continuing in the Marjanbulak elevation.

The Malguzar mountains are located at the north-western end of the Turkestan ridge (South Tien

Shan), north-north-western orientation, 120 km long and 30-45 km wide. From the Chumkurtau ridge, located to the south, they are separated by a narrow river valley Sanzar [1, 2].

The concept of a structural-deciphering complex defines a set of certain types of rocks, characterized by homogeneous bedding conditions, the degree of metamorphism, the appearance of the photographic image, which on a given scale of a satellite image remain constant for an area or a separate large part of it.

When decoding, direct and indirect (landscape-indication) signs were used. Direct deciphering signs of faults are identical in space survey materials of all types and scales, and in exposed areas they are manifested both in particular signs of a fault, and in their combination. Faults and structural-deciphering complexes (SDC) are clearly deciphered in a situation when rocks of different types in composition, structure, color, genesis of rocks and SDC





are brought into contact along the fault, or there is a sharp change in the picture of the photographic image of contacting objects, and in layered rocks the sign of a fault is a packs. Landscape indication signs serve as indicators of faults within the areas of development of the Mesozoic-Cenozoic SDC.

Generalized structural-material complexes are distinguished according to the materials of interpretation. The name and age of the complex was given on the basis of comparison with a geological map at a scale of 1:50,000, according to its predominant component part. As a matter of fact, the combined structural-material complexes identified in the legend of the distance basis, distinguished due to the properties of Cosmo photographs (generalization, generalization), represent tectonically crowded geological bodies of various volumes. This is the difficulty in mapping SDC within the area. According to the development of structural-material complexes within its limits, the leaf area is divided into blocks, in each of which specific complexes are identified according to the prevailing area of distribution of rocks of a certain composition and age.

Among the rocks of the Paleozoic age, structural-material complexes of the carbonate composition of the Upper Silurian and Devonian, volcanoterrigenous, metamorphosed and carbonate-terrigenous complexes of the Carboniferous were distinguished. The rocks of the Paleozoic age, as already noted, are overlain (especially in the grabens and in the south-west of the sheet) by sediments of the Mesozoic-Cenozoic structural-material complex, represented by continental, carbonate-terrigenous deposits of the Jurassic, Upper Cretaceous, Paleogene.

Eolo-proluvial SDC. Q III-IV is developed along river valleys and their large tributaries, forms channels (white phototone), the first and second terraces above the floodplain. The dark phototone in the panchromatic images emphasizes the water content of the SDC, and the green one in the composite images - the development of vegetation. Sandy-clayey SDC. (N-QII). It is composed of lagoon deposits of the Miocene and continental molasses of the Pliocene. Widely developed within the southwestern part of the territory.

Volcanic-carbonate complex of tectonic clustering of plates composed of S<sub>2</sub>ld, S<sub>1</sub>w, C<sub>1</sub>t rocks. Combined. Developed along the Zarafshan ridge, in the northeastern part of the leaf, up to the meridian.

From the analysis of distance bases on a scale of 1:100,000, 1:50,000, it follows that the area is dissected by disturbances in the continuity of rocks - faults of various strikes and zones of regional fracturing, which are the consequences of different dynamic conditions, repeatedly changing during the geological history of the area. Tectonic structures are deciphered into space images by direct and indirect

deciphering signs. The most widely manifested on the map is the distance basis of the faults of latitudinal, meridional, northeastern, and northwestern strikes.

As a result, the final processing of the identified territories is carried out in software using the processing of vector information such as ArcGIS, where, using the functions of statistical processing, the final generalization of polygonal objects (selected territories) takes place. In addition, structural elements and faults were found that did not appear on the original RS.

Thus, in the course of the work, it was established that the main role in the distribution of mineralization belongs to structures of II-III and higher orders relative to the deep fault. The identified potentially promising zones were identified based on the results of integration, available information on the ratios of the RS channels, as well as the spectral signature of minerals and rocks. In addition, as a result of the research, two potentially promising areas were identified, which are recommended for further conducting more detailed geological prospecting works.

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# THE DEVELOPMENT OF THE IMPLEMENTATION OF SPACE TECHNOLOGIES: A CASE STUDY OF THE FERGANA VALLEY (UZBEKISTAN)

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## ABSTRACT

*The paper presents an overview of automated methods for interpretation lineament and ring structures from satellite imagery data. The methods are presented to analyze lineament and ring structures in the Fergana Valley (Uzbekistan). As a result of automated processing, it is planned to obtain separate maps of lineament and ring structures, the distribution density of lineaments, spatial orientation of lineament structures, rose-diagrams, etc., which will be entered into the GIS for constructing a thematic map of the distribution of lineament and ring structures in the Fergana Valley.*

**KEYWORDS:** *analysis of lineament and ring structures, automated interpretation method, modern satellite technologies, ASTER, Landsat 8.*

## DISCUSSION

Space technologies are the area of concentration of the latest achievements of humanity, the scientific and technological progress, and the solution of global, interstate, state, and regional problems. Space technologies make a significant contribution to the development of science and technology, economics, and informatization of society. The world practice shows, the development of space technologies and the use of remote sensing data, satellite communications, and navigation can significantly increase the efficiency of solving key problems of ensuring national security and socio-economic development of countries and regions.

The attraction of advanced technologies, the development of high tech industries is one of the priority goals for the Republic of Uzbekistan. This is especially true for the creation of new modern industries. In this direction, in recent years, special attention has been paid to the development of its space industry and the attraction of space

technologies. To effectively implement the existing scientific and technical potential for the further sustainable development of the country, including through the use of innovative space technologies in various spheres of the economy, as well as ensuring the security of the Republic of Uzbekistan, the President signed a decree on the establishment of the Agency for Space Research and Technologies under the Cabinet of Ministers of the Republic of Uzbekistan (Agency «Uzbekkosmos»). For the active development of space technologies, Uzbekistan plans to closely cooperate with countries such as India, France, China, Germany, USA, etc. Along with Uzbekkosmos, the country will actively carry out activities in the field of space research and technologies, such as remote sensing, satellite communications, navigation systems that can increase efficiency in areas such as agriculture and water management, ecology, telecommunications, geology, cartography, meteorology, seismology and urban planning [1].



Due to modern satellite imagery and geographic information system, it is possible to interpret and analyzes lineament and ring structures. Ring structures on the Earth's surface have been known to geologists for a long time. However, with the advent of space data, the possibilities for their study have expanded. Almost every researcher analyzing a satellite image of a region discovers one or more ring formations, the origin of which in many cases remains unclear. Ring structures are rounded, single, or concentric local formations resulting from internal and external processes [2].

Lineaments are linear and arcuate relief elements associated with deep faults. These linear elements can represent natural morphological fragments or fragments of an anthropogenic nature (roads, watersheds, etc.). Structural heterogeneities of rocks and other features associated with the tectonic activity are the results of morphological lineaments (cliffs, faults, etc.). Lineaments can be expressed as linear depressions, linear breaks in slopes, or ridgelines. Lineaments typically represent fault zone trends or large, systematic junction trends [3]. Lineament analysis (structure, variability) is of great importance for predicting hazardous phenomena and processes, predicting seismic events, determining zones of structural breaks and deep divisibility of the earth's crust, discovering minerals [4].

In many scientific research works, there is a connection between lineament systems and tectonic faults. R. Ramesh Kumar T. (1991) notes that the intersection points of the lineaments are places of increased fracturing of the earth's crust and, as a result, such places are places of development of modern exogenous and endogenous processes [5].

There is a huge variety of methods and algorithms for processing satellite data to carry out semi-automatic and automatic data decryption to extract lineament structures on the Earth's surface. E.A.Ali et al. (2012) extracted lineament structures from the Landsat ETM + 7 to determine the lithological and structural features of the area around Abidia in northern central Sudan. Filtering and Intensity Hue Saturation (IHS) was applied to the image to improve spectral and spatial characteristics. The resulting regional lineaments are used as a basis for creating geological and structural maps through visual and ground processing [6].

F. Al-Nahmi et al., (2016) developed a method for visual extraction and mapping of lineaments from Landsat 8. Each spectral channel of the Landsat 8 satellite is used for specific purposes, for example, band 7 is better suited for allocation of geological deposits, band 5 - to distinguish between soils and rocks and band 3 - to distinguish soil from vegetation. Based on this relationship, they used tools such as Minimum Noise Fraction (MNF) with a 4, 5, 6 bands combination, color composition (RGB) of a

bands combination 7, 5, 3, Principal component analysis (PCA) with a 4 bands combination, 5, 7 and the ratio of the bands is 7/5, 6/4, 4/2. They also applied direction filters. The results of processing with PCA and MNF made it possible to clearly and easily identification lineaments. And the use of RGB results allowed the identification of various geological formations. This approach to processing satellite data made it possible to explain that the structural, geological, and tectonic structure of the study area [7].

Hermi S.O. and others (2017) provides a method for extracting lineament structures from Landsat 7. This method consists of 5 procedures: Principal Component Analysis (PCA), image enhancement using histogram equalization technique, using Sobel filter, histogram segmentation, and binary generation. This method is used to identify the identification of several faults in the study area. Carrying out a statistical and spatial analysis of lineaments, to determine the different morphological state of lineaments. A comparison of the results obtained with ground-based geological maps revealed that the extracted lineament structures from satellite images were identified as faults and most of the lineament structures were associated with tectonic movement [8].

Zlatopolsky (1992) presented a new program for the automated extraction of lineament structures LESSA (Lineament Extraction and Stripe Statistical Analysis). In experimental testing, the results obtained in LESSA reflect the picture of the image and practically does not depend on the applied procedures and their parameters. LESSA can be applied to both optical and radar data, as well as aerial photographs and digital elevation models (DEM). Today, the program has been used for various applied problems in the forecast of minerals, geodynamics, seismology, etc. The results obtained were compared with visual interpretation and geological data [9].

Bouramtane T. et al. (2017) developed an algorithm in MATLAB. The proposed automatic lineament detection approach is based on the Hough transform method. This algorithm identification linear features in satellite images of optical and / or synthetic aperture radar (SAR) using a set of mathematical calculations. The algorithm was applied to two different types of satellite imagery Landsat 8 and SAR Sentinel – 1A. The results were compared with visual interpretation results based on spatial filtration and tectonic data collected in the field. It was noted that the result of most of the extracted lineaments using the algorithm is similar to the results of spatial filtering. This approach can be used to automatically highlight the geological lineament with acceptable accuracy [10].

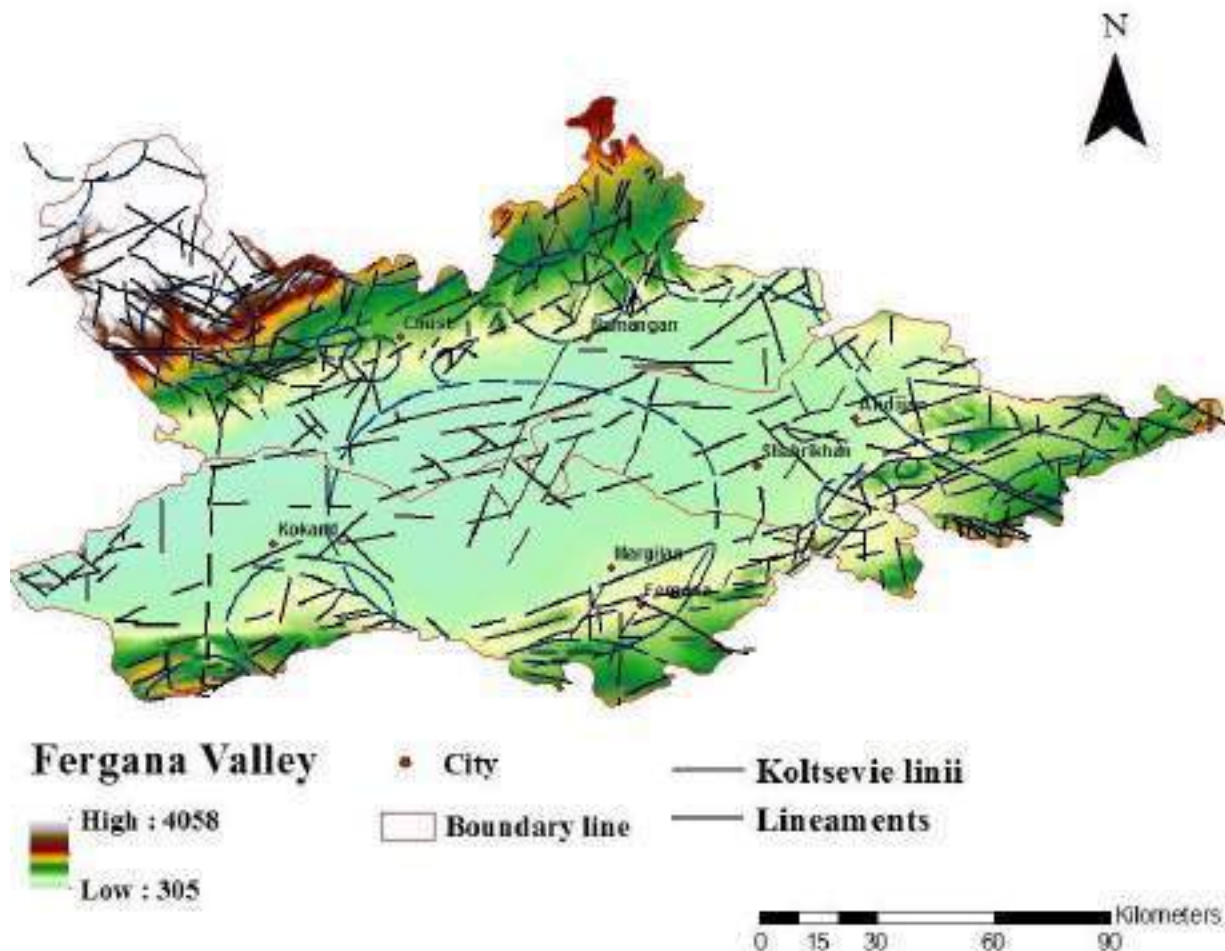


The LINE module has been developed in PCI Geomatica software for the automatic extraction of lineament structures. The principle of the module is to extract linear objects from raster images and save the output data in vector format. The LINE algorithm consists of three main processing steps: edge detection, thresholding, and curve extraction [11].

The LEFA (Lineament Extraction and Fracture Analysis) program, performed in the MATLAB, allows lineament analysis based on automatic interpretation of satellite images. The program includes preliminary processing, algorithms for detecting contours, selecting linear elements, accounting for the number of linear elements,

exporting the results obtained in GeoTiff and \*shp formats. LEFA has several detection algorithms for edge recognition. A Hough transform is applied to the raster images to identify cracks on the earth's surface. The parameters of the desired curve form a space that is created based on searching for local maxima and filling the so-called accumulator array using the voting procedure [12].

The study area was chosen as the territory of the Fergana Valley (Uzbekistan). The Fergana Valley is the largest intermountain depression in Central Asia. The valley is located in the eastern part of the Republic of Uzbekistan and borders the Republic of Tajikistan and Kyrgyzstan.



**Figure 1. The territory of the Fergana Valley according to the Aster GDEM with geological lineaments and ring structures.**

For the analysis of lineament and ring structures, modern satellite data from Landsat-8 and ASTER GDEM will be used. Landsat-8 is an American Earth remote sensing satellite, the eighth in the Landsat program, created jointly by NASA and USGS. The satellite was launched into orbit on February 11, 2013. Landsat-8 surveys in the visible

wavelengths, in the near-infrared and thermal wavelengths, and also surveys in the panchromatic band. The spatial resolution of the images is 30 and 15 meters [13]. The ASTER GDEM product was developed jointly by METI and NASA based on data from the ASTER sensor on the Terra satellite. The sensor has the capability of stereoscopic imaging



along the flight path using two telescopes that take pictures in the nadir and backward in the near-infrared wavelength with a resolution of 15 m. To create the ASTER GDEM digital elevation model (DEM), automatic processing of the entire ASTER data archive, about 1.5 million scenes. In 2011, an improved version of the DEM was created - ASTER GDEM Version 2: new scenes added, bugs fixed [14].

The analysis of space data for the interpretation of lineament and ring structures will be carried out in an automated method using modern software. It is planned to involve software such as ENVI, LEFA, and ArcGIS. As a result of automated processing, it is planned to obtain separate maps of lineament and ring structures, the distribution density of lineaments, spatial orientation of lineament structures, rose-diagrams, etc. All the results obtained will be entered into the GIS to create a thematic map of the distribution of lineament and ring structures in the Fergana Valley.

The use of modern satellite data for the identification and analysis of lineament and ring structures in visual and automated processing greatly facilitates the work of the decoder. Modern satellite data cover a huge territory of the Earth, and also hard-to-reach regions. GIS technologies, along with the use of remote sensing data, allow considering, comparing, analyzing individual maps of the thematic layer, as well as combining all layers into one map, which will lead to a more detailed analysis of the distribution of lineament and ring structures in the Fergana Valley. In conclusion, from the above, it follows that in the theoretical and practical part of the lineament analysis using satellite data, it is currently inactive development. Many scientists assess the relationship between lineaments and their characteristics when studying natural and anthropogenic objects and processes. It should also be noted that some research works are devoted to the determination of the places of deposits of minerals and groundwater, along with the discovery of lineaments of the place of their increased accumulation.

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## **STRATEGY OF ACTION AS A FACTOR IN THE NATIONAL DEVELOPMENT OF SOCIETY**

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**"No one should doubt that any attempt by any internal or external forces that would jeopardize the sovereignty and independence of our country will be a definite and corresponding blow."**

**Shavkat Mirziyoyev**

### **ANNOTATION**

*This article draws attention to the fact that the adoption of action strategies in the field of national development, the adoption of an action strategy is a new stage in national development and that social, moral and political events are important.*

**KEY CONCEPTS:** *action strategy, nation, development, society, law, politics, national idea, law, ethics.*

### **DISCUSSION**

It is well known that all freedoms are primarily associated with freedom of thought, even if the restraint of thinking is not in the hands of others. At the beginning of human rights and freedoms, freedom of thought is absent. According to the Republic of Uzbekistan, large-scale reforms carried out during the years of independence of our country are aimed at strengthening national statehood and sovereignty, security and enforcement, inviolability of borders, the rule of law, human rights and freedoms, interethnic and religious tolerance. This has become an important basis for maintaining an atmosphere of tolerance.

This created the necessary conditions for a decent life for our people and the realization of the creative potential of our citizens.

Indeed, independence is the foundation of our national development today and is an important factor in the socio-political development of Uzbekistan on a global scale.

To ensure a practical reflection of the above aspects, the President of Uzbekistan Shavkat Mirziyoyev adopted an Action Strategy, which, along with the socio-political and economic support of society, is important for ideological growth and the

sustainable nature of national thinking. "Our mission is to be based on our common experience and the best international experience," said President Shavkat Mirziyoyev in his address to the inauguration of the President of the Republic of Uzbekistan. In this regard, and achieve increased muddatoa act with devotion. To this end, in the near future, the development of an Action Plan for the further development of Uzbekistan for 2017-2021 will be completed."

An action strategy in five priority areas of the development of the Republic of Uzbekistan for 2017-2021 is being developed with great interest and attention both in our country and abroad. Well-known scientists, influential experts and observers, as well as heads of government at various levels, do not comment much.

We can say that the Strategy for Action on the five priority areas of the development of the Republic of Uzbekistan for 2017-2021 summarizes the achievements of our country over the past 27 years, summarizes the historical experience and new challenges of the past five years and beyond. Focusing on the development of horizons, this is essentially a strategic program that will bring Uzbekistan to a new level / transition period.





Undoubtedly known as the “Strategy of movement among our people”, the State Program “Year of Public Relations and Human Interests”, which is an integral part of each program and an integral part of this program, is being implemented most effectively! This is directly related to the active participation of each of us in this process as a conscious and patriotic citizen, the selfless child of this country, and, first of all, we need to understand the essence of the Action Strategy and its practical and urgent tasks in all directions.

At the same time, the importance of this strategy of action is as follows:

First of all, along with maintaining the position of the community, it plays an important role in building the confidence of community members in the future, stimulating the creative potential of the population and increasing the cultural and spiritual potential of citizens of the country.

Secondly, eliminating the existing leaders of the state and society, the issue of the status of the state as an expression and guarantee of the hopes and beliefs of people is becoming more and more important.

Thirdly, as a way of intensifying democratic reforms aimed at improving civil society and state building, it will increase the international prestige of Uzbekistan and provide a political and legal opportunity to fully represent the nation.

Fourthly, it will increase the political participation of the population, recognize a small number of citizens of the country and increase the responsibility of state bodies for protecting and protecting the rights of citizens.

Fifth, strengthening the role of civil society institutions in the country's social life, the state will gradually transfer its functions to these institutions.

The development of civil society is an important condition for building a democratic state. It is civil society that allows a person to feel that he or she is the owner of power and the only source of power. Therefore, the development of democracy implies the development of civil society. Civil society is a voluntary organization of independent citizens, free from state interference. Social movements, the media, parties, trade unions, public associations, non-governmental non-profit organizations, self-government bodies and creative associations are civil society institutions. The main goal of civil society is to satisfy the various interests and needs of the individual and realize his potential. In the end, civil society institutions can solve some problems in society independently, legally and without government intervention. Self-government and strict discipline form the basis of civil society. A person, his interests, honor and dignity are recognized as the highest values of civil society. To

better understand the essence of civil society, it is necessary to find out its relationship with the state. In the case of centralized governance and vertical subordination in state structures, civil society dominates horizontal relations based on equality, volunteerism and personal initiative. At the same time, the state and civil society complement each other. That is why civil society institutions in democracies are supported and protected by law. It is no coincidence that the X-strategy in five priority areas of the development of the Republic of Uzbekistan for 2017–2021, as well as the Action Strategy are focused on the development of civil society institutions. This is due to the fact that the promotion of civil society by the state as a strategic objective will help to improve the public administration system.

Clause 49 of the State program “Year of dialogue with people and human interests” provides for the support of civil society institutions in Uzbekistan by local authorities. Its implementation will help expand the reach of NGOs in the field of social partnership projects.

Civil society is created by conscious, active citizens. A person with an active civil status will observe what is happening in society, reflect on their causes and look for solutions to existing problems. Such a person has a strong sense of civic responsibility. Membership in civil society institutions does not increase personal income. This is due to the fact that the income of the organization is not distributed among its members, but is directed to the development of the organization.

An active citizen fights for his rights, believes in himself and understands that he is able to change the situation. The activities of such volunteers are in the public interest. But some people cannot use them. After all, membership in civil society institutions is at your disposal. The question arises: what motivates a person to join a social organization? These are ways to make a difference, focus on solving problems in society and help others.

Thanksgiving is a feeling of helping fellow citizens.

In addition, the ability to show one's potential, engage in dialogue with others, the need for social recognition, the desire to use professional and professional experience, as well as the pursuit of ideas, can also lead to such daily activities. At the same time, a person can combine his interests with the interests of society. Such activity is a great support both for the individual and for the state. After all, a person helps the government to identify emerging problems, solve them and solve them.

Civil society institutions represent public opinion and exercise public oversight. Existing social control is a key feature of a democratic state.



On the one hand, public control serves to improve the activities of state authorities, and on the other hand, it serves as a mechanism for protecting citizens from unlawful actions on the part of state bodies and officials.

These aspects will expand the scope of democratic reforms in Uzbekistan and ensure the optimal development of national development. In particular, thanks to independence, the peoples of our country have the right to choose their own unique path, which will revive the spiritual heritage and values of our people. Any state, society or people cannot live without their purpose. They must determine their own rationale for development. This goal is reflected in the national and spiritual ideals of the people, and national ideology becomes necessary. In the context of modern globalization, it is necessary to inform the world community about the latest developments and changes in all areas of our lives, especially to ensure that citizens have access to legal information and, therefore, objectively and honestly reflect their relations with the state and society.

Especially considering the need for wider use of modern media to meet the needs of young people in legal information, issues of improving the quantity and quality of legal information systems and their accessibility are of great importance. All educational, educational, spiritual, and educational institutions should focus on establishing and raising public awareness of purely moral, high moral values and, most importantly, the active participation of citizens in all areas of public life, in particular in ethical and legal issues .

Therefore, the State program for the implementation of the Strategy of Action in the five priority areas of development of the Republic of Uzbekistan for 2017–2021, proposed by President Shavkat Mirziyoyev, will be implemented next year. tasks of creating effective cooperation of government agencies with civil society institutions, the media in the implementation of measures in this direction.

Different ideas dominated the development of human society, which had various negative consequences due to ideological goals. Unfortunately, in modern human development, not only good ideas, but also evil ideals tend to show less ugly faces. In this regard, we consider it appropriate to pay attention to the following examples:

It is well known that it is necessary to strengthen organizational and practical measures to combat forms of religious extremism, terrorism and organized crime. In particular, at present, not a single country, including the most advanced countries, is guaranteed the threat of terrorism and religious extremism. World events, bloodshed, for example, a terrorist group operating in Iraq and Syria in 2014, calling itself ISIS (Iraq and the Islamic State

of Syria and Syria), using the Islamic religion as a mask and for various political and other aggressive purposes. committed serious crimes. It is no secret that ISID is a religious extremist, terrorist criminal association that commits several crimes related to terrorism and religious extremism. ISID is also trying to influence the countries of Central Asia. It is sad that more than 15 religious extremist and terrorist organizations in Africa, the Middle East and Central Asia support and support the actions of Isis.

Recent terrorist attacks in various countries around the world, including France, Belgium, Germany, Turkey and Pakistan, testify to the growing threat of religious extremism and terrorism. The fight against religious extremism, terrorism and other forms of organized crime in the Central Asian region is becoming an increasingly important task, as well as to identify and eliminate the conditions that led to these types of crimes.

The fact that terrorist groups pose a real threat to peace and security, especially in neighboring Afghanistan, testifies to the seriousness of the problem. For this, it is necessary to formulate national ideas in order to understand the difference between ideas and ideas, goals and objectives, thoughts and ideas, and also to do some practical work. This issue has also been highlighted as a key issue in the action strategy. In particular, the fifth emphasis is on ensuring security, interethnic harmony and religious tolerance with a deep emphasis on ensuring national security on a mutually beneficial basis.

In Uzbekistan, where there are more than a dozen religious denominations, more than 130 nationalities and ethnic groups, the importance of strengthening the virtues of peace and stability, mutual trust, understanding and respect for various beliefs and cultures is invaluable. The main goal of our 32 millionth family is to understand that every citizen, regardless of his or her religion, nationality, profession or age, is responsible for raising our children.

The foreign policy of Uzbekistan, enshrined in the Constitution of the Republic of Uzbekistan, respects the sovereignty, territorial integrity of states, the non-use of force or threat of force, the preservation of borders, the peaceful settlement of disputes, non-interference in the internal affairs of other states and other generally recognized norms of international law. The development of priority areas for a mutually beneficial and practical foreign policy is based on the rules and norms of the international community.

Today, our country has sufficient experience and legal framework to combat religious extremism, terrorism and other forms of organized crime. In particular, the Law of the Republic of Uzbekistan



“On Combating Terrorism” of December 15, 2000, Law No. 660-II of August 26, 2004 “On Combating Money Laundering and the Financing of Terrorism”, as well as the United Nations, were adopted. ratified the Convention against Transnational Organized Crime. In addition, a number of memoranda of cooperation between the Government of the Republic of Uzbekistan and foreign governments to combat organized crime and terrorism provide a solid legal basis in the fight against religious extremism, terrorism and other forms of organized crime.

In this regard, during the year, the Ministry of the Interior, SNB, the Prosecutor General’s Office, the Ministry of Defense and other relevant bodies organized and strengthened the practice of combating religious extremism, terrorism and other forms of organized crime. preparation of proposals

One of the prerequisites for achieving this goal is the formation of prevailing morality and legality in the interests of the state. The economic, spiritual and social development of society is inextricably linked with its moral and legal development, and one is impossible without the other.

President of Uzbekistan Sh. As M. Miziev noted in his lecture on the rule of law in the prosecutor's office of the Republic of Uzbekistan - an important factor in ensuring human interests. comprehensive strengthening of the legal framework and inadequate enforcement of laws, development of a democratic state and reliable protection of democratic citizens.

Legal education is violated in the process of spiritual education. While ethics is the basis of morality, a person voluntarily adheres to the process of expressing ethical beliefs. It is especially important today to protect young people with the future of the state from such threats. The main and most important factors in the implementation of this work are the education of moral principles.

One of the most important ways of implementing forms of education is to educate parents of moral and legal knowledge and their healthy upbringing. Therefore, raising children is such a crucial task that a person must be morally, psychologically, ethically and legally prepared to fulfill it in the interests of our society.

Because knowledge is so important to bring up perfect children and bring them up to the fullest.

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# THE TREND OF SCIENTIFIC FORECASTING BASED ON THE RESULTS OF PUBLIC OPINION RESEARCH

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## ABSTRACT

*This article discusses the level of effectiveness of methods used in the study of public opinion, the scientific and theoretical possibilities, the dynamics of the functional relationship between the results obtained in practice, the development of a system of gradual organization, management and control of public opinion. There is a social and philosophical reflection on the methods of scientific forecasting of the correlation between the results of the widely used method of "profitability" and the results obtained.*

**KEYWORDS:** *public opinion, social life and its development, social forecasting, profitability method, correlation, general philosophical categories: individuality, generality and specificity, scientific trends, constant quantity coefficient, method technology, straight-line and curvilinear rational-constructive method.*

## INTRODUCTION

In order to achieve the stability of public opinion on the path of development of society, it is necessary to first predict its formation, development. This is because scientific forecasting requires, firstly, a comprehensive approach to the issue and, secondly, to uncover its hidden, internal levels of possibility. It also provides an opportunity to obtain objective information about possible elements of the problem.

## MAIN PART

The method of determining the "level of profitability", which is widely used in the systematic analysis of dynamic changes in public opinion, ie in economics, mathematical statistics and other research: In other words, finding the "level of profitability" of public opinion is an important method in determining the optimal impact of public opinion on a particular goal and developing a system of its organization, management and control for the development of society.

In general, how can this method be applied to the direction of ensuring the consistency of public opinion on the path of social development and how

effective can it be achieved? In order to find answers to such questions, it is necessary to approach it ("the level of profitability") in the following approach:

First, the purpose of the study is defined, in particular, the criteria for the specificity, generality and specificity between the general, variable, flexible, evolutionary and developmental stages of the factors influencing public opinion are clarified, and their general trends are identified.

Second, in the course of the research, special attention should be paid to each feature of the respondents (age, gender, racial origin, level of education, etc.). This is because the main factors that lead to the overall results of the study are the process associated with the characteristics of the respondents.

Third, it is necessary and necessary to establish a concrete approach to each factor that may affect public opinion. This is because the dynamics of variability between the results obtained, i.e. the change in the level of efficiency, depends primarily on the inter-trend correlation, and the course of this process is determined by the accuracy with which the goal is achieved.



Fourth, it is possible to create a rational approach to a particular problem that is emerging in public opinion, to identify trends in its development, and on this basis to make predictions about future plans. The best way to do this is to use a “profitability level”.

The general classification of the method of "rate of return", which we recommend to use in research in the social sciences, can be explained as follows:

$\bar{R} = \frac{\sum qf}{\sum qz + \sum qc} * 100$  using the formula it is possible to study public opinion, that is, to analyze the factors influencing it, to determine the dynamics of variability, to find the correlation between the formation, development trends.

For information, when performing a mathematical calculation according to the above formula, you will need to work in the following order:

- qi –the total number of respondents participating in the study;
- fi –respondents who responded in accordance with the purpose of the study;
- zi –respondents with high levels of dynamic variability;
- ci –respondents who are passive about the conditions set for the research topic;
- ri –the degree of profitability of the results obtained.

Using this formula, it is possible to clarify the general "level of profitability" of the factors that are formed in public opinion as a result of research,

to make scientific predictions on the dynamics of its variability, the trends of formation. The characters involved in this process in the formula are subject to the following principles: "Qi" is a number of criteria aimed at the purpose of the study, the dynamic variability of which is determined by the constant amount of respondents; "Fi" is the disclosure of the essence of the research, ie the number of criteria that determine its "nuclear point", the main focus is on the attitude of the respondents. This is because it is this sign of the formula that reveals the purpose of the research; The number "Zi" is used to indicate cases of instability in the respondents' participation in the study, with the main focus on identifying a quantitatively unstable part of the community; “Ci” is a criterion for distinguishing between respondents who are passive, indifferent to any reform in society, wrapped in a narrow “shell”, but seemingly active; "Ri" is a degree indicator of the correlation between the criteria, and is important in that it focuses on finding the characteristics of individuality, generality and specificity of each respondent in the study.

**RESULTS AND DISCUSSION**

In order to find out how well the above-mentioned scientific and theoretical ideas are applied in practice, "Are your interests important to us?" When conducting a questionnaire on the topic and comparative analysis of the results to determine the "level of profitability", the following indicators emerged:

**Table 1**

Subject:		Are your interests important to us?			
№	Questions	Ci	Secondary school No. 19 of Bukhara region	Secondary school No. 18 of Navoi region	Secondary school No. 55 of Samarkand region
			Boy:	Boy:	Boy:
			15 ta	15 ta	15 ta
			Girl:	Girl:	Girl:
			15 ta	15 ta	15 ta
			30/100 %	30/100 %	30/100 %
9th grade	9th grade	9th grade			
			boy / girl	boy / girl	boy / girl
<b>1.</b>	<b>What knowledge is important to you:</b>				
1.1	Knowledge gained based on interest	<b>Ci</b>	13/10	14/13	14/14
1.2	Knowledge given by parents	<b>Zi</b>	9/10	10/11	13/14
1.3	Knowledge from school textbooks	<b>Fi</b>	7/11	9/13	11/13
1.4	Knowledge gained through	<b>Zi</b>	9/12	8/15	12/15





	independent book reading				
1.5	Knowledge given by the bitter lessons of life	Ci	14/5	13/7	15/4
<b>100%</b>			60,0	73,3	80,0
<b>The rate of return on a question</b>			21,9	24,1	23,7
<b>2.</b>	<b>Which type of art are you most interested in:</b>				
2.1	To the art of music	Ci	15/13	13/13	14/12
2.2	To the art of cinema	Ci	14/14	15/15	14/10
2.3	To theatrical art	Fi	6/8	8/5	6/9
2.4	To the art of painting	Zi	10/12	9/11	9/6
2.5	To the art of sculpture	Zi	13/10	12/7	10/6
<b>100%</b>			46,6	43,3	50,0
<b>The rate of return on a question</b>			13,8	13,6	18,5
<b>3.</b>	<b>What do you think a religious belief gives a person:</b>				
3.1	Peace of mind, comfort to the heart	Zi	11/9	12/10	10/9
3.2	Help to get out of a state of depression	Ci	10/8	11/9	9/7
3.3	Reminds me that I am helpless in the face of nature	Ci	5/7	7/10	10/7
3.4	Spiritual support, spiritual strength	Fi	7/8	9/6	6/6
3.5	Self-confidence, encouragement	Zi	8/10	12/11	11/12
<b>100%</b>			50,0	50,0	40,0
<b>The rate of return on a question</b>			22,0	18,2	16,0
<b>100%</b>			52,2	45,6	46,1
<b>The level of profitability on three questions</b>			18,7	18,6	19,8

Using the above formula, the level of profitability of the results of the survey conducted in the 55th secondary school in the table was determined in the following order:

**For the first question:**

$$\bar{R}_1 = \frac{\sum_{i=1}^1 q_i f_i}{\sum_{i=1}^3 q_i z_i + \sum_{i=1}^4 q_i c_i} \cdot 100\% = \frac{18}{19 + 21 + 23 + 19} \cdot 100\% = \frac{18}{82} \cdot 100\% = 21,9$$

**For the second question:**

$$\bar{R}_2 = \frac{\sum_{i=1}^1 q_i f_i}{\sum_{i=1}^3 q_i z_i + \sum_{i=1}^4 q_i c_i} \cdot 100\% = \frac{14}{22 + 23 + 28 + 28} \cdot 100\% = \frac{14}{101} \cdot 100\% = 13,8$$

**For the third question:**

$$\bar{R}_3 = \frac{\sum_{i=1}^1 q_i f_i}{\sum_{i=1}^3 q_i z_i + \sum_{i=1}^4 q_i c_i} \cdot 100\% = \frac{15}{20 + 18 + 18 + 12} \cdot 100\% = \frac{15}{68} \cdot 100\% = 22,0$$

**For three questions:**

$$\bar{R} = \frac{\sum_{i=1}^1 q_i f_i}{\sum_{i=1}^3 q_i z_i + \sum_{i=1}^4 q_i c_i} \cdot 100\% = \frac{47}{82 + 101 + 68} \cdot 100\% = \frac{47}{251} \cdot 100\% = 18,7$$



## CONCLUSIONS

The advantage of determining the "level of profitability" of a dynamic change in public opinion can be explained as follows:

**First**, the relative "Qi" of the respondents in the survey is unchanged, i.e., the total number of students surveyed is unchanged, regardless of how many times the survey was conducted.

**Second**, while  $F_i$ , which is intended to determine students' attitudes toward a question, remains unchanged, it can be seen as an unnatural situation for  $Z_i$  and  $C_i$  to increase as a result of change, i.e., decrease. This is because increasing the 'rate of return' obtained relative to 'Fi' while maintaining a constant amount of 'Qi' makes it possible to solve the complexities of any research.

**Thirdly**, another advantage of the "profitability level" method, which is one of the methods that helps to calculate the survey results and achieve the overall result, is that it can be used to open surveys that cannot be determined as a percentage (respondent who answered several questions at the same time).

**Fourth**, using the method of determining the "profitability level" of the problem, it is possible to observe the increase in the target coefficient of the survey conducted several times in the same area, ie the number of respondents in the same area, although the number of respondents in the same form. shows the universality of this method.

The dynamic development trends and methods of transformation of the phenomenon of public opinion, the diversity of rates of change of "technology": the characteristics of straight and curvilinear development, the driving forces, the need to take into account non-traditional (synergetic chaos) imbalances in the system of mechanisms.

Therefore, in the systematic scientific analysis of the results of the impact of forms of social consciousness on the development of public opinion: the method of determining the "level of profitability", widely used in research in economics, sociology, mathematical statistics and other sciences, is important in directing public opinion. In particular, determining the "level of profitability" of public opinion is an important scientific and sociological method in the rational and constructive organization of the system of management and control of sustainable development of society.

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## **FEATURES OF AGROTECHNOLOGY OF CULTIVATION OF LEGUME CROPS IN UZBEKISTAN**

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## **ОСОБЕННОСТИ АГРОТЕХНОЛОГИИ ВЫРАЩИВАНИЯ БОБОВЫХ КУЛЬТУР В УЗБЕКИСТАНЕ**

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**Аннотация:** В результате выявлено в адырной зонах Ферганы посев зернобобовых культур обеспечивают увеличение содержание в почве 150-170 кг чистый азот на каждом сезоне.

**Ключевые слова:** фотосинтез, агротехнология, экология, модернизация, бактерия, биомасса, азот, фосфор, калий, аэрация почвы.

В Указе Президента Республики Узбекистана «О стратегии действия в развитии по пяти приоритетным решениям важнейших направлениям на 2017-2021 годы». Поставлены задача решения важнейших проблем, одно из них как ускорение развития сельско хозяйственного производства, для обеспечения продовольственной безопасности страны, потребуется расширить производство экологически чистого продукта, внедрить инновационные технологии для улучшения плодородия почвы.

Внедрить решения проблемы растительного белка важная роль входит к бобовым культурам так как в адырных почвах Узбекистана в том числе в Ферганской области в почве мало гумуса (0,80-1,00%) а, бобовые увеличивают содержание азота в 2-3 раза больше, по сравнению озимных культуры. Кроме того бобовые содержит в семенах больше белка (2-2,5 раза) по сравнению кукуруза.

Учитывая что горох, фасоль, соя, а также многолетние люцерны более засухоустойчивые культур чем других зернобобовых в кафедре Экологии Ферганского Государственного



университета с 2015 года проводятся стационарные полевые опыты в адирных зонах Ферганского района. Содержание гумуса, общего азота, фосфора и калия до начала опытов были: гумус – 0,83 %, общий азот, фосфора и калии 0,9%, 0,62 % для получения 30-32 ц/га зерно и 500 ц/га сено люцерны нам нужны вносят вариантах опыта 200 кг азота, 180 кг фосфора, 150 кг/га калий хлора.

По результатам опытов выявлено кормовой качество кукурузы был ровен 92.0 кг/га, гороха 203 кг/га, фасола 197, у люцерны 155 г/кг, протеина, повысилось содержание лизина, цистина, триптофана, растворимость белка увеличилось 2 раза.

Расчеты показывали, что у бобовых растение выход белка значительно больше чем у злаковых. Например озимая пшеница при урожае зерно 60 ц/га сформировала 702 кг белка, горох 1255, соя 2350 кг/га в условиях адирных сероземных почвах при оптимальном режиме полива в результате симбиоза за вегетацию количество азота в почве люцерной составляло 155-202 кг/га (двух годичных) и 45 т/га корневой пожнивное остатки или хороший плантации люцерны (густота стояние 2,5 млн/га) оставляет в течение 3 года 380-800 кг/га азота. Значит каждые 100 гектар плантации оставляет до 80-90 т/га аммиачной селитры

В условиях поливном земледелия Узбекистана, особенно новоорошаемых адирных зонах на обоготени почвы азотом бобовые культура надо включить в севооборотном полевых обязательно порядке бобовые культуры. Задаётся вопрос, почему бобовые обогащают почву азотом? Вед растения усваивают азота воздуха чтобы оставить потомство-семена, эволюция растений так отшлифовала все грани энергетического обмена, что нет ни одного биологического процесса, который не был бы жизненно необходим для организма. Даже фиксация атмосферного азота идет потому что, нет в более доступных формах, как только появляется достаточно азота минеральных формах, этот дорогостоящие для растений процесс немедленно прекращается, таким образом растению не трать зря ни одной калории энергии (S.K.Agoa.1986)

Если сравнивать зернобобовых, с другими бобовыми культурами- люцерной, клевером, люпин многолетними культурами, то видно у вторых - корневая система и нижняя часть стебля – корневая шейка со спящими почками зимуют и на следующие год нормально отрастает и следующие год появляется побеги и дают семена. Таким образом многолетний бобовые растений

это кладовая элементов питания для будущих поколений растения.

В корневой системе высокоурожайной люцерны накапливается до 110-150 кг азота на/га, а человек распахивая люцерны, этих фонд передаем их другими культурам. Многие зернобобовые культуры - однолетники, вся генетическая программа их организмы накапливает питательные вещество в семенах, например к фазу цветения растения накапливают 30 - 45 % азота от максимального за вегетации, позже и листья, и корни работают только бобы до конца вегетации, в результате клубенки меньше поступает углеводы и снижается азотфиксации, клубенки **бобы нужны много азота**. Начинается реутилизация питательных элементов из вегетативных к генеративными органами до 70-80 % от всех накопленных, почти все ресурсы мобилизуется на формирование семян. Из этих можно сделать вывод о том, что к концу вегетации истощаются корневая система, изымают из нее все, что им нужны. Поэтому к уборке семян в корнях остается 3-5 кг/га азота. Эти же цифры даже меньше чем небобовых культур. Кроме того при урожае семям 20-30 ц/га с вегетативными и генеративным опадом в поле остаётся 20-25 кг азота т.е. всего 30-40 кг/га, а при низких (10-15 кг/га) эта величина снижается до 15 кг/га, это намного меньше чем растения берут из почвы если зернобобовые убираются на зеленую массу в фазу налива бобов, то с корнями и пожнивными остатками остается до кг азота.

**Задаётся вопрос? Почему этих культур считается лучшим предшественником, чем ячмень или овес?** Для того чтобы соя или горох давала 30 ц/га семям, для этого усвоит из почвы 200-300 кг азота. При хороших условиях симбиоза из воздуха могут взять 200-220 кг азота, а из почвы 60-80 кг, т.е. почва истощается немного, пшеница при урожае 30 ц/га истощает почвы 120 г/га. Значит зернобобовые не обогащают почву азотом, однако они ее меньше чем других культур истощают, белки зернобобовых состоящие из легкорастворимых фракций быстрее минерализуется и высвобождают питательные вещества для последующих культур.

Важным является то, что адирных сероземных почвах содержит гумуса 0,8-1,0% в результате вносить большой доза азотных (250-300 кг/га) фосфорных и калийных удобрений а это небезопасно с точки зрения охраны окружающей среды, причем посев овощи – бахчевых культур при усиленном нитрогеном питания загрязняет грунтовых вод.

Чтобы вырастить высокой урожай бобовых надо иметь машин и оборудование удобрений,



пестицидов, нужно изучить биологические потребности к удобрениям и др. факторами среды.

Особенности агротехнологии выращивания адырных почвах Ферганской области создание экологических условий для максимального усвоения азота воздуха, к сожалению еще неразработано, агротехнологий зернобобовых культур, каковоже требований, чтобы получит 30-40 ц/га урожая в орашаемых почвах Ферганской области ? По нашему взгляду нужни создать следующие:

**Реакция почвы.** Известно, что любая культура предъявляют, разные требования к реакции почвенно раствора, например соя, горох, фасол, мош, которых в условиях нашего края дефицит влаги играют большой роль в онтогенезе, например горох при pH – 5.0 могут формировать активный симбиотический аппарат, хорошо фиксируют азота воздуха, одноко фасол и маш в этих условиях мало фиксируют, страдают от азотного голодания и урожай снижается. Однако в условиях Ферганской области pH выше 7-8, т.е. карбонатность распространена всюду от 7,5 до 9,5 поэтому в условиях засоленных почвах последние годы продолжается полевые опыты в различных почвенно климатических зонах области проведенные опыты 1991-1995 гг и 2004-2008 гг в среднесоленых почвах Язванского массиве выявлено следующие:

При содержание хлора 0,03 % горох, мош, фасол и соя давало 23-26,5 ц/га, при чем мош и

фасол росла более интенсивно по сравнению гороха и сои. Отмечалось устойчивости растений на варианте внесенные перед пашни 20 т/га навоза и 50 кг/га азота и 75 кг/га суперфосфата, калий не вносили, так как в почве оно было достаточно. В результате опытов автора рекомендовали в условиях засоления внесли 20-25 т/га навоза или по сев сидератных культур: рапса, тритикале и рожь.

Для бобовых культур влажность почвы должна быть оптимальными, в наших регионах должна быть не менее 65-75 % от ППВ. При такой влажности капилляры соединяют большие слои почвы. Тонкий корешок с корневыми волосками нашедшись капилляр использует из него воду в месте с растворенными в него минеральными солями, даже двигается дальше. Однако как только воды становятся меньше, капилляры разрывается, на корнях исчезает вода и они вынужден искать другой участок капилляры с водой. Следовательно, продукты фотосинтеза направляется на усиленный рост мелких корней, снимается обеспеченное клубеньков углеводами, активность азотфиксацию резко падает. Без углеводов леггемоглабин разрушается, клубенки, отмирают, повторное снабжение водой не помогут восстановление, растения от азотного голодания приостанавливать рост. Вед причины о том, что в одинаковых условиях выживания накопление сухого вещества (биомасса) у зернобобовых бывает меньше, чем других культур (таблица)

**Урожайность бобовых культур (pH – 8,2)**

Культура	Влажност 65 – 70		Влажност 45 – 50 % от	
	% от ППВ		ППВ	
Соя	25,6		10,3	
Фасоль	33,5		18,4	
Горох	32,0		17,6	
Люцерна (сено)	195		82,4	
			Без орошения	
			7,5	
			9,2	
			12,6	
			41,3	

Отсюда можно сделать выводы о необходимости в условиях орашаемых зон обеспечение почвы водой не менее 65-70% от ППВ. Люцерна дают более высокий урожай при снижении влажности 30-50%.

**Аэрация почвы.** Известно, что симбиотическая фиксации азота аэробный процесс, на 1 млн фиксированного азота воздуха расходуется 3 мл кислорода. клубеньки образуются в достаточном количестве воздуха, они обычно развивает 0-15 см слое, при снижении доступного O<sub>2</sub> к корням снижается содержание легглобина и усвоение азота воздуха. Следовательно, бобовые культуры надо размешать на рыхлых, не заплыватних почвах,

после дождя необходимо разрушать корки путем культивации.

**Наличие в почве специфического вирулетного активного штамм ризобиум.**

На засоленных и кислых почвах, а также на адырных и песчаных спонтанные штаммы редко, даже общее не встречается, поэтому ученые уже более 50 лет рекомендуют обработку имян **нитрогеном**, который повышают урожайность бобовых культур. В условиях адырных зон когда сиются люцерна, люпин, соя, фасол и др. бобовых без инокуляция семян не рекомендуется проводит посев, так как клубенки не образуется, а урожайность редко снижается. Если имеется





возможность микроэлемент молибден то совместь  
с нитрогином.

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## METHODS OF INFLUENCE OF SOIL POWING ON GROWTH, PLANT DEVELOPMENT AND ACCUMULATION OF CLUBBERRY BACTERIA

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### СПОСОБЫ ВЛИЯНИЯ ВСПАШКИ ПОЧВЫ НА РОСТ, РАЗВИТИЕ РАСТЕНИЙ И НАКОПЛЕНИЕ КЛУБЕНКОВЫХ БАКТЕРИЙ

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**Аннотация:** Установлено положительное влияние по всех зернобобовых культур в условиях Ферганской области, обеспечивающие получение 32-35 ц/га зерно.

**Ключевые слова:** экология, растение, бактерия, бобов, горох, пшеницы, микроорганизм.

Из всех зерновых бобовых культур горох в Республике получил самое широкое распространение. Его возделывают в различных почвенно климатических сероземных почвах, урожайность заметно растут, технология производства горохо во всех зонах Узбекистана хорошо изучена, селекционеры создали многочисленные сорта, особенно созданные научно – исследовательской институте Андижане.

В зонах, где основной зерновой культурой является озимая пшеница (в Республике площадь его составляет 1,200 тысяч\га), а пропашные в полевом севообороте является хлопчатник (около 1 млн\га) лучшие предшественники горох, соя, фасол и маш.

Горох размешают в основном по озимой пшенице, чаще кукуруза, сорга на зерно или на силос. Если горох сеются в ранних веснах после уборки (в начале июнь) повторный посев горохо дают урожай 30-35 ц/га зерно определяя место бобовой культуры в севообороте, необходимо учитывать такие экологические факторы, как степень засорения поля сорняками, зараженность болезнями и вредителями, уровень

обеспеченности оргоно – минеральным удобрениями.

Во всех зонах возделывания гороха на поле где внесено свежи органическое удобрение, так как у растений развивается машная надземная масса в ущерб зерновой продуктивности, происходит полечение, удлиняется вегетационный период, отмечаются очаги вредителей, в результате урожай зерно снижается. Лучшим предшественником горохо являются озимая пшеницы, который увеличивает урожай на 40-50 % по сравнению контроля республике возделывания гороха основной значение имеет свреминная и качественная основная осенняя обработка почвы. Надо учитывать что создание благоприятного воздушного режима для жизнедеятельности почвенных микроорганизмов, оптимальных условий для лучшего накопления и сохранения влаги, борьба с сорняками и вредителями растений.

При глубокой зяблевой пахоты на глубине 32-35 см резко улучшается водно – воздушный режим, более интенсивно разлагаются



оргонические остатки, что способствует улучшению пищевого режима почвы. Как видно из данных таблиц 1 содержание нитратов и фосфорной кислоты при глубокой в спашке значительно – выше чем при обычной (Назаров и др,1995; Назаров, Ахмадалиев,1997).

Глубокая зячевая в поиска положительно влияет на качество зерна гороха. Например при вспашка на обычную глубину содержание протеина на зерне составило 16,3%, то при глубине пахаты 32-35 см оно повысилось до 19,3 % , на 1,68% увеличивалось количество протеина и в соломе.

Особенно тшательно необходимо проводить осеннюю вспашкар почвы, так как в дальнейшем наличие на посевах гороха остатков кукурузы затрудняет равномерную задалку семях, уборку и приводит к большим потеряя урожая. Большое значение имеют сроки пахоты при подъеме зяби сентябр улушшается водный и

воздушный режим почвы, и физико-химические свойства, активизируется микробиологические процессы, большие сохранения влаги, все это создат наиулучшие условия для получения высокого урожая гороха.

Таким образом зяблевая пахота почвы значительно повышают урожай, на варианте глубокой вспашки и большего азота в почве (120-145 кг/га).

Иногда фермеры весной почву перепахиват. Это резко снижает влаге в почве а это для гороха особенно вредно потому что для гороха особенно вредно потому что в условиях средней Азии сумма годовых осадков составляет 220-230 мм в результате упускают ранние сроки посева, снижается эффективность зят в борьбе с сорной растительностью и вредителями бобовых растений. Особенности минерального питания горохо, как других зернобобовых культур.

**Влияние глубины вспашки в адирных зон сероземных почв на количество нитратов и фосфорной кислоты (мг/кг почвы)**

Глубина пахаты см	Слой почвы в см	Количество нитратов в мг/кг почвы			Содержание P <sub>2</sub> O <sub>5</sub> в мг на 1 кг почвы		
		N перед посевой	P <sub>2</sub> O <sub>5</sub> фаза цветения	K <sub>2</sub> O перед уборкой	Перед посевой	Фаза цветения	Перед уборкой
22-24	0-20	23,0	25,4	11,3	20,3	15,3	16,3
	20-30	15,7	16,3	9,7	17,6	17,3	14,4
	0-30	22,3	21,4	12,4	20,2	15,9	15,9
32-35	0-20	33,1	34,3	18,3	25,4	18,2	19,3
	20-30	27,8	18,1	14,2	20,3	14,1	19,6
	0-30	26,4	27,2	14,6	24,3	17,2	19,4

Обуславливаются их биологическим свойствами известно, что бобовых усваивают азота атмосферы тем больше, чем выше их продуктивность, у гороха она колебься от 42 до 78 % общего потребления этого элемента из окружающей среды. Опыты проведенные наши в последние годы показывают способность бобовых завист от физико – химического состава почвы, влажности, температуры реакции почвенного раствора, от степени обеспечения растений макро – микроэлементами однако важной яв-ся их способность выносить с урожаем большое количество азота, кальция и других элементов.

При урожае 18 ц зерна и 22 ц саломы с 1 га выносит из почвы 85-90 кг N, 50-60 кг Ca и K, 25-30 кг P. Горох отличаются повышенное количество фосфора однако из трудновсвояемых фосфора поэтому широко использовать под горохам фосфоритную муку. По данным Г.Н.Ненайденко (1967) к началу цветения горох используют 36 % азота, 60-64 % фосфора, 37-53 % калия от общего выноса этих элементов за весь период вегетации. Горох высокоэффективно P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>Cl удобрений.

**Влияние способов вспашки почвы на накопление клубеньковых бактерий**

№	Основная обработка почвы	Фаза цветения		Фаза созревания	
		Количество клубеньков тыс. шт. на 1 кг	Сухая масса клубеньков кг на 1 га	Количество клубеньков тыс. шт. на 1 кг	Сухая масса клубеньков кг на 1 га
1	Отвальная, вспашка на глубину 20-22 см	1529	65	1314	59
2	Отвальная вспашка на глубину 32-35 см	1927	105	1835	82
3	Безотвальная вспашки на глубине 20-22 см	768	19	728	19
4	Безотвальная вспашки на глубине 32-35 см как видно из провидно из проведенной	950	27	834	24

Выявлено, что в начальный период развития бобового растения в почве не всегда достаточное количество азота. Учитывая этого положения мы с самого начала (1993) полевых опытов под предпосевную культивацию вносили 25-30 кг/га аммиачной семестры. Начиная с 2007 года когда впервые в условиях адырных почвах начали научную работу по разработке агротехнологии выращивания гороха, сои, фасоля, маша, люцерны и других бобовых культур. В одном из опытов вносили вариант с нормой органических удобрений 25 и 40 т/гк где навоз в наших условий вносят под осеннюю вспашку 25 и 40 т/га, навоза + до всего норму фосфорных и калийных удобрений, затем провели пахаты на глубине 32-35 см. от способов основной обработки почвы в значительно зависит агротехническая роль гороха его способность накапливать азот.

Отвальной вспашке количество клубеньков на корнях гороха 2 раза больше, чем при безотвальной обработке (таб 2)

Весенняя предпосевная обработка почвы проводится для выравнивания поля, сохранения накопленной влаги, рыхления верхнего горизонта почвы для равномерного заделки семян и уничтожения сорняков. Весенняя предпосевная обработка почвы проводится для выравнивания поля, сохранения накопленной влаги. Весенняя предпосевная обработка сводится к одному раннему боронованию зябы, одной – двум культивациям и прикатыванию, боронование проводится тяжелыми боронами в два следа при большой скорости движения агрегатов.

На основании вышеизложенных материалов можно сделать следующие выводы. На адырных зонах Ферганского области посев гороха и других бобовых культур, при глубокой

вспашки почвы. Создается оптимальная условия для формирования клубеньковых бактерий обеспечивающие 32-36 л/к зерно гороха.

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## **VALUE OF SPIRITUAL EDUCATION IN FORMING DEVELOPED GENERATION**

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### **ANNOTATION**

*Today, the issue of educating a harmoniously developed person is defined as one of the priorities of state policy. The future civilization of any society depends on its educational status, structure and essence of the new system, its deep educational culture.*

**KEYWORDS:** *education, change of consciousness, great condition, spiritual life, globalization process, harmoniously developed generation, the glory of our people, talented people*

## **ЗНАЧЕНИЕ ДУХОВНОГО ОБРАЗОВАНИЯ В ФОРМИРОВАНИИ РАЗВИТОГО ПОКОЛЕНИЯ**

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**АННОТАЦИЯ:** Сегодня вопрос воспитания гармонично развитого человека определен в качестве одного из приоритетов государственной политики. Будущая цивилизация любого общества зависит от его образовательного статуса, структуры и сущности новой системы, его глубокой просветительской культуры.

**КЛЮЧЕВЫЕ СЛОВА:** образование, изменение сознания, великое состояние, духовная жизнь, процесс глобализации, гармонично развитое поколение, слава наших людей, талантливые люди

Согласно философии просвещения, образование, являющееся продуктом сознания, - это, прежде всего, уровень сознания и в то же время единственная основа развития сознания.





Цивилизация не может быть достигнута без изменения сознания, мышления, мировоззрения. Понимая силу знаний и мышления, Узбекистан поставил высокую цель в качестве приоритета государственной политики, прежде всего, создания свободного и процветающего общества, великого государства будущего посредством трансформации сознания, образования и формирования современного мировоззрения. В конце концов, идеи национального возрождения могут быть глубоко применены в жизни только поколением, которое является умственно зрелым, обладает современным глобальным интеллектом, мышлением и мировоззрением.

«Наша главная задача - добиться этого», - сказал-Ш. Мирзиёев - Идея создания необходимых условий для того, чтобы молодые люди проявили свой потенциал, чтобы предотвратить распространение «вируса» насилия. Для этого мы считаем, что необходимо развивать многостороннее сотрудничество в области социальной поддержки подрастающего поколения, защиты их прав и интересов» [1.]

В углублении реформ в экономической, социальной, политической и духовной жизни Узбекистана большое внимание уделяется духовному обновлению общества. Процесс построения основ демократического, правового гражданского общества на основе рыночных отношений в стране осуществляется на основе духовного обновления, духовного пробуждения, духовного возрождения, понимания национальной идентичности. После обретения независимости активизировалось осуществление мер, направленных на восстановление богатого исторического и духовного наследия, реформирование мировоззрения нашего народа в духе национальной независимости, создание идеологии независимости и ее внедрение в умы людей.

Духовность — это самосознание человека, его пронизательность, умение различить справедливость от подлости, хорошее от плохого, красивое от безобразного, уверенность от своенравия, умение поставить перед собой высокие цели и идеи, стремление к их воплощению. Как сказал И. А. Каримов, духовность — это не подарок судьбы. Для того чтобы духовность воцарилась в душе человека необходимо работать от души и с совестью, с умом и руками [2 с.-74].

Духовность — понятие сложное и многогранное. Она охватывает многие стороны сознания, мышления, убеждений человека, культурное наследие и систему современных

научных и художественных ценностей, обычаи, традиции, ритуалы, религию и религиозную практику. В свою очередь каждое из перечисленных явлений состоит из множества конкретных ценностей.

Естественно, не все они равнозначны по своим возможностям служить потребностям независимости, влиять на общество и людей [3.с.-68].

В различных докладах, сделанных на конференциях, встречаются такие трактовки, как “духовность — это система, положительно влияющая на всестороннее развитие человечества, это нравственность, знания, наука, вера и преданность”, или “духовность — это сумма умственных, нравственных, научных, практических, идеологических взглядов человека, степень отражения его религиозных и светских взглядов”. По мнению А.Эркаева, “духовность — сущность человека в качестве социокультурного сущего, то есть единый комплекс таких качеств человека, как доброта, справедливость, честность, совесть, патриотизм, любовь к красоте, ненависть к злу, воля, мужество и других достоинств” [4.с.-27].

В процессе нравственного воспитания применяются и такие вспомогательные методы как поощрение и наказание. Они служат для одобрения положительного и суждения отрицательных поступков и действий. К методам нравственного воспитания относится так же личный пример, который оказывает огромное влияние на сознание и поведение, на формирование морального облика.

В системе основных методов воспитательного воздействия как составная часть, средство и прием используется положительный пример. В педагогической литературе он рассматривается как самостоятельный метод и как компонент-методов формирования нравственного сознания и поведения. [5. с. 167].

Существующая система образования не способна выполнить трудную и ответственную задачу по воспитанию профессионально, морально и духовно гармонично развитого поколения, способного удовлетворить потребности постоянно меняющегося сложного мира, ускоряемого глобализацией.

Цивилизация общества зависит от его гуманного образовательного статуса. Исходя из этого факта, создания демократического государства, регулируемого верховенством закона, формирование справедливого гражданского общества поставило перед собой конституционную цель.



В настоящее время большое значение придается развитию у учащихся умения предвидеть наступление тех или иных событий, получение тех или иных результатов в итоге принятых решений. Отмечается, что в системе

причинно-следственных зависимостей учащихся относительно легко находят причины тех или иных действий или принятого решения.

Предвидения как интеллектуальные умение высокого уровня базируется прежде всего на усвоении общих закономерностей в природе, общественной жизни, науки и включает умения наблюдать, анализировать, сопоставлять, устанавливать связи между явлениями выявлять тенденции развития делать умозаключения по аналогии, а также овладение методами

индуктивного и дедуктивного мышления. [6. с. 167].

Наши сердца поднимаются как гора, когда мы думаем о нашем молодом поколении, которое является символом нашего будущего, наших детей, которые пожертвовали своими жизнями во славу нашей страны и нашего народа и которые одержали победы в борьбе. Потому что только талантливые люди, которые имеют чистую кровь молодежи в своем теле и всегда преданы своей стране, могут внести достойный вклад в универсальное совершенство, демонстрируя, на что способен человек.

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## **POSSIBILITIES OF PSYCHOLOGICAL SELF-KNOWLEDGE AND COGNITION OF OTHER PEOPLE**

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### **ANNOTATION**

*In this article, the author notes that cognitive processes include sensations, perceptions, attention, memory, imagination, thinking and speech. Psychological knowledge about a person's state includes ideas about his positive or negative emotional mood, about his general tone, about his inner tension, about features of attention, as well as the nature of emotions: effects, feelings, passion and stresses.*

**KEYWORDS:** *Human psychology, science, art, human motivation, values, goals, interests, needs, intuitive guesses, psychological knowledge, intuition, scientific knowledge*

## **ПСИХОЛОГИЧЕСКАЯ САМОПОЗНАНИЯ И ПОЗНАНИЯ ДРУГИХ ЛЮДЕЙ**

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### **Аннотация**

В данной статье автор отмечает, что познавательные процессы включают в себя ощущения, восприятия, внимание, память, воображение, мышление и речь. Психологические знания о состояниях человека включают представления о его положительном или отрицательном эмоциональном настрое, об общем тоне, о внутренней напряжённости, об особенностях внимания, а также о характере эмоций: аффектов, чувств, страстей и стрессов

### **Ключевые слова**

Психология человека, наука, искусства, мотивации человека, ценностей, целей, интересов, потребностей, интуитивных догадок, психологическая познания, интуиция, научная знания



Президент Республики Узбекистан Шавкат Мирзиёев отметил, “что важнейшими направлениями государственной политики в сфере медицины являются забота о психическом здоровье населения профилактика диагностика лечение психогенных и психосоматических расстройств”. [1]

В настоящее время мы располагаем накопленными веками знаниями о психологии человека. Весомый вклад в этот процесс внесли профессиональные психологии, а также писатели, философы, представители других областей науки и искусства. Зачастую люди, не имеющие отношения к науке по мере развития цивилизации собирали и передавали из поколения в поколение в поколение полезные сведения о психологии человека и об отношениях людей в виде житейских мудростей, обычаев и традиций. И тем не менее по сей день мы не можем с уверенностью говорить о том, что знания наши о психологии человека и, его поведении достаточно полны и объективны.

С достаточной уверенностью можно судить о внимании человека, о его памяти, о многих других вещах, связанных с использованием человеком имеющейся у него информации для решения разнообразных задач. В психологии это относится к сферам воображения, мышления и речи. В целом немалыми, но, конечно, далеко не исчерпывающими знаниями мы располагаем о психологии познавательных процессов.

Формирование двигательного акта, -писал Н.А.Бернштейн,-есть на каждом этапе активная психомоторная деятельность. Для каждого двигательного акта, потенциально доступного человеку, в его центральной нервной системе имеется адекватный уровень посторения способный реализовать основные сенсорные коррекции этого акта соответствующие его смысловой сущности. Чем сложнее движение, тем многочисленнее разнообразнее требующиеся для его выполнения сенсорные коррекции. [2]

О способностях людей, например, до сих пор известно очень мало: не до конца ясна их природа, нет достаточных сведений о том, как их формировать или изменять. Вместе с тем мы всё же научились более или менее хорошо оценивать уровень развития способностей человека при помощи различных тестов.

Знания и объяснения мотивации человека, его ценностей, целей, интересов и потребностей,

Во -первых, в большинстве случаев имеют характер интуитивных догадок, т.е. научно

не вполне обоснованных предположений и гипотез,

Во-вторых, касаются в основном лишь отдельных мотивационных образований человека, например осознаваемых потребностей, интересов целей.

Не менее сложно изучение межличностных отношений. Связано это с тем, что с одной стороны, познания последних сложнее, чем например, познание психических процессов, с другой стороны-область науки, специально исследующая человеческое отношение,-социальная психология-возникла сравнительно недавно. Тем не менее мы уже сейчас вполне в состоянии оценить личные взаимоотношения человека с окружающими людьми, его деловые взаимоотношения, отношение человека к себе или к другим людям. [3]

Преодолеть ограничения, стоящие на пути психологического познания человека и его отношений, можно разными путями. Некоторые из них, например научное познание психологии человека, доступны только учёным. Другие, например житейское познание психологии и поведения человека, в принципе по силам всем образованным, культурным и достаточно опытным взрослым людям. Любой человек на достаточном для жизни бытовом уровне может овладеть сравнительно простыми методами психодиагностики для познания себя, окружающих людей и человеческих взаимоотношений. К таким вполне доступным методам психодиагностики относится, например, наблюдение.

В результате продуманного, заранее спланированного наблюдения за поведением человека можно многое узнать о его психологии. Для этого надо точно установить, что, где, когда и как следует наблюдать.

Много полезной информации о психологии интересующего нас человека могут дать психологические тесты.

Для того чтобы овладеть методом тестирования, необходимо усвоить начальный курс теоретических и методических психологических знаний. Кроме того, хорошо овладеть техникой применения того или иного психодиагностического теста. И наконец, изучить научно обоснованные способы, интерпретации знаний, получаемых с помощью тестов, т.е. знать, какие выводы о человеке можно делать на основе проведенного тестирования.

К. Юнг также предложил одну из наиболее интересных психологических типологий личности, разделив людей на следующие типы:



мыслительный, или интеллектуальный;  
эмоциональный, или сентиментальный;  
чувствующий или сенситивный и интуитивный.  
[4]

Знание психодиагностики позволит перейти от житейского познания психологии и поведения людей к научному. Основная задача данного пособия как раз и состоит в том, чтобы помочь вам сделать этот важный шаг.

Чем же научные знания о психологии людей отличаются от житейских- от тех, которые каждый из нас регулярно получает в результате общения с людьми, приобретая жизненный опыт?

Научные знания более объективны и независимы от индивидуального опыта человека, чем житейские. Они, во-первых, ближе, к истине, во-вторых, точнее отражают то, что есть в самой жизни. В житейских знаниях много заблуждений и предрассудков, основанных только на интуиции и вере.

Научные знания, напротив, базируются на достоверных фактах и предполагают не веру, а разумное обоснование. Научные знания в их практическом применении гораздо реже ведут к ошибкам, чем житейские. Поэтому для того, чтобы даже на бытовом уровне научиться пользоваться психодиагностическими методиками и с их помощью получать достоверные сведения о человеке, необходимо располагать хотя бы минимумом научных знаний о психологии человека.

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## ABOUT THE REFOUNDED DASTAN "LEILI AND MEJNUN"

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### ANNOTATION

*This article provides information about the work "Leyli and Majnun" by Mansurkhoji, the illegitimate son of Nasyrhoja, who worked under the influence of Alisher Navoi and one of the creators who tried to write a similar imitation of some works in the composition of "Khamasa".*

**KEYWORDS:** *Manuscript, copy, work, book, short story, poet, thinker, literature, example, source, throne.*

## О ВНОВЬ НАЙДЕННОМ ДАСТАНЕ "ЛЕЙЛИ И МЕДЖНУН"

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### Аннотация

В данной статье приводятся сведения о произведении "Лейли и Меджнун" Мансурходжи сына Насырходжи – творившего под влиянием Алишера Навои, и одного из творцов пытавшихся написать похожее-подражание на некоторые произведения в составе "Хамсы".

**Ключевые слова:** Рукопись, копия, произведение, книга, повесть, поэт, мыслитель, литература, пример, источник, трон.

Алишер Навои – великий поэт, мыслитель достойный быть среди таких классиков мировой литературы как: Гомер и Данте, Рудаки и Фирдауси, Низами и Шота Руставели, Саади и Джами, Шекспир и Бальзак, Пушкин и Толстой, Рабиндранат Тагор и Лу Синь и государственный деятель.

Так же, как он сыграл главную роль в литературном процессе своего времени, также оставил неизгладимый след в развитии творческого мышления следующего периода. Как справедливо отмечают великие фигуры народов мира, с безграничной благодарностью вспоминают и предшественники литературы тюркских народов: Фузули, Кишвари, Мунис,



Оахи, Бердак, Низари Гариби, Наврузхан Зияи и другие.

Ряд творцов под влиянием творчества Алишера Навои пытались написать похожее-подражание на некоторые произведения в составе “Хамсы”. Одним из таких творцов является Мансурходжа сын Насырходжи.

Носирходжа жил и работал в Хорезме примерно в XVIII веке. Мы до сих пор не встретили информации в исследованных нами источниках о годе рождения, месте жительства. До нас дошли два экземпляра дастана под названием “Лейли и Меджнун”, написанных в Хорезме, в духе народных книг. Мы хотели бы предложить вашему вниманию некоторые мысли, основанные на этих экземплярах.

Дастан “Лейли и Меджнун” Мансурходжа сын Насырходжи хранится в сокровищнице рукописей Государственного музея литературы имени Алишера Навои АН РУз под номерами 159 и 211/II.

**Рукопись №159.** Написано красным (заглавие) и черными чернилами маленьким насталикским почерком на кокандской бумаге. На каждой странице размещен текст из 16-20 рядов. Размер текста 6x14,5 см. Текст дастана расписан красными, синими и золотыми тонами.

Начинается обычным титулом. В соответствии событиями дастана нарисовано 11 миниатюр. Переплёт изготовлен из твёрдого картона. Жёлтого цвета. Имеется три печати. Размер 13x19,5 см. 39 страниц. Поскольку у рукописи нет окончания, кем, когда и где переписан неизвестно. По меткам обработки книги, она относится к XIX веку.

После “Басмала” произведение начинается с “Алхамду лиллохи раббил оламин вас-салоту салому ала расулихи Мухаммадин ва алихи ва асхобиhi. Сипос ва ситойиш ул кодири баркамолга “Кунту канзан махфийан” харамхонасидин “Уридту ан аърафаху” даражаси бирла “Фахалакат ул халқа” кошонасидин камоли кудратини вазъ сифотини баён килмоқ учун ул сарвари коиноти мавжудот, яъни, онҳазрат саллаллохи алайхи ва салламни офарида килди ва ул зоти бобаракотни туфайлилари бу ўн саккиз минг оламни адам сахросидин вужуди борлик маконига келтурди”. Текст рукописи обрывается на том месте, где Меджнун умирает на могила Лейли, куда приходят два ангела опросить его и ответом Меджнуна обращенным этим ангелам: “Алкисса, Мажнун даргоҳига бу ғазални ўқуб тамом килди эрса, Худои таоло икки дилрабони рухониятларини бир қўшуб Беҳишти анбарсиришт ичра жой беруб, икки ошиқ бир қўшулуб айш-ишратда бўлдилар. Бу воқеани бир соҳиб ҳол (сирлар эгаси, яширинликларни

билувчи) бир кечада айтиб эрди, Лайли бирла Мажнун Беҳишти анбарсиришт ичра, Лайли бирла Мажнун бир тўшакнинг устида, бир тахтнинг устида ул икки дилрабо ўлтуруб бир-бирига қадах сўнуб, шароб ичиб бир-бирини гарданларига қўл солуб”.

**Рукопись №211/II.** Крупным каллиграфическим почерком переписан черными чернилами. На каждой странице размещен текст из 17 рядов. Размер текста 9,5x13 см. Рукопись оформлена просто.

В рукописи вводной части дастана не имеется. Текст дастана начинается следующей фразой: “Хар ким кўрса, орзуси бўлур эрди, кўлига олиб юзидин бўса қилиб, жонини анго фидо қилса” (*У любого, кто видел это, была мечта, если он берет его за руку, целует его лицо и жертвует своей жизнью*).

Текст заканчивается: “Аммо, Мажнун бул сўзни айди эрса, Худои таоло икки дилбарни рухларини (44 а) бир бирига қўшти, муродларига еттилар. Хар мўъмин муродиға етсунлар. Омин ва Раббил оламин. Бирахматика ё архамар рохимин. Тамматил китоб биавнил Маликул Вахҳоб. Шуд батавфиқи Худойи ло яном, Ин китобат шаби ийди Курбон шуд тамом”.

Писарем указан Мулло Абдулгафур ходжа Пирмастий ибн Шамсиддин ходжа.

Нам известно, Пирмаст один из древних окрестностей в Бухаре. Из этого следует что писарь из окрестности Пирмаст Бухары. Годе переписания 1286 год. 44 старницы. 14,5 x 24,5 см. В переплёте из простого жёлтого картона тёмно-коричневого цвета. Хотя два экземпляра были переписаны разными писарями, если не считать некоторых сокращений и использование других слов вместо лирических слов, почти не имеет большой разницы друг от друга. Но, экземпляр 211\II относительно экземпляра 159 полный и точный. Нет конца рукописи №159, начала рукописи №211\II.

Известно, что в Восточной литературе на основе свободной темы написано сотни произведений. В том числе, по сведениям в монографии Н.Гуллаева “Слово о Лейли и Меджнун”, который очень много трудился по дастану “Лейли и Меджнун”, произведение написано более 130 языках народов мира (арабском, персидском, афганском, армянском, грузинском, курдском, азербайджанском, тюркском, туркменском, узбекском, уйгурском). Но дастан “Лейли и Меджнун” Мансурходжи сын Насырходжи не внесен в этот список. И в других источниках которые мы посмотрели не встречали информации об этом.

Краткое содержание дастана состоит из следующих:



У Сейида Бани Амара, вождя одного из арабских племен, просит у Аллаха дать ему детей, потому что у него не было детей. Затем он подает милостыню святым, бедным. Ее молитва была услышана, и она родила сына. Бани Омари, который был благодарен за милость Аллаха, наблюдал за свадьбой и назвал его сына Кайс. Кайс был милым, красиво нравственным и привлекательным для всех, кто его видел. Когда ему исполнился год, любовь пришла к нему с незапамятных времен и стала местом в его сердце, а жемчужная любовь сделала его лицо еще ярче. Так как в племени есть лагерь, мать берет Кайса в путешествие, как и любая другая женщина. В тот же день другая женщина берет свою дочь на прогулку. Когда Кайс видит девушку, он крутится вокруг неё как бабочка. Он начинает плакать, когда отстраняет ее от себя, и перестает плакать, когда подходит близко. Это потому, что Аллах сотворил две чистые души в любви в утробе матери с самого начала. Они были родными. Когда Кайсу было три года, он пел газели со своими сверстниками, делая любовь настоящей страстью. Дети поражены его состоянием и сообщают об этом родителям Кайса.

Отец и мать, увидевшие эту ситуацию в Кайсе, передают ее учителю для познания. В библиотеке Кайс, увидев Лейли среди девушек, влюбляется в неё. Они выражают свою любовь друг-другу жестами. Когда Кайс возвращается домой, он рассказывает своей матери о девушке по имени Лейли. Родитель, который отправляет сына учиться, говорит ему, что ему нужно заниматься в библиотеке наукой. Однако романтическое приключение между Кайсом и Лейли раскрывается сначала среди студентов, а затем среди соплеменников. Узнав об этом, отец Лейли отказывается отправлять свою дочь в школу. Когда Лейла спросила, почему они это делают, ее мать ответила: «Теперь вы видите, они не выходят, когда девочка вырастет. Если он выйдет, его обвинят!...

Когда Кайс не увидел Лейли на следующем уроке, он отправился со своими сверстниками на гору Наджд и крикнул “Эй Лейли”. Мальчики сказали емц: “Лейли не красивая девушка. Во что ты влюблен?” Кайс ответил: “Если бы вы видели меня своими глазами, вы бы знали, что она была прекрасна”. Бани Омар, заметив что Кайс влюблен, идет в дом Лейлы со своим соплеменниками свататься. Отец Лейлы отказывается, говоря: “Твой сын сумасшедший, я не отдам ему свою дочь!”

Услышав этот отказ Кайс ведет еще более сумасшедшим. Соплеменники советуют отвести его на паломничество в Мекку. Кайс в

Каабе вместо избавления от старости вызывает к Аллаху со стоном: “Просвети мое сердце любовью?”

Покидая Мекку Муаззама Кайс ходит вокруг племени Лейлы, читая газель в честь неё и плачет. Услышав это, мать Лейлы жалуется падишаху. Однако соплеменники Меджнуна узнав об этом, сообщают об этом Бани Омари. Кайса привезли домой и приковали цепями. Кайс разрывает цепи и уходит в пустыню. Когда он голодный лежит, повстречался с путешественником. Он не отвечает на вопросы путешественника. Когда Бани Омари, который узнал о состоянии своего сына от путешественника, отправился в Кайс, он даже не знал своего отца. Они возвращают его и делают его пленником. Кейс ломает группу и идет к племени Лейли и читает в её честь газели. Те, кто слышат его газели, будут помнить.

Услышав его газели Лейли тоже страдает и заболевает от любви к Кайсу.

Когда её мать думая: “если моя дочь прогуляется по саду то избавится от недуга”, сын богача Абдусалома из Багдада увидев Лейли влюбляется в неё. Тот отправив сватов засватал Лейли своему сыну ибн Салому.

Тем временем Навфалшах вождь одного из племён встречает Кайса в пустыне, услышав от своего соплеменника по имени Зайд его любовные приключения, увозит Кайса с собой и обещает женить на Лейли. Когда была война между Навфалшахом и отцом Лейлы, отец Лейлы ответил Навфалу: “Кейс-Меджнун, я не отдам ему свою дочь. Если ты попросишь кого-то еще, я дам его ему”. Когда Навфал узнал о безумии в Кайсе, он сказал: “Отдай свою дочь тому, кому захочешь!” они заключают перемирие.

Чтобы избавиться от скандалов, отец Лейлы отдал свою дочь замуж за Ибн Салома. Когда Лейли пришла в дом Ибн Салома, она пригрозила ему м сказала: “Если ты коснешься меня, я убью тебя или себя”. Они не сближаются, даже если они женаты семь лет. Лейли, вспоминая Кайса, заболела. Ибн Салом, боясь, что она умрет, передал её отцу.

Во время странствий Кайс спасает детенышей оленей и оленей от охотников. Он ходит по пустыне и живет с животными. Когда он слышит, что его отец и мать умерли, он благословляет их.

Услышав о смерти Лейли от своего слуги по имени Бакр, он приходит к её могиле, окропил ее водой и закричал: “О горе Лейли, о горе Лейли”. В один из дней Кайс встречает Ибн Салома, который ищет Лейли. Ибн Салом раскаялся в содеянном, извинился перед Меджнуном и подружился. Когда он спрашивает



о состоянии Лейли, Кайс берет его к могиле Лейли. Они сидят у могилы Лейлы и благословляют. Ибн Салам путешествовал с Кайсом несколько дней и отправился в Багдад, чтобы записать свои любовные стихи, которые он произнес в честь Лейлы. Кайс умирает на могиле Лейлы. Его соплеменники окутали в саван и хоронят рядом с Лейли.

В конце произведения приходит Мункир Накир (в исламской эсхатологии ангелы, которые допрашивают и наказывают мёртвых в могилах) и задают вопрос Меджнуну. Он отвечает: “Даргоҳи Рабим Аллоҳ!” (“Господь мой Аллах!”). Его ответ воссоединяет души Кайса и Лейли, как Богу угодно. Дастан написан в прозе и стихах в народных мелодиях и очень лирических песнях. Валлоху аълам биссавоб! (Будьте здоровы!)

Каждая из работ, написанных о приключениях Лейли и Меджнуна, вместе с тем что имеет свое место, она красочна и уникальна. Большинство из них были написаны на арабском, персидском и тюркском языках, что показывает, что после публикации “Хамсы” Алишера Навои на тюркском языке его последователи написали новые произведения, вдохновленные эпосами “Хамса”. Дастан “Лейли и Меджнун” Мансурходжи сына Насырходжи относится к циклу таких произведений. После публикации работ Алишера Навои “Хайрат уль [ақшар]” и “Лейли и Меджнун” в ответ на эти две работы были написаны сотни работ на эту тему, в чем секрет и почему?!

Мы выше упоминали, что в монографии Назара Гуллаева «Слово о Лейли и Меджнун» (Н.Гуллаев, “Слово о Лейли и Меджнун», Ашхабад, 1989) написано около 130 работ о Лейли и Меджнуну на мировых языках. Среди них: “Лейли и Меджнун” Мансурходжи сына Насырходжи, “Лейли и Меджнун” Амири, “Лейли и Меджнун” Хаёли (Олим Раваддин), Литературное наследие Хаёли, Ташкент, 2009), по словам Назмии Мухиддиновой, и в “Деване” Мирхасана Садои также имеется дастан “Лейли и Меджнун”. Есть также сообщения, что Мадалихан, сын Амира Умархана, также написал дастан “Лейли и Меджнун”, а дастан “Лейли и Меджнун” сына Фозила Юлдаша не упоминалась. (Если они будут добавлены, число работ достигнет 140, и, вероятно, нам неизвестны многие другие работы.)

Интересно и то, что как пишут наставники ведущие речь о произведении “Лейли и Меджнун” Андалиба показывают, что Навфал убив Меджнуна, сам хотел жениться на Лейли. А в произведении Мансурходжи сына Насырходжи

Навфал и Ибн Салам не столько соперники, сколько друзья и сочувствующие Меджнуну.

Еще один удивительный аспект заключается в том, что “однако позже станет известно, что для всех людей более важно носить пояс служения в соответствии с повелением Хакк субханаху та таала и совершать ритуал убудият”. Таким образом, всем лучше быть искренними в любви. И все же простые люди не смогут. Не будьте лишены некоторой чистоты и порядка в этой части эпического пакета прозаической поэзии, проясните степень энтузиазма по поводу главы юстиции иктисоби хамияткашу и понимания Бадо Ходжасова, оснащенного улыбедным, смиренным, покорный слуга Мулло Мансурходжа сын Насырходжа желая [1,2 с] ашонат, Я закончил эту книгу своей собственной любовью, своей собственной любовью, и я надеюсь, что Всемогущий Бог даст мне манго такой чистой любви, и я желаю своего внутреннего желания из сокровищ невидимого”. Они рассказывают о работе Андалиба и приводят примеры из эпоса Носирходжи “Лейли и Меджнун”. Обратите внимание:

Сайдинг кўёбер сайёд, дил пора экан мандек,  
Чўлларни кезиб юрган сайёра экан мандек,  
Сарто сари хижрондин хам ёра экан мандек,  
Саргашта ғариб бўлган оввора экан мандек,  
Ол доминги бўйнидин, бечора экан мандек?!

Дастан “Лейли и Меджнун” Мансурходжа сын Насырходжи хранится в сокровищнице рукописей Государственного музея литературы имени Алишера Навои АН РУз под номерами 159 и 211, -страница:

Сайдинг кўёбер сайёд, дил пора экан мандек,  
Чўлларни кезиб юрган сайёра экан мандек,  
Сар то сари хижрондин хам ёра экан мандек,  
Саргашта ғариб бўлган оввора экан мандек,  
Ол домини бўйнидин, бечора экан мандек

Отрывок взят из Мухаммеда, который начинается как К. Курамбаев “Узбекско-туркменские литературные связи”, 1978, 52 стр., Ходи Зариф, “Зокиржон Фуркат”, 1959, на странице 93 цитируется Андалиб. Эти бейты у Носирходжа:

Не жондурсан, аё аҳли башар,одами  
беҳуш, мастона ётибсан,  
Жондин азизроқ кўрунурсан , шаҳи  
дилкаш, мехнатга ботибсан?..  
Саъдий сани ахволингга тоқат кило  
олмас, эй сарвари олам,  
Олам кўзингга кўрунмас чун донаи  
хашо-хаш, тахтга ётибсан?![1,14]

Ходи Зариф приводит следующие бейты:

Не жонсан аё аҳли башар, одами  
беҳуш, Мастона ётибсан?



Жондин азизроқ кўрунурсан, шаҳиду  
яккаш, Меҳнатга ботибсан?...

Саъди сани аҳволинга тоқат кила  
олмас, Эй сарвари олам,

Олам кўзинга тангмуди чун донаи  
хашхош Гахтига ётибсан?- [4,188-189]

У Мансурходжи сына Насырходжи:

Арзим эшит, кўзи ёшли жон онам,  
Кулоқ солғил ман бир замон йиғлайин! !

Улуғ ёшли, бағри тошли жон онам,  
Кулоқ солғин ман бир замон йиғлайин?!

Яхши сўзга учар қушлар эл бўлур.

Ямон сўзга пашша кучи фил бўлур,

Бу аҳвола манго неча йил бўлур,

Ўртар мани доғи ҳижрон йиғлайин?! [1,376]

В 3-томе пяти-томника История узбекской  
литературы:

Арзим эшит, улуғ ёшли жон энам,  
Кулоқ кўйғил, ман бир замон йиғлайин!?

Кўзи ёшли, юрак бағри қон энам,  
Доғи дардим айтиб гирён йиғлайин!?

Яхши сўзга учар қушлар эл бўлур,

Ямон сўзга пашша кучи фил бўлур,

Бу аҳвола манго неча йил бўлур,

Ўртар мани доғи ҳижрон йиғлайин?! [3,363-364]  
и показывает ряд других доказательств. Хотя в  
приведённых примерах места некоторых слов  
заменены, содержание суть не изменились. И  
действительно это произведение “Лейли и  
Меджнун” принадлежит ли перу Андалиба?! Или  
... иначе почему Носирходжа высказал  
вышеупомянутые мысли, сказав: «Я написал эту  
работу» ?!

Идеолого-художественный объём дастана  
Мансурходжи сына Носирходжа “Лейли и  
Майнун” а также это отдельная тема, чтобы  
сказать, что эта работа принадлежит ему, и что  
наши возможности ограничены, поэтому мы  
завершаем здесь.

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# COMPETENCE IN EDUCATION IN THE AGE OF GLOBALIZATION AND INFORMATION THE NEED FOR AN APPROACH

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## ANNOTATION

*This article describes types, functions, components, organizational structures and technology of designing general educational competencies.*

**KEY WORDS.** *Competency, competent approach, competent, practical activity, personal experience.*

## DISCUSSION

Today we live in the information age. Every moment, every minute, we encounter new information. At school, at work, in everyday life. We can't even imagine our day without information. Therefore, it is important to develop the skills of young people to receive information correctly. This, in turn, creates a need for education based on a competency-based approach. The question is, what is competency-based education? Competency-based education is education aimed at developing students' competencies to apply the knowledge, skills and competencies they have acquired in their personal, professional and social activities. This education represents the noble goals of the school. At one time, the first President of our country, I.A. As Karimov noted, "the purpose of the school is to instill in students confidence, independent, creative thinking, to develop a sense of responsibility for the fate of the Motherland. And, of course, to build a strong belief in habits and attitudes that are alien to us."

In today's globalization and information age, the amount of information generated and processed in the process of informatization of education is increasing day by day, and the means of modern information and telecommunication technologies are rapidly improving and improving. In this context, it is important to provide the education system, including teachers, students with the necessary sources of information, to form the necessary knowledge and skills, ie competence in the methods of their collection, storage and processing. is one of the functions.

One of the important factors in fulfilling this task in the context of constantly changing social and professional conditions of pedagogical activity is the use of modern information and pedagogical technologies in the formation of students' competencies.

In the age of globalization and information, the formation of students' competencies on the basis of information and computer technologies is carried out in the following areas:

- have a general understanding and skills in the field of information and telecommunication technologies as an object of study, ie new information technologies, their components and areas of use;

- Information and telecommunication technologies as a teaching tool, ie knowledge is provided on the basis of modern information and pedagogical technologies, and lectures, practical and laboratory classes are organized on the basis of modern computer software;

- as a means of managing the educational process, ie a system of information, analysis and forecasting to increase the effectiveness of all activities of the educational institution, including educational, spiritual, educational and research work creation tools are taught;

- knowledge and skills on the creation and implementation of modern information systems to increase the effectiveness of research and pedagogical research.

Ensuring the development of students' competence in educational institutions, aimed at



meeting their social needs and demonstrating their talents, knowledge, skills, as well as the development of their cultural, educational and scientific potential, ie competence and there is a need to create an information system for management. At the same time, any communication with the means of modern information and communication technologies is necessary to expand the information system, create conditions for their acquisition of knowledge and independent learning, use of educational and information resources in their pedagogical activities, communication, to search and find information, to work on various social and educational sites of the network, as well as to develop their competence.

The information system for the development of student competence is an information system aimed at ensuring the quality of education and the development of all subjects of the educational process, creating the necessary conditions for independent learning and research activities of students.

This type of information system can be effective in the context of the introduction of computer technology and telecommunications in the education system.

In the age of globalization and information, the introduction of modern computer technology into the education system is one of the most important opportunities for the development of information systems.

The information system serves to create a methodological environment for students, teachers and educators, the effective use of necessary information, methodological assistance from modern sources of information, the formation of the necessary knowledge, skills and competencies in their work.

In the age of globalization and information, improving the education system will inevitably require improving its quality and efficiency.

In the Decree of the President of the Republic of Uzbekistan Sh. Mirziyoyev dated February 7, 2017 "On the strategy of actions for further development of the Republic of Uzbekistan", the action strategy for the development of the country for the next five years Comprehensive measures have also been identified for the development of the education system. All the tasks planned for the implementation of this measure are complete, effective in life, of course, the potential of personnel who apply spiritual knowledge, strong intellect and high spirituality to the gradual development of the field of education. occurs through.

This is a direct result of the educator, teacher and professors working at all levels of the education system in the field of their work, the subject of teaching and its teaching methods, its

implementation. The knowledge of the laws of increase depends on the competence. The basis for the training of such competent personnel is the quality and effectiveness of education in general secondary education and at all levels of the higher education system. This means that the knowledge imparted to students in the pedagogical process, which is carried out at all levels of the continuous system, must form a strong intellect that meets modern requirements and the formation of high competence.

It doesn't happen by itself. This requires the use of information technology as a pedagogical psychological basis in the appropriate use of methods of collecting, storing, retrieving and applying information that will serve the content and implementation of the course in the formation of student competence.

The effective use of modern information technologies in the classroom provides an opportunity to improve and develop the educational process. Providing new information to the educational activities of the school guarantees the quality of the educational process and the effectiveness of the school, which has a positive impact on the level of knowledge of students.

The provision of modern information to the teacher is a pedagogical process, in which technology, pedagogical and psychological processes work together and lead to a higher level of quality of student learning. Because a comprehensive quality lesson with students, of course, requires the effective use of explanatory dictionaries, scientific and methodological literature, modern educational articles published in the press, which reveal the essence of the basic phrases and concepts of the textbook. The work of students with these books leads to the formation of competencies such as information processing, self-development and the development of intellectual abilities.

Thus, in the age of globalization and the information age, the timely and effective use of information technology leads to the formation of students' competencies and intellectual abilities, which serve as a pedagogical and psychological basis for education. 'rsatadi.

In international pedagogical practice, it is important to develop strategies to improve the process of formation of cognitive competencies in students and to design mechanisms for its implementation, both theoretically and practically scientifically substantiated. This is the difference between the level of development of the needs of the state, society and the individual and the level of development of personal qualities and professional skills of the subjects (students and teachers) in the process of formation of competencies in the learning



process in students. related to the elimination of inconsistencies.

The Resolution of the President of the Republic of Uzbekistan "On measures to further develop the system of higher education" reads: "Each higher education institution should establish close cooperation with leading scientific and educational institutions of the world, o. Extensive introduction of advanced pedagogical technologies, curricula and teaching materials based on international educational standards in the educational process, foreign cooperation in teaching and pedagogical activities, master classes, training courses Active involvement of highly qualified teachers and scientists from educational institutions ..."

The main driving force of these fundamental tasks, which determine the success of the national and spiritual-educational development of the Republic of Uzbekistan, is the implementation of innovative pedagogical technologies. At the same time, we need to abandon authoritarian pedagogy and adopt innovative technologies. At present, the main purpose and content of education in Uzbekistan has been radically updated. Therefore, in the Republic of Uzbekistan, special attention is paid to the effective introduction of innovative technologies in higher and secondary special education.

It is also important to take into account that in today's era of globalization and the rapid exchange of information, the lives of the younger generation are affected by a lot of useful and useless information, and as a result, the educational process is difficult. The organization of the grid is very important. To do this, it is necessary to deepen the knowledge of teachers, especially those involved in educating the younger generation, on ideological issues.

In today's era of globalization and the rapid exchange of information, it is important to take into account that the lives of the younger generation are affected by a lot of useful and useless information, and the proper organization of the educational process. . To do this, first of all, it is necessary to deepen the knowledge of pedagogical staff engaged in the education of the younger generation on ideological issues.

When it comes to the pedagogical profession, of course, it is important to note that for this profession, along with professional competence, ideological competence is also very important. After all, professional competence means the teacher's spiritual outlook, psychological-pedagogical and organizational-technological potential, that is, the potential of his professional potential ... It is understood that he has a deep knowledge of the creative ideology and a strong belief in it (ideological immunity) and the ability to instill the ideas and

views of the creative ideology he believes in in other people, including students. .

In the pedagogical profession, professional and ideological competence are inseparable. Because if a teacher's professional competence is mainly focused on educating the student, his or her ideological competence is focused on educating the student (spiritually and ideologically). Therefore, in order to bring up the younger generation in all respects, education is inseparable from upbringing, and upbringing is inseparable from education.

When it comes to the ideological competence that human beings have, it cannot be concluded that it is based solely on creative ideology. It is important to keep in mind that those who promote other ideologies in public life, including destructive ideologies (religious fanaticism, popular culture, and missionary ideas), also have competencies based on their own ideologies.

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## **SOCIAL PROTECTION OF CHILDREN IN UZBEKISTAN: ADVANCED, DOMESTIC AND FOREIGN EXPERIENCE**

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## **СОЦИАЛЬНАЯ ЗАЩИТА ДЕТЕЙ В УЗБЕКИСТАНЕ: ПЕРЕДОВОЙ, ОТЕЧЕСТВЕННЫЙ И ЗАРУБЕЖНЫЙ ОПЫТ**

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**Аннотация:** В статье исследуются вопросы социальной защиты детей в Республике Узбекистан. Анализируется проблема разработки комплексной помощи социально-уязвимым группам детей, среди которых дети с ограниченными физическими возможностями, а также группы социального и правового риска. Предлагается внедрение превентивных профилактических мер по борьбе с проблемами безнадзорности и правонарушений несовершеннолетних.

**Ключевые слова:** социальная защита детей, РОДФ «Sen yolg`iz emassan», профилактика безнадзорности.





В каком бы государстве ни находился человек, в месте ли своего постоянного жительства или пребывания (по своим делам и интересам)-он остается свободным существом, находящимся под защитой мирового сообщества, собственного государства, в котором он находится. Состояние свободы не даруется какой-либо публичной властью, а принадлежит человеку в силу его рождения.

Подобно тому, как человек рождается на свет с головой, руками, ногами, разумом и сердцем, так он рождается и свободным. Это - акт природы. Совокупность основных, т.е. неотчуждаемых прав, это и есть естественное право.

Общественная жизнь каждой страны развивается на правовой основе. Верховенство Конституции и закона относится к числу основополагающих принципов правового государства. Если в обществе не господствуют право и законность, если права и свободы граждан не соблюдаются, если не почитаются национальные обычаи, традиции, а также общечеловеческие ценности, то такое государство нельзя назвать демократическим и правовым.

Каждый гражданин независимо от возраста, положения, национальности, расы и религии в равной степени обязан подчиняться Конституции и законам государства.

Если в обществе законы только пишутся, но не выполняются, то в этом обществе не восторжествует справедливость. Закон должен осуществляться на практике. Раз закон принят — все граждане обязаны его выполнять.

Одним из основных показателей демократического правового государства является равенство всех граждан перед законом, обеспечение верховенства Конституции и закона, что означает:

во-первых, господство закона во всех сферах общественной жизни. Никто, никакой государственный орган, должностное лицо, предприниматель или любой другой гражданин, не имеет права быть освобожденным от ответственности перед законом;

во-вторых, основные социальные, экономические и политические отношения регламентируются только законом, а их участники без каких-либо исключений привлекаются к ответственности за нарушение норм права. Конституция и законы любого государства должны выражать мечты и чаяния народа, живущего в нем. Выражение "Не человек для закона, а закон для человека" наиболее характерно для законов демократических государств. В период административно-

командного советского строя Конституция и законы писались в соответствии с определенными историческими событиями или даже в угоду одному лицу. Они служили лишь одной цели — обеспечению господства авторитарного строя и закостенелой идеологии.

Первоочередная цель Конституции и законов — обеспечение прав и свобод личности. Великий Амир Темур говорил: "Свобода там, где верховенствует закон".

В политико-правовой системе Узбекистана огромную роль занимает обеспечение охраны материнства и детства, воспитанию здорового и гармонично развитого поколения. Отражением данных приоритетных задач можно найти в различных нормативно-правовых актах нашего государства.

Согласно 45 статье Конституции Республики Узбекистан: «Права несовершеннолетних, нетрудоспособных и одиноких престарелых находятся под защитой государства». Также в 64 статье отмечено, что «Родители обязаны содержать и воспитывать детей до совершеннолетия. Государство и общество обеспечивают содержание, воспитание и образование детей-сирот и детей, лишенных родительской опеки, поощряют благотворительную деятельность по отношению к ним». В статье 65 Основного закона зафиксировано: «Дети равны перед законом вне зависимости от происхождения и гражданского состояния родителей. Материнство и детство охраняются государством».

С 23 февраля 2016 года в Узбекистане действует национальная модель "Здоровая мать – здоровый ребенок", получившая международное признание в реализации поставленных ею задач. Эффективность данной программы выражается в осуществлении первичной медицинско-профилактической помощи и диагностики матери и ребенка. Внедрение диагностирования состояния здоровья способствуют предотвращению различных заболеваний и увеличению детской инвалидности, а также обеспечению рождения генетически здорового поколения. Огромное значение уделяется повышению качества медицинских услуг посредством укрепления материально-технической базы и улучшения кадров. Реформирование системы здравоохранения тесно связана с усилением роста физических и психических отклонений у детей.

Необходимо подчеркнуть, что в Узбекистане проявляется особая забота о детях, лишенных родительской опеки, и детях с ограниченными возможностями. В Республике



реализуется программа «Мехрибонлик», направленная на совершенствование учебного и воспитательного процесса будущего поколения, где особое внимание уделяется социальной защите детям, которые остались в трудной жизненной ситуации.

В руководстве по охране здоровья матери и ребенка отмечено, что основными направлениями реформ в здравоохранении стали:

- принципиально новые подходы к построению системы здравоохранения, развитию его инфраструктуры. Основная цель реформ была направлена на создание равных условий получения первичной медицинской помощи, как в городской, так и сельской местности;

- новый концептуальный и практический подход в вопросах материнства и детства, направленный на создание условий для рождения и воспитания здорового поколения. Целью этого направления реформ был не только краткосрочный эффект, проявляющийся в снижении показателей материнской и детской смертности, но в значительной мере долгосрочный эффект, который положительно скажется на будущих поколениях, и их продолжительности жизни. Это – наиболее верный подход с позиций человеческого развития;

- отказ от старых стереотипов и изменение подходов к системе финансирования здравоохранения, значительное расширение финансовых источников отрасли, в том числе за счет развития платного и частного здравоохранения для того, чтобы не только компенсировать недостаточность бюджетного финансирования, но и повысить качество оказываемых медицинских услуг и требовательность пациентов к медицинским учреждениям и работникам;

- оптимизация системы распределения в финансировании отрасли, в первую очередь, за счет лечения и профилактике вместо неэффективного использования дорогостоящего коечного фонда;

- создание принципиально новой системы экстренной медицинской помощи населению на всех административно-территориальных уровнях;

- совершенствование нормативно-правовой базы здравоохранения.

В Республике Узбекистан также осуществляет свою деятельность детский фонд "Sen yolg'iz emassan", осуществляющий процесс поддержания социальной адаптации детей, а также интегрирующий уязвимую категорию детей в единое общество. В борьбе с врожденными заболеваниями детей организованы

коррекционно-оздоровительные курсы, оказывающие правовую и психологическую поддержку родителям.

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## POEMS ABOUT TYPES OF “NURALI”

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### ABSTRACT

*In southern Uzbekistan, EPOS about Nurali, the son of Avaz, a child of the son of Gurugli, are widely known and popular among the people. About Nurali The Epic was originally written in 1945 year, while over the next 75 years folklore scientists have discovered that the epics about Nurali are more than twenty, and about forty variants have been recorded, several epics have been published.*

*The epics about Nurali are being studied as four according to the biography of the protagonist*

- 1. Epics related to the birth of Nurali ("Nurali's birth", "Nurali's youth", "Nurali and five hundred Mullabachcha", "Tuqqizyuzkuntuy").*
- 2. The epics of Nurali's teenage years ("Oysanam", "Suluvkhon", "Nuralining yutulishi", "Jorxunmaston", "Suvarisi").*
- 3. Nurali's youth, marriage to adulthood, friends about having children ("Gupponoy", "Nuraliva Semurg").*
- 4. Epics indicating that Nurali is an epic ruler ("Jahongir", "Emirqul", "Sherali").*

*All the epics of the series "Nurali" show how the epic hero is perfected. The adoption of physical games, as well as military games, exercises such as horse-riding, fighting, fencing, speeding, sniper training for the birth of a friend Nurali, the study of good manners, dexterity, agility, courage qualities are consistently explained.*

*From the epics about "Nurali", "Mallasavdogar" is the most common. So far, more than a dozen variants of the Epic have been recorded and the network has been published.*

*The children of Gulnor and Nurali, whose wife Uzumkoz was purchased by Ahmad, are told of the suffering they suffered when there is no substitute in the epic. Upon returning to the land of Avaz, he learns the story and finds his wife and children. Ahmad leader, who slandered, will be punished.*

*„Nurali” series poem is also praised for his generosity and patriotism, and it is noted that goodness will be in triumph.*

**KEYWORDS:** *Epic, category, epic hero, biography, illuminating*

### DISCUSSION

Under the friendship of southern Uzbekistan, the epics of the biographical category about Nurali and Sherali, in particular, about his sons, are firmly established and widely distributed among the descendants of Avazkhan, which are part of the series of Gurugli. It is a huge task to categorize and analyze the epics belonging to all the sets of horoscopes recorded from the representatives of the schools of

horticulture, and considering that the volume of one study does not allow us to raise, solve this task, we seek to base our thoughts on the example of epics related to the genealogical category instead. In addition, the peculiarities of the traditions of the Kashkadarya schools of Surhondaryabakhshi, the breadth of the distribution circle and the character of survival, artistic delicacy of the poems associated with the children of the only Avaz reflect and play an



important role in showing its place in the common uzbek friendship.

Writing the first samples of the Epics, which form the biographical series "Nurali", which belongs to the genus Avazkhon, begins with the variant OmonniyozOlloberdiev in 1945 year. And the fact that the epic hero has a friend of Nurali about the son of Avaz, is the first time folklore scholar H.Zarifov, then his followers and the people will confess and explain their initial scientific thoughts[1]. Many folklorists, when thinking about "Nurali", mainly refer to the option of Fozil Yuldoshugli.

The first about the epics of the constellation "Nurali" created a relatively large research work called folklore scientist Q.Mamashukurov analyzes about 20 variants of the epic in the dissertation "ideological-artistic basis of the epics of the series "Nurali"[2], which divided them into three categories and expressed their relationship.

Although K.Mamashukurov first introduced good thesis about the variants the "Nurali" category, in particular, about their motives, and came to a rather successful conclusion, but still leaves the issue open about the friendship schools of southern Uzbekistan, that is, the variants of the epics of the "Nurali" category are included in the object of analysis, when it is not emphasized

The researcher correctly named the epics associated with the name of Nurali, the son of Avaz, a biographical series with light, and they will be in three groups, depending on a period, character and feature in the biography of the protagonist:

1. The plot depicts a relatively completed period of life of the main epic hero/son of FozilYuldoshugli, MamatrayimBakhshi, Umirsafar, variants of QoraBakhshiUmirov,OmonniyozOlloberdi's variants

2. The plot depicts a period of the life of the epic hero, more precisely the youth / BozorOmonov, the variants of the son of QuziRuziyev, Rakhmatulla Yusufugli, MuminRahmonov, Yusuf Utaganugli's variants.

3. Related to Nurali's childhood, his defeat or sale of epics /epics such as"mallasavdogar", "Nurali and Guliyor", "Gulgunpari", "Avaz and Ayzaynab", "Nurali's defeat", "Suluvkhon"/.

We primarily focus on materials collected in the following years mainly on the Avazhon genealogy category:

A / Nurali biographical series;

B / Nurali genealogy;

C / we think Sheralishould be learned to distinguish it from the categories. The Avazhan genealogical category includes such categories as "Nurali's birth", "Nurali's youth", "Nurali and five hundred mullabachcha", "Jorkhunmaston", "Oysanam", "mallaSavdogar", "Nurali's salvation of

Avaz", "Nurali and Semurg", "Zulfiddin", "Amirkul", "Sherali", "Sherali's band", "Jahongir".

Also included in the category of Avazhon genealogy are the epics that determine the features of life, struggle, biography and character of the eldest son of Avaz.We consider it worthwhile to analyze not only as Mamashukurov, but also the following types on the basis of archival materials and the sources that we have laid down for many years, like the stage of the development of the biography of each person, when grouping the epics of the "Nurali" series in this order, the life of the epic hero

1. "The epics of Nurali's birth, childhood, years of study."Nurali's birth", "Nurali's youth", "Nurali and five hundred Mullabachcha" „nine hundred day wedding "and a small category named "mallasavdogar".

2. The epics of Nurali's teenage years "Oysanam", "Suluvkhon", "Nurali's swallow", "Jorkhunmaston", "Suvparisi".

3. Nurali's youth, grown up years "Gupponoy", "Nurali and Semurg"/.

4. Poems showing that the main hero Nurali is a hero, the worthy successor of the Avaz dynasty is an epic ruler / "Sherali", "Jahongir", "Amirkul", "Nurali will save Avaz", "Sherali will be a band"

In this grouping, we were based only on poems written from the Sherobod School of friendship. It is for this reason that the works, which describe the life of the hero relatively fully, like Q.Mamashukurov, become part of the activities of the hero, are the epics, in which it is possible to create an independent poem about each courage of the hero, as shown by epic traditions. Therefore, an attempt to positively assess the works that fully describe the biography of the hero leads to the erroneous conclusion that in itself the second type is immature, incomplete comrades.

However, for the first time some of the series of the "Nurali" category in the repertoire of the representatives of the Sherobod School of friendship were included in the scientific research and Q.Mamashukurov's analysis on the basis of available opportunities and resources is important in the study of the friendship of southern Uzbekistan.

As we thought about the "Nurali" biographic category from the Friends of the "avazkhon" genealogical category, we selected QodirBakhshiRahimov as an object of analysis, aka-ukaQoravaChoriUmirov, Chorshanbi Bakhshi Rakhmatullayev, Qahhor Bakhshi Qodirugli and partly the friends on this topic in KhushvaqtBakhshi repertoire. There are the following reasons for this:

First of all, none of the epics from the category "Nurali" in the repertoire of Bakhshi, whose name is mentioned, have yet been taken as an object of separate scientific analysis.





Secondly, the same Bakhshis are the eternal followers who saw the teacher of the Kashkadarya Surkhandarya friendship today and the coach who is preparing five or ten pieces of apprentice in the same time.

In the third, The Epics, which we are analyzing, are written in close proximity to the requirements of practical folklore studies.

Fourthly, the constellation "Nurali" represents the idea of our people to continue their genealogy without interruption, reflecting the connection between ancestors and generations.

On the main ideological directions of the epics of the prose of the generation of Avazkhon, it is necessary to dwell on the composition of „Tarkibadakhshon” which was originally written by ChoriBakhshiUmirov.

The composition of the epic "Tarkibadakhshon" covers many events. Folklore learner M. Jurayev. The idea that the number three magics of represents the three world – sky, ground, underground realms is quite detailed reflected in the course of the events of the epic "content"[3]. What attracts our attention is not only the analysis of the witty mind, ingenuity, which showed many directions of theme, the unprecedented heroism of Avaz, even more courage than Avaz, dedication, but also the connection points of the Genealogical and Avaz genealogy.

The poem begins with the traditional motivation-dreaming. The same motivation abounds with the second - the infancy of Gurugli. One of the reasons why the epic hero wants to get married in old age is probably the hope that the soul will not disappoint, whether he will have a child. At this time, when a difficult task is put, there is no one to do it.

When it comes to carrying out the work of Gurugli, even though Gurugli brought up forty young men from forty countries and brought up in a manner, unworthy, heroic, Intrepid, domesticated, Gurugli, their silence is again a seed to the motive of theft. At rest, when there is such a mental tension, it always turns out to be a substitute field.

Avaz is always portrayed as a faithful to Gurugli, justifying the eaten salt, a worthy child of the epic hero. However, the fidelity of the pronoun does not always correctly assess. The reproaches, slanders, views as coming to him are regularly continuing. For this reason, the substitute content makes a request to Gurugli as soon as the journey ends:

*Holsiraydi, labim toza qotgandi,  
Bu tanamga jabr-zulm o'tgandi,  
Intizor deb Isfaxonga ketganda,  
Tog'ang Ahmad o'g'il-qizim sotgandi.* [4]

Tired, my lips are clearly cooled  
It was my body that was oppressed,  
When longing goes to Isfahan as,  
Uncle Ahmad sold my son-daughter.

The same soul, firewood, please note that the composition shows that the „Tarkibadakhshon” poem is a posthumous work from the "mallasavdogar" poem, which belongs to the "Nurali" category, according to its place in the sets of the "Nurali", that is, from this point we return to the study of the "Nurali" category from the genealogical category.

The second point that caught our attention is that the Avaz faced Zulfizar, the daughter of the King of Kuktoosh, who was bound to become a dragon sucking on the Poloponmountain. Zulfizar, who survived thanks to Avazhon, devotes himself to Avazh because he freed:

*Аждаҳардан сақлаб қолдинг қонимди,  
Фидо қилай сенга азиз жонимди,  
Бағишлайин гулдай бўган танимди,  
Зулфизарман, бўлай сенга эрка ёр.* [5]

You saved the Dragon Blood,  
May I offer you my dear life,  
Dedicate identified flowerly garden,  
Zulfizar, let me give you a chance, –

when that is achieved, the substitute will refuse. However, the intervention of the king Saidhan in the process of events is based on the second marriage of Avaz. That is, when Saidhan comes alone, saying to his daughter that after Avaz has bound in dragon's mouth, again soul to himself, what will I do if my child has left, die until he lives without offspring, Zulfizar is alive, standing with a substitute. When Saidhan knows who Avaz is, when his daughter survives, the heir to the throne says that the son is forced to have no children:

*Эшитганда, болам, менинг сўзимди,  
Қаратмагин ерга мени юзимди,  
Номард деб ҳам ўйламагин ўзимди,  
Бир фарзанднинг орқасидан фарзанд  
бўл,  
Мен берайин ёлғиз бўлган қизимди.* [6]

When I heard, my child, my word,  
Do not draw my face to the ground,  
Do not even think that Coward was my own,  
Be a child behind a child,  
I had my daughter who was lonely Let me  
give.

Not only because Saidhan saved his daughter, but also in search of a successor to the throne, he can





invite Avaz to his childhood and persuade his daughter to marry him. The thought-out replacement for Zulfizar with a wedding-watch cannot stay here, because it must fulfill the main task. Going on a journey, says to Zulfizar: "I have a son in a circle, a horse is light, if you give birth to a son put his nameSherali, if you see a girl you know yourself"[7], these words will serve as an alternative to the beginning of the biographical series "Sherali" about the next generation of the substitute or his second son. Although it is not complete "Tarkibadakhshon", the composition of which can link the poems sets of gourmets, in other words, category "Gurugli". This epic, which combines the categories of Gurugli - Avazhan - Nurali - Sherali, in this or that sense, has also preserved the features of southern Uzbekistan's friendship in terms of its ideological direction and development of its images.

We will also try to check these features on the example of two points related to the epic-the series"Nurali" and "Sherali". In fact, " folklore works are great historical documents of the past, the same folk materials give convenience to the interpretation of some pages of the past from which they came out and the study of the life of people who lived in that same marriage[8]."

We touched on the epics associated with the above luminous biography, emphasizing the need to study it into four.Nurali's birth, childhood epics / "Nurali's birth", "Nurali's youth", "Nurali and five hundred mullabachcha", "mallasavdogar" /also describes the coming into the world of the epic hero and the troubles that have arisen since childhood.A large part of the epics of this category are the so-called variants with the name "mallasavdogar". We are capable of more than 20 options of this epic BakhshiRahimov. We chose those that were written from Qahhor Bakhshi Qadirugli, Chori Bakhshi Umirov, Chorshanbi Bakhshi Rahmatullaev. Because the five variants recorded from the four fortunes are much more thorough with the preservation of epic traditions, fortune, ideological direction in themselves, surpass all manual options, even published ones.

Waiting for the birth of the light of Nurali gift of the friend of „Mallasavdogar", the forty-day wedding Kahrabakhshi variant, the election of the king of Choribahshi, the gift of Gurugli, the gift of Gurugli begins with the events of the blind bet on the way to the guest, forced to visit the land. In each of the four options lay two lines of plot[9].

The first is that the incoming guest will overcome the pronoun to the plural and become a friend and in any way out of the genitive[10]. Because, the second incident, Ahmad leader, is obliged to sell the Children of Avaz, so that the replacement is not in a Chambil[11]. Once the same

condition is fulfilled, the second, of course, comes from the condition of convincing Gurugli thatAvaz has left the wheel. Only in the option of ChoribahshiNurali and Gulinor are sold without permission from Gurugli[12]. Sharp differences are also confronted when opening the hero character, overcoming obstacles on the way, introducing additional plot lines, while maintaining similarities in the options[13].

The variant of the gift of Qodirbakhshis characterized by its artistic Highness, The fact that events are consistently connected, the psychology of the hero is given extreme subtlety. The poem begins with the events associated with the birth of the state Nurali, which in other variants do not meet. That is, when the son of the beautiful Hasan's Ravshan is born gives a wedding to country, but the daughter of Avaz, Gulinor ignores the birth . A bitter substitute goes to his father and says that she intends that if she gives birth to a beautiful son, she will give a wedding. The arrival of the expected son into the world will give rise to the fulfillment of the condition of the son, will give impetus to the recent development of events.

Events in the option of happiness of Avaz will continue almost the same as in the option of happiness of Qahrabakhshi[14] until he reaches the girl who is the guest chasing him on the Tajangriver and is blinded by the girl. If, in the option of Qodirbakhshi, lick the eye of the substitute with the tongue of the Girot, then in the gift of laughter, the substitute will lie blind for forty days and will provide him with food of the Girot. When Gulinor went and told his father that Avaz was blind and remained on the road, The King of Shirvon sent Twenty-five thousand troops and ordered to bring the Avaz. They throw a net in the Olatov and grab the Girot and return to the trail that the substitute is dead. With the help of ChiltonsAvazwill bewoken andcome Shirvon with opened eyes. And after two years, he escapes, taking the Gulinor from his bosom. He will overcome the king's arms that follow in his footsteps along the way andGirot will not let to go Chambil wreath when he wants to leave the nest after looking for his children.

An interesting episode is included in the variant of ChoriBakhshiUmirov[15]. That is, when the malla merchant takes away the Children of Avaz, Qoraman and Olaman chief will face a gang of robbers. Qoraman and Olaman, who captured the caravans, are retreated more than a thousand lines to introduce the identity of the universe to the listener (reader). The king of Iran, Humayun, walks on the Chambil and dies in the Hand of the Avaz. His brothers Husayn and Husniddin took the throne of Iran, leaving Humayun's wife Hilala unattended. She thinks When I see having children , the Hilala goes



out of the country with the thought that king would kill my mother-in-law as it turned out and in order to save two sons approaches a mountain. "Let my children stay after me and feed on the crows, let them bury themselves," said the Hilola, who had dried the sill from hunger, dehydration, sucking poison into the chest. But even if this event is carried out over and over again, the children will survive. Because "together with mother's milk poison did not affect infants, the rest of the children were immortal." While the Iranian Mullah faces a merchant mother-child named friend, the brother is caught and here is a message from the past-returning case, giving the Yard /House/ throws. Hilola darkens his son, begins to call his dotes the universe. Children learn to insert the way they grow up. Even after Mullah Dust is killed and plundered his property, his mother dies in grief for this stigma and grief. Poison from infancy was a robbery that he did, not cutting a sword, did not pass to his brother for an adult. These same robbers pull the light and Gulnora and Avaz from the Malla trader to get his father's revenge. Avaz is once wounded by them in battle, and then only through his eyes knows that the arrow affects them, and in this way frees the Children Of Qoraman and Olaman. The fact is that it was from "Qoraman and Olaman", Chori Bakhshi incorrectly entered it to "Merchant of the malla".

Chorshanbi Bakhshi variant stands close to the variants of Jura Eshmirzaugli and Khushvaqt Bakhshi Mardonkulov. However, based on all the major events in the gift of Chorshanbi Bakhshi, the efforts are strong, all the heroes, the personages will move with a clear goal, the event of the 360 martyrs associated with antiquity will be included. As in the published variant of Jura Eshmirzaugli, the situation of retreat from the circle of decency, epic traditions do not meet. The published variant is inferior in all respects to the Chorshanbi Bakhshi variant.

The second option, sung by Qodirbahshi, is characteristic of the representatives of the Boysun School of friendship and is completely different from the options we have considered. The similarity is only in the sale of their children and their finding. This option begins with the fact that after Avaz sees a bad dream and goes out on a hunt because of the offer of Gurugli. Even in seven days on the plain Lake, the substitute, who could not hunt for anything, faced the traders who came to the attic and asked money from them. But as soon as Khayitovsar does not give a monetary, he will get used to fight with him and drive away with the caravan, and after Khayit refuses to pay money to the Avaz, his property will be taken and put in prison. Much more after the occasion comes from the king of Egypt to the Chambil and invites Gurugli to the wedding.

But Gurugli do not even want to go to the wedding and send someone. However, when asked who will go to the forty-year-old with Ahmad's proposal, Avaz will not be afraid, as always, except for a substitute. And Ahmad the old accompanied Ahmad Ovsar out of prison to kill Avaz on his wedding trip. As soon as Egypt goes and returns to fulfill the conditions of the Sanamgavhar, Ahmad Ovsar repeatedly commits suicide, but the sensitivity of Giro, the substitute with the help of children Avaz will survive. The reasons for the sale of children of substitutes in this variant are also different. He went in search of a Gurugli, Ahmad remained in Chambil. he lay down as a wedding-watch. Ahmad insults passing Nurali. And Nurali, having asked his mother for a horse, joins with a dove, and Ahmad turns over the son of his Ahmad from the horse and takes away uloq. Ahmad therefore has bad image of Nurali, Gulnora and Uzumkuz.

The first type of poems light does not show great heroism, but it is also not so passive. In them, the pronoun is actively involved. After all, the patronymic of the father is necessary for the child to find the right perfection, to embody good qualities, to grow up as a hero. Therefore, it is still inappropriate to demand heroism from the seven-year-old Nurali. However, this type of poem also features characteristic of the future epic hero bravery, perseverance, protection of or-shame, patriotism, hatred of the enemy, the formation of qualities that distinguish between good and evil are in the spotlight.

In the variant of Chori Bakhshi Umirov, Nurali defends Malla merchant, through him justice, the head of the robbers defends against Qoraman and Olaman. He breaks down their guys in a solo fight. Or, when his father throws a substitute Qoraman, a glade of Light will throw away Olaman from the horse. Also in all variants it is recognized that the young Nurali does not see to lick at the enemy, to tell the secret, and even to tell who is his child. The conclusion is that although the heroism of the first type of poem Avaz is shown in the general plan, People who are also learning to call Nurali passive, do not give grounds. Because in the spirit of the events of these epics, in many episodes, the people are shown that their hero is a successor, a new generation is formed, suitable for him as a substitute, grandfather is a worthy successor to the father's Affairs.

In order to depict the epics in the variants of "Mallasavdogar", it is necessary to first determine the problem posed in the work, the ideological orientation of the work, or the ideological intention of the bakhshi and the school gifts to which it belongs.



For this purpose, it is desirable to analyze the condition of the image of Ahmad in the work, taking into account the norms of the task assigned to him by Gurugli, as well as the task entrusted to him by Nurali, as well as by Avaz. Only then we be able to determine the ideological and artistic features of the epic, the personality and skills of the poem, the peculiarities of the school of friendship. Because the image of Ahmad is given to Samarkand, Bukhara and other schools of friendship as his true counsel, sponsor of the epic hero, and even revered and glorious, who served as the ruler in place of him when he went on a journey anywhere. In this place, he is truly among the people in honor of the transfer of "uncle is greater than the seven fathers". At the same time, he is sometimes seen as a cunning man even in the Samarkand friendship. However, this is to a lesser extent. And in the friendship of kashkadarya-Surkhondarya, where there is always Ahmad old, of course, there is some disappointment, there is a more terrible event. /By the way, in Samarkand and other schools of friendship, if Ahmad is respected as an integral part of the rank of poem, then in the South Uzbek schools of friendship, the rank of Ahmad is poorly applied to him, but the ratio of leader is the main one. By replacing the same adjectives and applying the old man instead of the captain, one leg is not too old, one leg is on the Grave, it is emphasized that the unpleasant behavior, which he should think of the world, is not suitable for his age.

Ahmad is blind to seeing especially the successes of Avaz, his glory, his heroism. The reason is that during the period when the events in the epos are taking place, Gurugli is growing, sooner or later he will take his place with someone. The only worthy candidate for this is Avaz. He is three-sided: a/ since the most Alpine Bahadir among the Sons of Gurugli: B / although adopted, his son and b) clever, thoughtful, faithful, first-caught son of Gurugli for his work punctuality corresponded to the continuation of the work of the epic hero than Hasan.

By the way, in the repertoire of representatives of poetic schools of southern Uzbekistan, the Hasankhan category of epics are practically not performed. It is not a mistake to say that the epics of "Hon dalli", "Hasankhon", "Ravshan" took place by reading and hearing the option of publishing from the repertoire of this oasis. We did not face the fact that in the 60-90-years the elderly performed epic from the Hasankhan series. BoborayimMakhmuradov, KhurramEshbu'rievs are the options performed as a result of reading and mastering the epic "Khon Dali", in which said "Hasankhan" in the world.

M.Saidov, M.As folklore scholars such as Muradov have shown, in the Surkadarya-Kashkadarya friendship, Avaz came out of the first

plan, and even sometimes it is described in a way superior to the next created poems Gurugli[16], and Ahmad's inability to become the ruler of the land of a stranger, in particular, a stranger to Avaz.

In order not to alienate the authorities, the replacement must first be avoided. At that time, the succession itself passes to the children of Ahmad. In the category of "Gurugli" series, Ahmad first can not see the fame, reputation of Avaz, then his more intent will lead to an evil hue. In his examples, which reflect the last period in the biography of Gurugli, Ahmad is not only to kill Avaz, but even as if to end his generation, the intention comes to mind and does not return from any humiliation for this purpose.

In our opinion, although the attitude to the tradition is strong in the friendship of southern Uzbekistan, in particular in the poems of the "mallasavdogar" category, more real life events are reflected in them, which are also clearly seen in the struggle of Ahmad against kindness.

The main ideological direction of poems in the "Mallasavdogar" category is focused on the activities of Gurugli, Avaz, in particular, Ahmad qari. The times when the epics that we are analyzing occurred looked at the ideal hero, who shook the world of evil, trembling, passing a blow to any enemies, even mythological creatures, Dragons, trembling. The Ideal hero is the one who was born and grew up, able to continue his work to the Chambil, which is a symbol of freedom and prosperity, fullness and happiness, which he built thanks to his labor, struggle, happiness, it is natural that the hero worthy of realizing his dreams, appoints the heir as a ruler.

All poems Gurugli in the category of "Avazkhon" generation resents childlessness, the harmony is felt and visible. But in case of concern in his own head, he relies only on the pronoun, he believes. Because only the substitute will come to the aid of earth as a child, taking upon himself all the pains in overcoming those difficult deeds. The people also know the service of Avaz to the Land of Chambil. Forty young men will also confess to their strength, intelligence. The same cases show that in itself the replacement of the throne of Gurugli is the only worthy candidate. It is natural that any relative of Ahmad or Ahmad, who occupies the throne of Avaz, will be blessed by the legacy of the kingdom. This theme-the struggle for the inheritance was reflected not only in the poem of the series "Gurugli", but also in such world-famous poems as "Mahabhorat", "Ramayana", "Manas" - from ancient times. Therefore, the issue of succession to the throne is firmly put on the agenda in the category of all the friends sung by the Bakhshis of southern Uzbekistan, including "Nurali", and Ahmad seeks to lose his generation, and not only to himself, but also to



himself, in the way that Ahmad did all the cunning, evil, evil, cunning. In poems of Kashkadarya-Surkhandarya poetic schools Ahmad is interpreted in the style of a symbolic image as the embodiment of the world of evil, which has all the characteristics that do not correspond to humanity. Ahmad's anger, initially set in a substitute, slowly passes to his wife, daughter and son. Ahmad, who is well aware that he does not have the strength to replace, seeks ways to avenge his children with loss, to be more precise, to get rid of the substitute, to break the relationship of Gurugli and Avaz, and to achieve the departure of a substitute for his own Gurjistan.

In all variants of the friend of the "Mallasavdogar", a girl is closely carried away by various means-fall in love, say at the wedding, in the pretense of coming to the wedding, in any dispute or competition, preferring a replacement, giving her permission, insulting and inviting her to her land. For example, the daughter of the Egyptian King Sanamgavharin the first variant of Qodirbakhshi fell in love with Avaz in a dream, assistant Aykhumari, Zulfizar fell in love Gurugli, the daughter of the King of Baghdad in the gift of Chorshanbibakhshi, and kanizi Aykhumar, the daughter of the country of Baghdad in the option of Choribahshi Umirov, after the land from Shervon comes the daughter of shakhdorhan Gulinor himself to take away the replacement. Only in the second variant of Qodirbakhshi comes a young man from the king of Egypt, a constant supporter of Gurugli, Shakhdorhan, to tell his daughter's wedding. Only Ahmad knows that the Bahadir who came in the first four options is a girl, and in all, he asks the girl to give him hospitality, asking her permission from the Gurugli with various arguments, although she takes him to her house [17]. Ahmad, who is not an old man, gives the girl a job, acts tactfully and senseless. But from the Alps girls will hear punishment and eat sticks, and the mouth-nose will be filled with blood and go into the tooth. Every girl who came out of the Palace of Ahmad at midnight /except only for the option of Choribahshi / came to the House of Avaz and said, "as devil, now I have come to you, until when on the square you have come to tears. . .there was a bloodshed and a bloodshed. . . group devil, group faithless, group bitch, you're clown..."insulting in his style, he will introduce himself and go away as if you were a young man, chasing him. Such a reprimand, after a bitter sentence, the incredibly angry Avaz hurries the horse without a saddle, even forgetting to take his bag out of his mouth and rides away. Three in some variants of the same departure, five in some, seven years in another will return with victory, overcoming many hardships spent. The first plot line in the "Mallasavdogar" options will end in this way.

According to the epic conditional, the departure of the pronoun causes the beginning of the development of the chief plot. That is, eating his bow from the girls, in a deplorable state Ahmad thought about his actions:

*Тишимни қарилиқдан тушди дейман,  
Тиш оғриққа икки урт шишди дейман,  
Оёғимга чилла сув тушди дейман,  
Бетоб бўлиб уч кун мазам қочди  
дейман.  
Бул шарманда кулоқни ким бичди  
дейман,  
Хон олдиға борғилигим қолмади. [18]*

I say my tooth fell out of old age,  
I say that the tooth has swollen two urt to the  
pain,  
I say that chilla water fell on my leg,  
I say three days of check-in ran tastefully.  
Who knit the ear in shame I say,  
I did not care to go to the front. –

he is unable to explain how the ear is cut, finding an excuse that the tooth is broken, the tooth is swollen, the flesh of his leg is cut and bruised, lying in check for three days. In the variant of Qodirbakhshi: noskash, , his work is lame, he coughs himself, cunning in the country, ready for slander, the devil's branch..."having learned that there was no substitute for Ahmad, he went on the path of slander [19]. Go to him and say that he took away the girl of the guest who had come, that he was playing the substitute, that he went to the substitute and struck himself, that he even poured his tooth, cut off his ear, that the purpose of Chambil, that the Horn of Gurugli also took away the quirk:

*Лашкар тортиб келаман, деди,  
Туркман элди қираман, деди.  
Кулини совураман, деди,  
Гўрўғлини қовураман, деди.*

The army will come after him.",  
„ I enter Turkmaneli, he said.  
I'll blow up the Ashes, he said,  
I fry the pike, he said.

After the fathers and servants who hired Ahmad to take such a blame slander, there will be no other measure than to believe in him, and the Children of Avaz will give their discretion to Ahmad. In some options, he himself orders to sell. Ahmat, who received permission from Gurugli, went with his young men and tied Nurali, Gulnur, Uzumkuz, destroyed the courtyard of the replacement and sold the grapes in the option of the three /Choribahshi,





to the slave market. All the time someone who called them a malla trader, who once saved them from the tyranny of substitute robbers, buys in Chambill. Only in the variant of quilling, the wife and children of Avazare sold not in the hog market, but in the Egyptian market. This, in our opinion, is more to interpret the absurdity of the oppression of Ahmad the old. Therefore, even in this variant, Nurali, Gulnor and Uzumkuz do not suffer from another person. Perhaps the mallasavdogar will live peacefully until the merchant goes in search of an apartment. The remaining options are continued by the Pirates /Chorshanbibakhshi/ or the rich /Chorshanbibakhshi/ chariot / able to torment them, harass them.

If Ahmad's gone replacement for courage Avaz comes back, his children are sold out. Now he is looking for his wife and children to salt his heart, to find them with difficulty, to punish those who have suffered oppression. When Ahmad hears that Avaz has come, poem in the option of Chorshanbibakhshi finds a substitute even if he enters the skin, poem in the guise of a mulch himself, and whoever gives bread and water until he finds his children, then the head is empty, and the head is dead, say that the mole is in the talov. In the option of Qahhorbakhshi, the fighter climbs the Mountain, replacing the running Ahmad with a fist on his head, goes into the ground to the neck, and the substitute leaves to look for his children, saying that he is dead until I come. In other variants, considering the oldness, it is forgiven with concern that "inside a good there will be one bad". The same old option of a poem by Xushvaqtbakhshi in /also in other poems\ die despite the fact that it provides a good basis the rest of the cause further: "my father I don't know, mother, I don't know, I will be great in the hands of Ahmad. I see as Ahmad both the father and the mother. , there is no purpose raising a hand to the father. What can you say about this? If I do not judge, you can not kill, if I judge, I will be an elder", - said Gurugli, " Yes, Ahmad will not die, even if he commits any crime, because he is an uncle, through Gurugli to the Avaz. Because there is idea in the people: "the uncle is greater than the seven fathers"[20]. When we first commented on this proverb, it was worth it. But in the friendship of Sherabad there is an idea that the uncle is even more valuable if it is disproportionate to the uncle. There is another similar proverb in the people, that is, "support even if your father is a pig". The meaning of these proverbs is that both the father and the uncle are dear. No matter where they are, it is necessary to put their respect in place. By the way, even if the father is bad, it is a sin to have a child call him bad or punish his nephew uncle. The grave of the children of uncle or uncle (regardless of age), who died in the majority of Uzbek seeds, in particular in the

Qungiro, has been preserved until now. Since the time of Mother's seed, this habit has been living. People appreciate the fact that relatives appreciate each other, the alliance. In our opinion, Ahmad's immortality has a broader social basis, that is, if he dies, then the world of evil will end, as long as he is the embodiment of evil. So, as long as there is a reproach, hypocrisy, slander, Ahmad lives, he also goes from the epic to the epic and fights and struggles with the world of good.

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# THE EFFECTIVENESS OF SEISMIC INSULATION OF THE FOUNDATION IN MULTI-STOREY REINFORCED CONCRETE BUILDINGS

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## ANNOTATION

*The dynamic reaction of a building during an earthquake is one of the most important reasons for building damage and deterioration. The main idea of seismic insulation is to protect these buildings and structures from deterioration in the impact of earthquakes, as well as to separate the building from ground shaking by applying an elastic base. As a result of the installation of the insulator in the middle of the foundation and the construction, seismic insulation is carried out. In this study, the resistance of the reinforced concrete building to seismic loads, the basis of which is seismic insulated, that is, the characteristics of the building in which the lead rubber base is used, the operation in the earthquake process of the usual building were compared and theoretically studied. The article focuses on the effectiveness of the foundation seismic insulation system, as well as on the determination of the ground cross-force, the cross-direction and floor displacement of the building. Using El-Centro earthquake records, the operation of the 10-storey iron concrete carcass building in the earthquake process was carried out using the real-time analysis method SAP2000 program.*

**KEYWORDS:** *Foundation insulation, Real-time analysis, El-Centro earthquake, lead-rubber base, SAP2000.*

## I. INTRODUCTION

A large part of the world's population lives in seismic safe areas. Every year, as a result of earthquakes, many people have dried up their pillows and damage their property. Seismic waves are initially observed at the foundation surface of the building. When the wave is transmitted to the building, deformation is observed in the constructions. In most cases after the earthquake, the building becomes unusable. Recently, many researchers and engineers have been trying to design and build buildings in a seismic safe location by reducing or completely stopping the seismic vibrations transmitted to the building.

One of the common methods in the design of the structure resistant to seismic loads is the seismic insulation of the foundation. It is one of the most effective devices that passively control the vibration of structures. The foundation is fixed on a base consisting of layers of insulated construction, which divides the structure and its foundation into two parts. The insulating of the foundation can be izoxified as a construction standing on a frictional sphere. When the earth shakes, the ballad moves in time, but at the top of the structure, the displacement will have a small value. Therefore, when there is a shake, the vibration in the construction is transmitted less often. Insulators are usually designed to absorb energy, through which the building performs the

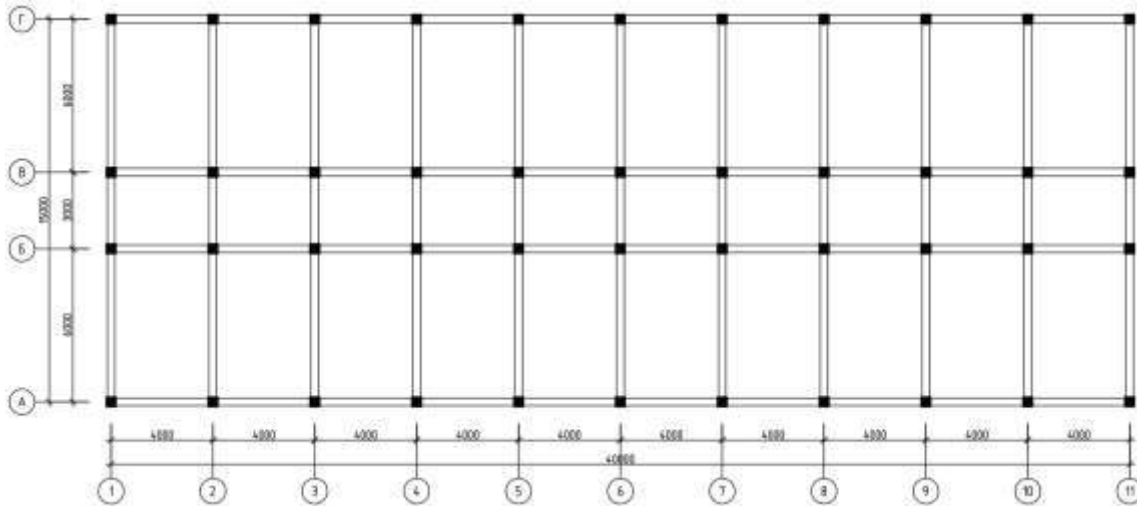


function of a extinguisher. This increases the resistance of the structure to seismic forces in the process of earthquakes.

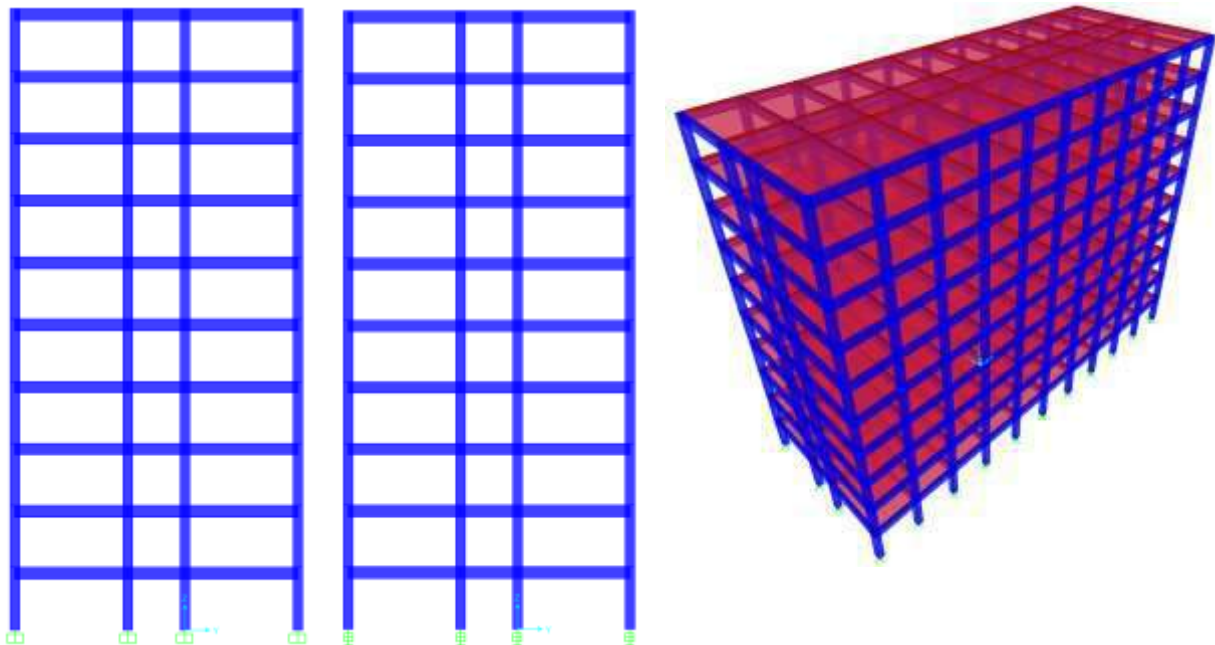
II. Teaching method.

In this article, we will consider the resistance of the 10-storey building with reinforced concrete construction, the foundation of which is seismically insulated and the foundation is stuccoed. The same

loading scheme, the amount of load and the material properties apply to both types, that is, the foundation is insulated and the stucco is fastened to the building. Dynamic characteristics of the building on which the foundation is insulated are studied through the use of a lead-rubber base. The calculation was carried out in the SAP2000 v20 program, as well as the famous El-Centro earthquake records, which occurred in 1940 on the method of real-time analysis.



1-picture. Constructive scheme of the building



a) foundation bikir tightly secured building forty,

b) foundation seismic insulated building forty

c) spatial view of the constructive elements of the building

2-picture. Fortification and spatial view of the building



The building is made up of monolithic reinforced concrete structures, and the orayopma and tomyopma plates are also monolithic. V25 grade heavy concrete and A-Sh grade fittings were used for the elements. Thickness of Orayopma and tomyopma plates  $h=20$  sm, cross-sectional dimensions of the column on all floors  $b \times h=50 \times 50$  CM, rigel cross-sectional size  $b \times h=30 \times 60$  CM. It was considered that

on the  $1\text{m}^2$  surface of the orayopma there is a constant load  $1 \text{ kH/m}^2$ , a temporary load  $3 \text{ kH/m}^2$ , on the  $1\text{m}^2$  surface of the orayopma there are permanent and temporary loads from  $1 \text{ kH/m}^2$ . The dimensions of the building in the plan and the range of arrows are shown in Figure 1. The number of floors is 10 pieces and the floor height is 3.3 m.

**1-Table**  
**Properties of the selected insulator (lead-rubber base) for the account**

Indication	Insulator parameter	Name
V (кН)	3527	Максимал вертикал куч
$K_{eff}$ (кН/м)	1710	Ҳисобий горизонтал бикирлик
$K_v$ (кН/м)	1978000	Вертикал бикирлик
$F_Y$ (кН)	121	Оқувчанлик чегарасидаги куч
$K_D/K_i$	0,1	Бикирликлар нисбати
$K_D$ (кН/м)	1501	Оқувчанлик чегарасидан олдинги бикирлик
$K_i$ (кН/м)	15010	Ноэластик бикирлик

### III. RESULTS AND DISCUSSION

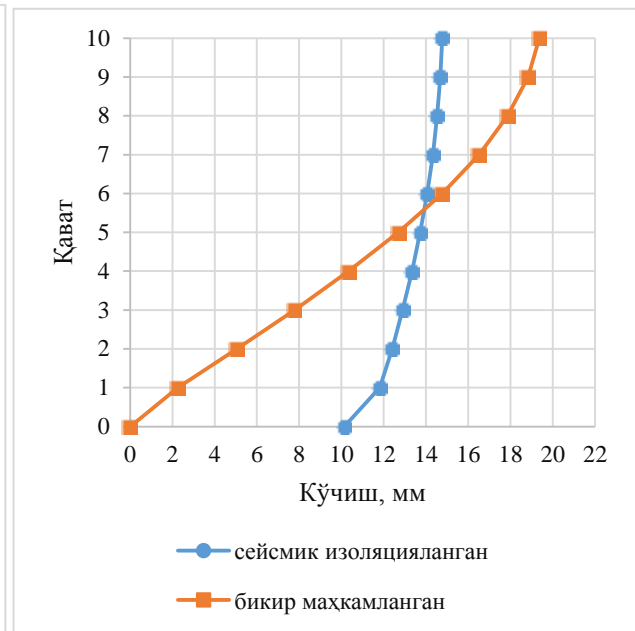
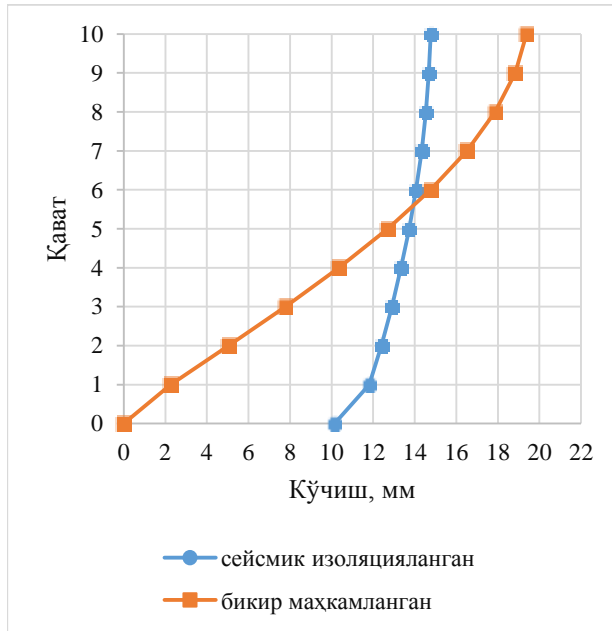
The Results of the horizontal X-and Y-direction shifts were taken from the calculation and were presented in tables 2 and 3.

**2-Table. Full migration in the direction of the X-axis**

Floor	Moving, Mm	
	Tightened	Seismic Insulated
10	19.81	15.06
9	19.09	14.92
8	17.96	14.71
7	16.45	14.43
6	14.59	14.09
5	12.43	13.69
4	10.03	13.23
3	7.45	12.71
2	4.76	12.14
1	2.07	10.45
Base	0	9.57

**3-Table. Full displacement in the direction of the Y axis**

Floor	Moving, Mm	
	Tightened	Seismic Insulated
10	19.37	14.77
9	18.83	14.68
8	17.87	14.53
7	16.51	14.33
6	14.77	14.06
5	12.70	13.73
4	10.35	13.34
3	7.78	12.90
2	5.05	12.40
1	2.26	11.81
Base	0	10.14



**1-graph. Displacement of the structure by the X-axis, 2-graph. Displacement of the structure by the Y-axis,**

1 and 2-as can be seen from the graph, in a sturgeon-tight construction, the displacement is zero at the foundation surface and sharply increases to the top floor. And in the case of a foundation-insulated construction, due to the fact that the insulator is used,

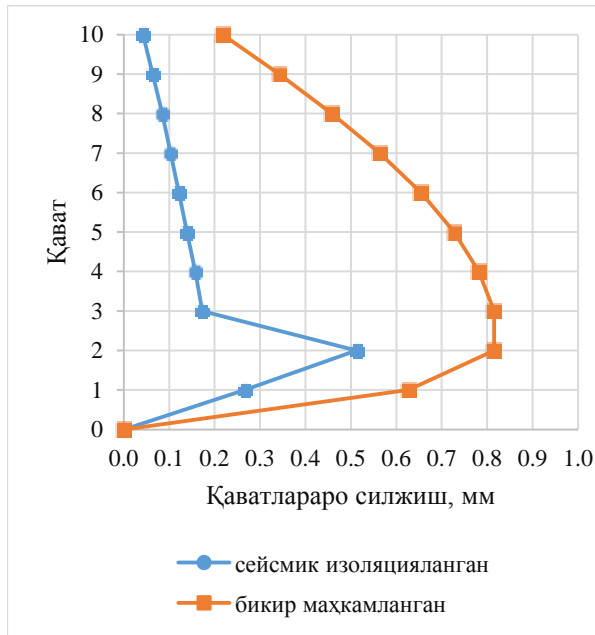
it increases the elasticity of the construction on the foundation surface, the displacement on the foundation surface starts from 10 mm, and the migrations grow slowly until the highest surface.

**4-жадвал. Full migration in the direction of the X-axis**

Floor	Moving, mm	
	tightened	seismic insulated
10	0.22	0.04
9	0.34	0.06
8	0.46	0.08
7	0.56	0.10
6	0.65	0.12
5	0.73	0.14
4	0.78	0.16
3	0.82	0.17
2	0.82	0.51
1	0.63	0.27
Base	0	0

**5-жадвал. Full migration in the direction of the Y axis**

Floor	Moving, mm	
	tightened	seismic insulated
10	0.16	0.03
9	0.29	0.05
8	0.41	0.06
7	0.53	0.08
6	0.63	0.10
5	0.71	0.12
4	0.78	0.13
3	0.83	0.15
2	0.85	0.18
1	0.68	0.51
Base	0	0



**3-graph. Stir the floors of the building on the X axis**

3 and 4-the graph shows that the floor stir will be of great value in the first 3 floors, and in the remaining floors the value will gradually decrease. It can be seen that in a seismic insulated building, the amount of silcification is also significantly reduced compared to a stucco-clad building.

#### IV. CONCLUSION

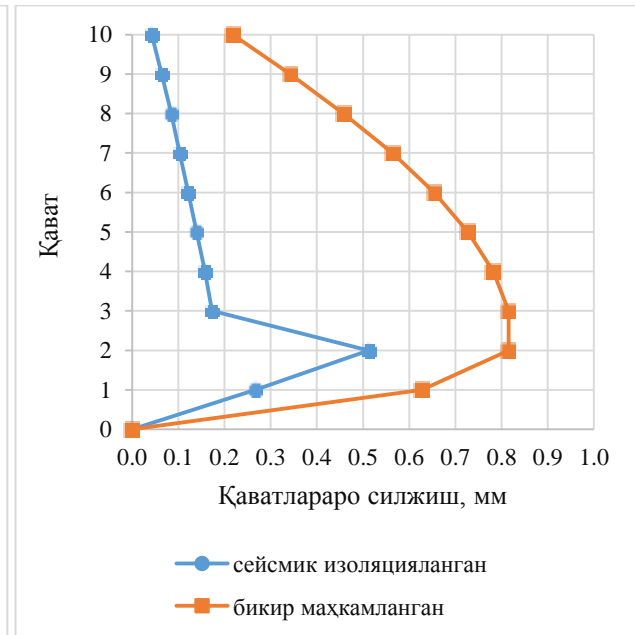
The following conclusions can be drawn from this article on the application of the foundation insulation system in constructions:

24% decrease in the top floor landslides when using the method of real-time analysis for a El-Centro earthquake, the resistance of a 10-storey reinforced concrete carcass building to seismic forces is studied;

the floor foundation in the insulated building is reduced by 82 % compared to the usual building stir;

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**4-graph. Stir the floors of the building on the Y axis**

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## **TO ANALYZE WHICH LOCATION THE BARRIER APPLIED TO REDUCE THE VIBRATION WAVES GENERATED FROM RAILWAY TRAINS WILL BE MORE EFFECTIVE IF THEY ARE DESIGNED**

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### **ANNOTATION**

*The article examined the distribution of vibration waves during the movement of railway trains on the ground and in building structures. In order to reduce the level of vibration waves, a barrier is placed. The effectiveness of the set was analyzed. Come to the flat issue of the theory of elasticity, the issue is solved by the method of finite elements.*

**KEYWORDS:** *vibration waves, harmonic load, semi-plane, relief, grunt, construction, theory of elasticity, amplitude, building, model, boundary conditions, barrier, rail.*

### **DISCUSSION**

As of now, the number of the population is growing year-over-year. As a result of this, there is a reduction in the land allocated for construction. This, in turn, requires consideration of the issue of reducing the boundaries established in the normative documents around the railways. The construction of buildings near railways at a distance of at least 50 m is listed in the normative documents. The vibration and noise absorption generated by the movement of trains is 50-100 m. If the distance to the transport facilities is reduced, then the possibility of productive use of these places is formed. If the distance is reduced, it is observed that the vibrations generated from the train movement have a very large negative impact on the health and labor productivity of people living near the transport facilities, as well as on technological processes [4].

The purpose of the vibration assessment is to determine the measures to reduce the impact in the proposed project, in the areas where the resulting vibration may have a negative impact. To do this, we determine the displacement values that are formed as a result of vibration on the surface of the Earth and under the ground, building structures.

This research work is an expression from determining its effectiveness by creating a barrier at a certain distance from the building so that the vibrations in the buildings located near the railway station do not exceed the norm level.

The results of the research work carried out in this area indicate that, as an obstacle, it was determined that when using reinforced concrete contracts, various materials, they did not have a high ability to absorb vibrations [5;6;7;8]. In the study, computational work was also performed on materials such as local materials (construction waste, sand, penoplast) as a barrier but the vibration level did not decrease significantly. The open



trenches used to absorb the vibrations gave positive results. It is for this reason that the effectiveness of open tranche barrier has been studied in this research work.

At a distance of 20 meters from the railway station, the building was placed. The foundation of the building is located 2 m below the road level line, the building is designed as two-storey and full-fledged. A tranche was dug between the railway station and the building. We will analyze the effectiveness of locating at different distances from the railway station of tranche. Tranche width was taken as 1 m, depth 5 m, the area under investigation was divided into 854 elements. (Picture 1)

To do this, we bring the issue to the flat matter of the theory of elasticity. According to the results of the experiment, the vibration of the grunt is subject to harmonic law, and since the vibration amplitude is very small, we see the issue as linear[9;10].

Taking into account the physico-mechanical characteristics of the material under the influence of a pair of harmonic particle, which is placed on the free boundary of the semi-plane, we determine the displacements in the floors and columns of the buildings. In this matter, we replace the infinite half-plane with the finite sphere [1]. In this AC, CD and DM at the borders (Figure 1) the following conditions have been established that ensure waves seek infinity at the AC and CD [2].

$$\text{in } AC \quad \left. \begin{array}{l} \sigma = \alpha \rho V_p \dot{v} \\ \tau = \beta \rho V_s \dot{u} \end{array} \right\}, \quad \text{in } CD \quad \left. \begin{array}{l} \sigma = \alpha \rho V_p \dot{u} \\ \tau = \beta \rho V_s \dot{v} \end{array} \right\}$$

In there  $\sigma$  and  $\tau$  – normal and surge voltages;  $\dot{u}$  and  $\dot{v}$  – projection of the speed of the boundary points on the arrows;  $V_p$  and  $V_s$  –  $P$  and  $S$  speeds of waves ;  $\alpha$  and  $\beta$ – parameters without dimensions;  $\rho$ –is the density of the material.

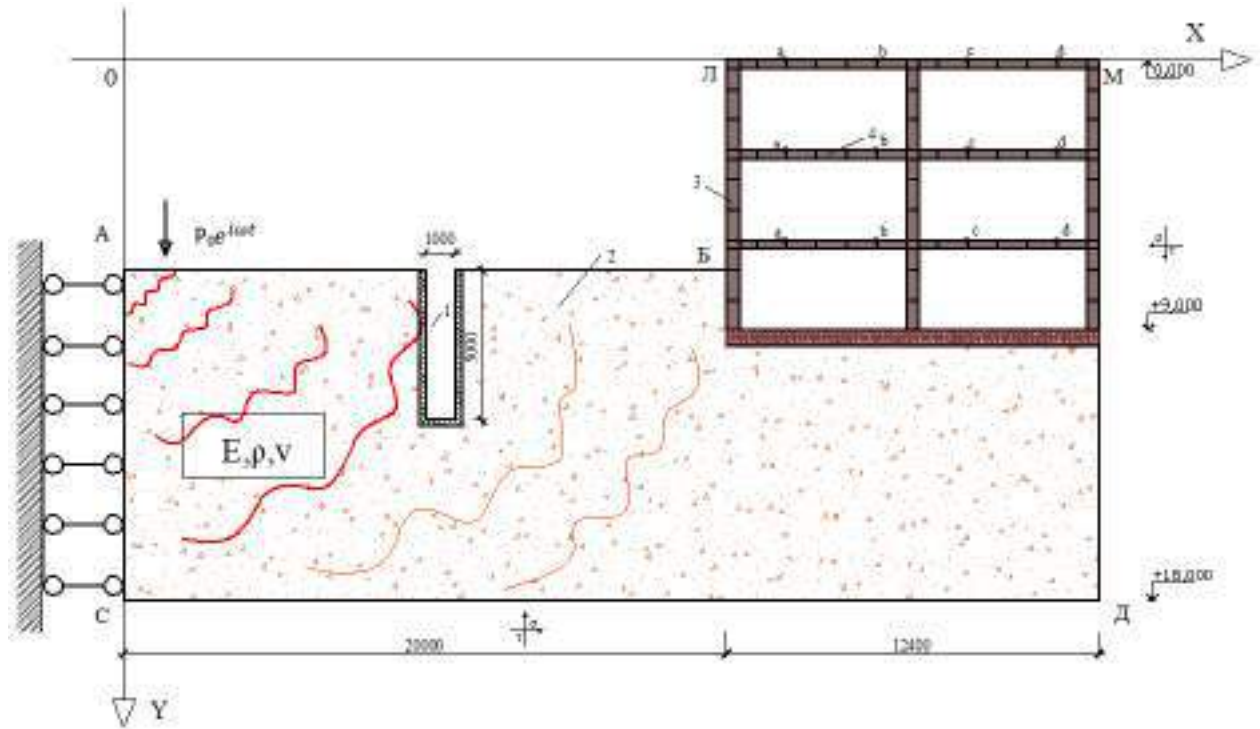
To solve the issue, we use the method of finite elements.

We write the equation of motion as follows [3]:

$$[M] \left\{ \ddot{u}(t) \right\} + [C] \left\{ \dot{u}(t) \right\} + [K] \left\{ u(t) \right\} = \{P(t)\} - [\Gamma] \left\{ \ddot{u} \right\} . \quad (1)$$

In this:  $[M]$  ,  $[C]$  and  $[K]$  – system mass, dempfir and bikr matrices, respectively;  $\{u(t)\}$ ,  $\{p(t)\}$  – node migration and vectors of impacting forces;  $[\Gamma]$  – diagonal matrix, taking into account the conditions of the boundary [3].

The finite dynamic model of the problem-solving sphere can be seen in the picture below.



**1-picture. Accounting scheme for solving the issue**

Here are the types of material with the numbers 1, 2, 3 shown (listed in Table 1), the nodes investigated with the letters a, b, c, d are marked. The checked nodes are located at a distance of  $a=22$  m,  $b=2$  m,  $c=28$  m and  $d=31$  m from the railway station.

The results of the calculations are shown in Table 2 and graphs when designing the railway station at distances of 4m, 7m, 10m and 13m. In this matter, the type of grout is taken as the same for both cases.

The elasticity module and Poisson coefficients in solving the issue were obtained in the table below.

1-жадвал

№	type of material	Elastic modulus - E, H/sm <sup>2</sup>	Specific weight - ρ, kg/m <sup>3</sup>	The Poisson coefficient - ν
1	vacuity	0	0	0
2	sandy-gravel grout	2850	1800	0,35
3	Iron-concrete	200000	2500	0,15

Suppose that the external acting power frequency is given in the form of a harmonic function  $\omega$

$$\{P(t)\} = \{P_o\} e^{i\omega t} \tag{2}$$

The reaction of the system for a stagnant process will be as follows

$$\left. \begin{aligned} \{u(t)\} &= \{\bar{u}\} \cdot e^{i\omega t} \\ \{\dot{u}(t)\} &= i\omega \{\bar{u}\} e^{i\omega t} \\ \{\ddot{u}(t)\} &= -\omega^2 \{\bar{u}\} e^{i\omega t} \end{aligned} \right\} \tag{3}$$



Now, if we put (2) and (3) into the equation of motion (1), we will have a system of time-dependent complex algebraic equations

$$[K] \{\bar{u}\} = \{P_o\}. \tag{4}$$

Here  $\{\bar{u}\}$  –vector of the amplitude of vibration;  $\{P\}$  – vector of the amplitude of the acting force.

By the Gaussian method (4) solve the equation, the constant complex amplitude vector of the system is determined.

$$\{\bar{u}\} = \{\bar{u}_1, \bar{u}_2, \bar{u}_3, \dots, \bar{u}_N\}. \tag{5}$$

Here N- is the degree of freedom of the sphere. Real migrations are determined by the following formula.

$$\{u(t)\} = \text{Re}\{\bar{u}\} \cos \omega t + \text{Im}\{\bar{u}\} \sin \omega t \tag{6}$$

The die of the amplitudes of the vibrations on the surface of the grunt has quenching and nomotonic character, away from the polotno axis.

Taking the nodes shown in Figure 1 from each floor of the checked buildings were considered for cases where the load frequency  $\omega = 10\div 50$  Gts.

**2-Table**

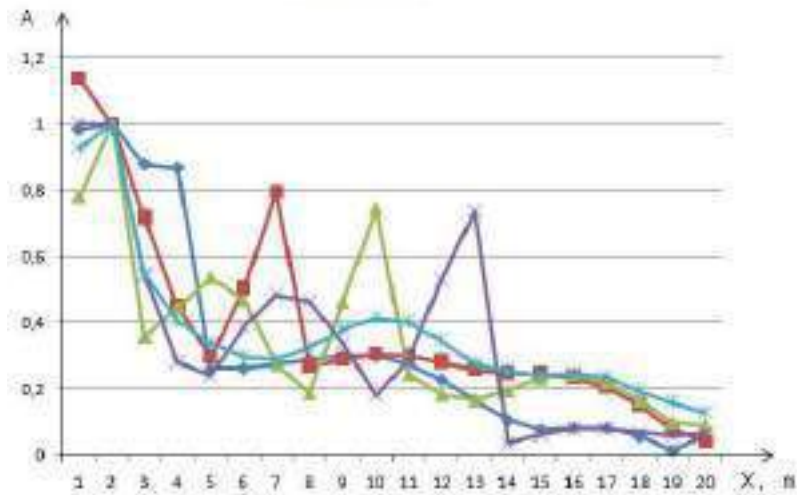
№	Checked nodes	Tranche 4m distance	Tranche 7m distance	Tranche 10m distance	Tranche 13m distance
1-floor $\omega = 20$ Gts	a	0,09558	0,10072	0,15388	0,09503
	b	0,02386	0,01901	0,02237	0,04001
	c	0,04548	0,02627	0,02865	0,00547
	d	0,00509	0,0039	0,00475	0,00154
2-floor $\omega = 20$ Gts	a	0,10309	0,10232	0,15071	0,08707
	b	0,01093	0,00889	0,01799	0,01553
	c	0,0341	0,03266	0,0531	0,03476
	d	0,00295	0,0102	0,01106	0,00844
wall coating floor $\omega = 20$ Gts	a	0,11009	0,10421	0,14842	0,08047
	b	0,02941	0,04119	0,04031	0,05275
	c	0,0156	0,04796	0,07309	0,07033
	d	0,0031	0,01413	0,01705	0,01805
1-floor $\omega = 30$ Gts	a	0,02926	0,02391	0,01234	0,00816
	b	0,01098	0,00212	0,00606	0,00938
	c	0,01616	0,01702	0,00291	0,00729



	d	0,00374	0,00458	0,00163	0,00081
2-floor $\omega= 30$ Gts	a	0,03346	0,02321	0,01362	0,00855
	b	0,00739	0,00602	0,00503	0,00917
	c	0,01661	0,00769	0,0125	0,01091
	d	0,00738	0,00497	0,00263	0,00268
Wall coating floor $\omega= 30$ Gts	a	0,03814	0,02296	0,0172	0,01035
	b	0,01762	0,01046	0,00891	0,00868
	c	0,01253	0,01011	0,00417	0,00455
	d	0,00605	0,00439	0,00291	0,00197

Биногача бўлган грунтда очик траншеялар ҳосил қилингандаги тугунларнинг кўчишлари

частота 20 гц

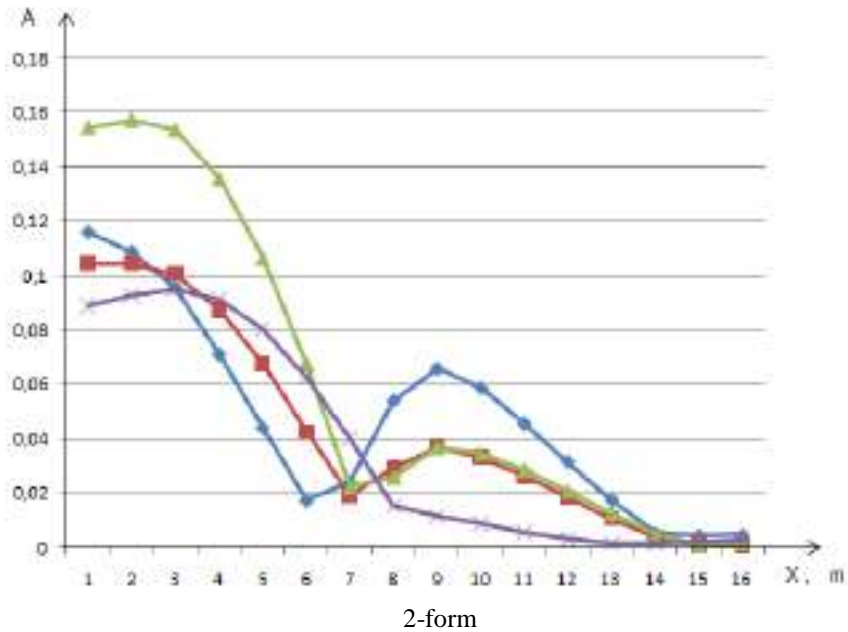


1-form

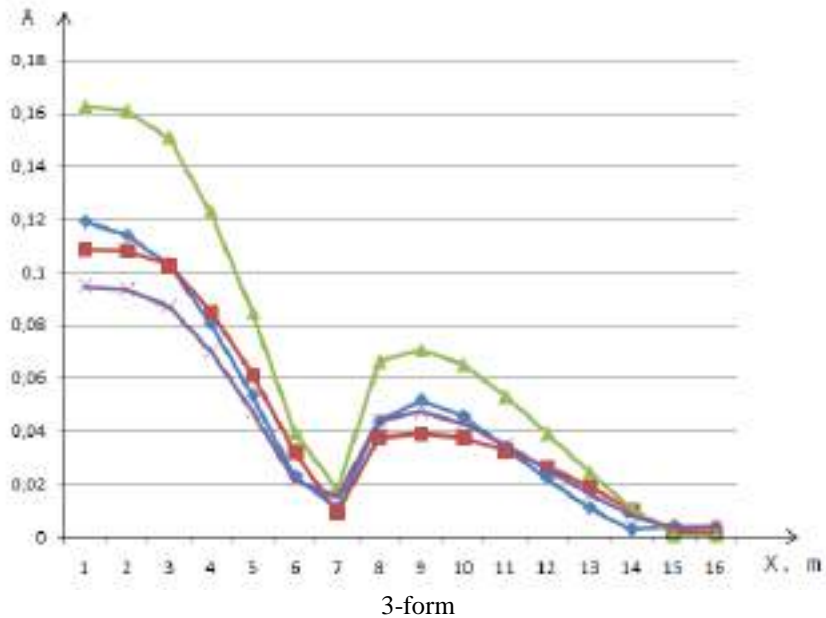




Бинонинг биринчи каватидаги  
туғунларнинг кўчишлари  
частота 20 Гц

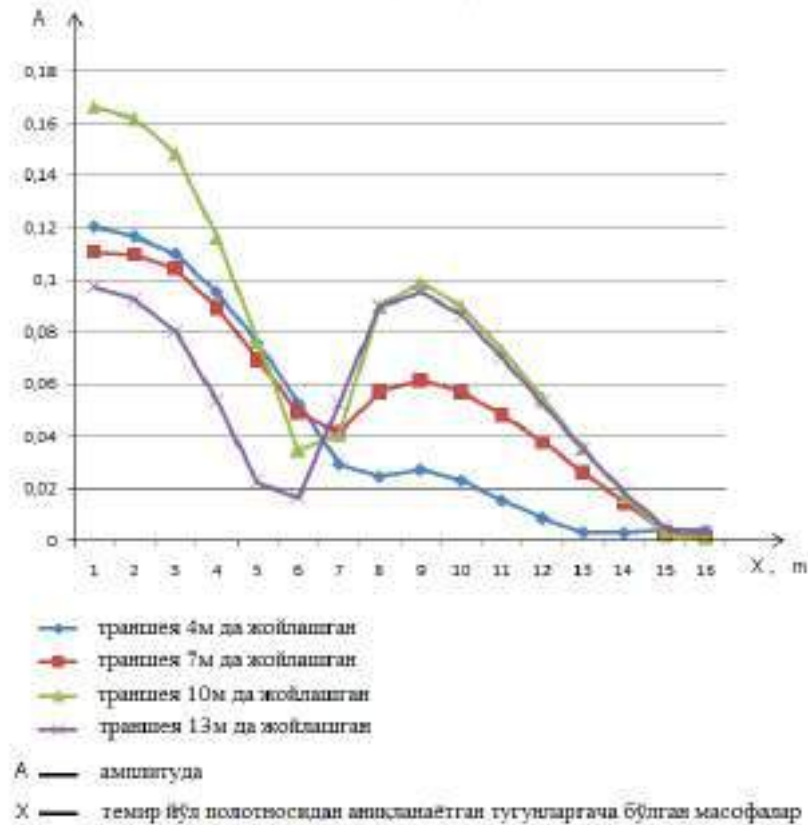


Бинонинг иккинчи каватидаги  
туғунларнинг кўчишлари  
частота 20 Гц



Бинонинг том ёпма каватидаги  
тугунларнинг кўчиши

Частота 20 Гц



4-form

We check the migrations when the frequency is at 20 Gts, when the tranche is at 4, 7, 10, 13 m distances. For the first floor, in node a, we compare it to the values of the displacement in the tranche at a distance of 4m. At a distance of 7m from polотно, the vibration rate increased by 5,3%, at a distance of 10m the vibration rate increased by 60%, while at a distance of 13m the vibration rate decreased by 1%. When we finished b, it decreased by 7m at a distance of 20%, decreased by 10m at a distance of 6,3%, increased by 13m at a distance of 40,4 %. In stock, there was a decrease of 7m at 42%, 10m at 37%, and 13m at 87%. We check the changes in the d node. At a distance of 7m decreased by 13,4%, at a distance of 10 m to 6,7% and at a distance of 13m to 70%.

When analyzing the results of the study, the moving load frequency was found to be effective at  $\omega=10 \div 20$  GHz, compared to the trains at 4m in 7m, 10m and 13m which means that the number of migrations was determined to be small.

The above condition change was observed when the load frequency was greater than 30 Gts. The numerical value of the migrations became smaller, and the efficiency of the tranche, located at a distance of 10 m, was better than others.

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## **IMPROVING THE METHODOLOGY OF TEACHING ENGLISH IN THE HIGHER EDUCATION SYSTEM**

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### **ABSTRACT**

*Now to achieve a high social status requires a lot of diligence, perseverance and daily work. Based on the fundamental methodology of teaching English, teachers today use the linguo-socio-cultural method in teaching. In this article highlights of improving the methodology of teaching English in the higher education system.*

**KEYWORDS:** *teaching methods, English, innovation, classical method, linguosociocultural method.*

### **DISCUSSION**

Language teaching has become applied, whereas previously it was relatively theoretical. Aristotle also brought out the famous triad of teaching ethics, which perfectly correlates with modern requirements: logos - the quality of presentation, pathos-contact with the audience, ethos-attitude to others. This rule is true for the speaker, for the actor, and for the teacher of a foreign language, whose role involves the first two hypostases.

The functions of a teacher in the educational process have changed significantly. The teacher-mentor is not able to give students the freedom of choice and provide the necessary "freedom of learning" in understanding such a subtle matter as language. He was replaced by a teacher-observer, a teacher-mediator, a teacher - "pacifier" and a teacher-leader. Although the personality of the teacher in this case fades into the background, its influence on the audience does not decrease, but, on the contrary, increases.

Progress and fundamental changes in language learning methods are undoubtedly associated with innovations in the field of personality and group psychology. The psychological factor of learning foreign languages is promoted to a leading position. Authenticity of communication, balanced demands and claims, mutual benefit, respect for the

freedom of other individuals-this is a set of rules for building constructive relationships in the "teacher-student" system.

In the classroom, the student is no longer restricted in the choice of speech tools and their own speech behavior. The teacher is also not constrained in the choice, since there are a huge number of teaching methods and techniques - from games and trainings to simultaneous translation, in the organization of classes, in the choice of textbooks and manuals. The teacher can now select, create, combine, and modify learning materials using various methods.

The fundamental method is really the oldest and most traditional method used in learning a foreign language. It allows you to thoroughly know phonetics, understand visual images of syntactic structures, and have a mandatory vocabulary. Studying using the classical method, students not only operate with a wide variety of lexical layers, but also learn to look at the world through the eyes of a native speaker. When using this method, the teacher's tasks include traditional but important aspects of pronunciation, grammar formation, and elimination of psychological and language barriers that hinder communication.

The classical approach is based on the understanding of language as a real and full-fledged



means of communication, which means that all language components - oral and written speech, listening - need to be developed in students systematically and harmoniously. This comprehensive approach is primarily aimed at developing students' ability to understand and create speech. A teacher who is not a native speaker has the ability to analyze and compare two language systems, compare constructions, better convey information, explain grammatical rules, and prevent possible errors. The greatest value in the modern world is represented by teachers who are able to think in the context of two cultures and convey to students the appropriate set of knowledge.

The next important and comprehensive method of learning a foreign language is linguosociocultural. Proponents of this method firmly believe that a language loses its life when teachers and students aim to master only lexical and grammatical forms. It is believed that a person is a product of culture. Language, too, because it is a powerful social tool that forms the flow of people into an ethnic group, forming a nation through the storage and transmission of culture, traditions, and social consciousness of this speech complex.

In this approach to language, cross-cultural communication is, first of all, an adequate understanding of two interlocutors exchanging information, belonging to different national cultures, a sign of belonging of its speakers to a certain society. This method allows you not only to monitor the correctness of speech, but also to strive to increase its content. This method includes two aspects of communication - language and intercultural].

Therefore, a high level of reading, writing, and translation is not so important for a student, but also linguistic and socio - cultural competence - it is the ability to "dissect" a language under the microscope of culture.

The advantage of modern foreign language teaching is its practical orientation. If in the traditional system of education, the main attention in the classroom was focused on learning the theory of the English language and this was given up to 90% of the time in the classroom, today students read stories, translate them, do written exercises, listen to audio, watch video lessons. The main thing here is the development of conversational skills. Therefore, the role of a teacher who can clearly explain the material, correct and explain students' mistakes, and help them understand something if necessary. This form of training includes a huge amount of conversational practice, which will help you speak English not only in class, but also in your free time, completely immersed in the language. This means that teaching a foreign language today has acquired an applied

character, while previously it was relatively theoretical. The functions of a teacher in the educational process have changed significantly. The teacher-mentor, the teacher-dictator is not able to give students the freedom of choice and provide the necessary freedom of teaching in the comprehension of such a subtle matter as language. He was replaced by a teacher-observer, a teacher-intermediary, a teacher-leader. Although the teacher's personality in this case fades into the background, his influence on the audience does not decrease, but, on the contrary, increases.

The next important element in learning a foreign language is choice. In the classroom, the student is not limited in the choice of speech means and their own speech behavior. The teacher can now select, create, combine and modify educational material. Language universities rely heavily on this fundamental methodology. The translator never confident in their knowledge of a foreign language, he understands the unpredictability of emerging speech situations. Studying using the classical method, students not only operate with a wide variety of lexical layers, but also learn to look at the world through the eyes of a "native speaker" - a native speaker. The teacher's tasks include traditional but important aspects of pronunciation, grammar formation, and elimination of psychological and language barriers that prevent communication. The classical approach is based on the understanding of language as a real and full-fledged means of communication, which means that all language components - oral and written speech, listening-need to be developed in students systematically and harmoniously. This comprehensive approach aims to develop students' ability to understand and create speech.

The teacher can analyze and compare two language systems, compare constructions, and explain grammatical rules. Therefore, today a specialist who speaks two languages is valued. This means that bilingualism (knowledge of two languages) is a priority [2]. The greatest value in the modern world is represented by teachers who are able to think in the context of two cultures and convey to students the appropriate set of knowledge. One of the most comprehensive methods of learning a foreign language is linguosociocultural, which involves an appeal to such a component as the social and cultural environment. Since personality is a product of culture, so is language. The linguosociocultural method allows you to monitor the correctness of speech and aims to increase its content. This method includes two aspects of communication - language and intercultural. In philology today, the concept of "bicultural" has appeared - a person who easily





navigates the national history, culture, customs of two countries and civilizations.

The key positions are taken by designing and implementing a productive educational and language environment, as well as using effective linguodidactic technologies. They will ensure the systematic organization of a productive educational process of an innovative nature that meets the quality standards of higher education. This pedagogical concept makes it possible to change the mutual positions of teachers and students; to use a flexible, highly effective assessment system; to expand the structuring of the learning content; efficiently select adequate methods and techniques of mastering a foreign language, as well as the means and forms of education; provide individualized instruction; to create the most favorable conditions for the development of the individual student through the scalability and flexibility of the teaching content, to adapt the didactic system to the individual needs of the student and the level of basic language training.

An intensively developing area in the methodology of teaching English is the use of information and communication technologies that have a high linguodidactic potential and are characterized by polyfunctionality. Interactive teaching methods not only allow each student's abilities to manifest themselves, but also actively contribute to their formation and improvement.

Communication skills and group work skills largely ensure the psychological and pedagogical competence of the individual and the achievement of life success. In particular, they provide an opportunity to create a situation in which students would independently discover and design teaching technologies. The value of such a developed skill in the process of forming professional competencies and in social practice is beyond doubt. Conventional forms of educational work have somewhat limited opportunities to activate the position of the teacher, since he is always in a state of learning. Non-traditional forms of study, in one case, put him in the position of Director in the other - in the position of teacher in the third - to the position of consultant, in the fourth scientist in the sixth - legislator, etc. The more diverse the roles performed by the student and the position they occupy in the activity, the more diverse the personality of the future specialist develops, his mental activity becomes systematic, a creative, interested approach to activity is formed, and flexibility of thinking and actions is developed.

The importance of using interactive teaching methods in the educational process is primarily to improve the quality of training of future specialists. The choice of methods was determined by the goals of training, the content of educational material, professional motivation, the need to develop

communication skills and skills needed in practice. All these requirements are best met by active teaching methods that are based on a psychological and pedagogical component: reading problem lectures and reports with the active participation of students themselves, conducting educational games, tests, questionnaires, individual conversations and trainings, organizing work in pairs and in teams.

Interactive teaching methods are very effective when conducting seminars. Among them, first of all, we can distinguish the "method of discussion in small groups". The use of interactive teaching methods in the formation of professional competencies in specialized disciplines allows you to attract interest in both core subjects and real processes: to form the need to take a professional active life position; to adapt to complex conditions.

The solution of new tasks of pedagogical activity is associated with the creation and use of the most effective interactive methods and forms of training, which is based on the psychological and pedagogical component.

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